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THE UNION CAVALRY.*

THIRTY years ago this great nation, now so happy, prosperous and united, rent and torn by the dissensions of political parties, was trembling upon the verge of civil war. The South, conscious that its wealth, represented by human chattels, was menaced by the humane influences of an advancing civilization, resolved to disrupt the Republic and set up a government of its own, the cornerstone of which should be slavery. The sword once drawn, no recourse remained but a fight to the bitter end. The hostile lines were arrayed, and all the resources of a mighty people, material and intellectual, were for four long years devoted to harsh and unrelenting war. It is impossible that such a struggle could have been wanting in valuable lessons in the art of war, or that no substantial improvement in that art should have been made. And yet such is the strength of old world prejudice that we find the nations of Europe steadily ignoring the lessons set before them, preferring to acquire the same knowledge at the expense of lives sacrificed on bloody fields of battle.

In no branch of the military art was greater advance made than in the use of cavalry, and I will endeavor, so far as may be practicable within the limits of this paper, to invite attention to the peculiar qualities which distinguished the Union cavalry in the War of

*Read before the Wisconsin Commandery, M. O. L. L. U. S., February 4, 1891.

C. C. C. Carr.
Solitor.

the Rebellion, to some of its achievements, and to indicate the origin of its remarkable efficiency. For four centuries, or since the invention of gunpowder, the great masters of the art of war had sought in vain to produce a soldier that could do effective fighting both on horseback and on foot. It remained for the qualities essentially necessary to this type of soldier to be found in the American cavalryman, whose intelligence, untrammelled by any sentimental ideas or traditions, prompted him to make vigorous use of all the offensive powers in his possession to accomplish the object which he kept steadily in view—the defeat and overthrow of his enemy. This versatility of resource gave to the cavalry a power of independent action which under skillful leadership was destined to achieve the most important results, and to mark an epoch in the history and development of the cavalry arm. The origin of these distinguishing characteristics is to be looked for in the nature of the service for which the cavalry of our regular establishment was organized. The effect of that service was to fix so indelibly its character that subsequently in its association with the nation's volunteers it was enabled to leave its unmistakable impress. This cavalry force owed its origin to no desire of the people to possess a showy and dashing body of horsemen for parade purposes, but was the outgrowth of the stern necessity which compelled the pioneers of western civilization to fight for every foot of ground which they occupied. By those pioneers the soldiers of the regular army were welcomed as staunch and faithful allies, and, united as they were by the bond of common dangers and hardships, they possessed mutual feelings of kindness and respect.

The mounted force of the regular army in April, 1861, consisted of two regiments of dragoons, one of mounted rifles and two of cavalry. This force was augmented by an additional cavalry regiment, organized by the President in May, 1861, and confirmed by a subsequent Act of Congress. By the Act of May 31, 1861, the whole mounted force was designated as cavalry, the regiments being numbered consecutively according to the date of their respective organizations.

The First Dragoons, now the First Cavalry, was organized by the Act of March 2, 1833, its first Colonel being that distinguished pioneer, statesman and soldier, HENRY DODGE, of Dodgeville, Wis., who resigned its command July 4, 1836, to become the first Governor of the Territory of Wisconsin. He was succeeded by the Lieutenant-Colonel of the regiment, that other distinguished soldier so identified with the progress of western civilization, STEPHEN WATTS KEARNY.

The history of the First Dragoons from the date of its organization to the outbreak of the war with Mexico, includes service in nearly every Territory west of the Mississippi, and in its numberless encounters with the wild tribes of the West its officers and men were educated to make use of the stratagems of their wily foe, and in that self-reliance which is the attribute of the American soldier, submitting cheerfully to all privations and sacrifices, and without prejudice making use of any and all legitimate means of success. The regiment as a body had not the good fortune to be permitted to share in the glorious victories of our armies on Mexican soil. Six companies formed a part of the Army of the West, which, under General KEARNY, marched from Fort Leavenworth in the spring of 1846 to the conquest of New Mexico, Chihuahua and California, and after the fall of Santa Fé accompanied that General through the unknown deserts of Arizona to California. On this march, other resources having failed, the regiment was mounted on mules taken from the dismantled wagon trains, and at the end of a march of fearful hardship, encountered and defeated, after a severe engagement, at San Pasqual, Cal., a superior force of Mexican cavalry—the character of its mount in no way injuring its efficiency.

Those fortunate companies which accompanied our victorious armies of invasion took their full share of the work, as also the glory won by the cavalry in those brilliant operations. From the close of the war until 1861 the fragments of the regiment were scattered from New Mexico westward to the Pacific Coast, and as far north as the British line. At the outbreak of the war the First Cavalry was probably in no respect superior to the other mounted regiments of the army, and yet, as the oldest organization, it seemed to possess some of that staidness and solidity of character which we associate with age, and to be imbued with a sense of the importance of exemplifying in its character the solid and enduring qualities of steadiness and reliability, rather than to seek the applause which follows dashing and brilliant actions.

The Second Regiment of Dragoons was organized by the Act of May 23, 1836. The character of its service was much the same as that of its elder brother, the First. It had, however, in the first years of its existence, an exceptionally hard experience in the everglades of Florida, where BILLY BOWLES, SAM JONES, TUSTANUGGE and other redoubtable and cunning chieftains led its troopers many a weary tramp through malarious swamps, under a tropical sun, where the conditions were almost inconceivably adverse and cruel. A harsh school, but one which launched the new regiment upon its

career with the conviction that no difficulties were too great to be conquered by patient and courageous effort. In a spasm of economy Congress in 1842 decided to forego the expense of giving this regiment a remount and converted it into a regiment of mounted riflemen, a mistake which was corrected two years later by restoring its horses and former designation.

The years following the Florida War found the Second doing efficient service in the south-west, and upon the outbreak of the Mexican War in convenient proximity to the field of operations, all of the companies but one, with its Colonel, WILLIAM S. HARNEY, in command, forming a part of the army of occupation under General TAYLOR. After rendering most valuable and important services in the early operations of this army, the charge of MAY's squadron at Resaca de La Palma being the most brilliant incident, six of its companies were transferred to the army of invasion under General SCOTT, so that the regiment was represented on every battle-field of the war. After peace was declared four of the companies marched to California, but in 1849 were sent East for recruitment. The regiment continued its service in Texas and New Mexico until the troublous times in Kansas brought it into that region, whence it marched, in the fall and winter of 1857 and 1858, to Utah—a march of great hardship and suffering. The headquarters of the regiment remained in Utah from this time until the outbreak of the Rebellion, its companies, however, being scattered from Kansas to Oregon. It was a perfect type of the mounted force of the regular army, unexcelled in efficiency and *esprit*, and justly proud of its traditions and record of service.

The regiment of Mounted Rifles was organized upon the declaration of war with Mexico. It was unfortunate in losing its horses while *en route* to Vera Cruz by a severe storm in the Gulf of Mexico, and so, with the exception of one company, served dismounted to the close of the war. For a new regiment its services were exceedingly efficient and distinguished, it being conspicuous in every battle of the campaign from Vera Cruz to the City of Mexico; the storming of the Belen Gate, where its Colonel—LORING—lost an arm, being an achievement of exceptional brilliancy. In the years following the Mexican War the service of the Rifles was mainly in Texas, where, in its operations against the hostile Comanches, Kiowas and Lipans, it worthily maintained the standard which had been fixed by its predecessors the Dragoons. By a combination of circumstances the Rifle Regiment was deprived of taking an active part in the notable campaigns of the Rebellion, and its services

rendered on the border during this period are overshadowed by the magnitude of contemporaneous events.

The necessity for an additional force for the protection of our extended frontier becoming increasingly apparent, two new cavalry regiments were raised by the Act of March 3, 1855. The political condition of the country was well represented in the *personnel* of the officers appointed to these regiments. JEFFERSON DAVIS, then Secretary of War, embraced the opportunity to provide for his political adherents among the southern volunteers who had won distinction in Mexico, and a large proportion of the original vacancies were filled from this class. A sprinkling of civilians from northern States, who had served in the late war, was thrown in, and the number completed by selecting for promotion officers from other regiments of the army, the South being well represented. That excellent judgment and care was exercised in the selection of these officers is evident from the large number who were afterwards found among the distinguished generals of the Civil War. ROBERT E. LEE, the two JOHNSTONS and WILLIAM J. HARDIE, of Confederate fame, were field officers of these regiments, as were also the Union patriots, SUMNER, SEDGWICK, THOMAS and EMORY. These two regiments also gave to the Confederate side the cavalry leaders, STUART, LOMAX and RANSOME, and to the armies of the Republic, STONEMAN, STANLEY, BAYARD and PLEASANTON.

From its organization until the spring of 1861 the Second Cavalry was stationed in Texas, where it was incessantly engaged in expeditions against the hostile Comanches, and in defending the border against the forays of the Indians and scarcely less savage banditti from across the Rio Grande. When the traitor TWIGGS sought to transfer the resources of the military department under his command to the insurgents, the regiment, in March, 1861, made its escape, and having rendezvoused at Carlisle Barracks, was promptly recruited and equipped for the field. The service of the First Regiment during the same period was in Kansas and New Mexico, a portion of the regiment participating in the Utah expedition. In addition to its successful campaigns against the Cheyenne and Kiowa Indians, the regiment rendered important service in the preservation of peace between the warring factions of unhappy Kansas.

Although the service of these two regiments was identical in character to that of the Dragoons they appear to have been influenced to some extent by their designation, and to have placed a greater reliance upon the distinctive cavalry weapon—the saber. In preparation for a campaign against the Cheyenne Indians, in the spring

of 1857, Colonel E. V. SUMNER caused the sabers to be sharpened, and that this was no idle pretence was afterward made apparent when, on the 29th of July the same year, he led six troops of his regiment to the charge with drawn sabers against a superior force of Cheyenne warriors in battle array. The result was the complete rout of the Indians, who fled, abandoning their villages and all their belongings. The greater portion of this regiment which, in the reorganization was designated the Fourth, remained on the frontier until the close of the year 1861, and its fragments were not finally assembled until the spring of 1862, from which period it became identified with the Army of the Cumberland.

The new regiment organized by the President in May, 1861, and afterwards designated the Sixth Cavalry, was officered chiefly by transfers from the line of the army, cavalry and infantry; a considerable number of old soldiers were attracted to it by the prospect of promotion, so that upon taking the field it did not differ materially from the other regular regiments, and soon, by its deeds, proved itself worthy of their fellowship.

The cavalry force which was at the disposal of the Government at the outbreak of hostilities in 1861 was, in all that relates to discipline, instruction and *esprit de corps*, in the highest state of efficiency. Some slight disorganization, incident to the defection of southern officers and the transfer of the regiments from their distant frontier stations to their new field of activity, was inevitable, but its losses having been made good, it took the field with as much alacrity and enthusiasm as did the volunteers. Its officers were educated soldiers, and their experience in Indian warfare had developed in a high degree the qualities of forethought and self-reliance, and accustomed them to the responsibilities of independent command. It is true that, as relates to numbers, their commands were often insignificant, but the principles governing the art of war are unchangeable, and their practical application, on ever so small a scale, has an educational value which no amount of theory can replace. The captain who leads his little company against a savage foe, into remote and desolate regions, with no reserves, and no resources beyond his pack-train and the soldierly courage and spirit of his command, knowing that defeat can mean only death, may have a sense of responsibility as profound as the general who risks the chances of battle with an army of a hundred thousand men.

The value of this frontier school of experience is seen in the fact that a large proportion of the successful generals of the war, on both sides, were among its graduates. Whether serving with the cavalry

or the infantry it matters little. In active frontier work there was little distinction, the cavalry being dismounted or the infantry mounted, as the occasion required, the methods used being very similar, and the experience gained of equal value. The enlisted man in the cavalry of the old army was of a type somewhat different from that of the cavalry soldier of to-day. The plains of those days—the Great American Desert—with its indefiniteness of outline, and its wonderful stories of hunting, trapping and Indian warfare, possessed a charm for adventurous youth which attracted to the ranks of the cavalry a class of young men who, if somewhat reckless in character, possessed more than the average of intelligence, courage and other soldierly qualities. Before the close of the war many of them had won promotion in the regular service, while others, receiving volunteer commissions, were useful as instructors, thus assisting to impress upon the new force some of the characteristics of the regulars.

In the light of experience, it may be believed that the services of this excellent and efficient force of cavalry could have been best utilized by permitting each of the several regiments to form the nucleus of a brigade; a sufficient number of volunteer regiments being added to make the strength of each brigade about three thousand men. By this method the regulars would have been given an opportunity to take their full share of work, and, by the example of their efficiency, to have stimulated and instructed their comrades of the volunteers. In the third year of the war this was accomplished, in one instance, and no cavalry brigade in the Union armies, east or west, excelled in efficiency MINTY's brigade of the Army of the Cumberland, composed of the Fourth Regulars, Fourth Michigan and the Seventh Pennsylvania. But, of course, in those first blundering years of the war, that which should have been done was not done, and those things which should not have been even thought of, were given the most vigorous attention. The regulars presented a neat and soldierly appearance, very gratifying to look upon; the men were intelligent and made excellent orderlies; and what new general, brimming over with knowledge of the whole theory of the art of war, could resist the temptation to take a squadron for his own particular escort? And such is the weakness of human nature, that even the regulars may be excused for being flattered and charmed by the seductions of such special and important duty, which brought them so close to the staff, and permitted them, as they dashed along at the heels of the General, to look down a little upon the common line

troops which were fit only for the prosaic, every day duties, of hard marching and fighting.

But there came a time when the folly of all this playing at war was seen, and the regulars were, at last, given the opportunity to show what their fighting quality was, side by side with the volunteers. And it needed only that companionship of battle to make them true brothers in arms, united by the kinship of blood poured out in the same sacred cause. Thenceforth all unkindness of feeling and all misunderstandings were impossible. While the regulars exemplified the value of discipline, and correct methods in camp and field, the volunteers reciprocated by showing the value—the fighting force—of that patriotic impulse which had prompted them to abandon counting-houses, work-shops, colleges and homes, to respond to the Nation's trumpet call—to arms. The regulars gave their educated and experienced officers to command and instruct, and when their squadrons were weakened by the casualties of battle and the field, the losses were made good by transfers from the volunteer ranks. This process of assimilation was continued, the volunteers acquiring the characteristics of the regulars, and the regulars those of the volunteers, until all distinction was merged in the resulting compound—the American cavalryman.

There is a general agreement of professional opinion that, under the most favorable circumstances, at least one year is required to transform a raw recruit into an efficient cavalry soldier. It would, therefore, be unreasonable to expect that the Government could, from its citizen volunteers, organize an efficient mounted force in a shorter period. But, as a matter of fact, a much longer time was required, and it is not until the third year of the war that the cavalry, in either the eastern or western armies, is found taking its proper and legitimate place in the operations of the war. There were, certainly, instances of successful encounters with the Confederate cavalry, and some independent expeditions were undertaken, with varying degrees of success; but the first two years of the war may be considered, for the cavalry, as years of education and formation, in which its enduring characteristics were developed and fixed by adversity and trial. This slowness of the North to produce an efficient cavalry force has been attributed to a variety of causes, its presumed inferiority to the South in the matter of horsemanship being given a prominent place. Whatever foundation, in fact, this supposition may have, it would seem that a sufficient explanation may be found in the failure of those in authority to recognize the importance and true functions of the cavalry arm.

General Scott announced the opinion in 1861 that, owing to the wooded and broken character of the field of operations and the improvement in rifled fire-arms, the rôle of the cavalry in the approaching contest would be unimportant and secondary in its character. That General McCLELLAN shared this opinion is evident from the fact that in the organization of the Army of the Potomac, the cavalry arm was neglected, and that in all of his operations he appears to have made no effective use of such cavalry as was available. He says in his report that "it was intended to give at least one regiment of cavalry to each division, besides forming a reserve of the regular regiments and some picked volunteer regiments," but that circumstances beyond his control prevented the completion of this design. McCLELLAN was one of those generals who, destitute of experience, was dominated and controlled by theory. The books said that each division should have a force of cavalry, and he was unable to perceive that conditions might exist which would render this organization undesirable. The result of thus dividing up his cavalry was to place it at the disposal of generals without experience, who still further divided it so that each brigade, almost, was provided with its troop or squadron, whose duty it was to add to the importance of the general by following him about, to provide orderlies for dashing young staff officers and servants for headquarters. After having thus degraded his cavalry and brought upon it undeserved contumely and reproach, we find this same General, in his report of operations, complaining in October, 1862, that his cavalry was broken down, and that he was thus placed at a disadvantage with the enemy, who possessed an efficient cavalry force. The same error was committed in the West. The force of 10,000 cavalry in BUELL's army when it marched to Shiloh in the spring of 1862 was frittered away by attaching the regiments to the several infantry divisions of the army. A few months later, when the Confederate leaders—MORGAN and FORREST—were striking blow after blow at the army's extended line of communications, an attempt was made to organize independent cavalry commands to oppose them; but the regiments had been demoralized by the character of their service, the officers selected to command were wanting in capacity, and the improvised brigades were powerless to check the active and vigorous operations of those bold troopers.

The subject of remounts was one which required early and serious attention. The inexperience of our volunteers and the shortcomings of the Quartermaster's Department resulted in a terrible waste of horse flesh. Often on a short allowance of forage, exposed without

shelter to the storms of winter, and left to stand in the mud until their hoofs separated from the flesh, they died by thousands, while other thousands were rendered worthless for efficient service. The resources of the over-taxed Quartermaster's Department were inadequate to make good this enormous waste, and through the rascality of contractors and inspectors vast numbers of worthless horses were purchased, which died before they reached the front. Some idea of this waste and extravagance may be had from the fact that during the first two years of the war 284,000 cavalry and artillery horses were purchased by the Government, while it is doubtful if at any time during that period we had more than 60,000 cavalry in the field. These abuses finally reached such a point that vigorous methods were instituted to correct them. Remount camps were established, where the newly purchased horses were collected and cared for, and to which the dismounted troopers were sent to be again equipped for the field. In July, 1863, the Cavalry Bureau was organized, whereby cavalry officers were charged with the responsible duty of inspecting the horses presented by the contractors, a measure which improved greatly the character of the remounts and increased the efficiency of the cavalry arm. With increased experience the cavalymen learned to take better care of their horses, and although the losses continued to be large, they were due to the severity of the service required rather than to the carelessness and indifference which had previously prevailed.

The system of tactics in use by the cavalry when the war broke out was a translation of the French dragoon tactics, which had been adopted by the War Department in 1841. The experience of our mounted force on the frontier had demonstrated their unfitness to the conditions prevailing on this continent, and, in 1859, Colonel PHILIP ST. GEORGE COOK, of the Dragoons, was ordered to prepare a new system. His work was completed and approved by the War Department in October, 1861; but those stirring times were not favorable to the introduction of new tactical systems, and although his work possessed great merit it did not come into general use. The practical common sense of the American soldier is, however, superior to tactical defects. As the cavalry of the army on the frontier had ignored tactics when they failed to meet the requirements of the occasion, so the cavalry of the war period refused to be bound by their limitations. Deployments were made always by the shortest lines, an emphatic suggestion in homely language to "get there" often taking the place of the tactical command. But there was no want of promptness in getting there when a fight was on hand.

Nevertheless the lack of a proper system of tactics may be presumed to have restricted to some extent the true functions of the cavalry, especially in the use of large masses on the field of battle.

The cavalry did not escape the difficulties incident to armament and equipment which the other arms of the service encountered in the early days of the war, but all deficiencies, in quantity at least, were soon supplied. GEORGE B. McCLELLAN, then a captain of cavalry, had returned from an official tour of observation of the armies of Europe in 1860, and, as a result of his investigation, had recommended for the approval of the War Department a cavalry saddle and other horse equipments. The equipment was adopted, but, in the interest of economy, was modified by covering the saddle with raw hide instead of leather, and denuding the whole equipment of all ornamentation. The ornamental part was not essential, but raw hide proved a very unsuitable material for saddle covering; the alternate wetting and drying to which it was subjected in field service causing it to crack and split open in a disagreeable way. With this exception it was a very excellent and serviceable equipment, and with some modifications has been continued in service to the present day.

There was no hesitation in giving the volunteer cavalry the armament which had been that of our mounted force since its first existence—the carbine, pistol and saber. The carbines were of various patterns, but generally breech-loaders—the Sharp's holding first place until the advent of the Spencer in 1863. These breech-loading carbines had not the range and penetration of the infantry rifle, but the increased rapidity of their fire gave them such a superiority over the muzzle-loaders that dismounted cavalry often withstood with confidence largely superior forces of infantry. The Colt's revolver held its place to the end of the war, and although seldom used as a charging weapon was invaluable in the melee and as a defensive arm for patrols and couriers. The confidence which the regulars had long felt in the saber was shared by the volunteers as soon as some training and experience in its use had rendered its grasp familiar. As a charging weapon it was sometimes pitted against the pistol, but I believe no instance of its failure to assert its superiority has been recorded, and its successful use brought into existence a moral force which became an important factor in cavalry efficiency.

The discipline of the cavalry did not differ from that of the other arms. It was that of the American volunteer, which, if lacking in some of the minor features of etiquette in camp and field, was yet all

sufficient on the day of battle to keep him steadily to his duty, even to that last supreme sacrifice of the soldier — his life for the nation's cause.

The vital necessity of success appears to have inspired the Confederate leaders, at the outset, with the importance of making practical and vigorous use of all their powers, and I think it is undeniable that we find in all their operations a less rigid adherence to theory, and a greater readiness to adapt their resources to the existing conditions. They certainly preceded us in putting into the field an efficient cavalry force. They possessed in STUART a cavalry leader of great originality of character and acute intellect, whose faith in the power of the cavalry arm had been confirmed by his frontier experience. He was an officer in SUMNER's regiment, and was wounded in the charge upon the Cheyennes in July, 1857. The Confederate Government did not fail to recognize his great value, and gave to him its unfailing confidence and support. The earlier successes, however, of STUART, as well as those of other leaders of the Confederate cavalry in the West, were due rather to the fact that we had no mounted force with which to oppose them, than to the prowess of their horsemen or their excellence as leaders. They had succeeded in getting their mounted forces first into the field, and had pretty much their own way until we had prepared a force to set against them. They were enabled to do this by making the cavalry a favored corps, in which the troopers were treated with more consideration than were the plodding infantrymen; owning each his horse, and receiving from the Government a per diem compensation for its use. This attracted to its ranks young men of the land-owning class, who were good riders, eager for distinction, and with that enthusiasm for their cause which made it possible to dispense with a very rigid discipline. It was with cavalry of this type that the earlier successes of the Confederates were achieved. But those elements which had at first contributed to their success proved subsequently a source of weakness. The force did not possess cohesive power sufficient to withstand the disintegrating processes of war. After each campaign or expedition it was necessary to furlough large numbers of men to enable them to recuperate their tired horses or to procure new mounts.

As the enthusiasm of the earlier days wore away and the country became impoverished by the waste and destruction of the war, it became increasingly difficult to keep the ranks of the cavalry recruited by these means, and the force partook more and more of the partisan character which had from the first distinguished it. Some gallant squadrons did keep the field to the last, but from the opening

of the spring campaigns of 1863, its supremacy was of the past, and the instances in which it escaped disaster when encountering the Union horsemen were rare.

The chief uses of cavalry in modern war are, to conceal and cover the movements of the army, and to obtain information concerning the movements of the enemy. If in addition it shall be able to undertake, successfully, independent operations against the enemy's lines of supply, and on the field of battle, by its timely charges, avert disaster or decide the victory, we then have cavalry of the highest possible type of efficiency. By a glance at some of the work of our cavalry during the last two years of the war, let us see to what extent it filled these requirements.

In the West, GRIERSON's raid through Mississippi marks the beginning of cavalry independence. On this expedition, GRIERSON, with the Sixth and Seventh Illinois Cavalry, traversed the country from La Grange, Miss., to Baton Rouge, La., a distance of over three hundred miles, in sixteen days, destroying fifty miles of railroad and telegraph lines, capturing over five hundred prisoners, and destroying immense quantities of supplies and war material. Although the success of this expedition was due in a great degree to rapidity and secrecy of movement, yet the enemy's cavalry, in considerable force, was encountered with success on several occasions.

From the time that General ROSECRANS assumed command of the Army of the Cumberland, he was untiring in his efforts to organize an efficient cavalry force. During the campaign of Stone River, although the cavalry of his army comprised but ten small regiments, it rendered excellent and important service against the vastly superior forces of the enemy, meeting them without fear when opportunity was afforded. The six months encampment of the Army of the Cumberland at Murfreesboro, from January to June, 1863, was a period of activity and education for the cavalry. The Confederate cavalry, under FORREST, VAN DORN, MORGAN and WHEELER, swarmed on every side. An opportunity for a fight was never wanting, and in its various encounters the cavalry of the Army of the Cumberland acquired that dash and self-confidence which distinguished it to the end of the struggle. Certainly, success was not invariable, but adversity is a useful element in the formation of character, and when the cavalry failed to assert its superiority it was never from a lack of courage or soldierly spirit.

Upon the movement of the army, on the 23d of June, 1863, the cavalry was still inferior in numbers to that of the enemy; but it continued to perform, efficiently, all the duties which properly de-

volve upon the cavalry arm. Operating on the right flank of the army, General STANLEY, with MITCHELL's division and MINTY's brigade, on the 27th of June inflicted a crushing defeat upon WHEELER, capturing his artillery and about five hundred prisoners, and driving him into and across Duck River with such precipitation that large numbers of his men and horses were drowned in the stream. In the operations preceding the battle of Chickamauga the usefulness of the cavalry was much impaired by the illness of its chief, General STANLEY. Nevertheless it was not wanting in activity, and the stubborn resistance made to the advance of BRAGG's army from Ringgold, on the 18th of September, by MINTY's and WILDER's brigades, thus affording time for the concentration and alignment of the army, was a service of the greatest value. After the battle of Chickamauga, if there was a momentary lack of vigilance in permitting WHEELER to cross the Tennessee and get to the rear of our army, there was no want of vigor in the pursuit, which limited greatly the destructive effects of the raid, and resulted in the almost complete destruction of WHEELER's command. While the armies under General GRANT were preparing to attack the enemy on Missionary Ridge, the scarcity of forage caused the dispersion of the cavalry, so that it was not at hand in sufficient force to reap the fruits of that victory. One brigade, however, under Colonel LONG, contributed in no small degree to the discomfiture of BRAGG's army by operating, on the day of the battle, in the rear of its right wing, destroying several miles of railroad and large depots of supplies.

It would be wearisome to attempt a recital of the many expeditions and engagements of the cavalry consequent upon the advance of the combined armies under General SHERMAN, from Chattanooga to Atlanta, and from Atlanta to the sea. If not always successful, its operations were conducted with boldness and independence, and although outnumbered by the Confederate cavalry under those bold and enterprising leaders, FORREST and WHEELER, it never failed to courageously meet them; and in summing up the results of the cavalry operations of the Union and Confederate armies in the west, the balance will be found strongly in its favor. Its activity was not confined to meeting the Confederate cavalry, but, by seizing upon advanced positions and holding them against the assault of the enemy's infantry, it contributed in no small degree to the success of our arms.

In the battle of Nashville the cavalry, under General JAMES H. WILSON, commanding the cavalry corps of the Division of the Mississippi, took a distinguished part. In the movement to turn the

enemy's left, fighting both mounted and dismounted, it vied with the infantry in attacking the enemy's entrenchments. COON's brigade of HATCH's division, charging dismounted, first captured a redoubt of four guns, and with the support of the infantry, carried a second one in the same manner. In the first day's fighting the cavalry had turned and taken in reverse the enemy's left flank. On the second day, the character of the country forbidding mounted operations, the whole force was pushed forward dismounted and participated with the infantry in the successful assault which resulted in the rout of HOOD's army; then, regaining their saddles, the troopers were soon in pursuit of the fleeing enemy. The division of General KNIFE, finding the enemy strongly posted near Franklin, charged him in front and flank and carried the position, capturing four pieces of artillery and five hundred prisoners. The pursuit being continued, on the evening of the day following the battle the enemy was discovered in a strong position at West Harpeth; mounted charges were ordered in front and flank, and the whole force was routed, with the loss of its artillery and many prisoners. In this battle and pursuit the highest type of cavalry efficiency was displayed.

The operations of the cavalry force under General WILSON in March and April, 1865, which resulted in the capture of Selma and Montgomery, Ala., are of exceeding interest, but time and space will admit of their mention only. The charge of LONG's small division of fifteen hundred men, in an unsupported line, upon FORREST's fortified position at Selma has, for gallantry, scarcely a parallel in the history of the war. VAN HORN says: "A single line without support advanced in utmost exposure for five or six hundred yards, leaped a stockade five feet high, a ditch five feet deep and fifteen wide, and a parapet six to eight feet high, and drove ARMSTRONG's brigade, the best of FORREST's command, over fifteen hundred strong, in rout from works of great strength and advantages of wonderful superiority, and this was done while sixteen field guns were playing upon them." Scarcely less brilliant was the storming of the fort at West Point, Ga., on the 16th of April, by the brigade commanded by Colonel LAGRANGE of the First Wisconsin Cavalry. The storming party was composed of detachments from the several regiments of the brigade. The signal being given, the enemy's skirmishers were driven into the fort, when it was discovered that the ditch was too wide to pass. But the assaulting party refused to retreat, and remained under fire until bridging material could be collected, when they again rushed to the charge, scaling the works and capturing the entire garrison.

But, leaving these western horsemen who ride over hostile batteries and infantry lines, or dismounted, charge infantry intrenchments and storm fortified positions with equal facility and indifference, let us see what sort of a cavalryman the favored armies of the East have been able to produce. The deplorable condition in which the cavalry of the Army of the Potomac was left by General McCLELLAN, was not much improved by his successor, General BURNSIDE. The only effective force consisted of one small division under PLEASANTON, which found itself powerless when opposed to STUART's strong and efficient corps. It remained for General HOOKER to appreciate the fact that cavalry had higher functions than to furnish orderlies, couriers and escorts. He organized the twenty-seven regiments which he found scattered through the army into a corps of three divisions, to which was attached five batteries of artillery. The cavalry was thus given its proper relation to the other arms of the service in the organization of the army, and from that time forth its efficiency was assured and acknowledged.

Fortune did not favor the first independent expedition of the new cavalry corps. The movement was ordered by General HOOKER, in connection with that of the army upon Chancellorsville, with the purpose of breaking the enemy's line of communication and cutting off his retreat in case of defeat, which was counted upon. General STONEMAN, with the whole corps, except one brigade under PLEASANTON which was left with the right wing of the army, crossed the Rappahannock on the 29th of April. On the 30th he detached AVERELL's division to watch and attack the enemy's cavalry towards Rapidan Station, and through some confusion or deficiency in orders this division did not rejoin him, but made its way back to the rear of the army. STONEMAN, after penetrating to the rear of LEE's army as far as Thompson's Cross-roads, conceived the idea of dispersing his command, likening it to an explosive shell, each fragment of which would exert as much damage as the original projectile. Accordingly the 3,500 men to which his command was reduced were divided into seven different detachments, each of which was to inflict as much damage as possible, and then either rejoin the commander, who remained at Thompson's Cross-roads with one regiment, or seek the protection of our lines in other directions. All these detachments, after inflicting more or less damage on the communications and supplies of the enemy, got back without disaster. The corps probably gained something in the way of increased confidence and experience; but, with reference to the original purpose of the expedition it was a failure, due, undoubtedly, to the absurd plan by which the force

was scattered and dispersed, instead of being concentrated to fight the enemy.

Much greater brilliancy attended the operations of the small brigade under PLEASANTON, which preceded the advance of the Eleventh and Twelfth Corps upon Chancellorsville. On the night of April 30th the Sixth New York Cavalry, under Lieutenant-Colonel DUNCAN McVICKER, made a most gallant charge against one of FITZ HUGH LEE's regiments, which, after a bloody combat, was routed, and in its wild flight in the darkness carried confusion into the remainder of the brigade. On the evening of the 2d of May, after the rout of the Eleventh Corps, the advance of JACKSON's victorious corps was checked by the exertions of General PLEASANTON and the brave troopers under his command. In this effort the charge of the Eighth Pennsylvania Cavalry against the advancing troops of RODES' division, near Dowdall's Tavern, was, in its conception and execution, of heroic character. Charging with drawn sabers, the regiment penetrated and threw into confusion the lines of the enemy, losing three out of its five commissioned officers who led the charge—all killed.

In the campaign of Gettysburg the cavalry of the Army of the Potomac was, for the first time in its history, given an opportunity to perform those duties of reconnaissance and observation which are such essential and important functions of the cavalry arm. The execution of these duties involved frequent encounters with the Confederate cavalry, in which our troopers, by proving themselves in no respect inferior to their adversaries, acquired confidence in their powers and an *esprit de corps* which never deserted them. Beverly Ford, Brandy Station, Aldie and Upperville are names to quicken the heart-throbs of every cavalryman, but their details must be here omitted. Who can estimate the value of the services performed by the cavalry in this campaign? It was the wise perception of its commander, ALFRED PLEASANTON, which recognized the strategic position at Gettysburg. By the intelligent and hearty coöperation of the commander of the First Division, JOHN BUFORD, that position was seized on the afternoon of June 30th, and by the splendid dismounted fighting of his division for four long hours on the morning of July 1st against HILL's veteran corps of infantry, eight times its strength, held for us until the corps of REYNOLDS and HOWARD could come up. It was the steadfast and determined fighting of GREGG's division, assisted by CUSTER's brigade of KILPATRICK's division, from 2 P. M. until dark of July 3d, which thwarted the efforts of STUART to fall upon the right and rear of the Union lines during the progress of PICKETT's

desperate charge. And it was the cavalry alone which presented any obstacle to the retreat of the invading army and its free and safe recrossing of the Potomac at Williamsport and Falling Waters, ten days after its defeat at Gettysburg.

In the marchings and counter-marchings of the army in Virginia, during the months of September and October, 1863, and in the Mine Run campaign, the cavalry continued to perform efficiently all the duties which fell to its lot. It frequently encountered the Confederate horsemen, and, if not always successful, it never suffered disastrous defeat, and never failed to win the respect of its adversaries. That its operations during this period were not of a more brilliant character may be attributed to the timorous policy which governed the movements of the army at this time, and to the wasting of its strength by an excessive amount of outpost and escort duty. Hooker's conception of consolidating the cavalry and giving it a leader with the independent powers of a corps commander, had not been realized. The strength of custom and tradition had been too strong, and although the corps organization continued to exist, the divisions and brigades were separated and ordered here and there, to guard wagon trains or to perform outpost and reconnoitering duty, as might seem proper to the commanding general, the corps commander being little more than a staff officer at army headquarters.

It may be presumed that it was the desire to apply a corrective to this condition of affairs which prompted General GRANT, upon assuming command of the Union armies, to ask the President for a new commander for the cavalry; and that in SHERIDAN he discerned a personality which would not bend to any subordinate position. How he must have smiled in spirit when MEADE came to him with the account of that fiery interview in which the new cavalry commander had told him that since he insisted on giving directions to the cavalry without consulting or notifying its proper commander, he could thenceforth command it himself—that he would give no more orders. His quiet suggestion that SHERIDAN should be permitted to go out and make good his promise to whip STUART, showed his entire appreciation of the situation.

And now, at last, under a leader worthy to command it the Cavalry Corps of the Army of the Potomac is given an opportunity to show its value as an independent fighting force. General MEADE's order of May 8, 1864, required the commander of the Cavalry Corps to immediately concentrate his available mounted force and proceed against the enemy's cavalry, and after the supplies were exhausted,

to proceed to Haxall's Landing on the James River and there communicate with General BUTLER. Only the very briefest outline of this expedition is here possible. The command consisting of the three divisions of the corps commanded respectively by Generals MERRITT, GREGG and WILSON, aggregating a little more than 8,000 men, marched on the morning of May 9th. It succeeded in passing around the flank of LEE's army without encountering any troops of the enemy; but about 4 P. M., after crossing the Ta River, the rear guard, which consisted of DAVIES' brigade of GREGG's division, was attacked by WICKHAM's brigade, which was afterwards reinforced by LOMAX'S. A sharp conflict ensued which lasted until dark, resulting in the repulse of the enemy. As soon as MERRITT's division had crossed the North Anna, CUSTER's brigade was detached and sent to Beaver Dam Station on the Virginia Central Railroad. A force of the enemy was here met and defeated, and four hundred Union prisoners released. The station was burned, and two locomotives, three trains of cars, ninety wagons, 1,500,000 rations and an immense quantity of medical stores were destroyed, besides eight or ten miles of the railroad.

The news of this destruction and that the Yankee cavalry was marching on the capital created the greatest consternation in Richmond. STUART's cavalry, on the morning of the 10th, made an attack on the divisions of WILSON and GREGG, but was repulsed. STUART now realizing his mistake in attempting to stop the Union cavalry by attacks in the rear, hastened, by a forced march, to interpose between it and Richmond at Yellow Tavern. SHERIDAN's column marched leisurely some fifteen to eighteen miles on the 10th and encamped unmolested on the south bank of the South Anna. DAVIES' brigade, being detached to Ashland Station on the Fredericksburg Railroad early on the morning of the 11th, destroyed a train of cars and locomotive and the railroad for some distance. STUART having reached Yellow Tavern on the morning of the 11th, in advance of the Union forces, was first attacked by MERRITT's division and driven off the Brook Turnpike to the east, where he took up a strong position, his force fighting dismounted behind breastworks and barricades. Here he was attacked in front by GIBBS' and DEVIN'S brigades, the fight being desperate in character, while CUSTER with two regiments dismounted drove the enemy's right, and an opportunity offering, charged mounted with the First Michigan and the First Vermont, the Seventh Michigan in reserve, routing that flank of the enemy's line and capturing two guns. The attack being pressed in front at the same instant, the whole Confederate force was

routed and driven from the field in confusion. And here drooped the plumes of the fiery Rupert of the South—STUART, the magnificent—the pride of the Confederacy. Stricken to the death while endeavoring in vain to rally his broken ranks, doubtless his proud soul would have preferred the death which was his rather than to have lived to witness the defeat and humiliation of his cherished squadrons.

At 11 o'clock the same night the corps resumed its march towards Richmond, the intention being to penetrate within the outer line of works, and, turning to the left, to reach the Mechanicsville Pike on the south side of the Chickahominy, marching thence to Fair Oaks. General WILSON, whose division had the advance, found about daylight further progress in this direction blocked by the strong position of the enemy, whose works at this point extended close to the Chickahominy. The alternative which was now presented involved the crossing of the Chickahominy at Meadow Bridge, which was found to have been destroyed, with the Confederate cavalry, now under FITZ HUGH LEE, strongly posted on the opposite bank of the stream. MERRITT's division was ordered to repair the bridge and effect a crossing. The column was now placed, with the fortifications of Richmond well manned on its right and front, an impassable river on its left, and a force of the enemy's infantry and cavalry on its right and rear. There was, however, no anxiety about the result, and no confusion. The troopers of the First Division worked steadily at the bridge under the fire of the enemy; two regiments were dismounted, and the men making their way across by a railroad bridge further down the stream, drove in the Confederate skirmishers. The bridge being completed the division crossed, dispositions were made, the strongly intrenched position of the enemy was assaulted, and he was driven off the field in confusion. Meanwhile a vigorous attack of the enemy on the divisions of GREGG and WILSON was repulsed, and the whole command crossed to the north side of the Chickahominy without further molestation. The corps, without further severe fighting, proceeded to Haxall's Landing on the James, where it found forage and rations, rejoining the army at Chesterfield Station on the 24th of May.

This expedition gives a most perfect illustration of the power of independent action existing in cavalry of the American type when properly led and commanded. The corps had marched in a leisurely manner around the flank of LEE's army, and, proceeding along his line of communications, had destroyed many miles of railroad and immense depots of supplies. In its endeavor to stop the destructive

march of this column, his cavalry had been defeated with the loss of its greatest commander. The victorious corps, after carrying consternation and dismay to the Confederate capital by thundering at its very gates, defeated the enemy's combined forces of infantry, cavalry and artillery, and withdrew at its leisure with the independence of movement befitting an army composed of the three arms of the service. Notwithstanding the fact that this expedition had revealed in so remarkable a manner the independent power and value of the cavalry arm, such was the power of prejudice, reinforced by theory, that it was only secure from disintegration and dispersion through the continued self-assertion and championship of its courageous leader.

It is impossible here to follow the victorious progress of the Cavalry Corps in those further operations of the Army of the Potomac which resulted in its change of base to the James River, and its investment of the enemy's fortified position at Petersburg. Some idea may be formed of the character of the work performed by the cavalry during this period from the fact that General SHERIDAN estimated his casualties during the months of May, June and July, 1864, at between 5,000 and 6,000. On the 1st of August, 1864, the First and Third Divisions of the corps were ordered with General SHERIDAN to the Shenandoah Valley. In its new sphere of action the superiority of our cavalry was at once asserted. Not only was the cavalry of the enemy utterly powerless before it, but, by its splendid dismounted fighting, it proved itself upon more than one occasion superior to the best infantry of EARLY's veteran army. And that its efficiency as cavalry was not impaired by this dismounted work was demonstrated at the battles of Winchester and Cedar Creek, where it was used with decisive effect in mounted charges with the saber against infantry lines. At the battle of Winchester it opened the fight by forcing the crossings of the Opequan dismounted against the enemy's infantry. After its dismounted work was completed it regained the saddle and by successive charges against the left of EARLY's intrenched line threw it into confusion, capturing a battery of five guns and 1,200 prisoners, thus insuring the defeat and rout of the opposing army. The war affords no other example of such use of cavalry on the battle-field.

In the first part of October the Confederate cavalry in the valley had received a new commander in the person of General T. W. ROSSER, who enjoyed a great reputation as a cavalry leader. Upon his arrival with his Laurel Brigade he was hailed as the saviour of the valley, and the chastisement of the Yankee cavalry was eagerly

looked for. As our forces were retiring down the valley, destroying the forage and other supplies, ROSSER became unpleasantly aggressive, whereupon General SHERIDAN halted his army to give this new commander an opportunity to try conclusions with the Union cavalry. The meeting took place at Tom's Brook on the 9th of October, and resulted in the most surprising rout and pursuit on record. The Confederate divisions were attacked simultaneously on the Back Road by CUSTER and on the Valley Pike by MERRITT, charged with impetuosity, smashed in pieces, and pursued on the jump for twenty-six miles, eleven guns and everything on wheels being captured, along with a multitude of prisoners. This was about the last time that the Confederate cavalry, unaided, attempted to meet our troopers. After the disaster on the morning of the 19th of October at Cedar Creek, the cavalry was dismounted, and with GETTY's division of the Sixth Corps took up a position which was held until the reorganized army, inspired by the presence of the indomitable SHERIDAN, was ready to advance; then remounting, it contributed to the overthrow of the enemy by vigorous charges upon his flanks, and, pressing forward in pursuit, recaptured all the artillery which had been lost in the surprise of the morning, taking, in addition, twenty-four guns, large trains of wagons and ambulances, and many prisoners.

The brilliant record of SHERIDAN's cavalry corps was fitly completed by its services in the campaign which terminated with the surrender of the Confederate army, under ROBERT E. LEE, at Appomattox Court House, April 9, 1865. Seizing Dinwiddie Court House on the 29th of March, it held it against a determined attack, on the 31st, by the enemy's largely superior forces of cavalry and infantry combined, under General PICKETT. On the morning of April 1st it drove the enemy into his strong earth-works at Five Forks, and on the afternoon of the same day, with the assistance of the Fifth Corps, assaulted the position, which was brilliantly carried, the enemy being thrown into complete disorder and rout, with the loss of his artillery and thousands of prisoners. LEE's army having abandoned its works in front of Petersburg, the cavalry dashed eagerly in pursuit. The fleeing army was first confronted at Jettersville, but a general attack being delayed, it was enabled to escape. The cavalry then, moving rapidly across country in a direction parallel to the enemy's line of retreat, dashed into his long column at Sailor's Creek on the 6th of April, cutting off EWELL's corps. The Sixth Corps coming to the assistance of the cavalry, EWELL's whole corps was forced to surrender, after making a most gallant resistance, which cost many lives on both sides. With untiring energy the cavalry was

now directed on Appomattox Station, where, on the morning of the 8th, it forced the enemy off the railroad and back to Appomattox Court House, sharp skirmishing being kept up until the morning of the 9th, when the Army of the James, which had marched all night, relieved the cavalry line just in time to repulse an attack of the Confederate infantry which had been intended to break through the thin line of dismounted cavalrymen. Every trooper was now conscious that the supreme moment had arrived. The divisions were mounted, the trot and gallop were sounded, and the long columns were sweeping around the left of the Confederate lines to take position for a last decisive charge upon their exposed flank, when the white flag is seen, the last ditch is found — LEE has surrendered.

SHERIDAN possessed in a high degree the characteristics of a great cavalry leader. He was prudent in his conceptions, impetuous in action, and in the heat of battle was able to preserve that calmness and clearness of judgment which is inseparable from the highest courage. But in no respect was his greatness more apparent than in his prompt recognition of the immense increase of defensive, and consequent offensive, power given to the cavalry arm by the improvement in fire weapons. He clearly perceived, what few other commanders appear to have comprehended, that cavalry which could use breech-loading arms with effect dismounted, and at the same time preserve its ability to make successful charges with the saber mounted, was capable, with the assistance of artillery, of undertaking any operations within the power of the three arms of the service combined, its celerity of movement giving it an immense advantage over infantry. It is true cavalry of this type must possess great intelligence, and it is quite possible that no other nation will be able to produce such a force. Certain it is that in no war since our own has cavalry been used as SHERIDAN used it. English writers have recognized the peculiar qualities of the American cavalry, but with stupid persistency call it mounted infantry, and in attempting to profit by our experience, it is noticeable that not only English but other nations have organized mounted infantry, which they are pleased to imagine resembles the American cavalry. They appear to be ignorant of the fact that the same cavalry which fought so efficiently dismounted, charged successfully with the saber against intrenched lines of veteran infantry, and that it was in this combined efficiency that its remarkable strength consisted.

One of the objects of this Order, as declared by its Constitution, is "to foster the cultivation of military science." It may be presumed that the companions of the Loyal Legion who led the nation's

hosts in "the battle for the right" have now no military lessons to learn. They will never again "set squadron in the field," or lead their battalions to victory. A few more years and their places will be filled by a new generation. And it is for these future defenders of the Republic—our successors in this Order—that the lessons of the past are filled with significance. Theory, in military science, is the fruit of experience, but the theory which is the outgrowth of our own sufferings and sacrifices possesses for us a value immeasurably greater than any which can come to us from foreign soil.

The lesson to which attention has been very imperfectly invited by this paper, teaches that cavalry efficiency in this country will in the future be developed on the same lines as in the past. The nation's reliance for war will continue to be her volunteer soldiers; and all attempts to ingraft upon our military system special characteristics of foreign armies, which are not adapted to the conditions which prevail in this country, and which are opposed to the practical common sense of the American people, must be injurious in their effect and finally result in failure. There is, unfortunately, among all professional students, a tendency in this direction. The science of war is of such vast importance to the nations of Europe that the ablest minds of the age are engaged in its development. In yielding to our admiration for the intellectual power displayed by these writers, and perceiving the force of their illustrations as applied to the conditions which surround them, we are prone to adopt with too much readiness the theories which they advocate in preference to the teachings of our own practice; and this tendency will increase as, year by year, we become further removed from the actualities of our own experience.

Let us then hope that when this Order shall have ceased to be an association of veteran officers, united by the bond of companionship-in-arms, it will continue to be animated by a lively interest in military art and science, and that an abiding faith may be cherished in the methods by which the life of the nation was saved by the Union Volunteers.

MOSES HARRIS,
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VETERINARY SCIENCE FOR CAVALRY OFFICERS.

IN choosing this subject, I have been actuated by a determination to select a topic about which I *knew* something, not about which I had only *read* something. For by reading only, one accumulates, not facts but the mere shadow of facts, so vague and misty it may be, that the real article met subsequently is not identified with its counterfeit presentment, but seems another thing altogether. But this determination necessarily narrowed my choice immensely, so I am likely to weary you with a recital of commonplace experience. But I will give you at least something true if not new, and reality must atone for lack of novelty.

To argue the importance of veterinary knowledge for cavalry officers would seem indeed a work of supererogation, were it not for the well known indifference of some, and a not inconsiderable number of them, to this subject. Hence the following personal experience seems worthy of recital:

When I joined my troop in 1873—as ignorant of horses' ailments and their treatment as any recent recruit—I found myself, by the temporary absence of my captain and my first lieutenant, in immediate command of the troop. A new roof was nailing upon the troop stable, and loose shingles with adhering nails were scattered here and there in its vicinity. At my first stable call, no less than three horses, which number was afterwards increased, were presented to me, each one with a rusty shingle-nail driven into its foot. After consultation with the first sergeant I sought the advice of a civilian employe of the Quartermaster's Department who knew "all about horses," and in pursuance of his enlightened advice, finally ruined five or six of the best horses in the troop. But I had all the loose shingles picked up a few days later, which afterthought, fortunately for me, made one shining point in my otherwise gloomy report to my disgusted troop commander.

Sometime later I was sent with a detachment, commanded by an officer senior to myself, to meet at a point some ninety miles away

the department commander and his staff, on a visit of general inspection to our post. From our camp which we left early and without watering our stock, it was about twenty miles or more to the next water. The day was hot, the dust stifling, and the animals soft and fat. But the department commander was in a hurry. I had a new whip, and after one or two complimentary remarks from the passengers upon my fancy driving, I "whooped 'em along" for all they were worth. When we reached water the animals were thirsty and I gave them all they wanted; all indeed, for several of them never drank again! The result of this trip and the shingle-nail episode which shortly preceded it, put me to thinking, and I went to work upon my horse books with a fervor not unstimulated by the suggestion of my captain that perhaps I could secure a transfer to some unmounted branch of the service.

Some years later, my promotion carried me to a north-western post, where I arrived in the month of August, 1879. The afternoon of the day of my arrival, the commanding officer asked me to look at a sick pony, the property of his servant. A moment's observation of the animal showed me the worst case of acute glanders I ever beheld, and the thought of the danger run by the commander's little son, who had been visiting the pony daily with the aforesaid servant, made my blood run cold. Fortunately the pony had been kept in a remote log stable, away from the other animals, and upon my urgent pleading, he was at once destroyed, and pony, stable and equipments, burned then and there. During the succeeding winter, I had no sickness among my horses, but the next summer a malignant disorder broke out among the animals there, which, after destroying or rendering unserviceable the greater part of them, caused the post itself to be abandoned. A few years before, glanders at Benicia Barracks, Cal., led to the death of two enlisted men, caused the shooting of some eighty odd public animals, and the burning of the stables, horse equipments, etc., of the entire post.

If the effect of the foregoing narration of facts be what I think it should be upon logical intelligences, I will consider the importance of this study to cavalry officers to be demonstrated, and will now proceed to a consideration of the best methods of acquiring this knowledge, the case of a young cavalry officer, joining his troop, being tacitly understood. And to confine the circumstances of the case supposed as nearly as possible to those attending my own experience, I will not consider those officers who have had the opportunity of attending a proper veterinary college, nor even those who

may have been so fortunate as to attend the Infantry and Cavalry School at Leavenworth.

Our young lieutenant then, deprived of the benefits of the royal roads to learning just mentioned, should first of all provide himself with one or more, and the more the better, proper text books. And here, some discretion should be exercised, for such has been the unexampled progress of veterinary science during the past few years, that the older manuals are almost worse than none. The work of General FITZ WYGRAM, in use at Leavenworth, is standard; the special report on diseases of the horse, published by the Department of Agriculture, and furnished gratis upon application to the Secretary, is valuable; the compilation of Prof. KIRBY — in "Wood's Medical Library" — and part of the local library of each post hospital, is my favorite, while the large, general work of WILLIAMS, also in the post hospital, is the final authority in all disputed questions, though not intended as a practical hand-book for a novice. YOUATT, MAYHEW, "STONHENGE," PERCIVAL, et al., are out of date in many respects, but should be interesting as exhibiting the state of veterinary science in their day, and hence indicating its progress. A general perusal of his books now will give our novice a comprehension of technical terms, the classification of the various ailments of horses, and a general, if possibly vague, idea of the phenomena of disease, that will to some extent prepare him for dealing with special cases as they arise in his experience.

Now, in the practice of medicine upon human subjects, the importance of an exact and true diagnosis is abundantly understood, and its difficulties fully admitted. The necessity for correct diagnosis is in no wise lessened in equine sickness, and unfortunately its difficulties are multiplied a hundred fold, for the horse cannot talk. If a man has a sore throat, he can tell you so, but the horse's trouble you must find out from his actions alone. Hence, it results that a perfect knowledge of the horse's normal behavior, pulse, respiration, appetite, etc., must be gained before one is fitted to decide how, or in what manner, the horse is acting unusually. The first captain I served under required both subalterns to attend stables, at which he also was present. This was a good rule, for as a result of the daily observation and criticism of the mount of the troop, each one of us soon detected the slightest change in the action or appearance of any of the horses. I would therefore advise every young lieutenant to frequent the stables, and to make a habit of attentively and closely scrutinizing each horse in turn. The age of cavalry horses is generally known, and by examining from day to day the mouths of all those of

whose age there is no doubt, one will soon become expert. For instance, make a list of all six-year-old horses, and examine their mouths in succession; one will learn accurately the appearance of a six-year-old mouth, and at the same time be armed against those superficial variations in the mouths of horses of the same age, that are so misleading to the learner. In like manner, take the pulse, respiration and temperature of a few obviously well horses, at one time. After a little practice you will make those tests as instinctively and confidently as a practitioner, and they will save you many needless alarms founded upon some trooper's insistence that "my horse is mighty sick, lieutenant. I think he's got the bots, or lampas, or hide-bound," or some other of the imaginary complaints of trooper's horses. Imaginary, I should say, so far as concerns horses, but real mental disorders of their riders! for the horse, fortunately, is never a malingerer, and if he is really well, his eyes, his pulse, his breathing, and his temperature, will surely indicate it. Per contra, he will not try "to play old soldier" on you, and if these functions betray disorder, you may be sure it is real, and never a sly attempt "to Wheaton it," as we say at West Point.

Having now our young man armed with one or two good text-books—which he has perused from time to time in a general way, and fairly familiar with well horses—we will suppose a horse to turn up sick at afternoon stables, and the trouble begins. Now will our young man show whether or not his is a scientific and logical brain. If not, he will ask the sergeant, or farrier what he thinks is the matter, and finally order him (the horse, unhappily, not the farrier) a dose of "sweet spirits of nitre," or "spirits of turpentine," or other dangerous poison, and, after death, affidavit him off the papers; or, he will examine carefully the animal's pulse, appetite, etc., putting down accurately in his note-book each fact as it comes—under the heading, "normal" or "abnormal"—and then go for his books and search them through till he finds his corresponding case. Then, reading in every reliable book he can find, all he can discover of this particular complaint, and applying rigidly, but conservatively, the proper treatment, cures his horse, or loses him, as the case may be, but learns anyway, and for all time, that particular complaint and its proper treatment; and the system is begun which, applied sincerely to every disease that comes under his hand, turns him out sooner or later a fairly competent veterinarian.

Of course, in practice all this is not so easy to do, as it is to write about; but after all, it is not so difficult as to dishearten or defeat any really earnest man. Horse diseases rarely present any difficulty of

classification. The diseases of the stomach and digestive organs, of the lungs and respiration generally, of the kidneys and bladder, of the brain, spinal cord and nervous system, diseases of the skin, and a few specific diseases, like pink eye, glanders and the like, complete the list, which is not very formidable, even when we add thereto lameness and tooth and foot troubles.

The post quartermasters all have now in store surgical cases, slings and instruments for the administration of medicines. Fortunately the circulatory system of the horse is in general well protected, and all the minor surgical operations are easily within the reach of any careful man. I have taken some very stiff chances in this line, or rather compelled the poor horse to take them, but so far without bad results. In all my practice I have always obtained the cheerful and intelligent assistance and advice of the army surgeons, upon solicitation, and to them should every perplexing case be taken. The phenomena of disease are much the same in all animals, and the doctor can generally clear up all doubts depending upon an interpretation of ascertained morbid symptoms. Also, their presence at "post mortems" of those ungrateful beasts who die in spite of your enlightened attention and treatment, will assist you in discovering any signs of disease or morbid action in brain, lung or stomach. I need not say that every dead horse should be carefully examined, whether he died of disease or injury, for a knowledge of the normal, as I before insisted, is a necessary prelude to a proper comprehension of the abnormal. The keeping of a note-book, in which are recorded the daily symptoms of each sick animal, his treatment, its effect and final results, together with notes of facts discovered, peculiarities explained, etc., should never be omitted, for here as elsewhere it is exact knowledge that we want, and not vague remembrance. More than once such notes kept by me of the beginnings of a prolonged attack have enabled the post surgeon, later called in, to detect at once the nature of the disease that was baffling me.

Before bringing this article to a close I wish to offer to our supposititious young learner a few words of advice, founded upon my own experience, and which happily may save him from the blunders I myself have often made. The first is, go slow; be conservative, both in the administration of drugs and in active external treatment. And above all, if in doubt, as they say in whist, play your trump card and do nothing. Unless absolutely sure of your diagnosis do nothing and give nothing till you are sure, or until, as is generally the case, your patient gets well. General treatment, trying this and that, is much worse than none. Many a time have I repented giving

medicine to a horse, but barely ever have I had to regret not having done so. And again, and emphatically, beware of the unlearned practical horse doctor, the stage driver, the livery stable keeper, the fellow "who has been working around horses all his life," anybody and everybody but the scientific veterinarian. These other gentlemen know a great deal about horses, but they know "too many things that are not so," and their advice is always pernicious. Do not be deceived by their apparent good luck in curing disease; all quacks do that. These are the gentlemen that cut or burn away the roof of a horse's mouth to cure "lampers;" that cut out the "haw" to cure ophthalmia; that give this or that nostrum to cure "bots," and so on *ad nauseam*. It will take nerve to resist them and their authority, but be firm. The book, always the book, and nothing but the book be your guide, and sooner or later you will have your reward. For it is marvelous how little really exact knowledge there is in this world, and from the man who has it, be it ever so little, must flee away all pretenders, talkers, readers and memorizers of other men's knowledge, and all humbugs and impostors whosoever.

GEORGE S. HOYLE,
Captain, First Cavalry.

THE SHOCK ACTION OF CAVALRY.

THE importance of shock action of cavalry has of late years been much underrated, and attempts have been made, with more or less success, to lead up to the idea that the charge with the saber is a thing of the past, and that in coming wars cavalry will have to depend for its success on fire action, and not as heretofore on the charge, to produce its effects in battle.

If we admit this to be true the troopers of the future will be nothing more nor less than mounted infantry, no matter what other name they may be given. This is the logical conclusion of abandoning the saber as the principal weapon for cavalry, or making it secondary to the carbine or the revolver; for it is but reasonable to suppose that when possible, arms will be used under those circumstances in which the greatest effect can be derived from them, and as the most ardent advocate of fire action for cavalry will scarce claim that they can be used with anything like the same precision and effect on horseback as on foot, it follows that to use them to the best advantage the men will have to be dismounted; consequently the troops which depend on their fire action will have to fight on foot.

But is this a statement of the case, and has the day for the shock action of cavalry passed away? If so, it would be best to relegate the saber to the arsenals, and the charge to the pages of historians or novelists; but before doing so it would be well to examine the histories of the last three great wars and determine from the examples they furnish whether the advocates of making cavalry a fire force instead of a charging force have made out their case.

In all these wars it has been demonstrated that cavalry charges, made with the saber or lance as the weapon of attack, and launched against the enemy at the proper time and with the proper precautions as to reconnoitering the ground in their front, have produced a decided effect, an effect that could be produced by no other arm of the service in the same numbers.

The German military experts, and it will not be questioned that, theoretically and practically, they understand their business, now lay down as an axiom that "Cavalry must be prepared to charge even unshaken infantry, for who can tell whether the infantry is shaken or not until the attempt has actually been made." As an example of this we will take the battle of Winchester. When SHERIDAN brought up his reserves of the Army of West Virginia, even in the face of the preponderance of force that these reserves gave the Union forces, EARLY's men held their ground. "Then SHERIDAN, riding to his right wing, found TORBETT with two divisions of cavalry, under MERRITT and AVERILL, some 7,000 sabers, well equipped, well mounted and well led. This force was hurled against the left of the Confederate army. The enemy was doubled up, and as the storm of cavalry broke on his flank, the Union army advanced, and the victory was complete."

Certainly in this case, if Colonel FLETCHER's account of the battle, from which the preceding is taken, is correct, EARLY's infantry was not shaken to that extent that they were ready to abandon the field without being forced to do so, and from all accounts it appears that cavalry was the force applied, the charge the gait, and the saber the arm. Indeed, to this latter does EARLY attribute the failure of his cavalry to cope successfully with the Union forces, for in his report to General LEE he states: "LOMAX's cavalry is armed entirely with rifles, and has no sabers; the consequence is that they cannot fight on horseback, and in this open country they cannot fight on foot." This report shows that LOMAX's cavalry was not, from its armament, what was required for fighting cavalry in an open country, no matter what services they might be able to render by rapidity of movement or fire action in a close country. What EARLY evidently felt the want of was a cavalry that was in condition to meet charge by charge in large bodies. It has moreover been shown by Major CARR's discussion of a previous paper that, in many of the minor actions of the cavalry of the Army of the Potomac, whenever the horsemen of the two armies came together on ground that was in any way adapted for cavalry, the force that charged with the saber came off victorious.

KILPATRICK, in his raid around Atlanta, on being surrounded by the Confederate forces, decided to cut his way out; his charge is described in Lieutenant SCOTT's paper: "The ground over which the charge was to be made was cut up by washouts and crossed by two rail fences. The Confederates had formed in three lines about fifty yards apart and constructed barricades of fence rails. The first two

lines stood firm until ridden down by the cavalry." In the same paper Lieutenant SCOTT goes on to quote the *Memphis Appeal*, which, in describing the action, says that they "came on in a solid column ten or twelve lines deep, each fellow for himself, rushed on swinging his saber over his head."

In this particular case the opposing forces were dismounted cavalry as well as infantry, and though they were behind barricades were unable to withstand the shock of KILPATRICK's charge.

From the wording of the *Memphis Appeal* (the writer of the article claimed to have been present at the action), the formation of the Union forces was a deep one, and from what Lieutenant SCOTT states in his paper, there must have been considerable confusion. One thing appears certain, and that is, but for using his cavalry as he did in his attack on the Confederate line, KILPATRICK would in all probability have been worsted. If, again, the charge had been made with less confusion, the losses would probably have been less and the advantages obtained greater.

This action furnishes us with another example of the shock action being successful in spite of the unfavorable character of the ground over which it was made. Had KILPATRICK dismounted his men to fight on foot it is questionable if he would have succeeded nearly as well, if at all; for in the first place, he would have been forced to reduce his fighting strength by furnishing horse holders, etc.; again from the greater length of time his men would have been under fire, his losses would have been greater than they were, before coming to the actual contact with the enemy. On the other hand, had CLEBURNE, ROSS and MARTIN met their adversary by a counter charge instead of dismounting their men, as the two first did, there is every probability that the Confederates would have given a better account of themselves; certainly their losses would not have been so great.

The casualties of the Union troops in this affair were not great, all things considered: fourteen officers and one hundred and ninety-two men for the Second Division; those of the Third and those of the Confederates are not given. If Colonel MINTY's account is correct, and there is no reason why it should be questioned, those of the latter must have been considerable, as he says 800 Confederates were sabered.

The deductions to be drawn from this action are, that cavalry should not be used on foot when it can be employed mounted, for as an arm of attack, it must be able to move with the greatest rapidity, even in a circumscribed space, which it cannot do dismounted; also,

that as an arm of defense, dismounted, *i. e.*, to receive a charge, it is a poor one, for it will always have to sacrifice a greater or less percentage of numbers as horse-holders, etc., before going into action.

To turn from the examples furnished in our own Civil War to those of other nations, we find that in the Italian campaign of 1866 the EDLESHEIM division of cavalry, some 2,400 strong, at the battle of Custoza, charged two divisions of the Italian army, and so demoralized them that they were unable to move for the rest of the day, but remained rooted to the ground; held there by the threatening attitude of the Austrian cavalry, though their presence was sorely needed at another part of the field; had they been able to move they would in all probability have turned the scale in favor of the Italians.

The Italians were drawn up in two lines of battalion squares covering each other's intervals. Prince HOHENLOHE, in describing the action, says: "At the beginning of the battle of Custoza the two brigades—PULZ and BUJANOWICS—with a total of fifteen squadrons, pushed into action, the Brigade PULZ making a front attack upon the two infantry divisions while they were still intact. They rode down the skirmish line, broke through some squares, and carried confusion and alarm into the third line. The most of the infantry sought and found protection in the rows of trees in the highly cultivated Italian plain, and opened a murderous fire upon the cavalry, which rode back through their lines. What was the result of this attack? Thirty battalions of the enemy were not only prevented from taking part in the action of the day, but had to be reinforced by the Brigade PIROJA. The cavalry was neither disabled nor destroyed. It remained in front of these divisions the entire day, and so impressed them that they did not risk an advance to the assistance of the balance of the army."

In another part of the field another charge was made by a smaller body of men, but in comparison the effect was greater still.

The Brigade BENKO had been forced back and the Italians had taken possession of a position which threatened the flank and rear of the Austrians. If they had been successful in establishing themselves in this position it would have been almost impossible to drive them from it. Three platoons of the Sicilian lancers (about 120 men) "broke through the Brigade PISA and falling on the Brigade FORMI caused a panic, and four out of five battalions were broken up, and were of no use during the day," thus enabling the Austrians to recover a position "the possession of which would have enabled them (the Italians) to win the battle. These results were secured

in a country in which cavalry was compelled to keep to the highways, which have many ascents and descents, and which are lined on either side by vineyards, mulberry groves and stone walls."

This again is an example of shock action against an unshaken enemy in a difficult country, and we may ask not only how much infantry it would have taken to accomplish the same result, but would it have accomplished it at all?

It cannot be urged that the Italians were an inferior race to the Austrians, for the Italian infantry gave a good account of itself and held its own against the Austrian infantry, and it is but reasonable to suppose that the Austrian cavalry was drawn from the same sources as their infantry. Nor would the argument of poor weapons hold, for the Italians were armed with rifled muskets, and according to ordinary theories should have destroyed the Austrian cavalry before it came within charging distance. The secret of the Austrian success is rather to be sought in the fact that at that time their cavalry was the best trained in Europe, and its officers and men thoroughly believed their charge to be irresistible.

And what was the price paid for these two brilliant charges? In the first about thirty per cent. of EDLESHEIM's division, and in the second two officers, eighty-four men and seventy-nine horses, or seventy per cent. of the three platoons of lancers. The loss in both cases was great, but in comparison with the general result it was small indeed, and it must be borne in mind that in action the result, if successful, justifies the means; moreover, as long as battles are fought, victory must be paid for by the sacrifice of friends as well as by the destruction of foes.

This action like the charge at Winchester, shows what can be done by well trained cavalry in the hands of skillful and determined leaders, for in this case it was more than a match for ten times its number of unshaken infantry.

In the campaign of Bohemia of the same year the Austrians were defeated by the Prussians, but badly as they were beaten, the defeat would have been much more crushing than it was had it not been for the Austrian cavalry, which enabled their infantry to form behind Königgrätz, preventing by its charges the Prussian pursuit.

MAUDE in his "Letters on Tactics and Organization," points out that these charges were delivered under by no means favorable circumstances, and that "instead of a shaken foe they had to ride at the steadiest of continental infantry, flushed with a hitherto victorious advance, and who were not in the least taken by surprise," and that

"the fire was actually delivered with unusual precision and coolness." It is not a matter of record that the Prussian infantry, though armed with the breech-loading needle gun, beat off the Austrian cavalry so as to be able to advance without the assistance of their own. According to Prince Hohenlohe the Prussian cavalry was moreover prevented by the Austrian from reaping the fruits of victory. To quote his own words: "Imagine the result if the Austrian cavalry had not been there; the entire Austrian army would have been lost between 4 and 5 o'clock; and, again, imagine the Prussians without cavalry; the attacks of the Austrian cavalry would perhaps have changed the result of the battle as was the case at a later date at Vionville."

In his *critique* on this action MAUDE says that "the actual amount of damage they succeeded in inflicting on the Prussians it is impossible to decide," but they proved beyond a peradventure that even after the defeat of an army "there is still work for cavalry on the battle-field which no other arm can do as well," and that "their action saved the Austrian army from what would have been almost as crushing a calamity as Sedan."

On the side of the Prussians, BREWOW's regiment at Tobitschau attacked, across open ground, and captured a battery of eighteen guns situated at 1,500 yards distance, and this with a loss of thirteen men only; and there is no reason to suppose that the guns of this particular battery were worse served than those of the rest of the Austrian artillery.

In another instance a Prussian squadron (100 strong) of the Tenth Hussars, surprised and captured, so sudden was their attack, an Austrian battalion of over 600 men.

In all the history of modern warfare there is perhaps no instance in which a charge of cavalry ever accomplished the results of the Brigade BREWOW at Vionville, for beyond its mere military aspect in deciding the action in favor of the Germans, it overthrew the theory that cavalry was unable to produce an impression on unshaken infantry, to cope successfully with the breech-loader, or advance under artillery fire. In the account of this action, we are told that the remains of the Twenty-fourth regiment of infantry were just in advance of Vionville, "without support or reserve of any kind, and no hopes of receiving any for many hours. Opposite them, and some 1,000 yards distant, lay the Third French Division drawn up in two lines and deployed, supported by the whole of the corps artillery of CANROBERT, in all fifteen battalions and nine batteries. A large body of French cavalry, at least a division, rode up and took

position between the Roman road and the road leading from Rezonville to Villiers aux Bois. Had they realized the condition of the Prussian infantry and charged, these latter were in no condition to have stopped them."

General BREWOW was ordered to charge, but made the objection, "Cavalry can't charge unshaken infantry." However, on receiving the order of the chief of the staff to charge, "he drew his sword and ordered his trumpeter to sound the trot. The brigade (only six squadrons) moved off under cover of a little valley, trotted up the slope, and having sighted the French, dashed at them in full gallop in one line. They dashed over both lines of infantry and through the batteries; the greater part went right on at the French cavalry, which now attacked them, outnumbering them nearly five to one, and with fresh horses."

MAUDE, from whom the above account is taken, points out that the main object, viz: the breaking of the French infantry, was accomplished with little loss in the advance, though the Germans were under artillery and infantry fire for a space of 1,500 yards. Their great loss occurred when after breaking through the French lines they were attacked by the French cavalry. The total number of rifles bearing on the Brigade BREWOW during its advance is estimated at 8,000, to say nothing of the nine batteries of artillery. The loss of the Prussians was heavy, about seventy-five per cent. of the total strength of BREWOW's brigade, but the object with which the charge was ordered, that is, the checking of the advance of the French Sixth Corps, was accomplished.

That the venture was evidently considered desperate by BREWOW himself, as well as by the general who first ordered the charge, is shown, in MAUDE's account of it, by both of them making the same objection when it was suggested, viz: "Cavalry cannot charge unshaken infantry," as well as by BREWOW himself making no disposition for reserve or flanking squadrons; had he done so, he possibly would not have suffered as severely as he did. In all probability the success of this charge was as much a matter of surprise to the Germans as to the French. Its expediency, taking the circumstances into consideration, was unquestionable.

At the same battle the Dragoons of the Prussian Guard charged the Fourth French Corps, which was advancing in great force on Mars la Tour. The Thirty-eighth Brigade, which was sent to check its advance, was beaten back after a desperate fight, in which it lost over half its numbers.

KÄHLER, in his "Reiter bei Vionville," tells us that the First Guard Dragoons received the order "to cover the Thirty-eighth Brigade, and at any cost stop the advance of the enemy." It appears that not only was the charge made and the advance of the French Fourth Corps stopped, but that owing to the nature of the ground over which they had to move before charging, the regiment was forced to go through several maneuvers while advancing under infantry and artillery fire. The French infantry, before the charge was made, was far from being shaken. It was, on the contrary, victorious and advancing, and moreover was armed with the best breech-loader then in the hands of European troops; they were also supported by a mitrailleuse battery, which from across a ravine poured round after round into the advancing Prussian cavalry.

In this charge the precaution was taken to detail a force, probably a squadron, to attack the enemy's flank, and to this its great success was probably due.

In all these examples we have illustrations of the different modes of shock action, varying according to the circumstances. Each of them was an important factor in deciding the engagements in which they occurred, and in none of them would infantry have accomplished the same results. Had the same numbers of cavalry been used dismounted, though they might have certainly annoyed their adversaries at longer or shorter carbine range, it is more than questionable if they would have thrown them into the same confusion and dismay as was caused by their mounted action. The very time they would have had to sacrifice in dismounting would have enabled the force attacked to measure the difference in numbers, to say nothing of the moral encouragement they would have secured from seeing an attack, which had commenced at a rapid gait, dwindle down to a halt before it fired a shot.

The French charges in this campaign were unsuccessful for two reasons: First, their cavalry "was far from first class, indifferently mounted, insufficiently trained, and as deeply bitten by the terror of the new arm as all the other cavalries of Europe;" Second, the ground over which they operated was unfavorable for cavalry action.

At Wörth MICHEL's brigade charged over extremely unfavorable ground "because of single lines of trees felled close to the ground, and deep ditches, whilst the infantry had a clear fire over the otherwise open and generally sloping ridges. This chivalrous advance of the cavalry had enabled the French infantry of the extreme right wing to withdraw unmolested."

The charge of BONNEMAIN's cuirassiers was made under circumstances that almost precluded any hope of success, but even it gave time to the French to organize another infantry counter attack.

The French charge at Vionville was a failure for two reasons: First, the distance at which the attack was commenced, 2,500 paces, was too great; Second, when it got "well within range of the infantry, its course was checked by the debris of DE FORTON's camp, biscuit boxes, baggage wagons, etc." From this resulted a crowding and confusion which went as far as the German resistance in rendering it ineffective, if indeed it could have had any other result after its long advance.

At Floing and Cazal, General MARGUERITE's division, after his death, advanced under General DE GALLIFET, over unfavorable ground and under the fire of every available gun the Germans could bring to bear on them. For half an hour the struggle with the German infantry defied description. MAUDE points out very clearly that no advantage was taken of this half hour's grace by the commander of the French army.

The engagements above cited are matters of history, with which every cavalryman who takes an interest in his arm is familiar; they have, however, been cited to prove what many cavalymen doubt or deny, viz: that the shock action of cavalry is the one best adapted to an arm which is essentially an arm of attack, for the very defense of cavalry lies in the initiation of the mounted attack. General VON SCHMIDT says: "The real sphere of action, its decisive influence on the enemy, in short the very life and soul of our arm lies in the charge."

To make the charge in line a success the men and horses should be thoroughly trained not only to cover long distances at the faster gaits, but to maintain a correct alignment and interval, more by a strict attention to gait and pace than by dressing towards the guide, so as to arrive at their goal in those boot to boot, wall-like formations, which will insure victory to-day, as they did in the days of FREDERICK THE GREAT.

In the instructions laid down for the charge by General von SCHMIDT, in his "Instructions for Cavalry," the principles are broad enough to be applied to any system of drill regulations, and if followed will insure the required precision so necessary to success. It would be an insult to us as a nation to insinuate that what German, French or Austrian cavalry can do in the way of precision of drill or maneuvers, is beyond our reach. But this can be attained only by

us, as by others, by a constant and unremitting striving for it. The theory that, as Americans, we are superior in intelligence and adaptability to drill to all other nations, and consequently do not require as much training as they do, may be, so far as native born Americans are concerned, correct; but the percentage of intelligent native born Americans in our service is not so great that we can afford to pay more attention to the end in view than to the means of attaining it.

Our drill regulations require the normal formation of the line to be in one rank. Whether this arose from the smallness of our troops, or the desire of a very extended front, it is a weaker formation than the double rank, for the latter admits of replacing by men from the rear rank, casualties that may occur in the front, and thus maintaining the line intact. If there is no rear rank from which to fill the casualties of the front, by the time the line comes to the actual contact it would, from losses in going over the ground that separated it from the enemy, be practically in extended order, which is contrary to the principle that a charge in line should be solid and compact.

The laming of horses in the front rank by being trodden on by those of the rear rank, evidently does not take place to any extent beyond the other ordinary casualties of the drill field; or if it does the advantages to be gained by the double rank formation are great enough to counter balance any disadvantages that may arise from such injuries, otherwise a nation so economical as Germany would scarcely adhere to the double rank. The objection that, in case of a horse going down in the front rank, the rider would be trampled to death, or the rear rank overthrown, applies with equal force to the column of platoons or fours, and the danger is no greater in the former than in the two latter cases. That troops if well trained move with as great rapidity and precision in double as in single rank, is shown by accounts of foreign cavalry maneuvers, and if they can attain this, there is no reason why we should not.

Throughout the advance over the intervening ground up to the point where the actual charge is to commence, the troops may be kept fairly well aligned and closed; once, however, the charge itself commences, no matter how well they may be ridden, every horse will take his best gait, and the swiftest ones will draw to the front, leaving gaps in the front rank which, if not filled, are at all events covered by the rear rank men. The moral effect of this apparently solid wall of horsemen coming down on them, is very much greater on the troops receiving the charge than that of a line with the intervals between the files that are bound to occur in single rank from casualties and opening out on the flanks, etc. As for the moral effect

on the men of the rear rank, it is more than probable that the excitement of the preliminary trot and gallop before the charge itself begun, would have left them very little anxiety beyond that of seeking to get into the gaps in the front rank, or keeping the distance from it they had been accustomed to in drills or maneuvers.

The Germans train their men to rally in double rank after the charge, as well as after the swarm attack, and to men accustomed to fall in in double rank the time occupied in forming cannot be so very much greater than it would be in single rank. Moreover, as the case of forming at all after an attack would imply a success, and in that case the supporting lines of attack would in all probability have taken up the pursuit, the element of the difference in time, if such difference exists, would cut an insignificant figure. In case of the failure of the attack there would be little chance of re-forming in single or double rank until the defeated troops were in such a position as to have plenty of time for any formation required of them.

The only provision we have in our drill regulations for the formation of double rank is by an intricate maneuver; apart from this it has moreover the disadvantage of shortening the general line, and the organizations composing it, over and above the time wasted in getting into double rank, would have to sacrifice more time still in closing the intervals between them if in line; if the troops were in column the rear organizations would have to close up on those in front so as not to have too much interval on wheeling into line.

The greatest advantage of double rank as a normal formation for cavalry, apart from giving weight and cohesion to the charge in line, lies in the fact that as the greater can include the less there is no reason why organizations accustomed to work in two ranks should not work equally well in one, or in extended order whenever occasion rendered it expedient so to do. It would be more difficult to make men accustomed to work in single rank only, work equally well in two ranks; for as neither men nor horses would be accustomed to work in double rank as a normal formation, confusion would be likely to ensue.

The successes of SHERIDAN, as well as those of other cavalry leaders in our Civil War, were gained in double rank formations, as were those of EDLESHEIM in Italy, and BREDOW in France; and "Upton's Tactics" provides for a double rank formation for cavalry.

Of the double rank it may be said that it has been tried successfully in this and other countries, whereas the single rank has never been put to the test even with us for all cavalry. Single rank

formation was discussed in England some fifty years ago, and was evidently not adopted, as the present British normal formation for cavalry is in two ranks. The most warlike as well as the most economical nations of Europe have found that they handle cavalry to the greatest advantage in squadrons of from 130 to 140 men in double rank.

It must not be understood that in this paper any effort is made to underrate the fire action of cavalry dismounted, for in this country we have proved how terribly effective it can be; but from this very fact as well as from the peculiar nature of the services required of our cavalry in the last quarter of a century, many cavalry officers have come to consider the charge, with closed ranks and the *arm blanche*, if not an impossibility, at least so remote a contingency as to be almost unworthy of consideration, and as a consequence attention has been withdrawn from it.

In the fight at Wounded Knee the cavalry was drawn up dismounted surrounding the Indians. These latter, in resistance to disarmament, commenced firing on them. Had these troops been mounted and armed with their sabers as well as with their fire-arms, they could have charged into the Indians at the commencement of the fight and certainly would have killed and disabled as many of them as they did with their fire-arms. But we are told that such a method of attack would not have been expedient, as it would have scattered the Indians, and it was desirable that they should remain bunched as much as possible. Granted; but if in this particular case they did remain so, it was as much due to the troops which occupied the surrounding high grounds, thus preventing the Indians getting to them, as to the dismounted men of the Seventh Cavalry in their own immediate vicinity. After all there would have been nothing to prevent their following up on foot in the rough ground any advantage obtained by a charge in the bottom when the fight commenced.

As for marching, scouting, skirmishing on foot, reconnoitering, and general ability to take care of itself under the most trying circumstances, our cavalry is unrivaled, for it has learned all this business in a numberless series of engagements with an enemy inured to irregular warfare from boyhood, more subtle, cunning and enduring than any other savage nation of the earth, and who, once brought to bay, can fight and die with Spartan energy and fortitude. To come off victorious with such a race, our officers and men have had to bear privations and sufferings that the soldiers of no other nation have been called upon to endure. From the very conditions of this warfare they have been forced to trust to their individual resources,

intelligence and bravery, in an unexampled manner, which has placed them in a better position to teach than to learn these particular branches of their profession from foreigners.

This warfare, however, is coming to a close, and in future we will have to reckon with troops handled according to the methods of modern scientific war, and as a consequence will have to depend less on the individual personal valor of our soldiers and more on the perfection of the training of our tactical units, for whether we will have to meet Canadians from the north or Mexicans from the south, these nations will have trained armies, better or worse, to be conquered at any cost, and as we are told that in future, wars will be "short, sharp and decisive," it behooves the army that would be victorious to be ready.

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THE ORGANIZATION OF CAVALRY SCOUTS; BY N. KRUS-
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AMONG the methods for obtaining information of the enemy, a prominent place unquestionably belongs to that of cavalry scouts. The merit of this method, as compared with others, is due to the fact that such scouts can be employed simultaneously and uninterruptedly over a large territory, and are always at the disposal of the commander.

Everyone understands the importance of well conducted cavalry reconnaissances, but in practice, as well as in military literature, both at home and abroad, complaints are often made that the cavalry does not always give sufficient information of the enemy. The explanation is sought in the insufficient preparation of the cavalry arm for this service, but it is believed that such an explanation is not always just. Failures are very often the direct result of not knowing how to take advantage of the information furnished. A knowledge of the proper use of cavalry in the scouting service is shown by an efficient organization of the scouts, without which it is impossible for them to keep the commanding officer informed of the situation, and to prevent any changes therein from escaping his attention.

It is positively shown by experience that the successful performance of the scouting service by the cavalry depends not alone upon preparation—i. e., upon the accumulation of a sufficient number of experienced patrol leaders, officers and men—but, in like degree, upon the appropriate organization of the scouts for a given case. The object of the preparation of the patrol leader is to teach him how to attain a given object with a horse patrol without sacrificing the strength of his men and horses; to acquire knowledge accurately; to grasp the situation, and to compose precise and definite reports.

The problem of the organization of scouts is to secure the uninterrupted and abundant receipt of fresh and positive intelligence of the enemy.

In the following exposition an attempt has been made to outline some of the fundamental principles shown by experience to be applicable to the organization of scouts.

I.

It is a well known fact that cavalry scouting is done by horse patrols. Two types of these patrols have been developed in practice—the first, designed exclusively for reconnaissance of the enemy or of the country; the second, for the immediate guarding of the force both in position and upon the march. These are designated by the regulations for field service as “flying patrols” and “guarding patrols,” respectively, and are entirely distinct in designation and in the character of the information furnished, so that it is necessary to draw a sharp line between the information which may be expected from a flying patrol and that which may be given by a guarding patrol.

The former is sent out by the commander of a force, and gives such information as it may be ordered to obtain; the latter, found in immediate and closest connection with the guarded troops (being seldom kept at a greater distance than one, two, or three versts*), gives information of the approach of the enemy to the immediate vicinity. Hence, if a force has around it only the guarding patrols, it is in a measure secured from sudden surprise, but at the same time cannot have information of what the enemy is doing; it finds itself poking about in the dark; it gets along by groping. If positive data are required as the basis of a certain calculation and the corresponding timely dispositions for impending operations, there must be, in addition to the guarding patrols, and always near the enemy, horse patrols sent out for a special purpose, and each with its special object. To open the eyes of a force, it is necessary to have suitably directed flying patrols under a properly organized system of scouts. Surrounding a command by guarding patrols is a purely passive measure, and the scouting service acquires an active character only when flying patrols are sent out, for without them there is neither reconnaissance nor information.

In the strict meaning of the regulations for field service, the guarding patrols are sent out as a matter of course, without awaiting

*A verst is 3501 feet, or .56 of a mile.

either special orders or the dispositions of the commander of the force. When a force is disposed for rest, for example, the commanding officer of the separating barrier of observation or defense, having received his field of operations in the common guarded zone, and having taken his place, promptly and upon his own authority sends out guarding patrols, each of which makes the tour of the small section of country assigned it until relieved by another patrol. On the march guarding patrols are sent out by the commander of a leading or flank detachment detailed as a guard to the advancing troops. This is done promptly and without special orders. The patrols move in a definite direction and at a prescribed distance from the force. So it is during a battle; the commander of a flank guard receives his instructions, takes his place and then sends out his guarding patrols. All this is plainly indicated by the regulations, and a failure to carry out the instructions is a grave official neglect on the part of the officer in command of any of the guarding detachments.

With flying patrols the case is quite different; their use is much more extended and diverse; they serve as an aid in guarding as well as for organized reconnaissances of the enemy on a large scale, and are sent out as needed under special orders in each case. As an aid in guarding a force, they are sent out by order of the commander of the advanced posts (when at a halt), or of the advanced guard or vanguard (on the march). For example: the commander of the advanced posts is apprised of the appearance of an important force of the enemy near the guarding chain. To secure his posts and also the main body from sudden attack he sends out one or more patrols to learn the details of the body of the enemy which has appeared, and to observe it. When marching in the vicinity of the enemy, the commander of the vanguard, seeing from the map that the column will soon have to pass through a forest of greater or less extent, sends one or more flying patrols at the proper time with orders to search the forest before the main body enters it. This is done for the better protection of the force and to avoid an unexpected collision with the enemy. But flying patrols sent out in such a manner, serve only the partial end of protection, and therefore have an accidental character, notwithstanding the usefulness of the information received from them. To solve the problem of the complete clearing up of the situation for the commanding officer, of his constant *orientation* by an uninterrupted receipt of information, it is necessary to organize upon a large scale, and by means of flying patrols, a complete system of reconnaissance. This matter is of so much importance that it cannot be left to the discretion of subordinate commanders, and for this reason all orders bearing thereon

must be issued from the highest authority; in strong tactical organizations (corps and larger), from the staff of the cavalry force charged with reconnaissance and observation of the enemy; in independent forces of smaller strength, from the staff of the force. And indeed who is better able to know what information is required, in what directions the country should be cleared up, etc., than the chief of staff of a force? It is his duty to prepare all the data and, in order that the commanding officer may draw inferences corresponding to the actual state of affairs, the chief of staff is able to give fully detailed instructions to the commanders of the flying patrols sent out for this purpose. Without such instructions it is impossible for a flying patrol to solve the problem assigned it. All the threads of the reconnaissance must come together at the staff of the force, and thence also must issue the orders for the organization of scouts.

In close connection with the foregoing is the question of the commanders of the flying patrols, i. e. of those persons who make the reconnaissances. The fitness of a patrol leader to execute the orders of the commander for whom the reconnaissance is effected has, of course, a very important signification, and the higher the personnel of the cavalry in this respect, the better. It is often lost sight of, however, that the cavalry cannot very often furnish ideal patrol leaders. Indeed, of the number stated on the list—four junior officers to a squadron—it usually happens that in consequence of unavoidable absence not more than two or three are present, and it may be confidently stated that for scouting purposes a given force cannot spare, on an average, more than one officer from a squadron. The remainder are necessary for the squadrons themselves, and for other kinds of cavalry service. In small forces, therefore, when the cavalry is weak, the commanders of the flying patrols come chiefly from the non-commissioned officers. As will be seen below, even in a cavalry division sent out to reconnoiter and observe the enemy, the employment of officers for scouting is greatly limited by existing circumstances, and therefore, in that case as well, the detail of non-commissioned officers for that purpose is unavoidable.

It is necessary to discern in the patrol leader the equally important qualities of individual capability for the service, tactical knowledge and experience. Relatively speaking, there are many non-commissioned officers in a body of troops, and it is therefore possible to choose for scouting men who are sensible, bold, and decided, and who have already served with a horse patrol; but in regard to tactical knowledge, much cannot be required of non-commissioned officers. With officers it is different; there are compara-

tively few of them in a squadron or regiment, hence each in turn may have an opportunity to serve in command of a flying patrol. But although they have received the necessary tactical training, there will always be great diversity in their innate abilities for this kind of service. All do not possess to the same degree the tact, decision, energy, firmness, skill, presence of mind, indefatigability, and other qualities of the good patrol leader; and even if every force had its full complement of officers, there would still be comparatively few of them. It is seen from this how varied are the elements which must be employed in reconnaissance as compared with the type of the ideal patrol leader given by theory. For this reason it is necessary to count upon and know how to derive the greatest benefit from the material at hand, inasmuch as in practice fastidiousness is not always possible.

Experience shows that the observance of the following fundamental rules is necessary for the success of the scouting service:

1. The operations of every patrol leader should be confined to definite limits within which he is free to act according to his discretion, independently of other flying patrols and of the troops in rear. The more simple and definite the object of a flying patrol the sooner can its successful accomplishment be counted upon. Several duties of a different nature should not be assigned at the same time to a single flying patrol, even if each of them is simple and definite, for it may easily happen that the operations of the enemy or other events will compel the patrol leader to sacrifice one of the objects for the success of the others, and the commander of the force will be deprived of important information or even receive none should the patrol leader prove undecided. To avoid such accidents, a separate flying patrol should be designated for each of the objects of a reconnaissance, and sometimes, several patrols for a single object, in order to make simultaneous reconnaissances of different places. Each flying patrol should therefore be given a plain and fully defined duty, and this plainness and definiteness are attained in practice by limiting the operations of the patrol to a single definite, narrow field of operations, or to a single definite direction.

2. Whether soldier or officer, it is necessary to explain to the patrol leader everything connected with his duty, namely: the general aspect of affairs, including what is already known of the enemy and of his strength and dispositions; the disposition of our own troops; the aim and object of our force; the information still necessary; the special object of his patrol and its field of operations; the points from which and times at which it is obligatory to

furnish reports in every case; what the main body will be doing while the reconnaissance is being made, *i. e.*, will it be at a halt or in motion (and in what direction), or fighting; where and in what form the reports should be transmitted; what other flying patrols are to be sent out and their objects. Not one of these points can be neglected without making it impossible for the flying patrol to thoroughly and successfully accomplish its given mission.

3. What has just been stated shows how important such instructions are to the commander of a flying patrol and how circumstantially the information must be communicated to him. It is evident that this can best be done by the person immediately interested in obtaining the necessary information of the enemy. Hence, in sending out a flying patrol, the fewer the intermediate channels, the better.

4. In giving the patrol leader his instructions, every theoretical and technical expression should be avoided, including the entire category of the various operations, such as "to light up a locality," "to maintain connections," "to get in contact with," and the like; all that is communicated should be real and concrete, facts and requirements stated concisely and in simple language, even slang, if the patrol leader is a soldier of the common people.

If possible to do so, it will be an advantage to write out the information above referred to as an aid to the patrol leader's memory.

Therefore (1) reconnaissances are effected by an organized system of flying patrols; (2) orders for a reconnaissance are issued from the staff of the force, the fewer the intermediate channels, the better; (3) the operations of each patrol leader must have a definite limit, and each patrol must be given a definite and simple object; (4) the commander of each flying patrol receives instructions before setting out, which explains to him the aspect of affairs and the limit of his operations, receiving them as far as practicable from the person immediately concerned in obtaining the information.

II.

It has already been stated that the problem of the organization of scouts is to secure the uninterrupted receipt of an abundance of definite and timely information. An attempt will now be made to give a review of the methods by which this object can be accomplished, and of the principles to be observed.

- (a) *The abundance of information and its uninterrupted receipt.*—Abundant information is secured by a sufficient number of flying

patrols simultaneously observing the enemy and scouting the whole field of operations of the force.

Uninterrupted observation is attained by sending out additional flying patrols as they are needed. It is easily seen that, on the one hand, the duration of service of a flying patrol is much reduced by essential conditions (which will be referred to below), and that, on the other hand, the necessity continually arises in the course of military operations for new information, either to fill up gaps in the incomplete picture of the situation or to explain contradictions appearing in the reports.

This leads to a contemplation of the number, size and duration of service of the flying patrols simultaneously observing the enemy or scouting the country.

1 Their number depends on the width of the field to be scouted and on the directions in which they must be sent out. The more distant the enemy, the wider, usually, the theatre of operations of the force, which narrows as the main bodies of the two sides approach each other. The directions to be taken by the flying patrols are determined by the number and relative importance of the roads leading towards the enemy, bearing in mind that to learn his strength, dispositions and direction of march, it is of less importance to see the patrols covering his front than to unveil his columns on the march and his bivouacs and quarters when disposed for rest. The number of flying patrols is also influenced by the above mentioned rule that each should have a single plain and definite object, and by the frequently arising necessity of sending several patrols on the same errand in order to make a reconnaissance from different directions.

Their number is limited, however, by the number of men that can be detailed, under ordinary circumstances, from the effective cavalry of a given force, as well as by the strength it is necessary to give each patrol. Both are dependent on combinations of a very diverse nature. Thus the number of men ordinarily detailed for scouting depends upon the number of mounted troops required for purely fighting purposes, as well as upon the necessity of having cavalry for the guarding service, both in making dispositions for rest and on the march, etc. In general there may be the most diverse combinations in this case, depending upon the various conditions of the situation. A cavalry division can usually detach for scouting, without too great a reduction of its battle strength, from one-tenth to one-twelfth its number, i. e., from three hundred to three hundred and fifty horses; but as it is always necessary to have sufficient men in reserve for supplementary reconnaissances, in order to keep up an uninterrupted

observation, the flying patrols sent out should contain not more than from a hundred to a hundred and seventy-five horses.

We have seen that a squadron cannot furnish, on an average, more than one officer for scouting purposes. The maximum number from a cavalry regiment will therefore be six; from a division, twenty-four. It would be imprudent, however, to send them all out at once. The uninterruptedness of observation essential to success has been shown to be attained by means of a successive series of flying patrols. Moreover, the necessity for officers' patrols is not always imperative. They are especially useful when contact with the enemy is sought, when patrols are sent to great distances, etc. Good officers' patrols are also of great value when the main bodies of the two armies have approached each other so closely that they are on the eve of a battle, or immediately after it. At such a time great importance attaches to the proper and speedy valuation of any fact. Finally the necessity for officers' patrols in the execution of the more important and difficult duties may arise at any time, and what has been said shows the importance of having a sufficient number of them constantly in reserve. Except in urgent cases, therefore, not more than one-third of the above mentioned number, i. e., not more than from eight to ten officers, are sent out from a cavalry division.

2. Of no less importance are the considerations relating to the strength of the flying patrol, and in this regard also there are the widest limits, as the regulations for field service authorize a strength of from one section (six horses) to a battalion (about two hundred and fifty horses).

But while it is impossible to give the precise and definite limits of the strength of flying patrols for different occasions, still a comparison of the properties of large and small patrols will bring out some of the fundamental principles with respect to their use.

(a) In order that a small patrol may accomplish its end more quickly, it should be composed of picked men and horses. This is of the greatest importance when the enemy is at a distance (as far as two marches, for example) and there is a demand for speedy information.

(b) A small patrol can operate more stealthily; in case of necessity it can easily conceal itself from the enemy, his patrols, or the local inhabitants. This property is advantageous when a patrol is obliged to make its way through the enemy's lines.

(c) As a small patrol can be subsisted on the country more easily than a large one, its commander is less hampered in his actions

by the care of seeking forage, meat, bread, etc. This is an important item when the patrols are to be out for more than two days, the time for which rations and forage are usually carried in pack.

(d) When the number of patrols is great, small ones are less weakening to the fighting strength of the cavalry. This circumstance is important when the field of operations is extensive, i.e., when patrols must be sent in many directions.

(e) In consequence of its strength, a large patrol is more independent and can operate more boldly and energetically. This property is of importance when the object of a reconnaissance can be accomplished more quickly by breaking through the enemy's lines than by long circuits or secrecy at any cost.

(f) Sick or wounded men and horses are less burdensome to a large patrol than to a small one; in the latter, every man counts and its entire strength is in mobility. A sick or wounded or dismounted soldier is an inexpressible burden to a small patrol, especially if it is at a distance and operating in a strange region.

(g) A large patrol can give a greater number of reports, but when it is sent forward to a great distance and is scouting within the enemy's lines, the practicability of sending reports by individual men cannot be counted upon. In such cases the patrol itself usually reports the results of the reconnaissance.

An analysis of the properties of large and small flying patrols leads to the conclusion that large ones may be advantageously employed when it is necessary to pave the way by force, to obtain information by fighting, when the main bodies of the two armies come close together; when the theatre of operations of the force materially contracts, when the number of patrols is small and each of them must be strong. In all other cases, generally speaking, small patrols are to be preferred, but on account of disadvantages resulting from making them too small, especially their lack of independence, the impossibility of sending reports, and their sensitiveness to every decrease, they should seldom contain less than ten to fifteen men, especially if sent to great distances. Patrols of less strength are employed only in the vicinity of the force.

It is clear that this is another question which does not admit of a definite answer, and that patrols of the greatest diversity in size (according to the object, locality, etc.) may be employed in the theatre of operations of a force at one and the same time.

B. Finally, in the organization of scouts, the duration of service of a patrol is an important question. Attracted by their independence and by the possibility of receiving from them a greater number

of reports, many see the accomplishment of the idea of uninterrupted observation and the preservation of established contact with the enemy in the employment of large flying patrols for a long continued time, in order that they may be "always near the enemy," and "all the time report." Practice shows this to be far less advantageous than would appear at first sight, for when the patrol is ordered out, it can receive instructions in regard to the immediate problem only; moreover when a patrol leader is sent out for a long continued time, he is left to his own resources, and is thus placed in a very difficult position. Being influenced by the enemy's operations and ignorant of the general situation (which may change at the very time of his departure) he will find it exceedingly difficult not to let slip the essential, not to be allured by trifles, and to furnish at last the information of paramount importance to the commander of the force at a given moment; finally, a goodly share of luck is necessary in always striking the precise point where the presence of a patrol is most needed. When sent out for a long time, it is only in the beginning, as a rule, that the actions of the patrol leader are in harmony with the views of the commander by whom he was sent. Information received later will probably be such as seems material to the chief of patrol from his point of view, but it may not be satisfactory to the commander of the force, and the answers to the questions most perplexing the latter at a given moment, will either fail to come at all or will do so only by accident. Failing to receive the necessary information, the commander of the force is at length obliged to send out new patrols with more explicit instructions (if it be not already too late), and the ones sent at first move to and fro without benefit and without definite object. Thus the sending out of flying patrols for a long tour of duty is not only without promise of the best results, but leads to a wasteful expenditure of the strength of the cavalry.

There are other conditions as well which limit the duration of service of a flying patrol. Its duties are exceedingly trying; it is constantly on the alert; the physical and mental strain on the men is uninterrupted; the number of hours the horses are under saddle and the number of versts traversed in a day are much greater than under other circumstances. Moreover it is hard to arrange the most advantageous times for moving, rest, feeding and watering. All this is very exhausting for men and horses. We see, therefore, that by inattention to these considerations it is possible for such patrols to exhaust the entire cavalry of a force, making it incapable of pure fighting and other cavalry service.

The duration of service of a flying patrol depends upon the

amount of forage in pack and upon the time it is possible to subsist on the country. The latter is a very essential question, as dry forage is not always to be found; in April and May it is difficult to procure oats and hay.

Finally, the duration of service depends upon the distance to which the patrol is sent, and this in turn is limited by the possibility of receiving timely reports.

Thus the interests of the service and the preservation of the strength and efficiency of the cavalry for battle require that the flying patrols should receive concise orders, not calling for their continued absence.

Therefore, an abundance of information is secured by a sufficient number of flying patrols scouting simultaneously; and uninterrupted information, by sending out, one after another, as needed, a new series of patrols. After all, the real problem of the organization of scouts is shown to be—so to combine the above mentioned principles (regulating the average number of horses available, the number of patrols and the strength of each)—that the service of the cavalry may produce the best possible results, *i. e.*, that the greatest amount of valuable information, consistent with an economical use of the cavalry, may be received.

To illustrate by a few examples, let us assume that a cavalry division moves forward to reconnoiter the enemy.

(a) Contact has not yet been attained. As the most likely points of concentration of the enemy's troops are several marches distant, there are only vague notions of his strength and dispositions. The immediate problem of the cavalry will be to ascertain the strategic front of the enemy, the direction in which his columns are moving, etc. The division operates over a broad front, and can send out from eight to ten officers' patrols of from ten to fifteen horses each, to discover the enemy's cavalry and the points where there is greatest likelihood of meeting the main body of his infantry.

(b) The enemy's cavalry has been reduced to inactivity; the places where the main bodies of the enemy may be found and the direction of movement are known; the distance between the main bodies of the two armies is from one to two marches. The problem of the cavalry is to keep the enemy in sight and to follow up the movements of his columns and the changes of disposition of his troops (in bivouac). As the theatre of operations is much narrower than before and the enemy keeps a stricter guard, the number of flying patrols from the division may be less but their strength is

greater; for example, five to six patrols of from twenty-five to thirty horses each.

(c) The main bodies of the two armies are less than a march apart, and the situation is almost completely known, but it is necessary to finally ascertain the enemy's dispositions before the battle. The theatre of operations is extremely narrow, and two or three flying patrols of a strength of from half a squadron to a squadron and a half may be sent out. These reconnaissances are often simultaneous with the advance guard engagements which precede the collision of the main bodies. Under these circumstances such reconnaissances may be advantageously supplemented by those made at night or towards morning by small parties of two or three bold and energetic volunteers.

The above mentioned stages of the situation may follow one after the other, and they show, in a measure, the employment of a series of flying patrols to maintain uninterrupted observation.

Of course these illustrations are far from exhausting all the phases of the situation or all the methods and occasions for the employment of flying patrols; but all this may properly be omitted from the above types and examples.

(b) *Timeliness and Positiveness of Information.*—The expression "timeliness of information," is usually understood to mean that a report of every important fact discovered by the scouting force, or obtained by it in any other way, should reach its destination in the shortest possible time, in order that the commanding officer may consider it in making his dispositions. The first question that presents itself in this regard is the establishment of permanent connection between the flying patrols and the troops in rear. By "permanent connection" is meant the possibility of reciprocal communication, *i. e.*, the reciprocal transmission of information or orders between forces separated by greater or less distances. The telegraph, visual signals (heliograph), a courier line, and messengers, in case of necessity, may serve as a means to this end. As for the flying patrols, their use of the telegraph as a means of communication is possible only under exceptional circumstances, on account of the comparatively small number of telegraph lines, the improbability of seizing lines not tampered with, and the small number of experienced telegraphers in a regiment. The employment of the heliograph is also limited to exceptional occasions. It is expedient to establish a courier line between the force and the flying patrols only when it is foreseen that the latter will remain at a known point for a more or less continued time, and when the courier stations are quite safe

from the enemy; otherwise a messenger with a report does not find the stations nor do orders reach the patrol, and finally the patrol commander never gets his men together again. Instead of wasting them by establishing courier stations it is better to have the extra men with the patrol and to forward the reports directly by them. For flying patrols, then, the chief method of communication is to send reports by a single messenger, or by several at the same time. In the great majority of cases, therefore, it is quite impossible to count upon the practicability of transmitting information or orders from the force to the patrol.

The quickest receipt of information from the patrol depends, on the one hand, upon whether its commander rightly directs the messenger who carries the report, and on the other, upon the ability of the messenger to find his way in localities unknown to him. He must be informed where he can find the person or force for whom the information is intended, and this is possible only when the patrol commander has been given instructions covering this point, which may serve him as a guide.

It is evident from the above that the greater the distance to which a flying patrol is sent, the less definite is it possible for these instructions to be, the more difficult it is for the dispatch-bearer to find the commander to whom he is sent, and generally, the more perplexing it becomes to furnish information. The patrol leader who does not take this into consideration is usually obliged to deliver in person the information obtained (with the patrol), in order that the report may reach its destination; and it is easy to consume so much time by the return of the patrol and the finding of the commander who sent it out that the information brought is obsolete or of depreciated value in consequence of the changed situation.

There is a wide-spread opinion that a flying patrol should not be limited as to distance, and while this is true from the point of view of the possibility of traversing great distances—yet it is far from true from the standpoint of expediency. A known limit undoubtedly exists, though it is difficult to give any precise standard. Much depends on the nature of the duty; on the natural features of the locality (whether hilly, wooded, or an open plain); on the kind of population, our own or foreign, friendly or hostile; on whether the patrol consists of regular cavalry or of Cossacks, who possess great aptitude for orienting themselves in unknown localities; on the kind of horses in the cavalry force, etc. But taking into consideration only the conditions of distance, time, and the strength of the average horse, it may be said (from the basis of experience) that

when a force is about to find the enemy, to get in contact with him, observe him, etc., the extreme limit of the distance to which a patrol should go, is from thirty to forty versts. From the most distant point within this limit, the information gained may be furnished within twenty-four hours after the patrol is sent out.

Although promptness in rendering reports is very important, yet in the sense of securing the timely receipt of positive information, promptness alone is not always sufficient. Practice shows that it is often of equal importance for the commander of a force to receive reports from his patrols at an appointed time and from designated points.

This gives rise to what are known as *obligatory reports*, in addition to those to be furnished at the discretion of the patrol leaders.

These reports may be required to reach the staff of the force at an appointed time, or they may be required from designated points along the route of the patrol.

1. *The requirement that obligatory reports shall reach the staff of the force at an appointed time* is justified by the following circumstances. Every military enterprise (battle, march, sudden attack, etc.) has, of course, a most suitable time for its commencement. For success it is necessary that at the beginning of an operation all the dispositions should be completed; every subordinate commander should receive and master his rôle, decide how it may best be executed, and take the corresponding measures. The clearer the situation is to the commanding officer, the more suitable will be his dispositions, and consequently the fresher and more detailed his information at this time, the better. Military *coup d'œil* and perspicacity backed by experience can foresee with sufficient exactness the time at which reports must be furnished in order that these ends may be attained.

The following simple example will serve to illustrate: The commander of a force has information that the enemy has bivouacked at no very great distance, and decides to make a sudden attack upon the bivouac with his cavalry. To this end he orders a reconnaissance of the enemy's outposts so that the attacking force may turn them, and, if possible, appear unexpectedly and without alarming the guarding chain. Having chosen the most suitable time for the attack, it is possible, by considering the distance to the supposed bivouac, to calculate the time at which it is necessary to move out, and therefore the time at which it is necessary to have positive information of the results of the reconnaissance made by the flying patrols sent

out for this purpose. This time must be indicated to the chiefs of patrol before they are sent out.

Information at a fixed time may be required with advantage not only from individual flying patrols, but also from stronger bodies of cavalry reconnoitering and observing the enemy. Thus from a cavalry division covering the front of a corps or operating upon its flank, there should proceed to the staff of the corps daily, in the evening, general information—an abstract of all that has been inquired into and discovered during the preceding twenty-four hours. And when the main bodies of the two armies have converged to within a short distance of each other, a march or less, then twice a day, morning and evening. The information sent in the evening is required in order that the staff may have as fresh and full intelligence as possible when orders are issued for the following day; and that received in the morning makes it possible to judge whether or not the situation has changed during the night. It follows, as a matter of course, that reports to be rendered at a fixed time do not relieve the cavalry commander from the duty of promptly advising his superior of any important facts discovered in the reports received from the flying patrols.

2. The necessity for *obligatory reports from designated points* arises from the following circumstances: If no report is received from a flying patrol it does not necessarily follow that nothing essential, or that may be worth reporting, has been seen or heard; conversely, if a patrol neither discovers the enemy nor knows anything of him, it does not necessarily follow that no report should be sent, for the information that the enemy has not appeared in a given direction may, in connection with other things, be very valuable indeed.

Upon the theater of operations, within the operating field of a given force and upon the roads leading to the enemy, there are natural landmarks, cross-roads, bridges, defiles which the enemy cannot avoid, suitable battle positions, good bivouacking places, etc.; in a word, lines and points which may become of especial strategical or tactical importance in the course of military operations. It is frequently important for the commander of a force to know whether or not his patrols have reached one or another of these points and lines: and if so, when, in what way, under what circumstances, and what information has been obtained up to that time. Reports are therefore required from these places which are indicated to the patrol commanders before they are sent out.

Experience shows that by means of obligatory reports from these lines and points, the receipt of information is regulated in accordance with the views of the commanding officer, and enables him to follow

from afar, as it were, the progress and methods of work of his chiefs of patrol.

The advantages of these reports at fixed times and from designated points are that a greater quantity of positive information is received, and at more seasonable times, from a given number of flying patrols simultaneously scouting a given field of operations, and thus greater economy is attained in the employment of the cavalry for scouting purposes.

Lastly, the establishment of obligatory reports, in connection with limiting the operations of each patrol to a known direction, results in harmonizing the operations of the chiefs of patrol with the views of the commanding officer. The activity of each is confined to definite limits, and this greatly facilitates the accomplishment of the indicated object. All this contributes not only to the attainment of a greater supply of information, but also to the increased value of the patrols. It may, perhaps, be said that this limits their independence. Yes, to some extent. We have seen, however, that the principles governing the employment of the cavalry for scouting purposes are, from the nature of things, very different from the theoretical ideal, and experience shows that such limitations are very useful when intelligently established. Moreover, the commanding officer is at liberty to widen or narrow the sphere of action of the chief of patrol according to his capacity.

In the organization of scouts, therefore, the seasonable arrival of the required information is secured:

1. By the comparatively short distance and short time for which the flying patrol is sent out.
2. By communicating to the chief of patrol at the time of his departure the data upon the basis of which he may accurately direct the men sent with reports.
3. By requiring reports to be made at a fixed time.
4. By requiring obligatory reports from known boundaries or points of the country lying to the front.

III.

Our sketch would be incomplete without a reference to the conditions which surround the organization of scouts on a large scale upon the theatre of war, for the purpose, it may be, of discovering the military operations in progress, especially when the main bodies of the two armies are separated by a great distance. For the information of the superior commander with regard to the strength,

dispositions and operations of the enemy, the flying patrols must see as far as possible the main body of his troops, but at the same time practice shows that the progress of the scouts, continuous observation, and the receipt of timely intelligence are dependent upon the comparatively short distances to which the patrols are sent, and the short time of their absence. It is evident that these requirements may be met by apportioning the work beforehand among the cavalry detachments, the cavalry divisions; in a word, the main body of the cavalry interposed in the way of the main body of the enemy's infantry, and which, in addition to the above may serve as the source of successive patrols as well as a place of concentration for the reports from their chiefs. It is clear that the nearer these bodies of cavalry approach the enemy, the more progress will be made by their scouts, and the more abundant and accurate will be the information obtained. It cannot be supposed, however, that the enemy will not have sent out cavalry for the same purpose, and hence the cavalry division will be charged with yet another problem—not to permit the enemy to obtain information of our own troops. The above mentioned conditions of the progress of the scouting are identical both for ourselves and for the enemy, since they result from the very nature of the case.

If for the ends named it is necessary for our cavalry to hover about the enemy's columns, the same thing is necessary for the enemy; and consequently, upon the theatre of operations, the object of screening is attained not so much by throwing out cavalry to cover our force with a row of barriers and small detachments as to reduce the enemy's cavalry to inactivity, or at any rate press it back on its infantry. This is much more consistent with the rôle of cavalry than to extend the front of a division to form a screen, and echelon it to form several lines of reserves. As a tactical formation suitable for screening, such an extension is far from applying in all cases for many reasons. There is an inherent logical contradiction in such a deployment; the cavalry sent forward to reconnoiter, to attack, and to overthrow the enemy's cavalry in order to get up to his infantry takes a defensive formation, endeavoring everywhere upon the vast expanse to allow no one to pass, to prevent all seeing, and with a view to such a curtain, goes to meet the cavalry of the enemy. Such a duality naturally results in indecisive operations; it is possible for an energetic enemy to anticipate our movements; he is given a needless opportunity for progress and our operations are thus compromised. Handling a division deployed upon a front of from twenty-five to thirty-five versts is extremely

difficult; united action by the different detachments is impossible; the line of barriers and small detachments is necessarily thin and therefore easily penetrated; it is very difficult to get the general reserve up to a threatened point in good time, to assemble the division promptly, to concentrate, if necessary, superior strength at the decisive moment; in a word, there is too much chance for a multitude of mishaps, and consequently for faulty dispositions not capable of correction on account of the rapidity of movement of the cavalry. When the division occupies a considerable length of front, the distance is increased to the line of the general reserve, the source of the supplementary flying patrols, which are thus obliged to traverse a distance needlessly great. To impose the sending out of these patrols upon the barrier is quite useless, as no benefit could be derived by so doing.

Lastly, it is necessary to consider the fact that on account of the common wish of both sides to discover the strength of the enemy as soon as possible, the cavalry acts with great rapidity. Consequently, the division hardly finishes its deployment before it is obliged to concentrate again by collision with the enemy, perhaps long before the main body of the infantry has had time to execute the maneuver-march by which the success of any strategical movement is prepared: long before matters are ripe for a decisive engagement.

What then is the use of the deployment? The idea of such a deployment for the so-called strategical service appeared as the fruit of the wish to evolve a system and to assimilate the cavalry operations to those of the German cavalry in 1870 (which were shown to be entirely suited to the situation existing in that war). Is it possible by systems and types to regulate the action of the cavalry upon the theatre of operations and to compound a single salutary prescription suited to all cases? Here it is much more important to master thoroughly the real object of the operations of the cavalry covering the front of an army, which is to continually observe the main bodies of the enemy's troops and to furnish information of them. In other words, success in scouting and in like manner, the screening of its own troops, are secured by the energetic operations of the cavalry force moved out, which should counteract the operations of the enemy's cavalry by dealing it bold and strong blows, with the object of its complete removal. Here, also, it is necessary to anticipate the enemy, to seize the initiative. The bold advance of a concentrated force from an important (in a strategical sense) direction, naturally attracts thither the enemy's cavalry and places it under our blows. Whether this advance should be made in one, two, or

three columns or in one or more lines; in other words, the dress in which this conception of the operations of the cavalry should be clothed in any case cannot be prescribed. On this point there are as many different decisions as there is diversity in the infinitely varying phases of the situation; in one case, one is expedient; in another, another.

In general, then, the problem of the cavalry detachments, divisions, or masses, moved forward to reconnoiter the enemy and to cover their own troops, is to reduce to inactivity, paralyze, and remove the enemy's cavalry in order to hover about the columns of his infantry, upon the front and flanks of the main bodies of his troops and to continually give information of them, which, in its turn, is obtained by an organized system of flying patrols.

If accurate and important knowledge has always been necessary for the commanding officer, it is more so than ever at the present time and from a purely tactical standpoint, for the introduction of smokeless powder must prove a very essential factor in conducting an offensive engagement. Hitherto, the commander's personal observation of the progress of the battle, in addition to the important information furnished him, has been sufficient. Upon the basis of the information possessed, and of a personal examination of the enemy's dispositions and observation during the period connecting the beginning of the battle and the attack, he formed his plan of assault. But now with the disappearance from the battle-field of the smoke which so well revealed the dispositions of the enemy's artillery (traced by the line of its fire) and made it possible to see the progress of the battle upon the flanks, the commander can trust very little to personal observation, and must begin the fight and conduct it almost up to assaulting distance upon the basis of information received from the outside. It clearly follows that at the beginning of a battle more than at any other time it is necessary to have a sufficient quantity of valuable, accurate, and precise information; and that during the battle itself, there should be constant observation of the enemy, which, in its turn, is attained by an organized system of scouts and reports.

Without a suitable organization of scouts, it is impossible to solve a single one of the problems of the cavalry, either upon the theatre of operations or upon the field of battle—to uncover the enemy and to furnish full, accurate and valuable information of his army.

A CONFEDERATE CAVALRY OFFICER'S REMINISCENCES.

SECOND PAPER.

IN the September, 1891, number of the JOURNAL I gave a rambling narrative of some of the services of my old regiment, the Second Virginia Cavalry, and promised to continue my recollections of what came under my observation in the campaign of 1862. With the reader's permission, the thread of my narrative will be resumed with the operations in the Shenandoah Valley, where STONEWALL JACKSON's fame was ablaze in that year.

I doubt if a more spirited fight occurred during the war than General JACKSON's advance cavalry made when it captured Front Royal, and what followed I will let Colonel JOHN R. KENLEY, First Maryland "Union" Regiment, tell in his own words:*

"Soon their cavalry came towards us from the direction of the Big Fort Valley Pass, and promptly the guns were at work, and with my infantry, checked for nearly an hour their advance and that of their infantry supports. As soon as I crossed the river I ordered Captain MAPES, whom I met with a working party on the road, to burn the bridges, and he proceeded to comply with my orders; but the work was inefficiently done, although the heat from the fire on the nearest bridge must have prevented its being crossed for a considerable time. Going in person to superintend their destruction, I discovered that the river below the bridge was alive with horsemen crossing in two different places by fording. Directing Captain KUGLER, commanding Company "A" of my regiment, to hold these men in check as long as possible, I ordered off the artillery and infantry, and directed Major VOUCHER to protect my rear with cavalry.

"It was now nearly 6 o'clock, and determining to make a last stand at the cross-roads leading to Middletown, I hurried on to gain this point. All had so far gone well, and I commenced to indulge the hope that I might yet save my command, when the sudden appearance of cavalry (Sixth and Second Virginia Cavalry, the Sixth leading,) galloping through the fields on my left, satisfied me that I was lost. I still pushed on in an orderly military manner, and had

*Page 567, Vol. XII, Part I, Reports, War Records.

actually gained a point some four miles from the river, when Major Vought rode up from the rear and informed me that he was closely pressed. I told him I would halt Lieutenant ATWELL with his artillery; that I would march my infantry into the field off the road, and ordered him to charge the enemy, so as to check, if but a few minutes, their advance. He rode back, as if to comply with the order. I dispatched Adjutant TARR to communicate the order to Lieutenant ATWELL, and with the assistance of Lieutenant-Colonel DUSHANE, turned the right of the infantry into the field by tearing down a panel of fencing, while Major WILSON did the same with the left wing.

In this condition of affairs, seeing that the artillery had not halted, I dashed forward to learn why my orders had not been obeyed, when the discharge of fire-arms and the rush of cavalry caused me to turn in time to see that the cavalry had not charged the enemy, but were running over my rear, which had not yet left the road, and were closely followed by the enemy's horse. The infantry in the field poured in a very close volley, which nearly destroyed the leading company, but did not check the advance of the succeeding squadrons, which charged in the most spirited manner, large numbers of them turning into the field and charging upon the men there, who continued fighting desperately until nearly all were captured, some five or six officers and about one hundred men alone escaping. The cavalry which had been following me upon the left, now came in from the front and assisted those who had charged us in capturing both of the guns, and most of the gunners; Lieutenant ATWELL, I am happy to say, escaping the general capture of my command; there was no surrender about it."

On the next page, 559, same volume, we have a report from five of the officers of the First Maryland Union Infantry, who give a "black flag story":

"We had marched about two miles when a wild shout was heard and the Rebel cavalry came dashing into our lines, cutting right and left, showing no quarter, displaying the black flag. A portion of their cavalry captured our train, except one wagon and eight horses, which were cut loose by teamsters to escape on. A severe fight was kept up until our whole force was cut to pieces."

In giving the above story, told by Union infantry in these reports, I propose to quote from page 475, Volume XII, Part III, War Records, a letter from a distinguished officer, showing his conceptions of cavalry and their duties. We will see both sides, as it describes the country and the service:

HEADQUARTERS ARMY OF VIRGINIA,
WASHINGTON, July 11, 1862.

Brigadier-General Piatt, Winchester, Va.:

Your dispatch received. A regiment of infantry in such a country is more than a match for a dozen regiments of cavalry, and ought never to retreat before them, neither do I quite understand your call-

ing an affair in which two men are wounded, a "sharp engagement." I hope you will infuse a much bolder spirit into your men. The idea of retreating before a cavalry force with only two men wounded, is hardly up to the standard of soldiership. In such a country no cavalry force is able to make your infantry give back a foot if they will only fight. How is it known that these cavalry columns are supported by infantry? Who saw the infantry, and if there are any, were they not dismounted cavalry? Please investigate the matter thoroughly. I do not like the idea of an infantry regiment of this army retreating without more loss and better reasons than are set forth in your dispatch.

(Signed.) JNO. POPE,
Major-General, Commanding.

It is but fair that I should give the officer referred to a showing. His letter, which called forth General POPE's notions of cavalry, is as follows:

Major-General Pope:

WINCHESTER, VA., July 15, 1862.

I herewith make the following report: The Garibaldi Regiment, commanded by Major HILDEBRANDT, with one company of cavalry, was ordered to this point from Front Royal by way of Middletown, where I have stationed them to protect stores. They were attacked this evening after passing Middletown one and a half miles, by three columns of Rebel cavalry, supported by infantry. He deployed to the right and left of the road to avoid being flanked, and after a sharp engagement, had to fall back; two men wounded and four missing. The enemy were in sight until we passed Newtown. I arrived at this point at 9 P. M.

A. SANDERS PIATT,
Brigadier-General.

As the writer's regiment was in need of many things at that time, and was serving under General JACKSON's command, guarding his left flank, when I occupied Culpeper C. H., June 20, 1862, a friend reported to me that he had come through the lines, and told me how we could easily get in rear of POPE's army. I asked permission of General JACKSON to be allowed to go for his trains, and here is his reply.*

HEADQUARTERS VALLEY DISTRICT,
August 21, 1862, 2 A. M.

Colonel T. T. Munford, Commanding Second Virginia Cavalry:

The proposed movements have been referred to General LEE, but he deems it best that you should report to General STUART. * * * General STUART is near Brandy Station. I am obliged to you for the papers you sent me last night. I am, Colonel,

Your obedient servant,

T. J. JACKSON,
Major-General.

General STUART acted upon my information and was successful. The Second Virginia was there at the capture of POPE's headquarters,

and I will be excused for mentioning it here as it has not been reported elsewhere.

Believing that General POPE changed his opinion of the cavalry before his wings were singed, I will call attention to one or two of his reports on Page 82, Vol. XII, Part II, Reports. He says to Major-General E. V. SUMNER:

"GENERAL:—The reconnaissance is only designed to ascertain whether there is any considerable movement of the enemy's infantry towards our right and rear. We have no cavalry, not a horse that can possibly perform service, and it may be necessary in order to obtain the information I desire, to drive off the enemy's cavalry."

And to General HALLECK he wrote the same day:

"Our cavalry is completely broken down so that there are not five horses to a company that can raise a trot. The consequence is that I am forced to keep considerable infantry along the roads in my rear to make them secure, and even then it is difficult to keep the enemy's cavalry off the road. * * * Please hurry cavalry horses to me, under strong escorts. I need them badly—worse than I can tell.
JNO. POPE,
Major-General."

In the Valley, the untimely death of our peerless ASHBY threw his duties upon me as the next officer in rank, and it is a pleasing opportunity for me to say what I knew of him and the difficulties which he overcame. It was only a few days before his death that the Second and Sixth Virginia Cavalry were transferred from EWELL's division to ASHBY's command, at the request of Colonel FLOURNOY, of the Sixth, and myself.

His command before that time consisted of CHEW's splendid horse artillery (equal to any ever in the Confederate army) and twenty-six companies of cavalry. No, not cavalry; most of them were mounted men (the Seventh Virginia Cavalry was a splendid corps), but in this undisciplined, unarmed and scattered command was a class of men devoted to and controlled by him in his own way, and under his eagle eye exhibited a resolute courage and dash that were simply wonderful. He had to control these people his own way, for no time nor opportunity was afforded him for drill and discipline. His only assistants were a gallant gentleman, Major O. B. FUNSTEN, who had not been educated as a soldier, but was a genuine patriot, and his Adjutant, Captain JAMES EDWARD MARSHALL.

His companies were scattered as pickets in the gaps of the mountains for forty miles, and at the fords of the rivers; his front was generally covered by the Seventh and his battery. The Secretary of War had given him authority to raise an independent command

from the counties within the enemy's lines, and men were flocking to his standard, and General JACKSON found his services indispensable.

It was ASHBY's custom and delight to gallop along the skirmish line, with one eye upon the enemy and the other one looking for a good position for his battery, which he kept always masked near by in his cavalry. The moment he saw an opportunity he would send his orders to Captain CHEW, who was ever ready, and then came his slogan of "Follow me!" which had a magic charm that his rawest recruits accepted with the spirit of veterans; how or why they knew not, but they felt it was exactly the thing to do to follow him. He knew when to strike and when to stop; his success was phenomenal, and rallying and reestablishing his lines, he would gallop off as if nothing had happened. But he never failed to thank his men and to applaud the most dashing, and to give them all the credit for whatever was accomplished. Recruits came to his companies, wherever they were scattered or stationed, without arms and generally without uniforms; here was numerical strength, but it represented drones in his hive, undisciplined valor, or strength without wisdom. He received no assistance from the Government because his was an independent command to be raised within the enemy's lines; while with this mass always increasing and needing arms, ammunition and clothing, and everything else, he was really entitled to double support.

General JACKSON's celerity of movement afforded him nothing but work in the immediate presence of the enemy, who had large numbers of splendidly equipped cavalry, and upon whom ASHBY had to depend for supplies. That he got them, in the Valley campaign of General JACKSON against BANKS, SHIELDS and FREMONT, the records clearly show. But General JACKSON, who never took excuses, and was often inconsiderate when he had given an order, undertook to scold ASHBY, near Middletown, in the Valley, and characterized ASHBY's men as a "mob of plunderers," when he was equipping his unarmed men and supplying them with the essentials of their existence. This was more than ASHBY could stand. He stopped short, and eyed "Old STONEWALL" closely, and retorted with indignation, saying: "General JACKSON, you do my command the grossest injustice. By your orders and work, you have my command scattered everywhere guarding your flanks. You do not seem to recognize my necessities and difficulties; my men are mostly Valley men, who have had nothing from the Government; you do not appreciate my difficulties, and if you are not satisfied you had better get some one

who can suit you better, and I will take care to move my men where they will be appreciated."

General JACKSON arrested Generals LORING, GARNETT, WINDER, A. P. HILL, GREGG, and others during the war—but he looked at ASHBY, and said: "What did I understand you to say?" ASHBY repeated as before. Here stood two proud soldiers; each measured the other's stature; each knowing the will of the other, with glances that flashed with power and pride, "each champion his rightful prize maintained." Another moment elapsed, when General JACKSON replied: "Colonel ASHBY, this matter must be settled by the Secretary of War." ASHBY replied: "It can only be settled that way. I have the authority, and I will exercise it." General JACKSON was not the man to retrace his steps generally, but here he was under fire, and in the face of the enemy. Accepting the situation, in a very different tone, he said: "I accept your statement, Colonel ASHBY;" and in a kind tone asked him to have certain orders executed, which ASHBY, in the same spirit, executed. He was as proud as LUCIFER, but as generous as he was brave. General ASHBY described to me about what I have written in telling me of his inability to restrain his people, and to satisfy General JACKSON, at times. For full detail, refer to page 880, Vol. XII, Part III, War Records, and page 902, same volume.

General JACKSON appreciated ASHBY's worth, and I believe it is the only instance recorded where he hesitated to carry his point. It is proper to say, while he arrested the officers I have named when they did not please him, I do not think either, or any of them, were ever court-martialed; if they were, they were acquitted.

After the battle of Port Republic, the time had arrived for General LEE's strategy to be developed in his masterly way, in hurling General McCLELLAN back from the investment of Richmond, in anticipation of the Seven Days' fights. I will get General SHIELDS to tell the story in his report of the battle of Port Republic of what the Confederate cavalry did. He says: *

"* * * I pushed forward my command, and placed it in a position upon which the whole force of the enemy would break itself. I proceeded next to post guns and fresh troops on commanding points to cover their retreat, but before I had advanced ten miles beyond Conrad's Store a crowd of fugitives from the field gave evidence of retreat. It required all my influence to get these fugitives to deploy in the woods as skirmishers. Soon the main force came in sight, not, however, as fugitives or as an army in retreat, but marching as proudly and as calmly as if they were on parade, while the

*Page 687, Vol. XII, Part I, Reports, War Records.

Fifth Ohio, a gallant regiment, with two pieces of artillery, under Colonel CARROLL, brought up the rear, and by their noble conduct kept the advancing foe in check; but I just arrived in time, as the enemy's cavalry, which is very active, was enveloping the column, and our cavalry, the First Virginia, was nowhere to be seen. Our fresh troops soon drove back the cavalry, and the retreating column reached the other brigades in position without further accident; there I prepared for battle, but the enemy fell back before it much more rapidly than he had advanced."

The country was such that we, as cavalry, could do nothing but follow, and cut off stragglers, after their infantry had been reorganized. Page 715, same volume, General JACKSON says in his report:

"The pursuit was continued for five miles beyond the battle-field by Generals TALLIAFERRO and WINDER, with their brigades and portions of the batteries of WOODING and CASKIE. Colonel MUNFORD, with cavalry and some artillery, advanced three miles beyond. Our forces captured in the pursuit 450 prisoners, some wagons, one piece of abandoned artillery, and about 800 muskets; some 275 wounded were paroled in the hospitals near Port Republic. While the forces of SHIELDS were in full retreat and our troops in pursuit, FREMONT appeared on the opposite bank of the South Fork of the Shenandoah, with his army, and opened his artillery upon our ambulances and parties engaged in the humane labors of attending to our dead and wounded and the dead and wounded of the enemy. The next day, withdrawing his forces, he retreated down the valley. On the morning of the 12th, MUNFORD entered Harrisonburg, where, in addition to wagons, medical stores and camp equipage, he captured some 200 small arms. At this point there also fell into his hands about 200 of FREMONT's men, many of them severely wounded on the 8th, and most of the others had been left behind sick; the Federal surgeons attending them were released, and those under their care paroled."

Meantime the following order had been sent to General JACKSON, subsequently to the one ordering him to drive HANKS to the Potomac, when he made his dash after him:

"Your recent successes have been the cause of the liveliest joy in this army as well as in the country; the admiration excited by your skill and boldness has been constantly mingled with solicitude for your situation. The practicability of reinforcing you has been the subject of earnest consideration. It has been determined to do so at the expense of weakening this army. Brigadier-General LAWTON, with six regiments from Georgia, is on the way to you, and Brigadier-General WHITING, with eight veteran regiments, leaves here to-day. The object is to enable you to crush the forces opposed to you; save your enfeebled troops to watch the country and guard the passes covered by your cavalry and artillery, and with your main body, including EWELL's division and LAWTON's and WHITING's commands, move rapidly to Ashland by rail or otherwise, as you may find most

advantageous, and sweep down between the Chickahominy and Pamunkey, cutting off the enemy's communications, etc., while this army attacks General McCLELLAN in front. He will thus, I think, be forced to come out of his entrenchments, where he is strongly posted on the Chickahominy, and apparently preparing to move by gradual approaches on Richmond. Keep me advised of your movements, and if practicable precede your troops, that we may confer and arrange for simultaneous attack."

The same day he started General STUART with his cavalry force to raid behind McCLELLAN, to cut his line of supplies by wagon, and to discover the exact location of his troops and defenses. The same day he wrote General JACKSON:

"I hope you will be able to recruit and refresh your troops sufficiently for the movement proposed in my letter of the 11th. You have only acknowledged my letter of the 8th, I am therefore ignorant whether that of the 11th has reached you. * * * In moving your troops you could let it be understood that it is to pursue the enemy in your front. Dispose those who hold the valley so as to deceive the enemy, keeping your cavalry well in their front, and at the proper time suddenly descending upon the Pamunkey. To be efficacious, the movement must be secret. Let me know the force you can bring, and be careful to guard from friend and foe your purpose and your intention of personally leaving the Valley. The country is full of spies, and our plans are immediately carried to the enemy."

The attention of the reader is asked to the above, that the hand of LEE may be recognized in the orders, which demonstrate "cause and effect."

NEAR MT. CRAWFORD, VALLEY DISTRICT,

June 12th.

Colonel T. T. Munford, Commanding Cavalry, Valley District:

COLONEL:—I congratulate you upon your early reoccupancy of Harrisonburg. I have directed the Inspector-General to organize the cavalry under Major FUNSTEN (ASHBY's old command) and I hope it will soon be of service to you. You had better order forward CHEW's battery and your train in time to pass Mount Crawford before 12 o'clock M. to-morrow. In the morning I trust to make a timely move for the Valley Turnpike, and expect to encamp this side of Mount Crawford.

T. J. JACKSON,
Major-General.

Second dispatch:

NEAR MT. MERIDIAN,
June 13, 1862.

Colonel T. T. Munford:

Yours of this date received. I have given the Chief Commissary of Subsistence orders to supply the hospitals near Harrisonburg with subsistence. Do not permit any letter to be sent by flag of truce, unless it is first read by yourself. * * * I am gratified you have anticipated me respecting the wounded.

Very respectfully,

T. J. JACKSON,
Major-General.

Third dispatch, from same to same:

COLONEL:—Your second dispatch of yesterday, received. I congratulate you upon your success. Can you send one of the paroled Yankee doctors to attend to the wounded near the battle-field, until Dr. McGUIRE can make some arrangements respecting them. * * * I wish you would send a scout in the direction of Conrad's Store, and let it visit Keezletown and McGaheysville; it may not be necessary to go further than McGaheysville; it is reported the enemy is still in that direction.

T. J. JACKSON,
Major-General.

Fourth dispatch, from same to same:

COLONEL:—It is important to cut off all communication between us and the enemy. Please require the ambulances to go beyond our lines at once, and press our lines forward as far as practicable. It is very desirable we should have New Market, and that no information should pass to the enemy. * * * Please impress the bearer of the flag of truce as much as possible with the idea of a heavy advance on our part, and let them return under such impression. Whilst it is desirable for us to have New Market, yet you must judge of the practicability. The only true rule is for cavalry to follow as long as the enemy retreats; beyond that, of course, you can, under the present circumstances, do little or nothing, but every mile that you advance will probably give you additional prisoners, and especially as far as New Market, where you will get command of the road from Keezletown and Columbia Bridge. I congratulate you upon your continued success.

T. J. JACKSON,
Major-General.

Press your lines as far as you otherwise would have done, before the flag of truce is permitted to pass them.

T. J. J.

Fifth dispatch, from same to same:

COLONEL:—The arms you spoke of sending here have not yet been received. Did you send them here or to Staunton? It is important you picket from the Blue Ridge to the Shenandoah Mountain west of Harrisonburg. * * * Do all you can to cut off communication across the lines between us and the enemy, also let there be as little communication as practicable between your command and that of the infantry. Let your couriers be men whom you can trust, and caution them against carrying news forward, as it may thereby reach the enemy.

T. J. JACKSON,
Major-General.

Sixth dispatch, from same to same:

COLONEL:—I congratulate you upon your success of yesterday. Send the prisoners to Staunton (we captured the enemy's picket near New Market) and also the captured property, if you can spare it. * * * If you can meet me in Staunton by 5 o'clock to-morrow morning I hope you will do so, as I desire to have a personal interview with you. * * * I do not wish you to leave your com-

mand unless you can safely do so. I will be at Mount Sidney to-night at 10 o'clock. Can you meet me there? I will be on my horse at the north end of the town, so you need not inquire for me. I do not desire it to be known that I am absent from this point.

T. J. JACKSON,
Major-General.

P. B. Encourage citizens in driving their cattle on this side of the lines, and say to them who come on this side, that for a few days they will have to remain on this side, as no one is permitted to pass the lines to the enemy's side.

T. J. J.

Under my instructions I was enabled to carry out the wishes of the Major-General Commanding, and by explaining that he was coming down the valley and it must be kept from the enemy, it worked like a charm; that is, everybody knew the secret, that JACKSON with big reinforcements was coming, and didn't want it to get to the enemy. It went like wild-fire to them. When the flag of truce which is mentioned came to my lines, General FREMONT had sent twenty-eight ambulances under an escort, with surgeons, "asking that his wounded might be taken within his lines." As General JACKSON was fifteen miles in my rear, and we had no other communication except by couriers, I had to detain them, and required the surgeons to occupy a room in the hotel adjoining my headquarters.

When I read my instructions, I instructed Mr. WILLIAM GILMER. (BILLY GILMER as he was generally known), and he stalked in with rattling saber and jingling spurs, and in a loud tone announced a courier with dispatches from General JACKSON. The partition between my room and the Union officers was thin, and there was a transom over the door between the rooms, which was open, so that all that was said could be heard by them. He walked in and delivered the dispatch; I asked him the news, and he gave it as no other than he could have done it: "The road is alive, 'chock full' of cannon and men, General HOOD, and General WHITING, and General LAWTON, and General LAW, and in fact there were so many I can't tell you; the road is full of wagons, and more artillery than I ever saw, and Old JACK just grinned when he read your dispatch asking to let the Yankees go in the ambulances; he said to General WHITING, 'Those fellows will want places for a heap more in the next day or two,' and in a semi-suppressed tone added a good deal of humbuggery. When I thought the gentlemen had absorbed, accidentally of course, what had been said, I told GILMER to ask the gentlemen into my room, and I quietly expressed the General's regrets, and asked them to withdraw; but as dinner was ready I gave them the best we had, having already instructed the pickets to start and go as far as they had been ordered.

The next day General FREMONT moved to Woodstock, and the next to Strasburg, which he began fortifying, and our cavalry followed closely. But on the 17th, General JACKSON was moving for Richmond, and on the 20th I followed with the Second Virginia Cavalry, and joined him at Hanover C. H.

THOMAS T. MUNFORD,
*Brigadier-General, Second Brigade,
Fitz Lee's Division, A. N. V.*

MOUNTED INFANTRY.

ATTENTION has been called to this subject by the appearance in the *Journal of the Military Service Institution*, for November, 1891, of an article on "Mounted Infantry," by Lieutenant J. A. PENN, Thirteenth Infantry.

The article was read at the U. S. Cavalry and Infantry School as a graduating thesis, and its publication was authorized and recommended by the staff of the school. It is this semi-official endorsement of the views expressed that furnishes a cause for alarm to us in the cavalry. In this article much pains is taken to prove that cavalry should know how to fight on foot, something that is well established and can be readily admitted; all the more readily, because dismounted action gives cavalry a double field of usefulness. Lieutenant PENN also shows that in certain emergencies infantry has been mounted and has done good service, but he does not show that the service rendered could not have been as well rendered by cavalry of the modern model.

Having these facts to back him, the author proposes that in our regular service five regiments of infantry be designated as light infantry, and furnished with mounts for two companies, these mounts to alternate so that they will remain with a company for two months in a year. The horse will be regarded simply as a means of locomotion—all fighting to be done on foot; and finally, only infantry officers will be allowed in this force, as cavalry officers might have too great a tendency towards "nicety of maneuver in mounted drill." In war all the companies are to be mounted.

Volunteer mounted infantry in war is also advocated; and the article winds up by asserting that the younger officers of our cavalry are tending too much towards shock-action of cavalry; that they are forgetting the lessons of the Civil War, and are following foreign ideas; finally, he calls them enthusiasts, tells them to be Americans, etc., etc.

The notion that by a system like that proposed for the light infantry regiments there can be made a force that will be of any prac-

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tical value, seems preposterous. Under the spur of necessity, enthusiasm may enable picked infantrymen to become efficient mounted troops for foot fighting in a comparatively short time, though we believe much allowance must be made for the accounts of infantry officers who have thus suddenly been given a chance to ride. But experience teaches us that two months a year on horseback will accomplish little for a permanent organization, and that the men will learn little about horses, even supposing that the light infantry regiments had the first choice of all recruits. The proposition to assign only infantry officers to these regiments is in keeping with the whole idea.

Lieutenant PENN recognizes that it takes a long time to make a good cavalry soldier, but he seems to think that for a mounted infantryman, either regular or volunteer, it takes but a short time, for he would dispense with "nicety of maneuver" and the "minutiae and detail" of mounted drill. As he believes, in addition, that "such excellence in riding is not required," he concludes that, "but little more time is required than for infantry pure and simple." But the very things he would neglect are as essential to mounted infantry as to cavalry, for these things alone enable a large mounted force to be thrown rapidly into a position, no matter how it is to fight after it gets there. Ignorant of the details of mounted drill and poor horsemen, his mounted infantrymen would be an unhappy lot, and would not even be able to keep up with their brethren on foot.

All the arguments for mounted infantry, however, utterly fail to show why there should be formed a permanent mounted force capable of performing only half the duties of mounted troops; for whatever we may call them it will not pay in modern war to keep up such troops unless they can be pushed well ahead of the main army. There, of course, they must meet the mounted troops of the enemy. What better chance would a true cavalryman want than to get unperceived within half a mile of some of the hybrids with favorable ground between? How often might this occur, and what a picnic he would have! Good cavalry could cover that distance in less than two minutes, before its opponents, unless a very small force, could possibly dismount and prepare for action. Moreover, successful mounted charges, whether against cavalry or defenceless infantry, occasion much greater rout than can possibly result from fire action alone. Cavalry can out-manuever all other troops, and unless opposed by cavalry can go where it pleases. JEB STUART rode around the Army of the Potomac and went wherever he liked in 1862, but in 1863 the Union cavalry had also learned to fight mounted, and

from that time on things went quite differently. Lieutenant PENN begs the younger officers of cavalry not to forget the lessons of the war. We have not, and this is one we remember well.

There is already too great a tendency in our cavalry towards fighting on foot, and we are opposed to the introduction into our service of a permanent force where horses are classed with mules—mere means of transportation of a mounted force, officered by men whose business it is to walk, and who (we quote Lieutenant PENN) have “no knowledge of what a mounted charge means.” Such a force can be but an element of mischief, a bad example to lukewarm or thoughtless cavalymen, and its value in war would be too limited to warrant any expense for it in peace. Good infantry needs no horses, and is better off without the burden of them.

The tendency in our cavalry towards dismounted fighting springs from several causes, the first being the natural inclination of Americans to shoot. This country was won by the rifle, and the rifle is still dear to the American heart. We do not raise a voice against it in its proper place, but we beg the cavalry to remember that there are times when they should deny themselves its use. The first two years of the war taught the Union cavalry this, and that in order to be aggressive, mounted fighting would have to be resorted to as well as dismounted fighting; and the reconnaissance in force at Brandy Station, the cavalry fight at Gettysburg, and the charges in SHERIDAN'S Shenandoah campaign, showed what had been learned.

The second cause of our dismounted tendency is, that ever since the war our incessant Indian wars have given but little opportunity for mounted action. A tour out here in Arizona is almost enough to make one forget that men ever did fight on horseback. We have learned much in our frontier service, much that is not known by the cavalry of other nations; but we have also forgotten something, and now the time has come to learn again. Let us strive diligently to make up our deficiencies, and then with our experience in actual service, we will not be behind any cavalry in the world. If, however, we allow ourselves to remain idle after these many long years of work, we will lose even the benefit of what has been learned by hard service; backward instead of forward will we go, and it may be in the end said that we are not even good mounted infantry. Fighting mounted will be out of the question for a force in which men and horses have not been well trained, and kept up to the standard by hard and constant work. Fractious and clumsy horses and ignorant or bad riders will make it even hard for such a force to do simple marching without having its horses broken down or their backs

ruined. Many will say that we do work hard, and that we have no time for greater instruction. Yes, but the work is too often given up to policing and beautifying posts, and we have an equipment which requires constant work to keep it in order for post inspection; but little time is left for the soldier's legitimate work, the work for which he was enlisted, and for which alone the army should be maintained. When we make of our men true, practical cavalymen, no matter if some of our yards are a little dirty, or if the post does look ragged and homely, then we may thank our stars that in the cavalry there are some enthusiasts for mounted action, for we shall owe it to this leaven of enthusiasm that we have escaped becoming mere mounted infantry. With all the enthusiasm that may be imparted, we are in no danger whatever of falling into the extremes of European cavalry, where the officers, coming from the aristocracy, inherit from feudal times their prejudice against fighting on foot. Free from the heritage of such prejudice, we should view the situation calmly, and prepare ourselves for all emergencies.

First of all we must begin by fighting this mounted infantry idea, for our very existence may depend upon our efforts. We have already lost twenty of our troops; who can say when we will not lose more, if such ideas are allowed to become prevalent?

Proficiency with the saber and pistol is not absolutely necessary for mounted troops, and therefore we should send our volunteer cavalry into the field, if necessary, before they had thoroughly learned their use, but not before they had learned horsemanship and how to maneuver mounted. With the men likely to be found in the ranks, and the stimulus of the emergency for which the troops were raised, the time required for their training would not be so great as might be supposed, especially if instructed by competent regular officers. They would improve with experience, and all the more rapidly because they would not have to abandon the rôle of mounted infantry, as was done in the Civil War, and will always be done under like circumstances. In peace a love of riding should be encouraged everywhere, and Congress should make liberal appropriations to help the volunteer cavalry troops. It certainly does not seem like asking too much to request enough money to allow each man forty cents a day for his horse, provided this horse is always liable to be called into service.

Lieutenant PENN states: “Of the volunteer mounted regiments we can say that although designated as cavalry from the date of their organization, they were in fact mounted infantry, and remained such during the earlier years of the war, but towards the close of

the war, in 1864 and 1865, most of these regiments, and especially those with educated and trained leaders, became the truest and best of cavalry, as ready for a fight with saber and pistol mounted against the enemy's cavalry as for a dismounted fight, if necessary, with dismounted troops."

We wish no better argument than this for trying from the beginning to make cavalry of all our mounted troops, believing that the experience of the war and sound reasoning show that the best plan is to take the proper model to start with, no matter how far short we may fall at first. The younger officers of our cavalry have no need for such advice as that given. Claiming for themselves every attribute of true Americans and remembering with pride the achievements on both sides during the Civil War, they, however, fail to see why they should close their eyes to the examples set in Europe; taking a broad view of their duty as soldiers of our Republic, they stand ready to learn anywhere, so as to be the better prepared for the defence of their country.

W. E. SHIPP,
First Lieutenant, Tenth Cavalry.

SADDLING.

THE equipment of cavalry presents no question of more vital importance than the proper saddling of the horse. While in some directions the sphere of cavalry action has been reduced by modern fire-arms, the reduction has not taken place in the direction of lessening the distances to be covered, nor the hours to be spent under saddle; on the contrary the lessons of modern wars and accepted theories for the future use of cavalry clearly indicate an increased demand upon the intelligence and skill of the trooper, and the endurance and "staying power" of the horse.

To enable the horse to meet this increased demand, he must be given the benefit of every device that can be suggested for so arranging the weight of rider and equipments that his power, which, unlike the intelligence of the man, can not be materially increased, may be diminished as little as possible.

I will not here enter upon any discussion of the proper saddle for cavalry use, as I believe that the McClellan saddle if properly placed upon and attached to the horse, will be found to have few important objections.

The cavalry drill regulations require the saddle to be well forward on the withers, where it is placed in the sketch of a trooper mounted, on page 158.

This position has three well marked objections, with just one advantage; as a French instructor, after running his chalk through every other word of an exercise, used to say, "With those exceptions your work is correct."

In the first place, it throws the entire weight of the trooper and equipments upon the fore legs—the legs that first give way. Next, it jams and injures the horse's withers and shoulders, and lastly, by raising the saddle in front, causes the rear of the saddle to gouge holes in the horse's back, the depth and size of which increase with the time he is under saddle.

It has, however, one advantage: it brings the cincha well to the

front, where a horse can stand tight cinching better than he can farther back.

Over just what vertebra, numerically, the saddle should be placed, I will leave others to count; the more simple and practical rule of putting the saddle back until you can place four fingers between the shoulder blades and front of the saddle, will insure an excellent position, but in order to hold the saddle in this position the cincha must be well back, and if well back, must be tightly drawn to prevent slipping. I do not agree with Captain HALL, that this can be done without injury to the horse.

I believe that tight cinching so far back will not only injure the horse permanently, but that it will materially cut off his wind power, making long exertion at the fast gaits painful in the extreme.

As remarked by Captain HARRIS in his "Thoughts on Cavalry Equipment," the frontiersman has solved the problem, in the use of the double cincha. The only objection that Captain HARRIS urges is to the increase of weight and the additional time required for saddling. Admitting both these objections, it seems to me that they will weigh little against the many advantages.

With this idea, I have adjusted a double cincha in a manner that appears to me to have marked advantage over the ordinary double cincha adjustment used by cowboys and plainsmen generally.

In all adjustments that have come under my notice, the front and rear cincha pull about equally upon the front and rear of the saddle, an objectionable feature for any saddle that does not conform absolutely to the back of the horse, and especially objectionable if used with our cavalry trees, which, of necessity, must fit a variety of backs, causing the cantle to rise when the front cincha is tightened, and the pommel similarly to be elevated when the rear cincha is drawn up.

By the adjustment I propose, the front branch of the Y strap is left at its present length of ten inches from saddle to ring. The rear or back branch is cut away up to about three inches from the saddle and turned back and stitched to a three-inch ring, the ring being brought up against the edge of the saddle. To this ring and a similar one on the other side, the rear cincha of webbing is secured by light cincha straps. From the rings thus secured to the rear of the saddle, runs a strong strap ten and one-half inches in the clear, to the ring at the end of the front branch of the Y, thus forming the rear branch, with a total length, including the rear ring, of thirteen and one-half inches, or three inches and one-half longer than before. The brass screw that secures the front branch of the Y strap at the

point where it leaves the saddle, will have to be moved about five-eighths of an inch to the front, to accommodate itself to the new position of the strap it secures.

The lengthening by three and one-half inches of the strap with its ring at rear of saddle which replaces the former rear branch of the Y strap, throws the saddle about three inches to the rear of its former position as regards the single, now the front cincha, thus permitting the saddle to be placed in its proper position of four fingers width in rear of the shoulder blade, while the front cincha is in its proper position well forward around the proper girth of the horse.

The front cincha being well forward, and the rear cincha well to the rear, and neither drawn up very tightly, while securing the saddle firmly in its position, leaves the flanks free, and enables the horse to breathe without constraint.

That cavalry horses are generally shortwinded may be largely due to the single cincha, which must be drawn exceedingly tight to prevent the saddle from slipping forward.

The disposition of many horses is doubtless ruined by the pain attending tight cinching; and probably a great many horses called hard to manage, could be reclaimed if pains were taken to discover and remedy the unnecessary punishment that they are subjected to, either by barbarous bits or improper saddling, or both, combined with an impatient and ignorant rider, whose first impulse is to use the spur to display his fancied skill in horsemanship. Very unmanageable horses under the saddle, are usually kind and quiet in harness.

Horses that sometimes cannot be held in ranks with that implement of torture, known as the Shoemaker bit, are frequently quiet and well behaved when ridden with a watering bridle. Horses that refuse to jump a hurdle will frequently take it easily if the saddle is removed.

While the above observations may not be conclusive, there is strong ground for the inference; that a great many horses become vicious in their efforts to escape the unnecessary pain of a severe bit, especially if in the hands of an unskillful rider, and the long continued, ever increasing punishment of a tight cincha, that is entirely independent of the skill of the horseman. As to the advantages to the trooper in having a saddle so fastened that it will not be continually slipping, they are too obvious to need even to be mentioned.

Within the last month I have frequently ridden a horse with a barrel so round that no single cincha could be so placed that the saddle would not slip to the withers in trotting a mile; as it moved

forward it would gather up the saddle-blanket in such a manner that after a few days' steady riding a sore back would necessarily have been the result. Upon this horse I placed the double cincha, as before described. The extra weight of this back cincha, made of webbing, can not be over a few ounces; the extra time for cinching is about fifteen seconds. With the horse so saddled I followed my hounds across country some fifteen or sixteen miles in about an hour and three-quarters, passing from one gait to another, over rough and smooth country as it came, at one time trotting for probably three miles, again walking, and sometimes galloping, and for short distances running.

This I know was not especially hard riding, but it was the kind of riding that tests the manner in which a horse is saddled. I watched the saddle carefully and could not discover that it had moved in the least from its place; furthermore the cinchas were not drawn very tight; they were simply pulled snugly up, and must have been perfectly comfortable to the horse. It is my belief that this horse might have been ridden all day without readjusting the saddle or cinchas.

As a few saddles can readily be fixed for this adjustment by the troop saddler, I hope that the subject may be given a test by these cavalry officers who may never have ridden with a double cincha.

GEORGE H. PADDOCK,
Captain, Fifth Cavalry.

LETTERS ON CAVALRY; BY PRINCE KRAFT ZU HOHEN LOHE-INGELFINGEN.

TRANSLATED BY COLONEL R. P. HUGHES,
INSPECTOR GENERAL, U. S. ARMY.

TWENTIETH AND CONCLUDING LETTER.—ON ATTACHING HORSE ARTIL- LERY TO CAVALRY DIVISIONS.

* * * * *
WHEN I finished my last letter, I thought I had said about all I had to say concerning the cavalry. You note, however, that I have scarcely touched upon the subject of adding horse artillery to cavalry divisions. I omitted this, because this subject and the use of horse artillery in connection with cavalry divisions, belong rather to the discussions on the artillery. But as you wish specially to know what I think concerning the strength of the horse artillery that ought to be attached to a division of cavalry, I must claim your attention once more.

In the last war the attaching of horse artillery to the different cavalry divisions was done on entirely different principles. We see, then, a cavalry division of twenty-four squadrons, having eighteen guns (guard); a division of thirty-six squadrons, with twelve guns; one of twenty-four squadrons, with twelve guns (Second and Fourth); one of twenty squadrons, with six guns (Sixth); two of sixteen squadrons, with six guns (Twelfth and Third); and one of twenty-four squadrons, with six guns (First). Besides, in the Baden, Wurtemberg, and Bavarian contingents there were no division organizations, but the cavalry brigades had, as a rule, six guns each, but in some cases were without any permanent artillery.

An old theory asserted that three or four guns must be attached to every 1,000 cavalry. This numerical proportion is based upon no principle, but supported merely by the then existing conditions.

The regulation leaves it an open question, but accepts the possibility that a division of cavalry may always have a battery of horse

artillery attached to it. This is found in the wording of Par. 224, "If more than one battery is attached to the division, etc."

In order to secure a definite opinion upon this subject, it is necessary to maturely examine a cavalry division in action, and on service. The regulation accepts, in all its provisions concerning the application of a cavalry division, but one object of attack. This object of attack has to be fired upon by the horse artillery before the attack, and it will find time to do this if it is brought into position immediately after the enemy is sighted; at least so long as the cavalry division takes the time to come into line from column of march, and to form in three lines for the attack. If it is then considered that the propitious moment has not yet come for delivering the attack, the horse artillery will have still more time to prepare the action by its fire. If but one object of attack exists, there would seem to be but one target presented for the horse artillery of the cavalry division, and, as a rule, it should not permit its attention to stray off into other things; as for example, upon artillery contests, etc., etc. Par. 224 also speaks of the artillery as having to choose but one position. That would seem almost sufficient if a cavalry division receives but a single horse battery.

But the division does not always come up upon only one point. It will often occur, especially in reconnoitering duty, and when screening their own army, that single brigades are detached to long distances upon independent missions. It may often occur that the battery would be only an impediment to a light cavalry brigade; that it would hamper its mobility, if, for example, in order to see, it should break up into small detachments, and under certain conditions quickly vanish; then it should not have a battery attached to it. Thus the Guard Corps sent the Dragoon Brigade to the front without any artillery up to the 13th of August. But if a case should arise in which a brigade should take possession of, and hold a given point, then it would need artillery. Therefore the Guard Corps sent a horse battery to the Dragoon Brigade on the 13th of August, because this brigade had to take and hold the important point of Dieulouard with its bridge across the Moselle. It may also occur that each brigade of the division of cavalry has a special mission to fulfill, and operates upon a different road (as with the Guard Cavalry Division on the 16th and 17th of August); but I would not consider this way of operating as the normal, but as the exception, for it would seem to me much preferable to operate upon two roads, with one brigade on each, and hold the third brigade in rear of the center as a reserve. It may also occur that existing conditions render it necessary for

the division to have as many batteries attached to it as it has brigades; it is hoped that in these days no one will be found to advocate dividing up batteries, and having the horse batteries scattered about and employed by platoons.

A special examination of the possibilities of horse artillery attached to cavalry organizations makes it appear desirable that more than one battery should be assigned to a cavalry division. Let one imagine himself in the position of a battery chief, who, with his battery alone is attached for an entire campaign to a cavalry division. No troops need the close attention of their captain on the march, in quarters, and in action, so much as the artillery. The many features of this arm, horses, men, wagons, guns, ammunition, require the constant attention of an experienced chief. Then the most of the senior lieutenants are quite young, and have not yet gained experience and certainty in all things. We have all seen how soon order becomes disorder when the well known, feared voice of the captain is no longer heard. We have all experienced how the order of firing in the battery ceased, and how it became irregular, badly aimed, uncontrolled, incorrect, and thereby ineffectual fire "à volonté," after the men no longer heard the firm corrections from the mouth of the governing chief. It is not want of discipline, but good will to assist the lieutenant, for the non-commissioned officers and gunners do not believe that he has the necessary experience in observation, and they make the corrections according to their own views, in violation of the instructions and against the commands of the young officer, and thereby cause him to err because he no longer knows where he should aim.

While, therefore, the battery chief should be unwilling to leave the battery for an instant, yet, the proper tactical application of the horse artillery in connection with a division of cavalry calls him to the side of the division commander. Let us imagine a division on the march. The division commander receives the report from his patrols that they have come upon the enemy, and rides forward upon an elevation, examines the situation, and forms his resolution. Now, should he send a special adjutant to the battery to give his orders, while he makes the disposition of his brigades—thus putting a captain's command upon the same status as a brigade command? That would lead, in time, to inconveniences, and can occur only in exceptional cases. As a rule, the horse artillery would receive its orders too late to have its full effect. The battery commander must ride with the division commander; he observes, in riding near him, what the commander has also seen, and learns his decisions as soon as they are made, and brings up the artillery immediately to the place where

it can most effectively prepare the attack, even before the orders have yet been given to the brigades. The position of the artillery will usually be on the elevation upon which the division commander made his reconnaissance.

A single battery chief would thus have dual duties which are incompatible; he should be with his battery and also with the division commander. If, however, a brigade commander is provided, who rides with the division commander and who is provided with adjutants, the leading is much easier. While he sends off his staff officers to bring up the artillery, he personally remains with the division commander, hears the special instructions given the cavalry; remaining upon the height, he familiarizes himself with the position of the enemy, the terrain, distances, etc., and is prepared to locate and instruct the batteries promptly upon their arrival, in regard to what is necessary for them to know. Do not reply to this that the brigade commander directs his whole command either by his voice or by the trumpet. In war he only sends his orders. Even the directing of fire is done through adjutants. The regulation prescribes that he will go to the batteries in order to direct the firing. In most cases that position will not be very distant from the division commander, for the dominating height upon which the batteries are located will usually be the place from which the division commander will send his orders to the brigades. Only, when the commander puts in his third line and enters the attack in person must the artillery commander be separated from his division commander. Then it is all the more important that a brigade commander should be there, who, during the firing, has not been absorbed with the details of the firing, but who has had time to learn the intentions of the division commander before the latter entered the action with the last line.

With a battery which is attached to a brigade it is quite different, and this attachment is not organic and not constant, but is a temporary, exceptional case. For an exceptional case great difficulties always exist, which cannot be dissipated by organic arrangements.

If we consider a cavalry division operating independently a few marches in advance of the army, we must recognize that it needs a strong force of artillery to enable it to penetrate everything. Three batteries are the minimum of its requirements; even then if it meets a cavalry command of the enemy that brings a superior horse artillery into action, it will not be able to continue its advance.

The internal administration speaks strongly against breaking up the brigade organization of the artillery. Since the last war some

new organic arrangements have welded the artillery more strongly than ever into brigades, especially since each brigade has a paymaster and conducts its own administrative business. It effects its own mobilization and has its own system of accountability. A battery detached from its brigade for an entire war, would be as unfortunate as a company or squadron which was detached from its regiment for an entire campaign. Besides, the entire supplying of ammunition for the small arms is delegated by the division commander to the artillery. Should then a battery chief bear all the responsibilities of the payment and supplying of his people without a paymaster? Should he conduct all the correspondence regarding re-supplies of ammunition, horses, men and equipments, clothing, etc., without being supplied with the necessary means, clerical force and conveniences, as was the case before paymasters were given to each brigade? With the great exactness in which our administration is and must be conducted, a battery chief might be ruined through not conducting or not understanding the prescribed customs. The care and attention on this subject would require all his spare time in cantonment and on days of rest, and his attention would be withdrawn from a careful inspection of his battery. It never occurs to any one to detach an infantry or cavalry company from its regiment at the moment of mobilization.

But what I hold to be of still greater moment is the fact that in separating batteries from their brigades laudable emulation and marks of distinction are rendered impracticable in the brigades. I mean the recognition of services rendered in the face of the enemy, in orders or by insignia. There are, indeed, military philosophers who desire that officers and soldiers should do their duty and put their lives in jeopardy without regard to outward recognition, but to risk their lives for the satisfying self-consciousness of a duty fulfilled. But there is no nation in which the great body of its military force will ever raise themselves to this standard of absolute purity of zeal in duty. With us, when the State is not rich enough to reward the soldier with money and possessions for risking his life for the good of the King and Fatherland, the soldier fights for honor, and an outward sign or insignia should give ocular evidence of his success. How is such a single detached battery to secure decorations where it has no higher commander than the battery chief to represent it? Sometimes it may behave very well, even better than its comrades of the cavalry; at other times not so well. If, however, the batteries have a representative who remains near the person of the division commander, watching over their interests, he can

look after the recognition of their services, and in the worst case the way is still open to him later, through the superiors of his own arm, to carry out his wishes so far as they are approved.

In brief, my opinion in regard to the attaching of horse artillery to cavalry divisions is that an entire brigade of horse artillery in the condition in which it is found after assuming a war footing in mobilization, should be assigned to every independent cavalry division which in time of war is not attached to any army corps, but is left to act under the direct instructions of the army commander, and that this brigade should consist of three batteries, regardless of whether the cavalry division consist of twenty, twenty-four or thirty-six squadrons, or whether it is organized in two or three brigades.

Very weak cavalry divisions of sixteen squadrons (Twelfth Army Corps) are not sufficiently self-sustaining to cut loose from their corps connections. Under such circumstances it is best that there should not be any horse artillery permanently attached to them in their war organization, but rather that a battery or a brigade from the corps artillery be attached to them for an action or for a day, according to the necessities of the situation.

There is a great advantage in this, for by such an application the horse artillery does double duty. It remains as a rule with the corps artillery. If the cavalry is sent to the front the horse artillery is attached to it. If a battle takes place during which the cavalry must be held in reserve, the horse artillery becomes a part of the corps artillery and adds important strength to the artillery. The horse artillery of the Guard Corps was so used in 1870. The "order de bataille" originally assigned it to the cavalry division. The corps commander attached it to the corps artillery. When the cavalry division came to an independent, isolated operation the horse artillery was assigned to it, but when the decisive battle came we saw the entire brigade of horse artillery fighting in the line of the corps artillery, which added forty-two guns to its strength, and threw an important weight in the scale.

In great battles the cooperating cavalry divisions need no artillery. It is held in reserve at the opening of the action. Should it, however, have to attack, it chooses a moment for delivering it when the enemy can be fallen upon while in disorder. There is no longer any question of breaking the enemy with artillery fire; there is no longer time for such a course. If the horse artillery has not previously assisted the balance of the artillery in shaking the enemy, it now finds itself forced to become a mere spectator.

I cannot advocate attaching only two batteries to the cavalry

division as a brigade under the command of a field officer. These two batteries must have left their comrade, the third, somewhere in the rear, where it must play the role of an unfortunate appendix, and appear as a deserted lamb. If a cavalry division should be weak (say twenty squadrons), as was the Sixth in 1870, it seems better that an entire brigade of three batteries should be attached to it, and that it should be thereby too abundantly supplied, than to break the usual brigade organization, and, by so doing, injure the troops.

PROFESSIONAL NOTES.

THE GERMAN CAVALRY, AS VIEWED BY AN ENGLISHMAN.

[Translated from the *Revue du Cercle Militaire* of January 24, 1892.] *by J. J. J. J.*

The results obtained by the cavalry in 1866 left much to be desired, but a remedy for such a state of affairs was soon found, and the nomination of Prince FREDERICK CHARLES as Inspector-General of Cavalry, made in the fall of that year, marked the beginning of a new era.

Nevertheless, the accumulated errors of sixty years' badly directed instruction could not be rectified in two or three years, and great as were the improvements made between 1866 and 1870, under the skillful direction of the Prince, when the war with France broke out in 1870, the cavalry, as a corps, was far from being able to meet the strategical and tactical demands of modern war. The most competent cavalry critics expressed unanimous surprise on ascertaining the wretched results accomplished by the 70,000 cavalymen who invaded France in 1870. But this discovery did not discourage them, for the most important elements, the men and horses, were shown to be excellent. It was soon discovered that the fault lay in the want of a rational system of instruction, permitting the development of the characters of the men and horses, and accustoming the superior officers to the handling of large tactical units; that is to say, brigades and divisions.

The defects of the old system were clearly summed up by one of the highest German authorities, who wrote thus on the subject: "Our course in equitation keeps our horses in the riding-halls during the whole winter; that is to say from October to April. Then follow the drills of the squadrons and regiment on the smooth surface of the drill ground. It is then only during the short season of exercises by small detachments and maneuvers, which lasts only one month, that the cavalry is obliged to march over all kinds of ground and to clear obstacles of every kind found in its path. Under these conditions will the soldier feel sure of being carried by his horse so long as he keeps a correct seat and does not pull on his

horse's mouth? Will he keep his eyes fixed upon the enemy and the officer commanding the squadron? On the contrary, is it not much more probable that he will concern himself about all the stones, all the ruts which he finds in his path, pulling on his horse's mouth, and from that time, breaking the order of formation? Under these conditions how can a commander hope to approach the enemy with his men riding boot to boot, when he knows that the crossing of a potato field, encountering a hillock or a piece of plowed ground will break his line."

For twenty years efforts have been made to correct the faults indicated above, and these are the measures taken to accomplish the object:

First, they have diminished as much as possible the time passed in the riding halls, by devoting much more time to outdoor work, and in that way giving the men better opportunities and training in learning the capabilities of their horses on the most varied ground. At the same time more bottom in the horses has been demanded, and they have attained to an exact conception of the meaning of the expression, "A horse in really good form."

Here is a capital point. In fact, under the old regime, the efficiency of the squadron commanders was determined by the fatness of their horses. Now, as horses in good condition for field service would not look sleek and round, it resulted that the more discreet and ambitious an officer was, the more opposed he was to making his horses execute long gallops and undergo the fatiguing exercise which the conditions of modern war have rendered so necessary. These erroneous ideas once suppressed, the practical knowledge derived from the experience of the present time was allowed to assert itself to the fullest extent, and the squadron commanders being no longer hampered in the exercise of their responsibility, rivaled each other in the zeal displayed, and invented a system of instruction permitting them to derive the full benefit of every grain of oats and every hour of the day.

Experience has taught them how necessary it is to proportion the food of the horse to the work demanded of him, diminishing the ration in winter and increasing it in summer, when the work is greater. Moreover, every officer, under penalty of dismissal, is required to exercise his authority, to know what work can be demanded, what manner of punishment may be inflicted. In fact, if he demands too much he exhausts his men and horses, and if he cannot exercise his authority so as to obtain prompt and cheerful obedience from his subordinates, he cannot obtain that heartiness and suppleness which show the squadron to be truly under the control of its commander.

I find that this heartiness is the most prominent characteristic of the German army, but specially shown in the cavalry. The cavalry of other countries may possess bolder men, with better seats, but nowhere have I seen anything which approaches the extraordinary sympathy which I have observed to exist between the German cavalry officers and their men. The squadron maneuvers literally like a single man, obeying the slightest signals of the commander, and

conforming instinctively, so to speak, to every change of gait or direction, as absolutely as the musicians of a good orchestra obey the baton of their leader.

The first meeting of the cavalry of the two armies which took part in the maneuvers of September 17th, occurred in the country surrounding Mülhausen.* On that day the cavalry division of the Second Corps debouched from the mountainous country which it had traversed since leaving Cassel, and made contact with the cavalry covering the march of the Fourth Corps, coming from Erfurt. Near the village of Seebach I met a brigade of three regiments making a part of the latter corps. At the moment I joined, it received news of the enemy, and directed its march towards the west *en rendezvous* formation; that is to say, the three regiments were marching in column of squadrons with closed intervals. The surrounding country was only slightly undulating, and without hedges or ditches, but at the bottom of every ridge there was a small stream about two feet deep. Here and there also, an occasional rock or thicket, making an obstacle, was encountered. To the north the city of Mülhausen, approached by a road with the traditional border of poplars, was visible. Through the trees bordering this highway I discovered the white havelocks, which distinguished the enemy's patrols.

The brigade descended into the valley at a uniform trot and cleared the little watercourse without for a second losing the rigidity of its rectangular formation; every horse kept his place steadily, and in leaping there was none of that halting and useless expenditure of force so often seen when there is the slightest obstacle to pass over. At this moment they executed an individual turn to the right, and in the distance I saw a second brigade, belonging to the same division, which was coming to join the first. It placed itself within supporting distance of the first, and the two brigades marched in that way together toward the north, their horse battery gaining the interior flank at the gallop and firing its first shot, which was replied to by the enemy's battery in position along the road.

During this time the two brigades had continued their march to the front against the enemy at the same regular gait, the shape of their mass having the clear cut outline of a picture, but on hearing the report of the first shot, they formed in column of squadrons at full distance, at the same time disposing themselves in two echelons, of which the first contained two-thirds of the entire force of the columns. Descending into another valley they were for a moment concealed from the artillery of the defenders, but on leaving this shelter, they found themselves fully in the zone swept by the enemy's shrapnel. They cleared the little stream situated at the bottom of the valley with perfect calmness, then profiting by the shelter offered by the opposite slope, they formed line and this movement completed, passed over the crest like a wall and at full gallop.

When the brigades descended into the last valley which separated them from the enemy, I lost sight of them, but soon they reappeared

*In Thuringia.

going at full speed over the last height; and then I observed a little disorder in the second rank. The interior flank was already touching the road, when, suddenly, the two exterior squadrons wheeled by platoons to the left, and the head of the column thus formed, executed a sharp change of direction to the right, then, followed by the first line and the second, disappeared behind the screen formed by the trees. The last cannon shots had been fired at a distance of 200 meters, but the attacking line concealed from me the counter attack of the enemy made against it. The platoons had not cleared the road more than a minute when the signal "halt" was heard. The Emperor, followed by his staff, appeared upon the scene, and the officers came from every direction to listen to the criticism.

I passed, in my turn, over the route traversed by the charge, and then discovered the cause of the disorder in the rear rank; it was a large drainage canal about twelve feet wide, and five feet deep, with banks having a slope of forty-five degrees, which constituted a really serious obstacle. As could be seen by the horses' tracks, they had mostly slipped the first three feet and then leaped the remaining distance. A little further on I saw the reason for the command breaking into column. The road in this place ran in a cut and had a bank about thirteen feet high. The cavalry did not perceive this obstacle until the last moment, but the squadrons were so completely under the control of their commander, that they executed a wheel instantly; the footprints of the horses on the marching flank were not more than ten feet from the edge. At the bottom of the valley a still greater surprise was in store for me; there was a water course six feet wide in a ravine at least forty feet wide, and about twelve feet deep, which, in a hunt, would have stopped most of the hunters, but a horse battery and five regiments of cavalry cleared it at full speed, and that without having a single man unhorsed.

In the last battle I had again the opportunity of witnessing a charge made by sixty squadrons to the north of Langensalza, upon the right flank of the enemy, when the two corps were reunited under command of the Emperor, against a simulated enemy. I had a good point of observation, and shall never forget the spectacle I was permitted to witness. Figure to yourself a black wall about 1500 or 1600 meters long, advancing diagonally in the plain, and gradually extending its shadow, like that of an eclipse over the earth. I afterward learned that this attack was made according to the Napoleonic system, that is to say, in order to decide at any cost the result of a battle. In fact, the divisions were formed in four successive lines, at intervals of from 400 to 500 meters, so that the troops assailed should not have time to repair any disorder created by the first line, before they would be attacked by another, and still another line, and be utterly demolished.

I could not exactly calculate the distance passed over at full speed during this last charge, but certainly it was very considerable, at least 1400 or 1500 meters. However, in another charge of cavalry I noted exactly the extent of the course. From the point where the brigades first began to move to that where they took the trot, I counted 8000

yards, and from that point to the place where the regiments were halted opposite each other after the gallop *de rencontre*, I counted 4000 yards more. Now it is well to recall that thirty years ago, when horses were rated according to their plumpness and not according to their training, as is the case to-day, a course of 1500 yards at the trot and 800 yards at the gallop, was considered as the maximum distance that could be demanded in a charge,—as an ideal to be sought for, but hardly possible to realize.

And note that these distances named were not made by horses and men fresh from their quarters, but by horses subjected for more than a month to very laborious exercises, which during the last week had surpassed anything known since 1870. One of my friends told me that he had never done such severe work since the time of the great battles fought around Metz; and nevertheless, he added, during the last six days of the grand maneuvers, they had exacted more of officers and men, who had not, however, the excitement of real war to sustain them. The patrols were often on the march before 2 o'clock in the morning, and passed over a course of from 100 to 110 kilometers; the regiments themselves remained from twelve to fourteen hours under arms, and had, besides, to take their tour of outpost duty, during which only half of the regiments were allowed to shelter themselves during the night.

Immediately after the maneuvers I inspected the horses, and was astonished to see how well they had endured these exceptional fatigues. Some few, possibly five per cent., needed rest, and two per cent. had their backs injured; these latter were so slightly injured that they could have been cured while led along with the command, and then been used again. How different from the results of the maneuvers of 1874 and 1875. Although in these the work had been much less severe, I saw regiments returning to their garrisons in as pitiable condition as were ours when they returned to Aldershot and Brighton from the Egyptian expedition.

The causes of these excellent results are of two kinds. First, caring for horses is much better understood; the emulation produced among the squadron commanders having created a more just conception of what an animal should be when in condition; second, the products of the government studs have given remounts far superior to those formerly obtained. Formerly, Arab stallions were employed and the product was horses of small size, but much bottom: we saw them in 1870. Since that time English stallions have been employed and with more satisfactory results.

It seems that it has been learned that the stallion of pure English blood, born and raised in France, is much to be preferred for breeding purposes to those imported directly from England. However that may be, I can affirm that the present Prussian studs produce the most perfect type of cavalry horse that I have ever seen. As to the absence of sore backs, is it possible to attribute that to better riding and to a saddle of superior pattern? Not having the right of selecting the men for the cavalry as we have in England, their men should not be naturally as well adapted for service as ours. As

to the saddle, that is the only thing in which they have appeared to me to be behind the times. The Danish saddle which the cuirassiers and uhlands use, is as heavy and objectionable as ours; the Hungarian saddle of the dragoons and hussars is the simplest model that I have seen. But from year to year, and little by little, they have increased the load to be carried on it until its weight exceeds that of ours. And to-day, in place of returning to the original type, they have just been trying a new saddle which, even without the saddle-bags, is as heavy as that from which we are trying to rid ourselves in England, and which appears to me to possess all the inconveniences known to us for a long time back. The German cavalrymen do not, however, appear to be satisfied with it; yet I have not observed any injuries that could be attributed to its use. Since, then, the three models of saddles actually in use are defective, and since the proportion of injuries produced by their use, is nevertheless infinitesimally small, it seems evident that the continuance of the above mentioned evil is due, rather to the bad condition of the injured horses than to any defects in the saddles themselves.

VOLUNTEER CAVALRY OF SOUTH CAROLINA.

To the Editor:

In the JOURNAL for December, 1891, in a paper on "The Proper Relative Proportions of the Three Branches of the Service," an omission is noted on page 390. The State which has the most numerous and efficient volunteer cavalry is not mentioned in the table. South Carolina possesses to-day a volunteer cavalry force of 100 commissioned officers and 1,124 non-commissioned officers and privates, organized into twenty-eight troops, with an average of forty men each. Most of these troops have members of longer average service than the regular troops have to-day, while several have stood the shocks of two or three wars.

In regimental and brigade organization much is to be desired, but the location of many troops probably prevents a better system at present than the one in vogue. The interest taken in this matter may be readily seen when one knows that all of the horses and part of the equipment of nearly every troop are private property, and that the State has given less than five dollars a year per man for the maintenance of the militia. The personnel is second to none in the world. As horsemen they have no superiors, if indeed equals. The drill of the troops that I have seen is excellent, and at their annual "tournaments," are displayed feats of individual horsemanship that we can never expect to see under present conditions of recruiting in the regular army. But a short time would be necessary to organize from these twenty-eight troops two brigades of as fine cavalry as ever rode down an enemy.

JOHN M. JENKINS,
Second Lieutenant, Fifth Cavalry.

THE ESSEX TROOP OF LIGHT CAVALRY.

Under this designation, we are happy to introduce to the Association a promising addition to the cavalry force of the National Guard—when the State of New Jersey shall see the wisdom of making her state organization really effective by authorizing the recognition of the cavalry commands which, we have no doubt, are perfectly willing to become a part of the State forces under suitable conditions. At present the Essex Troop is an independent organization, there being no provision under the National Guard laws of the State for cavalry. The troop has sixty-four members; has mounted drill once a week, and the attendance is reported good and the discipline excellent. The following is a list of the officers: JAMES E. FLEMING, captain, FREDERICK FRELINGHUYSEN, first lieutenant, R. WAYNE PARKER, second lieutenant. *Abblen*

HOW OFFICERS ARE MADE IN THE AUSTRO-HUNGARIAN ARMY.

[From the *Revue du Cercle Militaire*, translated by First Lieutenant WILLIAM M. WRIGHT Second U. S. Infantry.]

The "*Revue*" has given a short notice several times to certain modifications recently introduced in the German Army, relating to the method of admission to the military schools, and the methods of obtaining a commission. It seems interesting to take advantage of this opportunity to call attention to the same thing in the Austro-Hungarian service.

In this army most of the officers, in the neighborhood of seventy-five per cent., come from the cadet schools; others, in much less proportion, not quite twenty-five per cent., from the special military schools (*Militär-Akademie*). Some officers are occasionally furnished by the officers of the reserve, and still more rarely by enlisted volunteers.

This last class is not numerous enough to mention except casually, so let us confine ourselves to examining:

- (a) The source and development of the officers of the reserve.
- (b) The organization of the cadet schools.
- (c) The organization of the special military schools (*Militär-Akademie*).

(a) Ordinarily the officer of the reserve enters the service in the status of conditional enlistment. He is obliged to produce at once his certificates of study, and to submit to an examination before a special board.

After being received, October 1st, he is immediately admitted to a special company, where he lives until April 1st. At this time his military instruction should be nearly completed, theoretically as well as practically; placed in a company he will continue to improve while passing through the grades of corporal and under officer, and it is while in the position of assistant officer (*offizierstellvertreter*) that he will undergo his examination for officer of the reserve at the

end of September. These examinations take place at the headquarters of the division, before a board presided over by the chief of staff, and composed of two staff officers and two captains.

The candidate is obliged to furnish the board information as to his social status, and proof of an income of at least six hundred florins. The candidates who fulfill all the conditions are appointed sergeant-majors while awaiting their appointment to the grade of "sous lieutenant," which occurs during the first part of January. The unfortunate who does not pass loses all the benefits of his voluntary enlistment, and is compelled to go through a second year of service without being able to hope for any favors. He is no longer allowed to wear the yellow and black piping on his uniform, the insignia of candidate for promotion. The officer of the reserve who desires to continue the military career, and whose application has been previously approved, is kept on probation six months (*probation*), at the end of which time he undergoes a final examination (*ergänzungsprüfung*). He can then be appointed second lieutenant in the line, but with rank held back several months so as not to interfere with cadets awaiting their promotion.

(b) There are fifteen cadet schools: One for the cavalry at Mährisch-Weiskirchen (170 students); one for the artillery at Vienna; one for the pioneers at Hainbourg; twelve for the infantry, viz: Vienna, Buda-Pest (280 students), Prague (280 students), Karlstadt, Karthaus, near Brunn, Lobzow, near Cracovie, Hermannstadt, Trieste, Liebenau, near Gratz, Presbourg, Innsbruck, Temeswar.

Each school has at least 120 students, not counting the exceptions given above. The courses last four years, three years only for the school of Mährisch-Weiskirchen. The boys are received in these establishments at the age of fourteen years. The greater part are students at large, and students who have followed, with sufficient success, the courses of the preparatory and the military schools.

Great opportunities are offered to families. Boarding scholars are quite numerous, and the price of board is a little less. Thus the board for sons of officers on the active or retired list is twelve florins a year. The board of the sons of the officers of the landwehr or of civil functionaries is sixty florins. The admission to the school, as well as the passing from one course to another, is controlled by examinations. If necessary, the classes are increased. The students who have satisfactorily passed the last year are placed as cadets in the "corps de troupe," and pass successively through all grades to the position of cadet assistant officer (*cadet-offizierstellvertreter*). They are usually promoted second lieutenant after two years' service. Thus a cadet entering the service at at least nineteen years of age, will become an officer at twenty-one years, and as it is necessary for him to be three or four years in the grade of second lieutenant and six or seven in that of first lieutenant, he will be a captain at thirty-one or thirty-two years of age.

(c) The special military schools (*Militär-Akademie*), are two in number, the Wiener-Neustadt-Akademie for infantry and cavalry,

four hundred students, and the Technische Militär Akademie at Vienna for the artillery and engineers. These schools receive, after examination, a few candidates at large, but principally the greater portion of the students come from the higher military preparatory schools. The complete course is composed of one term of three years. Each course is finished by an examination before a special commission. The first year, from September first to July first, can be gone over twice; the student who does not pass the second year is put in a cadet school; the student who is found deficient the last year is sent as a second lieutenant to a "corps de troupe;" this is very rarely the case. The cavalry section is filled only by the students of the third year, and is composed of about twenty.

The students promoted second lieutenant during the year are provided with a complete equipment, or its equivalent in money, and receive moreover a first advance of fifty florins on their pay.

We have nothing to say in this article about the superior war school (Kriegsschule) nor the Ludovica-Akademie at Pest which are particularly for Hungarian officers, but on the contrary it seems necessary to give several lines to the military preparatory schools, which we have mentioned several times above.

These schools are five in number, as follows: Four secondary preparatory schools, (Militär Unter Real Schulen) at Saint Pölten, Guns, Eisenstadt, and Kaschau. A superior military school (Militär Unter Real Schule) at Marisch-Weiskirchen.

The secondary preparatory schools have at least 200 or 215 students (Eisenstadt 280), and receive students at large at ten or twelve years and a few pensioners from the military orphanage of Fischau, near Wiener Neustadt.

After four years of study the students who have received good reports are sent to the superior preparatory school. Those who have only received satisfactory mention can be admitted to the first year course of a school of cadets.

As has been said, the superior preparatory schools, receive the most meritorious scholars of the secondary preparatory school, at from fourteen to sixteen years of age. They furnish the special military schools in their turn with those of their students who have received good mention in the examinations of the second year; the other students are sent to the cadet schools.

BOOK NOTICES AND EXCHANGES.

THE FRANCO-GERMAN WAR OF 1870-71. By Field Marshal Count Helmuth Von Moltke. New York. Harpers. 1892.

It must be regretted that Count Von Moltke delayed until 1887 before he wrote his history of the conquest of France. His earlier writings and his speeches had all the charm of the utterances of our own most eloquent soldier and gifted writer, General Sherman. At the late date when the Count began his history, he evidently had not the strength to give to his work much more than the character of an abridgement of the great official account of the German Staff. With that narration indeed he must have had a great deal to do, but its official style is quite as marked in the personal account. The later work does not compare with the larger book in value to the military student because of this very condensation, while its single map does not afford a sufficient aid to a careful reader. The whole account of the war against the empire is contained in something over a hundred pages. On the other hand the dry array of details of battles and campaigns, almost unrelieved by comment or criticism, will not make the book popular with general readers.

A part of this is due to the writer's decision that his personal experiences had best die with him. Personal memoirs he considered to be merely attempts of individuals to blow their own bagles at the expense of the reputation of others; above all, he looked upon it as a patriotic duty to leave undisturbed the ideal halo that surrounds the names connected with great events. Thus the faults, weaknesses and jealousies which grew out of that war, on one side, at least, were spared by the great-minded soldier who was most competent to speak; and while Bismarck has permitted his biographer to ascribe to himself the remark that "Moltke is a hard-hearted old villain," the man who knew how to be silent in seven languages, does not mention the name of the Chancellor.

We are, however, indebted to the book for a few sharp criticisms. For instance, the Field Marshal often speaks in contempt of the military conceptions of Gambetta and De Freycinet, two civilians who called themselves to command, and whose misdirected energy cost

their country dear. He speaks of the military maxim, that "Pursuit should always follow a victory," as a law particularly acquiesced in by novices, but seldom observed. He gives full credit to the genius of Chanzy as a soldier, who found glory even in defeat, and a general who could restore the offensive spirit to beaten troops. The day has gone by, he says, when wars take place for dynastic ends. Now, he insists, a weak government, controlled by a popular assembly, where the responsibility of no one man is great, may find it impossible to avoid a war demanded by popular excitement. Such was the experience of 1870.

A fruitful subject for an American cavalryman to think about is the fact that as great a soldier as Helmuth von Moltke, only four years ago, mentioned without comment the various instances where, from our point of view, his cavalry failed in its mission in 1870.

In marked contrast to the general character of the book is a short appendix of eight pages, written in 1881. It contains a glimpse of the Sadowa campaign, and a denial of statements that councils of war were held during the wars of King William. The appendix is entirely of a personal character, and recounts one very fair joke on the German Chancellor.

E. S.

THE PRINCIPLES OF STRATEGY. By John Bigelow, jr., First Lieutenant, Tenth U. S. Cavalry.

According to the great masters, the principles of strategy do not change—they have always been and will always remain the same. However, new books from time to time appear upon the same old subject, and are valuable, chiefly because they consider it from different standpoints, and illustrate it by new examples, and in some cases, by new methods also.

Lieutenant Bigelow's new work is a valuable addition to existing literature upon this subject, and deserves praise for many reasons. Any American can read it with both interest and profit; and it ought to be especially interesting to some officers of foreign services who seem to be forming an acquaintance with American military history.

The most instructive campaigns of the Civil War are described accurately and scientifically; and the lessons to be derived therefrom are pointed out, though in some cases, less fully than might be desired.

Comparatively speaking, it may be fairly questioned whether too much attention has not been devoted to the Vicksburg campaign, and whether other American campaigns might not, with advantage, have been more fully described and discussed.

The use of a rigid geometrical diagram for the elucidation of a strategical situation has its advocates; but we believe that the weight of recent authority is inclined to favor the use, for this purpose, of a description of a campaign in which the actual situation existed, accompanied by a map showing essential features. Lieutenant Bigelow combines the two methods in an advantageous manner.

The most severe criticism that can be fairly made is that the

author has denied himself a free use of the great abundance of material available for illustration. European campaigns are not entirely neglected; but those referred to are not fully described and this requires the student to seek elsewhere for the detailed information, without which correct understanding and appreciation of the case in point are impossible. Not only are American campaigns as yet too few to furnish the best obtainable illustrations in every case; but it is also true that the American Napoleon has yet to appear.

This fault, if it be so regarded, is somewhat compensated for by the additional interest that attaches to a scientific discussion of campaigns conducted under conditions very different from those which obtain in Europe.

The work is excellent in many respects, and highly creditable to its author.

W. A. S.

A HISTORY OF THE FIRST REGIMENT OF MASSACHUSETTS CAVALRY VOLUNTEERS. By Benjamin W. Crowninshield, Major First Massachusetts Cavalry and Brevet Colonel U. S. Volunteers. With Roster and Statistics, by D. H. L. Gleason, Brevet Major.

Many of the volunteer cavalry regiments which distinguished themselves on the battle-fields of our great Civil War, have had their histories written and published in a style well calculated to perpetuate, for the use of their descendants and the future historians of the war, the memory of the unparalleled services rendered by them for the preservation of the Union; many of these have been issued in an attractive and useful form, but none have, up to the present time, approached in completeness and luxury that which has lately appeared to commemorate the services and chronicle the individual histories of the officers and enlisted men of the First Massachusetts Cavalry. Organized in 1861, with that model dragoon, Captain (now Brevet Brigadier-General) Robert Williams, Adjutant General's Department, as its colonel, it received at the very outset, an impression in the matter of drill and discipline which, in spite of casualties and frequent changes of *personnel*, never lost its effect. His very first step, after becoming acquainted with the men whom it was proposed to commission as officers in the regiment, was to report to Governor Andrew that the regiment could never do honor to Massachusetts unless such changes as he indicated were made in the officers of the regiment. The objections to each one were succinctly and decidedly stated, and that in a spirit actuated only by a desire to promote the best interests of the service. The Governor stood by his colonel, and trouble, mutiny even, followed this supposed arbitrary action on the part of those in authority; but the mutiny was suppressed, the unsuitable officers were disposed of in various ways, and the regiment began a career which, though necessarily of a somewhat checkered character, was, on the whole, a successful and brilliant one.

Its flag bears, by authority of the War Department, the names of eighteen battles in which it took part, and in addition to those,

there were eleven smaller affairs, all designated by names familiar to the students of the history of the Civil War.

To those people who believe that our cavalry was only that hybrid known as mounted infantry, using horses only for transportation and fighting only on foot, a perusal of the accounts herein given of battles in which sabers were used with a freedom and confidence unknown in the later modern European wars, may teach many things which they have heretofore deliberately refused to learn, and must believe, unless they persist in regarding all men except themselves willful perverters of the truth.

In this book, as in many others equally trustworthy, the accounts of the affairs described are taken from the statements of the participants on *both sides*, and they leave no possible doubt of the truth of the assertion frequently made, that the cavalry in Virginia was accustomed to use the saber as its favorite weapon wherever circumstances seemed to justify it, and resorted to the carbine only when the nature of the ground was such that it would have been folly to do otherwise.

In the affair at Aldie, Va., June 17, 1863, where the brigade of which the First Massachusetts Cavalry formed a part, encountered Fitz Lee's brigade, commanded by Colonel Thomas T. Munford, Second Virginia Cavalry, was shown a capacity for using the saber mounted or the carbine dismounted, by the cavalry of both sides, according to circumstances, to an extent which should excite the admiration of everyone capable of appreciating the typical dragoon as developed by the American War. The losses of the First Massachusetts in this affair at Aldie were: killed, one officer and twenty-three men; wounded, four officers and thirty-eight men; captured, three officers and eighty-five men; or a total of 154 officers and men out of a force numbering about 300.

The work, printed at the Riverside Press, Cambridge, leaves nothing to be desired in the matter of paper, type, binding and illustrations. It will serve as a lasting monument to its author, Colonel Benjamin W. Crowninshield, whose untimely death occurred at Rome, January 16, 1892. *h. h. b. m.*

THE REVEILLE. For December, 1891, and February, 1892. A quarterly, published by the Cadets of the Pennsylvania Military Academy.

Contains an essay, "The Taming of the Shrew," by Captain Klenner, late Austrian cavalry, written for those who gather their horses. Captain Klenner says: "But few horses are vicious by nature, and by calmly applying proper means of correction, may be brought to obey any reasonable demand; generally, only spirited animals resist, and when properly trained are the most valuable." The nature of this resistance is divided into passive and active, and discussed under the heads: continual and periodical leaning on the bit; creeping behind the hand, i. e., making the reins loose; turning the head to the wrong side; turning in circle; wrong bend of

the neck; hiding its strong side; pressing against walls, trees, etc.; crowding against other horses; creeping backwards; bolting, rearing and running away. The manner of overcoming these faults is fully discussed.

The short gathered gallop, which I understand to mean the canter, is now recognized in the Cavalry Drill Regulations, which treats of the above faults and the manner of overcoming them.

The training of a new horse involves the infliction of more or less pain, the necessity for which becomes less as his intelligence is quickened into understanding the lightest pressure; being rein-wise when he obeys the lightest pressure of the rein, the bit remaining in its normal position, and leg-wise when he obeys the lightest combined action of the rider's legs. Gathering the horse is necessary for cavalry service in order that movement may take place at the proper time. Reins and legs are aids in horsemanship, and determine the movements and gaits of the horse; hence they should act in harmony with each other.

From personal experience I fully agree with Captain Klenner as to buckers, "They should not be used under the saddle;" also with his farewell remarks, "Gather your horse."

The spur is an aid and also a means of punishment when necessary, when it should be used with vigor at the moment the fault is committed.

S.

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No. 1: The Franco-Italian Frontier. Portable Electric Lights for Field Service. Strategic Routes Projected on the Rhine and in Alsace. Employment of the Plow in Constructing Field Works. No. 2: Russian Field Mortars. The Franco-Italian Frontier. The Soldier's Footwear. No. 3: Russian Field Mortars. The Franco-Italian Frontier. No. 4: Reorganization of the Spanish Army. An Englishman's Views on the German Cavalry. No. 5: Instruction in Firing. Military Velocipedists in the Spanish Army. No. 6: Notes on the Austro-Hungarian Army. The Personnel. A Geography of China, by a Chinaman. The Garrisons in Alsace-Lorraine. No. 7: Antiseptic Surgery in Armies. The Austro-Hungarian Army. Convoys and the Passage of Rivers. No. 8: Second Letter of Dragomiroff on *Les Armes Blanches*. The Franco-Italian Frontier. Antiseptic Surgery in Armies. The Austro-Hungarian Army.

MILITÄR-WOCHENBLATT.

No. 1: Rapid Firing Guns. No. 2: New Trials of Smokeless Powder. A New Study of the Battle of Woerth. No. 3: Battle of Woerth (continued.) No. 4: The Winter Campaign of 1807 in Prussia. Hygiene. Some Information in regard to the Combat, by General Ferron. No. 5: Continuation of Same. The Guns of the Future, and the Field Guns Demanded by Existing Conditions. Scharnhorst's Letters to the Prince of Prussia. No. 7: The Increase of Railways in Russia in 1891. No. 8: General Dragomiroff.

roff's Tactical Instructions. No. 9: The Russian Infantry. No. 10: The Swiss Army. Dilke on the late French Maneuvers. No. 12: Twenty-four Hours of Von Moltke's Strategy. Strategic Advantages of the Canadian Pacific Railway. No. 13: Frederick the Great's Strategy, by Professor Delbrück. No. 14: The Historical Development of the Idea of Universal Peace.

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February, 1892: The Education of Officers for the Armies of To-day. For the Best Interests of the Service. Blockade Running. Major and Brevet Colonel Guy V. Henry, U. S. A., with portrait. March, 1892: Recent Improvements and Tactics, by Lieutenant A. S. Frost, Twenty-fifth U. S. Infantry. A Forgotten Humorist. The Failure of the Nile Campaign, by Archibald Forbes. April, 1892: The Building of the Soldier, by Captain Pilcher, Medical Department, U. S. Army. A Lesson from History, by Captain Edward Field, Fourth U. S. Artillery. Riots and Means for their Suppression, by Captain Henry Romeyn, Fifth U. S. Infantry. Company Discipline, by Lieutenant A. H. M. Taylor, Nineteenth U. S. Infantry.

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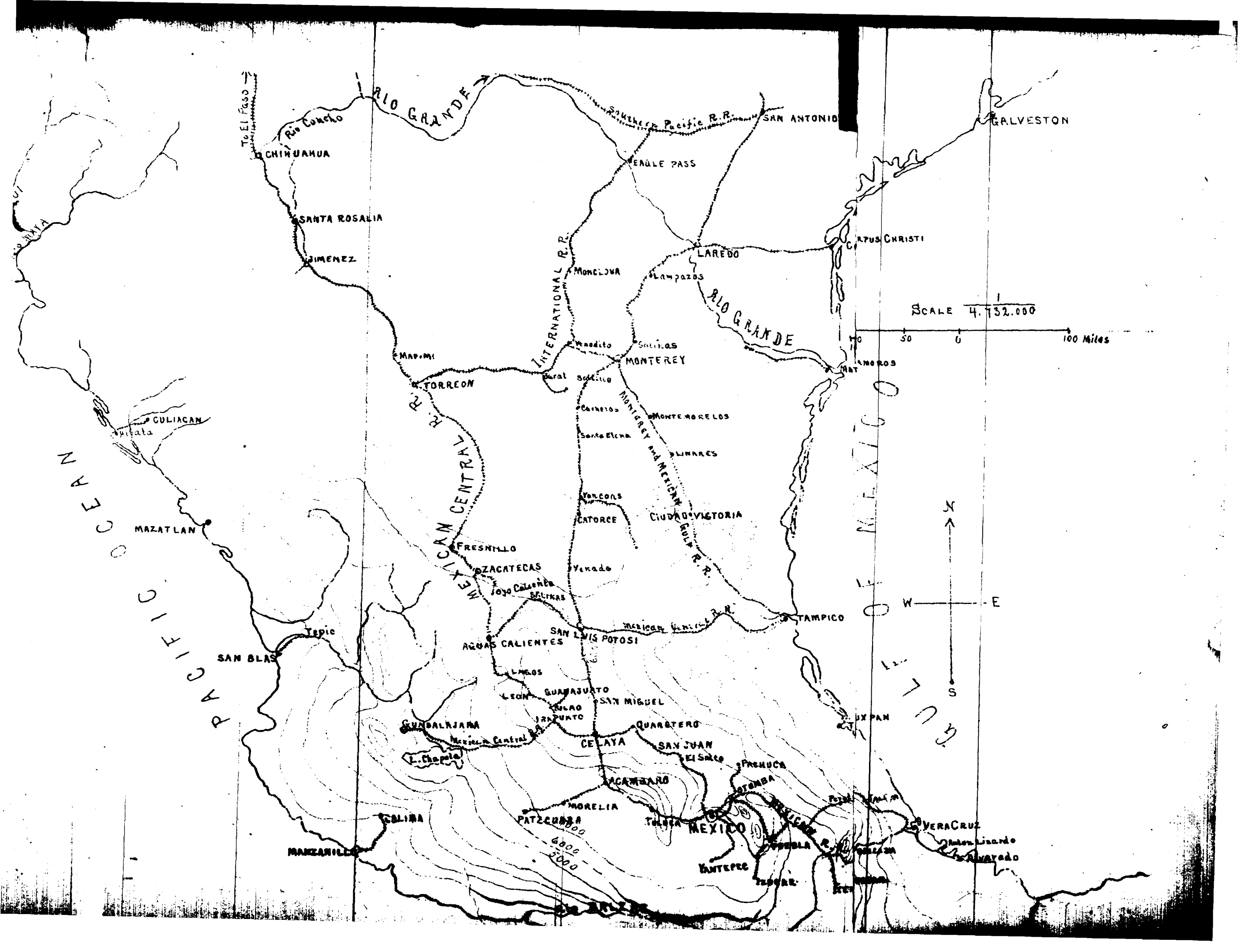
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REMARKS UPON A POPULAR FALLACY CONCERNING MEXICO AND HER MILITARY RESOURCES.

BY FIRST LIEUTENANT THOMAS CRUSE, SIXTH CAVALRY.

"I have remarked that it is not well to create a too great contempt for the enemy, lest the morale of the army should be shaken if it encounters an obstinate resistance."—JOMINI.

THE discussion, carried on by a group of officers at one of our southern frontier posts, had certainly waxed warm, and finally culminated in the assertion: "Well, you may say what you please. I would like nothing better than to be ordered to invade Mexico with 50,000 men, and I would get there, too." This view of the matter seemed to be acquiesced in by all present, and our party soon after dispersed. The subject under discussion was the "CUTTING affair," wherein a tramp editor, named CUTTING, had been arrested in Mexico for some offense, real or alleged, and the fact having been blazoned forth all over the country, had elicited some severe strictures upon the Government for not at once offering Mexico the alternative of giving up the man or fighting. The newspapers and the public in general discussed the prospect of war, and the universal opinion seemed to be that very few men and very little time would be needed for our army to make a second triumphal entry into the City of

The map accompanying this paper has been compiled and made by Lieutenant CRUSE.

J. C. Carr.

Editor.

Mexico. In fact, the people of the United States—from the well-informed literary man to the day laborer—seemed to forget that our prospective antagonist also had resources and military power; certainly not so great as our own, yet quite extensive, and not to be so lightly overcome as we might imagine.

History shows us that some of the most terrible disasters that have ever fallen to the lot of nations in war, have been those resulting from an incorrect estimate by the beaten nation—who was at first the assailant—of the resources and military power of the nation which ultimately triumphed, but which, at the outset, had, apparently, no chance against her seemingly all-powerful adversary. The Moscow campaign is a fair example of this. NAPOLEON had on his side his own wonderful genius, his trained generals, and the resources and armies of nearly all Western and Central Europe [JOMINI states, on page 344, Vol. II, "Life of Napoleon," that this army was composed of French, Poles, Austrians, Prussians, Italians, Bavarians, Westphalians and Saxons], and it cannot be said that he was not a prudent calculator in all matters pertaining to finance and war. He prepared to attack Russia, who, without allies in that part of the theater at least, and with resources far inferior to those of her antagonist, was, it seemed, poorly able to resist the overwhelming tide that poured in upon her. Still, as we know, NAPOLEON was beaten, and the soldiery of Russia, aided by the severe climate of the country and the unvarying patriotism of the leaders, drove back the trained armies of the invaders.

A still more modern and striking instance is given in the Franco-German War, when the French fought as well as they ever did, but the first error in over-estimating their own resources and under-estimating the development of Germany as regards military training and unity, was never atoned for until Paris was captured and the indemnity was paid. To make the case apply with greater force to our own situation, I will say that it was *not* from lack of resources—see how quickly the immense war levy was raised and paid—nor yet from lack of bravery in the soldiers, nor even good military leaders,* that France was conquered, but by her towering self-confidence, which caused her to depend too much upon past traditions and pay too little heed to actual conditions.

The question that I submit then, is, may not we of the United States fall into a similar error as regards the condition and military resources of our neighbor, Mexico, and might not such a mode of thinking generate a similar lack of preparation on our part, so that

*VON MOLTKE'S estimation of CHANZY.

when the clash of arms came, the weaker power might give us a long and bloody struggle for the victory.

A key to the whole situation is found in the remarks so often seen in the newspapers and heard from the people whenever any little incident such as the "CUTTING case" occurs, and there arises some talk as to what could be done if war was declared, the general import of such braggadocio being well illustrated by the following extract from a great and influential newspaper: "The fellows who sneer at our 'little army' and our 'old hulk of a navy,' forget that there are 50,000,000 of people behind them. UNCLE SAM can wave that old flag from the top of the National Capitol, or from some peak on the Rocky Mountains, and sound a bugle call, and ships would fall in line, and 1,500,000 men would answer 'Ready!'"

While we should not be pessimistic regarding the wonderful resources and latent military power of our country, still, that we should have such a fallacious idea that our undeveloped strength needs no preparation is to be deplored, and may, I insist, bring us trouble and disaster in case of war with Mexico. If men and resources (both undeveloped) were all that are needed in war, then certainly China would be the greatest nation on the face of the earth, as it *thinks* it is. In fact, we might *not* be able to succeed *at first* in a military invasion of Mexico, and furthermore, if we started in without adequate preparation, and relying on past traditions, we might be ultimately defeated in our attempts against that nation. Many Americans, influenced by these traditions instead of actual conditions, may think it absurd to suppose that a half-civilized nation of 12,000,000 people, could for one moment cope with a great and enlightened one of 62,000,000. But numbers and resources do not always win the victory; if so, how is it that the United States ceased to be a dependency of Great Britain. It may be urged that England was obliged to send the armies against us, across the sea; that the conditions are not the same; and that the point is not fairly taken. Now, that is exactly the point that I wish to make: that although the two nations (the United States and Mexico) have actual boundary lines—identical, of great extent, 1,900 miles—still for an army from the United States to reach what is really Mexico, *i. e.*, the great central plateau around the capital, where the population, wealth and resources of the entire country are practically located, it would have to cross a space as difficult and almost as far in distance, and a great deal farther in danger, than that over which England had to send her

"Chicago Inter-Ocean." Quoted from Major KING's article, *Military Service Institution*, December, 1884.

armies against us in either the Revolution or the War of 1812. And herein lies a most wonderful power of defense for Mexico, because to us she is as inaccessible as if she were an island 1000 miles from our coasts, and had numerous and daring privateers to annoy our convoys and troop ships.

Facts are demanded, and I give them: First, as regards her army and its capabilities; next a view of the country and the railroads situated in what might become the theater of war.

THE MEXICAN ARMY.

The latest reports of the War Minister of that country show the army to be composed of (1), the Permanent Army, (2), the Reserve, and (3) the General Reserve, a grand total of 160,000 men of all arms. And it is claimed that this number could be armed, equipped and made ready for action in a very short time. The permanent army, corresponding to our regular army, and under the direct control of the Federal Government, actually in service, and ready for immediate action, is composed of, cavalry, 5,500; artillery, 2,000; engineers, 700; infantry, 17,500; and Rurales (the crack cavalry corps of the nation), 2,000. To this number may be added as also available for immediate use, although not regarded as a part of the army, the Gendarmes (mounted), 500 strong; total 28,200. Taken as a whole, these troops are well armed and equipped, and suited to the demands of the occasion.

INFANTRY.

As to the infantry, those of us, who have seen its wonderful marching qualities; the ease with which the men are subsisted and cared for, and more especially its absolute independence of trains and camp equipage while in the field, are not inclined to rank it low in the scale of soldiery, even though made up of peons and convicts, as nearly all the battalions on the northern frontier undoubtedly are at present. In his last annual message to the Mexican Congress, however, President DIAZ set forth the evils of such a system and recommended that a newer and more progressive one be adopted. No doubt the new system is now in operation and will tend to get a better class of men in the army. The well trained and disciplined infantry in the interior and near the capital ask no favors of any infantry that we might bring against it, more especially on the defensive.

CAVALRY.

The Rurales and Gendarmes are superbly mounted and equipped, have great *esprit de corps*, and would be invaluable for use as guides

and to keep touch of the enemy, from their intimate knowledge of the country and the high grade of duties required of them. They are probably better in their sphere than any cavalry that we have. The regular cavalry is well horsed and equipped, but not quite so well armed as our own. Nor are they rusting for want of actual field training, and in guerilla and Indian warfare have shown high military spirit and efficiency. The country through which our lines of communications would run is well suited to the action of this arm, and no doubt our armies would find themselves very much harassed with the guerilla warfare, to which the cavalry of the Mexicans has shown itself peculiarly adapted.

I will admit that the rank and file do not strike the average beholder with any awe, but on the contrary, the white cotton trousers, sandaled feet and general costume may excite ridicule; also the general low level of intelligence works against any favorable impression; but it must be remembered that they (the common soldiers) are exactly the people to exhibit desperate bravery, if well led, and if popular passion happens to be against the hostile nation, to an unusual extent—not always the case. Here let me remark, that the influence of the Americans who have gone into Mexico and are in various business enterprises, is acknowledged to be for good, and is therefore favored by the intelligent, progressive and influential citizens of that country; still to the lower, uneducated masses (such as would make up the armies), we are still "Gringos," and are held in great disfavor. So that in event of war we would have to meet fanaticism as well as patriotism.

ARTILLERY.

The latest reports concerning the Mexican Field Artillery (Lieutenant G. P. SCRIVEN) show that our neighbor is as well prepared in that respect as we are. The peace status of this arm is twelve light batteries—steel breech-loading guns, Austrian pattern, changing to Krupp now—and twelve howitzer batteries for mountain service, each with sufficient men and mules to put them in a good state of efficiency.

So that taking everything into consideration, Mexico shows herself alive to the exigencies of the occasion, and would prove rather a dangerous combatant even if we left out of consideration the barriers which Nature has placed around her, and which tend to assist her to a greater degree than a quadruple increase in the strength of her army would do.

Since we Americans are prone to base expectations of future suc-

cess against Mexico upon the ease with which our armies conquered the country in 1847, let us critically look at the condition of that nation at the date of the "American Raid," as it has been characterized by a very intelligent military writer, and see how it compares with the situation of to-day. The country had but a short time before achieved its independence, only to be overwhelmed by a series of revolutions, stirred up by ambitious generals; the central Government had no ready means of communication with the various States; no regular system of taxation was in operation, and funds were accordingly lacking; a great mass of the people cared nothing for the war or its objects; arms and equipments were scarce and unobtainable, and in fact, every *moral* and other incentive needed to make the war a success for the Mexicans was absent.

The internal condition of the country is very clearly shown by an American author (BISHOP) in the following words: "There were not less than eleven changes of government, chiefly violent, during the short course of the war (1847). In February and March of the year in which in September the invaders made their entry, there had been fighting in the streets of the capital for well nigh a month between two presidents, neither strong enough to put the other down. Want of courage is not a Mexican failing. It was want of leaders, unity, everything that gives steadiness in a great crisis."

I have no intention of attempting to diminish the luster of the achievements of the little band of Americans in 1847, because it must always rest as a great and daring deed for an army of 15,000 men to conquer a nation of 7,000,000 people under any circumstances.*

The aspect of affairs has changed very much for the better since that time, both for the United States and Mexico; relatively more for Mexico than ourselves, however. Revolutions, the curse of Mexico, may be fairly considered a thing of the past, and thanks to American enterprise and money, railways connect the capital with the most isolated parts of the country, and the Federal Government can at once overawe any resistance to its authority promptly and effectively, and furthermore it does it. As regards finances, the showing made in the report of August, 1890, was very flattering.

In confirmation of the ideas set forth above, I take the liberty of quoting from JANVIER's article in *Harper's Magazine* for November, 1889:

*The number given is that of General SCOTT's army—available. The report of the Adjutant-General in 1848 shows that the entire force used from beginning to end as follows, viz.: Regulars, 26,922; volunteers, 73,932; a grand total of 100,854 men, of whom 25,000 were lost by death in battle and disease; mostly the latter. Very few people have ever imagined that these figures ever assumed such proportions as shown above.

"But on dress parade these same easy going soldiers present a very creditable appearance. Indeed, I never saw anywhere a more soldierly body of men than the force that marched in review past the President on the 5th of May, 1885. At this time, differences with Guatemala, growing out of the interminable boundary dispute, threatened war, and rumors were also flying about that a certain prominent general contemplated trying his hand at getting up a revolution. Whatever may have been its object, the Government at this time assembled in and around the City of Mexico, an army of 20,000 men of all arms, and on the 5th of May, this force splendidly armed and equipped was paraded through the streets of the capital. * * * There was, moreover, a prompt, business-like air about the demonstration that produced an effect very unlike that of an ordinary parade or review. The marching pace of the infantry was almost a double-quick; the cavalry frequently moved at a trot, and some of the batteries dashed by at a gallop."

The author very sagely concludes that such an army is not to be lightly regarded, either at home or abroad, a sentiment which must be acquiesced in by every one who has ever examined into the matter at all.

NATURE OF THE COUNTRY.

Let us now consider the physical characteristics of the country in which an invading army would be compelled to operate, premising our views on this subject by a quotation from "Napoleon's Maxims" as follows: "Obstacles that are difficult to surmount in the order of difficulty are, (1) Deserts, (2) Mountains, (3) Rivers." Our researches will show that, as concerns an army, *almost any* line we may take contains deserts, and that *every* line contains mountains of the most difficult and rugged nature. All writers on the subject unite in saying that the population, riches and resources of Mexico, are concentrated upon the great central plateau, Anahuac, the boundaries of which are two east and west lines, one drawn through San Luis Potosi on the north, the other through Orizaba on the south, and it is equally conceded by all, that for a hostile army to conquer the nation, it would necessarily have to occupy this portion of the country; and it is equally a fact, which a careful examination of the map of Mexico will show, that any route over which the invading army would move would offer great difficulties of supply, and be extremely favorable for the defense at every step. Let us consider each of these lines, its advantages and disadvantages, in detail.

1. *The Vera Cruz route*, which at the outset necessitates transportation of troops for quite a distance by water, (which *might* be rendered impracticable if Mexico should have an ally with a fleet) then a successful landing at or near Vera Cruz, which beyond the

trouble and expense, and the danger of disaster arising from poor harbors, would not be particularly dangerous, since we have the fleets and could obtain the necessary transports readily enough. Once landed, however, the difficulties commence. The southern route used by the French, from Vera Cruz to the capital, the City of Mexico—necessarily the object of an invading army—is at present occupied for nearly its entire length by the *Mexican Railway*. This line is 265 miles long, has English equipments, was built by an English company, and, of course, would have to be depended upon for transportation of supplies and munitions of war, so we trace it in detail. Along the coast is the section of country known as the *Tierra Caliente*, extending into the interior for about a width of eighty miles—a deadly strip for Americans on account of the fevers; and an army, not acclimated, held there for three months in ordinary seasons would be decimated by disease, and in some seasons its efficiency would be entirely destroyed by the prevalence of yellow fever.

Having passed over this strip the terrain rises suddenly to Orizaba, 4,027 feet above sea level. In attaining this level the road traverses a terrific grade and crosses the Barranca de Matlac on an iron bridge 350 feet long and ninety feet high—easy to destroy and hard to replace—as it must be understood that we probably have no detailed plans of this road, its grades, bridges, etc., as of all the others, nor were the bridges made in the United States.

Once in Orizaba the army might be in a good situation as regards health, but the country does not abound in supplies, and before reaching it, there are several fine defensive positions for the Mexican army. A few miles beyond Orizaba the road runs in the Barranca del Infiernillo with numerous bridges and tunnels, and very steep grades, thence into the plain of La Joya, a beautiful and well supplied country. Of course a strenuous resistance might be expected in the Barranca, not alone at one point, but at several, and severe fighting could not be avoided.

After crossing the plain of La Joya, the road rises from Maltrata an additional 3,600 feet in a very short distance, and attains the plateau or *Tierra Fria* at an altitude of 7,922 feet at Boca del Monte, 108 miles from Vera Cruz. At this point or near it, the invaders would probably have to meet all the available forces of the enemy in battle, because here must be fought the battle for Puebla, the possession of which by the Americans would insure supplies and safety until a further advance towards the capital could be made.

I have not considered the old Camino Real from Vera Cruz to the

capital, because it is doubtful if an army could use it as a line of communication at present, as it has not been kept in repair since the railway has been in operation. If it could be used, the very strong points along its extent would now be held with much greater tenacity than ever before, in fact, it might be rendered impregnable at several points. After gaining Puebla, either by road or railway, the invading army would then have to do its hottest fighting to get the capital, and under the present favorable circumstances the Mexicans might reverse the victories of Contreras, Cerubusco and Molino del Rey.

The route taken by the American army under General Scott in 1847, through Jalapa, Perote, etc., from Vera Cruz, is paralleled and occupied to some extent by a new narrow gauge railroad—the *Inter-oceanic*—which starting from Alvarado on the Gulf, just southeast of Vera Cruz, passes the cities mentioned, crosses the Mexican railway at Huamantla, thence to Puebla, thence to Otumba, thence to the capital. This road was only finished in 1891, is 293 miles long, gauge three feet, steel rails, and running as it does, offers all the difficulties and strong defensive positions that the invading army encountered in 1847. At the present time this railroad is under construction from the City of Mexico to the Pacific Coast at Acapulco—the finest harbor on that coast—and the indications are that it will be the first road completed to the Pacific at any point. The length of the line from the capital to Acapulco will probably be 386 miles, of which at least ninety-five miles are constructed and in operation. After Puebla was taken, both roads, the Mexican and Interoceanic, could be used to supply the army; hence my reasons for saying that Puebla would be a key point to all operations based on Vera Cruz. (See accompanying map of Mexico.)

2. Going north the next line that attracts our attention is a branch of the *Mexican Central Railway*—standard gauge, four feet eight and one-half inches—completed in 1889, and extending from Tampico on the Gulf, to San Luis Potosi, where it connects with the Mexican National from Laredo, thence on to Aguas Calientes, where it connects with the main line of the Mexican Central from El Paso. It was originally intended that this branch should extend across Mexico from Tampico to San Blas on the Pacific, but no construction is going on at present, and the western portion remains unfinished. This road, rolling stock and bridges, are all of American construction. The grade is very steep from Tampico to San Luis, where it attains the plateau at an elevation of 6,150 feet, the distance between the two places being 275 miles. From Tampico to Aguas Calientes is

415 miles. I am inclined to think that this line offers more advantages to an invading army than any other, for the reason that whilst *en route* it would be practically safe from flank attack, and a second army lightly equipped might move from Laredo to cooperate. Of course, in all the instances the enemy would destroy the bridges and remove the rolling stock in retiring, and the roads would have to be rebuilt as the army advanced. With the particular roads under consideration, this rebuilding would be a *costly* but not necessarily difficult operation, since we have all the necessary plans, etc., in this country, or at least they could be obtained.

The port of Tampico would form a better base than Vera Cruz, being closer to our ports than the latter place, and now that the bar across the mouth of the Rio Panuco, has been partially removed, vessels of reasonable tonnage can enter. The Rio Panuco itself is navigable for 150 miles for light draught stern-wheel boats, such as are found on our western waters (Captain DORST, Fourth Cavalry, 1883). Tampico itself is very hot and unhealthy, but no more so than Vera Cruz. There are no large cities on this line, hence few supplies until the region in the vicinity of San Luis is reached. Once there and supplies collected, the invader could soon open the country to Aguas Calientes, and then all the railroads leading from Texas would fall into his hands and be available for use as lines of supply for future operations against the capital. The direction of the Mexican attack might compel this invading army to form front to a flank, but the danger of defeat in such a position would be very materially lessened in this instance by the fact that if the line to Tampico were lost, the beaten army might regain its base through Monterey, along the Mexican National, at the expense of great losses and hardships, but not total disintegration. Hence the provision for a cooperating army along the Mexican National.

This line probably offers more advantages with less probability of excessive loss than any other that we may consider. The advantages of this route are still further enhanced by the fact that a new road, the Monterey and Mexican Gulf R. R., (standard gauge) leading from Monterey through Linares and Ciudad Victoria to Tampico is built and finished, thus giving an all rail route from the United States to Tampico. This road is also projected and surveyed to run from Tampico directly south to the City of Mexico, and there is some probability of its being built. If built it would give the most direct all rail route from the United States to the capital. After reaching San Luis, the task of reaching the capital—distance 362 miles—still remains, but the movement would be made with the army well

supplied and the Commanding General not particularly worried about his lines of communication with his base, which is quite extensive, and if the raiding parties of the enemy cut *one or more* of the lines of communication, the army can still be supplied by the others.

3. Next in order comes the *Mexican National Railway* (narrow gauge, three feet), which leaving Texas at Laredo, rises to the side of the main plateau near Monterey, after traversing a distance of 168 miles, thence up a very steep grade to Saltillo, 236 miles, where it reaches what is practically the plateau, but where water and supplies of all description are very scanty. Not the least of SANTA ANNA's achievements as a general and leader was the feat of taking his army in 1846-7 across the sterile plain, which, enclosed on all sides by mountains, stretches waterless and treeless from near Saltillo to the vicinity of San Luis, about 160 miles. (This belt or strip of country is crossed by all the railroads coming from the United States, but none of it is so absolutely a desert as the part of which I speak just now.) In his report of the march to attack the American army under General TAYLOR, and of the battle of Buena Vista, he states the condition of his army pretty fairly, as follows:

"The army has done more than could be expected under the laws of Nature. It had just been formed, and as yet had not acquired discipline or military habits, yet in marching to the combat it overcame difficulties which might have subdued the stoutest hearts. After a march of sixty miles, forty-eight of them without water and without other food than a single ration issued at Encarnacion, it endured the combat for two days. * * * From the rigor of the climate, the badness and scantiness of the subsistence, the entire want of bread and the bad quality of the water used in our former bivouacs, a bowel complaint had broken out in the army, which rendered inefficient at least half of it. The countermarch of the army was indispensable, but not on account of the enemy. * * * We must bear in mind that we have to operate in a region deficient of all resources, and that every thing for subsistence has to be carried along with the soldiery."

These observations, coming from a Mexican general, concerning a Mexican army, acclimated and inured to hardship, and acquainted with the country, are certainly good evidence, and we pause to think what *might* have happened had SANTA ANNA remained on the defensive near San Luis, and General TAYLOR had attempted to cross the plain with soldiers not acclimated, and without sufficient transportation and forage. (He was continually urged to do this from Washington.)

The aspect of this country has changed very little since the advent of the railroad, and military travelers of late years (notably Captain DORST, who made a horseback reconnaissance from Monterey

to San Luis) are of the opinion that with the artificial tanks destroyed, and the very few springs filled up, it would be next to impossible to cross this stretch of country with an army of any size. From Laredo to the City of Mexico by this route is 839 miles, and fully half of this distance is over country where it would be difficult to move an army, even if unopposed.

4. The *International Railroad* (four feet eight and one-half inch gauge) runs from Eagle Pass, Texas, to Torreon Junction, where it connects with the Mexican Central, after traversing a distance of 450 miles. In 1846-7 General Wool led a column from Texas along the route at present traversed by this railway, with the intention of operating against Chihuahua and the northern provinces, but having reached Monclova (now an important station on the railroad), the hardships of the country and lack of ordinary supplies caused him to give up the attempt, and crossing the mountains by a favorable pass he joined General TAYLOR at Saltillo, and was, fortunately for the American army, with him at the battle of Buena Vista. The country traversed by this road is even less adapted to the movements of an army than that of the Mexican National, and there are no large cities throughout its entire length. This road is important, however, from the fact that it is broad gauge and is really the Mexican Central, avoiding the long distance from El Paso, through Chihuahua to Torreon, and in addition it is sensibly parallel to the Mexican National, with several branches now building, which are intended to cross the space between the two. One of these branches leaves the main line at Venadito, runs to Monterey and is continued thence to Ciudad Victoria, and as stated before, enters Tampico. Another branch leaves the main line at Jaral, and is intended to cross to Saltillo. (See map.) Another fact that would favor the use of these two lines is that the stockholders of the Mexican National have voted to lay a third rail on their line so as to run broad gauge cars over it, without change, to the City of Mexico. From the latest information obtainable, this work is now being done. One serious objection to the use of this road as a line of operations is that Torreon Junction is on the plain at the foot of the Sierra Madres, and after capturing it no supplies are gained, and there still remain 706 miles to be traversed to gain the capital, and the country around Zacatecas abounds in strong defensive positions. By using the Tampico route or the line of the Mexican National, all these defiles are turned and without fighting any harder than would be necessary to do if we attempted to capture San Luis by an advance from Zacatecas or Aguas Calientes. (See map.)

5. Of the main line of the *Mexican Central Railroad* (standard gauge, four feet eight and one-half inches, and laid with steel rails weighing fifty-six pounds per foot) from El Paso to its junctions with the roads already named (Torreon—Aguas Calientes), it is scarcely necessary to treat, as the possession of the State and City of Chihuahua would have no particular effect upon the war for either side. The Mexicans could readily give it up, and its possession by the United States would be of no military advantage, even for use as a depot of supplies, as the distances are too long. From El Paso to Chihuahua is 224 miles; from Chihuahua to Torreon is 294 miles, and from El Paso to the City of Mexico is 1,224 miles. Rather startling figures for a general, when we think that NAPOLEON'S longest line of communications, from Königsberg to Moscow, was 675 miles, and that it then traversed a country more thickly settled and cultivated than that of which we write: at least until the plateau is reached.

6. The branch of the Atchison, Topeka & Santa Fe Railroad, called the Sonora Railroad, from Benson to Guaymas, is also of no particular importance, as the State of Sonora is isolated by the impassable Sierra Madre Mountains, and all communication with the capital must be made by the sea from Guaymas to San Blas or Acapulco, or through the United States from El Paso to Nogales.

7. On the Pacific coast there are no railroads leading to the capital or any interior city. One is built from San Blas to Tepic, not over thirty miles, and stops at the foot of the mountain range of the Sierra Madre. Running out to meet this is a branch of the Mexican Central, which, leaving the main line at Irapuato, terminates at present at the great City of Guadalajara, but is graded to Ameca, some distance further. So far, however, capitalists have hesitated about incurring the enormous expense necessary to construct the road on the western side of the mountain slope. Looking at this in the light of a future line of invasion, the fact that this road is *incomplete* is very advantageous to the Mexicans, since they are enabled to draw supplies from all that portion of the country which is very rich and productive: at the same time this line is absolutely unattainable by the invading army until it has advanced along the line of the Mexican Central as far as Irapuato.

A small branch of the Mexican National (narrow gauge) runs from Manzanillo to Colima, and it is the ultimate intention of this company to complete this road to the capital, through Patzcuara and Morelia, both large and important cities. This road is also in operation from the capital to Patzcuara. The gap from Colima to

Patzcuara still exists, and for the same reason as shown above in the case of the road from Ameca: that is, the great expense necessary to grade the road over the mountain. From San Blas to Mexico by road (very bad) is 615 miles, and only about half this distance is covered by the railroad now. Both San Blas and Manzanillo are very unhealthy for foreigners, and it is hardly possible that any advance could be made on the capital from these ports.

8. As stated before, there is every prospect that the *Interoceanic* Railway (narrow gauge, three feet) will in the near future be completed from Acapulco to the City of Mexico, but in the meantime the portion from that city to Yantepic is built and in operation through a fertile and well cultivated region, abounding in food products of all kinds, and furthermore, this branch would be safe from the invading army up to the very last moment.

Reviewing the lines, we see that the shortest one—that from Vera Cruz—is at the same time the most difficult naturally, and is especially favorable to the defense. Besides, the lines so concentrate and cross near the City of Mexico that the defenders could in a short time draw reinforcements from all parts of the country and mass an overwhelming force against the invaders, and in case the Americans attempted to advance along two separate lines, the country is of such a nature that by using a small containing force against one army, a great preponderance of force could be brought against the other. In fact, the *direction* of the railways is so much in favor of the Mexicans, that with their army of 160,000 men it might readily happen that they could bring 150,000 against the Americans near San Luis one week, and then within ten days reinforce with this same army the containing force of 10,000 confronting the enemy on the Vera Cruz route, so that it would number 150,000.

In the meantime the two American armies, say of 125,000 each, would be struck by superior numbers, and although perhaps aware of the movement, could not help each other because of the immense mountain ranges between them, nor could either strike a blow at the Mexican lines of communications, because their *direction* is such that they would be constantly covered. Almost invariably, high impassable mountains separate any two lines of railway until the high plateau near the capital is reached (with the single exception pointed out, the Mexican National and International Railways), so that for the invaders, cooperation or mutual reinforcement is well nigh impossible. And just here, I would suggest that it is well to bear in mind the fact, that people of Spanish descent always fight with desperate bravery behind stone walls and under cover, even

though these same men may be very quickly defeated in the open plain. This is historical, and is exemplified in numerous instances in the Peninsular War, or coming closer home, the battle of Molino del Rey.

It is also a recognized fact that railroads are of more assistance to the defensive than to the offensive, after the first mobilization and concentration (HAMLEY'S "Operations of War," page 48), so that conceding this fact and considering the favorable direction of the railroads for the Mexicans in what would become the theater of war, we can only conclude that the building of railroads in Mexico has increased to a wonderful extent the defensive possibilities of that country, and, on the other hand, would prove of comparatively little assistance to the invader.

Another piece of nonsense often quoted and firmly believed during the excitement arising from the "CURTIS affair," was that the border States, meaning in this instance, Texas, New Mexico and Arizona, if let alone, could defeat Mexico and overrun the country, themselves; and this because the gallant and hardy frontiersmen would volunteer in such numbers, and be possessed of such innate fighting ability that the Mexicans would be seized with a panic at the sight of them. I admit that there is some very fine material among such volunteers, but in their haste to get at the enemy, some very important preliminaries would be neglected, such as discipline and proper training in the methods of modern warfare, and the result would certainly be disastrous.

In event of war with Mexico, these volunteers would, no doubt, come forward in reasonably large numbers—nothing like what we might be led to expect however. Once enlisted and made into organized bodies—with no training and less discipline—I very seriously question their fighting abilities, and also their liability of remaining with the flag when once exposed to hardships and privations. One thing is certain, the American leaders in our other war with Mexico in 1847, had an experience with these "border volunteers" that is far from encouraging.

During the war, Texas was undoubtedly more interested in a successful issue on the part of the United States forces than any other State in the Union; and it was reasonable to expect that she would furnish her best men and exert her greatest efforts to assist General TAYLOR. While Texas was the theater of operations, these volunteers did passably well, but after the advance to Monterey, we find the brigade commanders making such complaints of the excesses and insubordinate acts of the Texas troops, that in one communica-

tion to the War Department, General TAYLOR writes, "I am forced to request that no more troops may be sent to this column from the State of Texas," and further on in his "rough and ready" style condemns them as "utterly worthless." The troops from Arkansas, then a frontier State, are not spared either. So, taking into consideration the fact that these gallant and hardy frontiersmen (?) acted in this inefficient manner when so much was at stake in 1847, we could hardly expect any better service from the same class in any war that might arise now or in the future. We may therefore conclude that the support from that source would be extremely unreliable, and that the Government would find the numbers and gallantry of the men greatly overestimated. So our strength might *not* be so great as we had been led to expect.

Another point to be borne in mind is that Mexico has not yet attained such a status as a Republican Government that the legislative assembly *might* not be dispensed with, and a Dictator declared, if the occasion demanded, and to have affairs very much centralized or controlled entirely by one man, is an undoubted advantage in war, however destructive it may be to the liberties of the people. During our late war Congress and politics very often interfered to ruin some of the best laid plans of the generals, and in the war with Mexico there was so much party spirit that the statement has been boldly made that it was intended that General SCOTT should be unsuccessful on his line of operations. So that in case of war with Mexico we could not safely count upon all our great resources being available, from the fact that a large proportion of our people might not, probably would not, be in favor of it, *whatever* might be the cause.

As stated in the outset, and now I reiterate it with great emphasis, I have not for one moment *attempted* to convey the idea that Mexico could *ultimately* defeat us in case war occurred, but my intention throughout has been to combat some of the popular fallacies concerning Mexico and her military resources, that have been rampant so long that they are actually accepted as axioms by great numbers of sensible people, who have not investigated the matter, and who are not aware of the great strides that our neighbor has taken in wealth, intelligence and power within the last few years. If we should go to war believing such nonsense as that she is poor and unprepared, and that one American is the equal in battle of three Mexicans, the defeats that we would sustain would give knowledge that might be acquired beforehand with very much less loss and humiliation. In fact, if war ever comes, let us never set foot on

Mexican soil with less than 200,000 men, ready to march, and above all, let no army of 50,000 men leave the United States with any expectation of contributing anything except defeat and disaster towards the general result. And when, after thorough preparation and consideration of the problem presented, our armies advance, let us expect to meet a foe well organized and prepared to fight with desperate bravery for his native land.

In preparing this paper the writer has consulted the following named authorities:

- "The Other Side, or a Mexican History of the War in Mexico." RAMSEY.
- "War With Mexico Reviewed." LIVERMORE.
- "Review of the Mexican War." JAY.
- "History of the Mexican War." JENKINS.
- "The Mexican War." MANSFIELD.
- "Appleton's Guide to Mexico." CONKLIN.

Railroad folders and pamphlets issued by the Mexican Central and Mexican National Railways.

I also feel myself very much indebted to the Bureau of Information, War Department, at Washington, Major JACOB KLINE, Twenty-fourth Infantry, and First Lieutenant A. L. WAGNER, Sixth Infantry, for information furnished.

THE TROOP IN THE FIELD—EQUIPMENT.

BY CAPTAIN CHARLES E. NORDSTROM, TENTH CAVALRY.

THE efficiency of the troop in the field, depends on the condition of the horses—assumed to be first-rate—the knowledge of the officer in command as to the best means to be employed whereby this condition will be conserved, and the success which attends his constant and untiring efforts, in seeing that the men make a proper application of the instruction which has been imparted to them. In striving to accomplish these desiderata, there are almost as many methods as officers.

While it is, of course, impossible to lay down rules which will govern in all circumstances, it ought nevertheless, to be practicable to prescribe certain general regulations, applicable to situations of a like character; and the object of this paper will be an effort to formulate rules of action, by following which, the younger and less experienced officer may avoid the commission of those mistakes, which so largely make up the experience by which we learn. Our purpose will be best accomplished by (1) a concise enumeration of the general rules to be observed, and (2) such comments and elaboration as a consideration of their application seems to demand.

GENERAL RULES.

1. *Column or Route.*—On roads by twos, on trails or across country, by file.
2. *Gait.*—The habitual gait of the ordinary march is the walk, the rate four miles an hour.
3. Where it becomes necessary to go faster than a walk, the alternate walk and trot are used—forty minutes at the walk, twenty minutes at the trot.
4. *The gallop* should never be used in ordinary marches.
5. *Halts.*—In an ordinary march of twenty-five miles, there should be five regular halts.

6. *At every halt*, the saddle should be examined, and if any have slipped, adjusted.

7. *Grazing.*—When the halt exceeds three minutes the bridles should be slipped, and the horses allowed to graze.

8. *Watering.*—En route, water as frequently as possible, or as often as the horses will drink; if in a stream, and time will permit, water in column; otherwise in line.

9. *Loading.*—Unless the weather is cold, and the men are suffering, never lead.

10. Slacken the pace when its continuance would cause any portion of the column to trot to close up.

11. If a trooper for any cause (sickness excepted), is compelled to leave the column, he should do so alone; it is better that one horse should "fret" and become tired in catching up, than two.

12. When Indian scouts are sent away from the column, they should be accompanied by men from the troop.

13. *Grooming.*—"Grooming should be done on the march, only in the evening, and as late as possible."*

14. Two shoes and eighteen nails should be carried in the saddle-bags.

15. In summer the troop should be in the saddle by 7 o'clock; in the winter, an hour later.

In continental countries, where the marching is done on turn-pikes, and other highways of like broad dimensions, the column of route may be anything from a file to the front of a platoon; but with us, owing to the narrowness of the roads, and often to the absence of any road at all, it is confined within very narrow limits. It has been stated as a "general rule" that it will be by twos, or by file, according as the column traverses the road, trails or prairie; but in such a country as we find in Arizona and New Mexico, where the topographical features consist in good part of high mountains, ravines of various depths, and almost bottomless cañons, we are not sure but that it would be better to prescribe that the "scouting column" should invariably go by file. And, indeed, we know of but very few roads in either of these Territories where troops marching by twos, will not occasionally jostle each other, to the great detriment of the tired horses, and of the symmetry of the canteen and tin cup; and when to this we add the social inclinations of this formation, which talks and laughs and becomes careless of the reins and seat, we have a strong argument in favor of the column by file, where the trooper by reason of his partial isolation, is liable to pay more attention to riding

*Colonel GUY V. HENRY, Ninth Cavalry. CAVALRY JOURNAL, No. 3, p. 167.

and the movements of the horse. To see that the men constantly feel lightly the horse's mouth, and do not "loll" in the saddle, should engage the attention of every officer and non-commissioned officer in the command. "Eternal vigilance is the price of" unbroken knees and sound backs.

In a close country, or where there is the remotest reason to apprehend a surprise, it is recommended that the columns of files be divided into groups, varying in strength of, say from three to fifteen men, with appropriate distance between groups, the distances between the files of the first and second groups to be increased to ten yards or more according to circumstances. Say the troop consists of forty files, the groups would be disposed about as follows, subject of course to any change dictated by special conditions:

First group.—Three men, distance between files, ten yards.

Second group.—Five men, distance between files, ten yards.

Third group.—Seven men, closed to tactical distance.

Fourth group.—Nine men, closed to tactical distance.

Fifth group.—Twelve men, closed to tactical distance.

Leaving two men for point and two for flankers, the former being from 125 to 150 yards in advance of the first group. The distances between groups from front to rear should be 50, 75, 100 and 150 yards respectively. Where Indian scouts are present for duty, they should be sent in advance, accompanied by one of the scouts from the troop, the other joining the rear group, or perhaps, placed as a connecting file between the scouts and first group. These dispositions, in themselves powerful incentives to vigilance, increase the mobility of the column, and will, it is thought, render surprise almost impossible.

The stations of the non-commissioned officers have not been considered, for the reason that their number is rarely ever constant, but as a rule there should be at least one with each group. It may be considered supererogatory to state in terms that the Indian scout should go in advance, but an instance in the GERONIMO campaign, where the failure to observe this very ordinary precaution resulted in the loss of an officer and five men killed, seemed to demand a repetition of the truism. One of our most progressive cavalry officers* has said, "A detachment commander should always be able to satisfactorily answer these questions: What would I do with this command if I should see the enemy over yonder, or on that hill? What would I do with this command if I were attacked this moment?" The corollary of which is that any officer who, having the slightest suspicion that he is in the neighborhood of hostile In-

*Captain H. E. WOOD, Fourth Cavalry. CAVALRY JOURNAL, No. 5, p. 165.

dians, suffers his command to be surprised, should be dismissed the service.

In concluding this part of our subject, it is proper to remark that the dispositions of the "scouting column" do not follow the rules laid down in the books, these applying to civilized warfare, which is radically different from Indian fighting.

On roads, or across a level or undulating country, the troop will march twenty-five miles in six and three-quarter hours, and the time occupied in excess of this is a positive detriment to both man and horse.

Within the last two or three years much has been said, and more written, concerning the gait which should be observed in conducting an ordinary march of this distance, some advocating the alternate walk and trot; others holding that the gallop for short distances, in addition to the trot, would be beneficial; and still others maintaining that the column should be led occasionally. But we unhesitatingly pin our faith to the square, "flat-footed" walk of four miles an hour as being the least calculated to unduly fatigue the horse; this was the habitual gait of the war, when the cavalry on both sides performed feats which marked an epoch in the history of our arm, and this must necessarily be the gait with us, so long as our work is found in a country boasting few roads, and where trails, when they are discovered, traverse the almost inaccessible peaks of high mountains.

Following the example of that incomparable cavalryman, General PHILIP ST. GEORGE COOKE, whose long and rapid marches, furnished many brilliant proofs of the endurance and celerity of American cavalry, we abandon the trooper to the ingenuity of his own devices, considering only the horse, and the means whereby he can do this work in the easiest manner.

We take it to be a question of the expenditure of energy, pure and simple. Fatigue results from effort; the more violent the effort, the greater the fatigue. Now if it can be shown that the horse carries his load with less effort—with a less expenditure of vital force, at the walk than at the trot, the former, of course, will be the gait to adopt. French authorities tell us that a good sumpter horse, working on a good road, can carry two hundred and ten and one-half pounds at a walk, to a distance of twenty-four and eight-tenths miles in ten hours; but if the same horse be required to do his work at a trot, the burden must be reduced to one hundred and seventy-six and one-half pounds, in order to enable it to do twenty-two and one-third to twenty-four and eight-tenths miles in a day of ten hours.

If the burden consists of a rider with his saddle, etc., instead of inert matter alone, the horse can do twenty-four and eight-tenths miles at a walk on a good road, under the greater load of one hundred and ninety-eight and a half pounds, and he will only require seven to eight hours.* Now this is not unsupported statement, but the result of actual experiment, and from it several things pertinent to our inquiry are made apparent: First, that the horse expends a greater amount of vital energy at the trot than at the walk, and consequently does his work with less fatigue at the latter gait; second, that the horse can carry a greater load at the walk, and go further than at the trot, and third, that in order to travel the same distance at the trot as at the walk, the weight must be reduced.

The weight carried by our cavalry to-day is:

Saddle complete, including surcingle and crupper	19 lbs.	11 ozs.
Saddle bags	3 "	15 "
Saddle blanket	3 "	14 "
Curb bridle and link	3 "	01 "
Watering bridle	1 "	02 "
Halter and strap	1 "	15 "
Lariat and picket pin	3 "	01 "
Side line	1 "	09 "
Nose bag	1 "	02 "
Horse brush	0 "	10 "
Curry comb	0 "	13 "
Carbine	8 "	00 "
Pistol	2 "	07.5 "
Carbine sling and swivel	1 "	00.5 "
Saber and knot	3 "	10.5 "
Saber attachment	0 "	08 "
Pistol holster	0 "	10 "
Cartridge belt with 45 cartridges	4 "	11 "
Canteen and strap	1 "	02 "
Meat can	1 "	00 "
Tin cup, knife, fork and spoon	0 "	14.5 "
Two shoes, sixteen nails	2 "	02.5 "
Overcoat	6 "	02 "
Change of clothing	7 "	04 "
Bed blanket	5 "	01 "
Twelve pistol cartridges	0 "	10.5 "
Shelter tent	1 "	12 "
Total	87 lbs.	13.5 ozs.
Add to this the weight of the trooper	160† "	
And we have a total of	247 lbs.	13.5 ozs.

carried by the horse—the least possible burden he is allowed to carry under existing orders. It will be seen that these figures do not include the weight of the rations, the extra ammunition, nor a feed for the horse, which it is occasionally necessary for the trooper to carry.

*Migout et Bergery. "Theorie des Armes et des Voitures d' Artillerie," quoted in "Seats and Saddles," pp. 93 and 94.

†The average weight of the writer's troop.

Now, if it requires from seven to eight hours for the horse to carry 198 pounds twenty-four and eight-tenths miles at a walk over a good road, how long should it take him to carry 247 pounds over a country where there are no roads, and how much of the pack should we abandon if we trot, say twenty minutes in the hour? Leaving the solution of these problems to those gentlemen who claim that the trot "eases" the horse, we proceed to further illustration in support of our position.

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 feelings 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? Ask him. Possibly some one may say this is a *reductio ad absurdum*, but it aptly illustrates precisely what happens when the horse with a man on his back takes the trot—the downward movement of the rider when stopped by the saddle, communicating a shock requiring increased effort to support.

This question should also be looked at from another point of view, which is, that every horse in the column should do the same amount of work and no more—a desideratum seldom realized even at the walk, where there are always some horses near the rear of the column found "jogging" occasionally in order to keep up; these of course do more work than those who are able to sustain the walk, and when to this is added the "tetering" and "jumping" of the fretful, fractious brute, who evidently thinks that every increase of movement is the signal for a race, and attempts to act accordingly, it is seen that if the strength of the horse is to be conserved, the less trotting done the better. The "jogging" at the rear of the column arises in some instances from the natural inability of individuals to walk as fast as their fellows, but in the majority of cases we fear it is the result of careless riding, and failure to keep closed to the prescribed distance—faults only to be remedied by more attention to "gaits" and the eternal watchfulness of the officers.

Halts.—During the march there should be at least five halts, one of fifteen minutes at the end of the first hour; one of five minutes, thirty minutes later, and the other three of five minutes each, distributed as required in the next five hours and a quarter; the next halt should be in camp. These halts are not made to rest either horse or man, both being able to make a march such as we are describing without fatigue, or at least such degree of fatigue as requires cessation of effort, but they are made rather that measures may be taken to avoid other halts. During the first halt, and in fact, every halt, the saddles should be examined, and if needed, adjusted, two men being required for this purpose, one on each side of the horse to lift the saddle and blanket entirely clear of the back, that the hair may not be rumpled—a more fruitful source of sore backs than many suppose. This is the “straightening-out-halt,” and those men who have not already done so should be required to go to the rear, and otherwise get ready for the march before them. Soldiers are proverbially careless of themselves in this matter, and need looking after.

At the first halt most of the horses, if the camp was at water the night before, will have urinated, but not all of them, and the halt thirty minutes later is made for the accommodation of these animals, and incidentally, another glance at the saddles, which, with our present means of saddling, need constant looking after. Major BERNARD lays down the rule that at the second and succeeding halts the girths should be loosened and the horse's back examined, the saddle, when replaced, to be put about an inch in rear of the place it occupied in the morning. We are sorry we cannot agree with him in this. There can be but one *proper* place for the saddle, and if the back is sound and the saddle fits it, and is seen to be in its place, the less it is adjusted the better. In very hot weather when it has been found necessary to cinch tightly to keep the saddle where it ought to be, it will, perhaps, be advantageous to occasionally lift the saddle blanket and allow the air to pass over the fevered surface of the back, but as has just been said, unless the saddle or blanket has slipped, they should remain untouched. “More backs are made sore from resaddling on the road than many are aware of.”†

Leading.—Unless the men are suffering from cold, or in cases of traveling up and down steep hills, we enter our emphatic protest against the custom followed by some (their number is gradually growing less every day), of “leading out briskly,” as it is termed,

* CAVALRY JOURNAL, No. 5, page 154.

† Major ADNA R. CHAFFEE, Ninth Cavalry, CAVALRY JOURNAL, No. 5, page 170.

at regular intervals, or, in fact, at any interval at all; it does not rest the horses, because they are not fatigued; but it does tire the men, and keeps the command on the road under the saddle long after it should be in camp, enjoying the rest that counts. “Leading out briskly” will always be found in appropriate companionship with “March an hour; rest ten minutes”—some went so far as to say fifteen—customs inherited from *ante-bellum* times, when the orthodox cavalry march was from “fifteen to eighteen miles a day” literally, as it took *all* day to do the distance. The disgusted trooper, who characterized this mode of marching as “starving the horses to death on the road,” knew what he was talking about. For many weary years, during which our devotional exercises were limited to a fervent utterance of the prayer, “Oh, Lord! how long?” we were compelled, in agony of mind, and anguish of body, to follow these customs—or rather, to follow those who followed them, and the bitter experiences gathered from those lustrums of “masterly inactivity,” those cycles of “how not to do it,” entitle us to speak feelingly, and—but we forbear: no weak words of ours can do the subject justice.

Grazing.—We once heard an old officer—new, however, to the cavalry—say, “Grass is a good condiment for horses,” and although the expression caused many “audible smiles,” and finally became a by-word in the regiment, a little examination shows it is not far from the truth. If hay and grain are fed, a little grass promotes digestion; and in cases (fortunately growing rarer every day) where the command depends altogether on grass, it cannot have too much of it. No opportunity, therefore, should be neglected to allow the horses to graze.

Watering.—It is only within comparatively recent years that we have awakened to the importance of being able to furnish horses good, pure water. Formerly any duck pond or mud hole, the waters of which, contaminated by the presence of decaying vegetable and perhaps animal matter, abounding in the germs of disease, was considered good enough for the dumb beast to slake his thirst in; but, thanks to scientific investigation, with which the veterinary art has kept pace, we now take as much thought of what the horse shall drink, as of what he shall eat. The importance of this subject cannot be too strongly impressed, and we quote, without apology, an extract from what is said on it by that eminent veterinary surgeon, Dr. C. B. MICHENER, in his article on the “Diseases of the Digestive Organs,” published in that most valuable contribution to equine literature recently issued by the Department of Agriculture, entitled

a "Special Report on the Diseases of the Horse." Dr. MICHENER says: "It is generally held, at least in practice, that any water that stock can be induced to drink is sufficiently pure for their use. This practice occasions losses that would startle us if statistics were at hand. Water that is impure from the presence of decomposing organic matter, such as is found in wells and ponds in close proximity to manure heaps and cess-pools, is frequently the cause of diarrhoea, dysentery, and many other diseases of stock, while water that is impregnated with different poisons and contaminated with specific media of contagion, produces death in very many instances."

We are frequently obliged to water in all sorts of places, varying from the spring impregnated with many of the salts known to *materia medica*, to the "water hole," wherein the beasts of the field, the birds of the air, have wallowed and sometimes died; but when good water *can* be had, it should be our effort to see that it comes to the horse clear and pure as it flows; this cannot be the case when the command waters in line, where the horse on the up-stream-flank is the only one who gets a clean drink, all the others, depending upon their location, drinking more or less mud in suspension. In large commands, and particularly where time is a factor in the march to be considered, watering in line cannot always be avoided; but with the single troop, or smaller detachment, it is practicable, in streams at any rate, to water in column; and if the column be by file as recommended, each horse drinks the water clear and pure as it comes to him, "unriled" by the restless pawing of his neighbor.

Neither in the regulations, Urrox's tactics, nor any of the articles on "Marching and Camping Cavalry," published in the various service journals, have we been able to find a rule governing the *time* of watering in connection with feeding. The importance of this matter has been overlooked; it should be considered with reference to the circumstances of the particular case. In camp it is almost always the custom to water after feeding, just before commencing the march, which in the majority of instances, is the reverse of what ought to take place. If water is going to be scarce during the day, or a dry camp is to be made, then it will be apparent that drink will be more beneficial than food, and watering after feeding indicated, as the horses will drink more than before; but on the other hand, if water will be plentiful en route, the greater importance of food will be suggested, and the horses watered before they are fed, which will avoid a portion of the grain being swept into the intestines along with the water, before it has been subjected to the action of the stomach. Food thus prematurely carried out of the stomach,

escapes the influences of the gastric juices, is consequently not properly prepared for intestinal digestion, and is evacuated in nearly the same shape as when it left the grinders, its nutritive properties being, of course, almost wholly lost.

The order in which hay and grain should be given also demands attention. Many of us think that, so long as the horse gets his full ration of both, it makes no difference which he eats first, hay or grain; but it really does make a great difference. "The length of time occupied by the stomach digestion varies with the different foods. Hay and straw pass out of the stomach more rapidly than grain. It would seem to follow then that grain should be given after hay, for if reversed the hay would cause the grain to be sent onward into the intestines before being fully acted upon by the stomach, and as a result produce indigestion. Experience confirms this. There is another good reason why hay should be given first, particularly if the horse is very hungry, or exhausted from over-work, namely: it requires more time in mastication (insuring proper admixture of saliva), and cannot be bolted as are the grains. (MICHENER.)

This would seem to be a proper place to briefly discuss the preparation which the food should undergo, before it is given to the horse.

If we examine the droppings in any cavalry stable, or on any of our picket lines, it will be found that some of the food passes through the horse, presenting no evidence whatever of having been acted upon in the digestive tract, or even by the grinders, the grains being intact. This is all wrong and should be corrected, and would be if the course recommended by all writers on the subject were followed, viz: that the grain whatever it be, corn, oats or barley, should be crushed before being fed, thereby facilitating digestion, and securing increased development of its nutritive properties. Every cavalry officer who has given the subject any thought, recognizes its importance, and it has time and again been urged upon the authorities, but without avail; we still go on purchasing the orthodox "twelve pounds per day," and feeding it as it comes from the threshing machine.

There should be at every post means furnished to crush the grain, and this again should be soaked from six to twelve hours—depending on the time of year—before it is put before the animal for his consumption. The first cost of the mills, would, of course, amount to something, which is not improbably the reason they are not forthcoming, but this is short-sighted policy, as three fourths of the present

ration, properly prepared, would prove ample, and the savings thus made not only pay for them in a very short time, but result in decreased appropriations for "regular supplies" in the future.

Slackening the gait at hills, is a custom which should be carefully observed. There, however, the "scouting column" is divided as recommended; the distance between the groups will render the observance unnecessary in most instances, but when the precautions which dictate this division are not suggested, and the column is closed, the pace on "raising a hill" should continue to be the same as the ascent, until all are up, a fact to be announced by note on the trumpet at the rear of the column. In this way the pace is uniform; there is no "tailing out," as Captain Wood calls it, and each horse does the same amount of work.

Our present means of saddling being almost entirely devoid of anything *really* qualified to keep the saddle in place, much time is lost walking up and down hills which, but for the fear ever present, of sore backs, would not occasion any dismounting. On the ordinary march, such as we are considering, these delays are of no special importance, except as they postpone the arrival in camp; but on marches where time enters into the calculations, they may become of serious moment. There exists great diversity of practice with respect to leading; we have known officers to dismount at every little acclivity, and others to race up the steepest hills. The matter calls for regulation and some well digested rule should be laid down prescribing generally of course, the angle of ground at which it is necessary to dismount. The new drill regulations say, "Cavalry cannot effectively preserve formation in charging *down hill* if the incline be greater than five degrees; it can canter (eight miles an hour) *down hill*, and charge *up hill* and preserve formation, if the incline be not greater than ten degrees." This, though of immense value in its place, does not aid us, even analogously, in determining when the horse should be relieved of the burden of his rider. It may be said that the matter can be safely left to the common sense and judgment of the commanding officer; but common sense is oftentimes very uncommon, coming only with experience, and the "youngster" with neither, who is frequently sent on a scout alone, should find some rule for his guidance in the premises.

The Transportation of Horse Shoes.—It is with some diffidence that we have announced the rule with reference to carrying shoes and nails in the saddle bags. Many of our best officers, notably the present able Inspector of the Department, disapprove of the practice, but if the exigencies of the march are to be considered, it is not seen how

it can be avoided. The shoes to be of service, must of course, be fitted to the foot for which they are intended, and if carried on mules, they are certain to become inextricably mixed up; and when a horse casts a shoe the whole lot will have to be gone through in the tentative effort to get the one belonging to him. Besides this, much detached service, such as courier duty, etc., is performed without pack mules, when the shoes have to be carried by the trooper. Horse shoes are as necessary as ammunition; and until horses are born with feet which will successfully resist the ravages of rock and gravel, or until we are furnished animals with hoofs *sufficiently* "hardened" by the new process, so eloquently advocated by gentlemen of the artillery, to withstand these agents of destruction, shoes must continue to be used, and we fear, added to the burden the cavalry horse is doomed to carry.

Camp.—At the end of the march the command is immediately unsaddled, and each trooper ascertains the condition of his horse's back by actual examination, the hand in its passage over the back aiding the eye; if any rubs or warbles are discovered the back should be bathed in cold water, the warbles being "showered" until all evidences of inflammation have disappeared; if the swelling proves intractable measures should be taken to relieve the pressure on the parts when next the horse is saddled. But of this later. In cool weather, until the horse has rolled, for which purpose smooth ground, clear of stones and cactus thorns should be selected, and in hot weather, until the back has become dry, the folded blanket secured by the surcingle, should remain on the back. This precaution should never be neglected, as the back is in what may be termed a "parboiled" condition, and much more liable to be abraded in rolling, or blistered by the hot sun than after it has become dry. Before the horse is turned loose to graze the feet are examined, clenches driven up, if needed, and missing shoes replaced.

Grooming.—Grooming should take place in the evening while the horses are eating their grain. Stables should invariably be attended by the commanding officer, who, accompanied by the farrier, carefully examines the condition of each horse, and prescribes remedies for whatever damage has been done during the day. The consequences of any lesion found to be the result of careless saddling, being inexorably visited on the trooper responsible. It is surprising what an incentive to careful saddling a ten mile walk proves to be.

Indian Scouts.—At the posts in Arizona and New Mexico, Indian scouts are furnished to accompany scouting parties as trailers. When these are detached from the column, they should invariably be accom-

panied by soldiers whose presence will assure their pacific character, and guard against their being fired upon by the inhabitants of the country.

We have now completed the consideration of the incidents of the first day's march from the post, and it but remains to briefly notice the events of the next morning, to conclude this portion of our subject. These events and their sequence will be:

Reveille, *good* daylight, the cooks having been awakened an hour earlier.

Water Call.

Stables.

Breakfast.

Boots and Saddles.

It was the custom formerly, to have the command in the saddle and on the road at daylight; and under the system of marching in vogue in those days, the start thus early was necessary, if it was intended to get anywhere during the day; but thanks to more experienced counsels, these antiquated ideas are fast losing their exponents, and now, no one, unless he be a confirmed "moss-back," hopelessly joined to his idols, ever thinks of commencing a march in summer, earlier than 7 o'clock, or an hour later in the winter time. The horse does his sleeping between 2 o'clock and daylight; if disturbed during this period, he is listless and logy for the rest of the day, and ill qualified to perform the work required of him. Lack of sleep saps the strength quicker and more effectively than any other hardship, not even excepting hunger itself, to which the horse can be subjected; and it is simply nothing short of cruelty to deprive him of the requisite modicum of "tired Nature's sweet restorer," if it can be avoided. The utmost quiet then, should prevail in camp, the guard and the cooks, who are afoot before daylight, performing their duties as silently as possible.

At stables, grooming will be dispensed with, that ceremony being confined to brushing the back off just before saddling: the men after feeding the horses, leave the picket line in charge of the guard, and get their packs ready to be strapped to the saddle—*after* saddling, never before—and the packers get everything in train to pack the mules.

In taking leave of this division of our theme, we desire to be indulged in a few words, iconoclastic perhaps, concerning that veritable *bête noir* of the service, *Morning Stables*. Grooming the horse is analogous to the bath which every well regulated person takes at appropriate intervals; for purposes of cleanliness, the ob-

ject of grooming, no one ever thinks of taking more than one a day, and the horse should certainly be satisfied with what is sufficient for the man. Morning Stables, which, in winter, takes place before sunrise, are the fruitful source of more colds, coughs and cases of pneumonia, than result from all other causes combined, guard duty, perhaps, excepted. The custom, like many others, (from which we are gradually becoming divorced), encrusted in the rusts of old fogysm, is a relic of the past, an anachronism which finds its only excuse for existence, in respect for that tyrannical old bugbear, precedent: the welfare of the horse does not require it: the health of the men and the sentiment of the service are arrayed against it, and it should be formally abolished.

EQUIPMENT.

The *McClellan* saddle has been in use for thirty-four years, and notwithstanding efforts have, from time to time, been made to supplant it, it still maintains the just reputation of being the best cavalry saddle in the world to-day. Our discussion under this head will therefore be confined to a consideration of its proper place on the horse's back, and the means furnished by the equipment to keep it there.

The new drill regulations say, "*Place the center of the saddle in the middle of the horse's back,*" but the new drill regulations leave us in the dark as to *where* the middle of the back is: turning, however, to the late Major DWYER, the distinguished author of that most valuable work, "*Seats and Saddles, Bits and Biting,*" we find it located at the fourteenth dorsal vertebra, which, he tells us, is the center of motion. We take it for granted that this is true, but let us examine a little and see if the expression used is the best one to describe to the recruit the proper place for the saddle. If gravity, motion and figure were co-incident, the three finding their centers at the fourteenth vertebra, then the manifest advantage of placing the saddle there would justify an anatomical exploration for that particular spinal process (let some inquiring cavalryman try to find it in a fat horse), but as an examination of the frame-work of the horse shows that the fourteenth vertebra, though probably the center of motion, is never either the center of gravity or the center of figure—whether these be considered in relation to the whole length of the horse or only his back—the term "*in the middle of the back,*" is seen to be misleading, and may, if followed, result in the saddle being placed where it ought not to be: for example, a man who reckoned from the top of the withers, just over the fifth vertebra, to

the hip, would locate "the middle of the back" in an entirely different place from the one who started in his calculations from the hollow in rear of the shoulder blades. "The middle of the back" is then by no means an exact expression, and should be replaced by something incapable of perpetuating error—something in fact susceptible of absolute demonstration. Fortunately we have not far to go to obtain all that is necessary: *Place the saddle on the back so that there will be three fingers' width between the ends of the front bars and the rear of the shoulder blades.* Can anything be more simple than this? Can anything be more exact?

To be sure, the anatomical lore, which it enables us to display, is limited to a knowledge which comes at a glance, or in the dark by the sense of touching the situation of the shoulder blades; there is no *guessing* at the position of the fourteenth vertebra, nor any speculation as to the locality of the "center of motion," but its practice will enable us to put the saddle where it belongs; where it will do the least harm, and this, we take it, is the main object to be achieved. This method of placing the saddle goes so far back "that the memory of man runneth not to the contrary," and has always given satisfaction. But we have been searching after strange gods lately—and found them.

In connection with this subject, we have been at the pains of making some experiments. An eleven and one-half inch saddle was applied to the backs of twenty horses in the writer's troop; it was found that when the ovals of the front bars fitted into the hollows behind the shoulder blades, the width of three fingers being allowed for their play, the center of the saddle, which had been carefully ascertained, was in almost every instance exactly over the fourteenth vertebra, *but in no instance was the saddle "in the middle of the back."*

Having ascertained the proper place for the saddle, our next task is to inquire what means are at our command to keep it there, and if these are inadequate, to point out what additional means are required to accomplish the desired end. The saddle in place is acted upon by four different forces, or rather by force, acting in four different directions, viz: two longitudinally, from front to rear and from rear to front, and two laterally, from right to left and from left to right. Bearing in mind that the saddle is composed of two pieces of inflexible wood, bound together by still more inflexible iron; that its under surface is fashioned in a convex shape to accurately fit a concave shape, and that unless these accurate relations between the two are constantly maintained, sore back is bound to result; it would seem reasonable to suppose that the adjuncts of correct sad-

dling would include agents designed to neutralize the effect of any force calculated to upset these essential relations, but the fact is, our equipment embraces nothing of the kind, being limited solely to the girth, which, unless it be drawn so tightly as to seriously impede respiration, acts only laterally, and the longitudinal force is left practically untrammelled, to wander at will over the back, to make holes in it. The girth has one legitimate office, and only one, that of preventing the saddle from turning, and the moment we invest it with other functions, trouble infallibly ensues. If the frame of the horse were a cylinder, and if our scouting were done on level ground, then the friction of the girth would be ample to keep the saddle in place, as there would be no longitudinal motion to overcome; but unfortunately for the wisdom that has deprived us of nearly everything needed to a proper adjustment of the saddle, the horse is not built this way, but on the order of curves, and irregular curves at that, and a good deal of his work comprehends climbing up and stumbling down mountains, where nearly all the motion of the saddle is in a longitudinal direction.

Where the horse has what is termed a good "barrel," the girth, if drawn *very tightly*, may keep the saddle approximately in place for a short time; but tight girthing prevents the expansion of the lungs, limits the operation of breathing, and cannot but be painful and injurious. Good "barrels," too, are things decidedly evanescent; under the conditions of field service, they have a disagreeable habit of disappearing, when the form of the horse, losing that sleek, unctuous rotundity, so dear to the eye of the "tight girther," assumes more or less the proportions of the greyhound. When this stage is reached—and it is not long in coming—the back, as well as the belly, shrinks, the rear ribs assert themselves and become prominent, the girth, having nothing to stop it, slips to the rear, carrying the saddle with it, two convex surfaces come together, and as the one *can't* yield the other *must*, and what do we have? Holes in the back, of course; and the tighter the girth the bigger the holes.

Again, many horses have "barrels" so large that the girth is found in front of the "swell," and no matter how tightly it may be drawn it gradually slips toward the fore legs, taking the saddle along with it, in which case we have bruised, perhaps fistulous withers, the ultimate result in the majority of instances being "I. C."

There is but one remedy for this state of things: the reinstatement of the breast strap and the crupper, which are complemental of each other, the one preventing the saddle from slipping to the rear, the other hindering it from going to the front. In other words, their

use will effectually and completely serve to keep the saddle where it ought to be; all necessity of resaddling on the road will be obviated, and the girth, instead of cutting the horse in two will be left to the performance of its legitimate and only function—preventing the saddle from turning.

The Saddle Blanket.—When the horse commences to lose flesh and the back becomes thin, this does not interpose a sufficient barrier between the unyielding bars of the saddle and the back: it is not heavy enough and should be supplemented by a perforated felt saddle-pad. The cost of the pad would be comparatively little, and its adoption would not only save the horse's back, but placed next to it, it would keep the blanket clean, and cause it to wear much longer than it does now. The saddle-pad is not only a preventive but a palliative of sore backs. No matter how perfectly the saddle may fit in the first instance, no matter how much pains may be taken in saddling, in a campaign sore backs are bound to make their appearance sooner or later, and unless something be speedily done to arrest the cause, the horse soon becomes unserviceable and the trooper dismounted. The principle of the "corn cushion," as applied to the human toe, comes in here, and can be adapted to the sore back with perfect success. By cutting a hole in the saddle-pad large enough to receive the abraded surface all pressure on the sore is relieved, the horse does his work without pain, and the sore gets well under the saddle. Care should be taken that the hole in the pad is no larger than is necessary to fairly clear the abraded or bruised surface, else enough flesh may be crowded into the hole to cause the sore to project above the surface of the pad, bringing it in contact with the blanket, when the object to be secured, would in a measure, be defeated. The area of the back comprehended within the opening of the "cushion," may on unsaddling present a more or less "puffy" appearance, and create some distrust as to the efficacy of the treatment, for which, however, there will be no occasion; the swelling, if swelling it can be called, is not the swelling of inflammation, and will subside shortly after the saddle is removed. If the sore be of a bland character—by which is meant, if it has not proceeded to the inflammatory or suppurative stages, it is good practice to cover it with adhesive plaster, whereby it will be protected from dirt and sweat.

It is now nearly twenty years since we first adopted the principle of the "corn-cushion" to sores on the horse's back. During this time, horses that were unable to endure the bare saddle, have been put under riders and "cured up" on the road; and many abrasions and swellings, which would otherwise have become running sores,

have been rendered harmless. Add to the equipment, the breast strap, the crupper and the saddle pad, and sore backs may be reckoned among the things of the past.

The Reduction of the Pack.—Though not originally included in the design of this paper, the question, "How may the packs be reduced?" is of such transcendent importance, that any proposition having in view its solution, becomes pertinent at any time and in any place.

But first as to its distribution: Our "text book" on this subject ("Seats and Saddles," page 102,) says: "One of the great difficulties is about the pack. There is no use in putting the saddle in the middle of the back, and the stirrups and rider in the middle of the saddle, unless you at the same time distribute the weight of the pack equally before and behind the latter; the component parts of the dead weight must be accurately balanced against each other." This is the opinion of a man, who, in his day, was considered one of the most accomplished officers in Europe; one who by experience and thoughtful investigation, was perhaps better qualified to speak authoritatively on this subject, than any one who has ever put his views before the public. If we are not mistaken, "Seats and Saddles" was made a text-book about the time the tactical board was in session at Fort Leavenworth, yet the new drill regulations perpetuate the vicious system which puts practically everything behind the rider, nothing in front; the weight now carried on the cante being nearly forty-one pounds, while the pommel supports but a little over six. "And this is equitable distribution!"

As has been seen, the pack, exclusive of extra ammunition and rations, weighs eighty-seven pounds, thirteen and a half ounces, or in order not to be too nice, let us say eighty-eight pounds. By abolishing the lariat and picket-pin; by carrying the saber on the saddle; by curtailing the dimensions of the saddle-bags one-half, and making the side line a hobble, this weight can be reduced six pounds. If to realize such a small decrease as this, involved doing away with any necessary article of equipment, or of even any article concerning the utility of which opinion might be divided, we question if it would be prudent to advocate any change; but where we can relieve the burden of the horse, and get rid of useless lumber at the same time, it becomes a manifest duty to do so.

The lariat and picket-pin are relics of the past, and should have been relegated to their appropriate realm long years ago. We have never yet seen them prevent a stampede; but we have seen the picket-pin, "whizzing" through the air, assist in many of them.

Whoever saw a cow-boy, or an Indian use either, except the former to "rope" a horse or cow with. The articles now carried in the saddle-bags, are the curry comb and brush, the watering bridle, the meat can, and the knife, fork and spoon. These could all be easily contained in receptacles one-quarter the size of the present saddle-bags.

The principle of the side-lines is correct; the trouble has been in its application. As at present used the restraint which it imposes on the movements of the horse is in a direct line with the greatest energy he is capable of putting forth; all the strength of the fore and hind quarter, together with that produced by the powerful muscles of the loin, in fact all the tremendous energy which propels the horse in his powerful stride, is brought to bear on the chain, which soon breaks or is torn from the leglets, when away goes the animal, the side-line, which was designed to fetter his movements, striking him at every jump, and serving only to spur him on in his frightened course. This is no imaginary situation; we have had personal experience in many just such situations.

To the "side-wheeler" or pacer, that abomination in sight of all true cavalymen, the side-line is practically no restraint; he gambols along almost as well with as without it, for he is built to go that way. (And we have seen many good square trotters converted into mighty poor pacers by being side-lined.)

The remedy for all this is the hobble, which is easily made by shortening the chain of the side-line to the swivel and the two links attached to the leglets. Buckle these below the front pasterns, or if preferred, between these and the knees, and it is simply impossible for the horse to get free, for the reason that all the strength of the fore quarter is as nothing to the resistance opposed by the chain when the legs are brought so closely together. In other words, there is no "purchase." Under the influence of fright the hobbled horse may try to stampede, and for the first hundred yards or so be able to get up quite a respectable pace, but owing to the extreme exertion which attends his efforts to run, fatigue soon dominates fear, and he gives it up as a bad job, and can be caught by a child. The thieving redskin, bent on "stampeding" the side-lined herd, knows that all he has to do is to go into it with a couple of whoops and a buffalo robe, and the horses do the rest—a simple case of "press the button;" hobbled, he sneaks into it and frees every horse before attempting to drive off the herd.

We first converted the side-line into a hobble while scouting from the head of the North Concho to the Staked Plains in Texas in the

spring of 1880; and although we have had many "scares" since then, we have yet to bemoan the loss of a single horse. How any man can use the side-line after seeing the Indian hobble his pony with a string passes our comprehension.

The Shoemaker bit is an instrument of refined torture, and an enduring monument to the truth of the familiar saying, "Fools rush in where angels fear to tread."

Major DWYER, in that portion of his work devoted to "Bits and Bitting"—a book which when first read came to us as a revelation, and which reveals something valuable every time we take it up, likens the bit to a lever of the second order, the branches being the power, the curb the fulcrum, the bars of the mouth representing the weight to be raised. He lays down the following as the dimensions of a bit constructed on correct principles:

Length of upper cheek or branch, one and three-quarter inches.

Length of lower cheek, twice that of the upper, or three and one-half inches.

Mouth piece, as long as the horse's mouth is wide, or to use his own words, "The first grand rule must be, therefore, to make the mouth-piece precisely so wide that when placed in the mouth it fills close the outer surface of the lips, without either pressing on these or being subject to be displaced laterally."

Width of port, exactly the width of the tongue channel.

Height of port, sufficient to admit of perfect freedom of the tongue.

Now let us see in what particular, *if any*, the Shoemaker bit follows these rules of construction:

First.—The length of the upper branch, or that portion of it with which we need concern ourselves is, measuring from the center of the curb-strap slot to the line of bearing or axis of the mouth-piece two inches, or nearly so; and although this excess of a quarter of an inch over what it should be would seem to be but a small matter, when we come to consider how the position and dimensions of the slot control the movements of the curb strap, it will appear an item of some importance.

Second.—The lower branch instead of sustaining the relation of two to one, is five and one-quarter inches in length, or an inch and three-quarters longer than it should be, and almost three times as long as the upper branch. To this dangerous excess of leverage can be traced the fractured and ulcerated jaws to be found in every troop.

Third.—The mouth-pieces are all made the same length, to fit, probably, a dozen different sized mouths.

Up to a comparatively recent period, the idea prevailed that the

severity or mildness of the bit depended upon the height of the port, and we will venture to say that this is still thought to be the case by every ninety-nine enlisted men in a hundred; but nothing could be farther from the truth, the port, except in some Mexican monstrosities, furnished with rings, wheels and other diabolical agencies of torture, being designed as a receptacle for the tongue only, or, as the Germans have it, to give "tongue freedom;" and in violation of all we have heretofore held on this subject, candor compels the statement that in our judgment, so long as the port does not bore into the roof of the mouth, the higher it is, the greater the "tongue freedom" will be and the less danger there will be of that organ receiving injury.

In connection with the height of the port, Major DWYER speaks of horses with "large, fleshy tongues," implying, as it would seem (we may construe him erroneously here), that there is a vacancy between the superior surface of the tongue and the roof of the mouth in some horses. This, we are convinced, is not the case. We have yet to see a case where the tongue did not take up the whole space between the upper and lower jaws. This space is considerable, averaging, in most horses, about an inch.

In all horses the tongue not only fills the "tongue channel" and the space between the upper and lower jaws, but its sides project over the lower jaw until they come in contact with the lips, and unless the port be large enough to contain it, there must be more or less pressure on and displacement of the tongue before the mouth-piece finds its place on the bars. In this fact we have the reason for the uneasiness displayed by the horse the moment a bit of any kind is put in his mouth; the tongue is imprisoned; there is something in the mouth that does not belong there; and it is not until the horse finds that this foreign body causes him no pain, but only a slight inconvenience, is he content to allow it to remain there without protest, but the moment he becomes conscious of any pressure, even the slightest, then the tongue commences to wriggle and squirm and to convert itself into all sorts of shapes in its struggles to become free; and as even the largest port is too small to contain its volume without constriction, the pain is increased as the pressure. and it stands to reason, therefore, that the smaller the port is the more pressure there is and the more pain there is.

Major DWYER has not touched on the shape of the port, which we have always thought is fashioned in entire disregard of the shape of the organ it is designed to contain, it being in the form of an arch with its crown up, while the tongue is shaped like an arch inverted.

The tongue, however, is a very elastic and compressible substance, capable, probably, of accommodating itself to almost any quarters large enough to receive its volume without pain, and this, it is presumed, is the reason our author is silent on the subject.

The port being constructed in the same plane as the bit, lies when the branches are vertical or in line with the mouth, flat upon the tongue, affording no "tongue freedom" whatever; but as this position only serves to compress the tongue slightly and without pain, "tongue freedom" is not needed; it is only when the pull comes on the reins and the branches of the bit move beyond the vertical line, that the tongue seeks relief from pressure and mounts up into the port, and as the maximum of "tongue freedom" is only realized when the port is at an angle of exactly ninety degrees with the line of the mouth, it would appear that the bits of to-day, no matter how high or how low the ports may be, are constructed on entirely erroneous principles, and defeat the end they seek to compass. We realize that this will be deemed a startling proposition, but before any one ridicules it we advise him to make some little investigation, keeping constantly in mind that the horse's tongue completely fills his mouth, and that *naturally* there is no room for anything else there.

As the bits are now made it is impossible to obtain the maximum amount of "tongue freedom" unless the curb be unhooked, in which case we practically abandon the control of the horse, and would be better off with a simple snaffle."

The remedy, as we see it now, is to set the port at such an angle to the plane of the bit that when the curb is of the proper length and the approximately maximum pull is applied to the reins, the port will be perpendicular to the line of the mouth. The angle at which the port should be made can be easily ascertained. According to our authority the arc through which the lower branches of the bit proceed, when acted upon by the maximum pull of the reins, should not exceed thirty degrees, and therefore the angle of the port with the branches should be sixty degrees, or thereabouts, in order to obtain the maximum of "tongue freedom."

The Shoemaker bit is made in three sizes, these referring to the height of the port alone, its other dimensions being uniform for all. The height of the port is for No. 1, three-quarters of an inch; No. 2, one and five-sixteenths—probably meant for an inch and a quarter—and for No. 3, an inch and three-quarters.* The last dimension is, in our judgment, the only merit the bit possesses. While No. 2 may answer for small horses, the port of No. 1 is not high enough to

*These are outside measurements: inside they are a quarter less.

afford any appreciable amount of "tongue freedom," and to it the writer traces many lacerated tongues now existing in his own troop. Only a few days ago we had occasion to examine the biting of a horse who invariably ran away with his rider whenever the troop went faster than the regulation gallop, and found the tongue mangled and bleeding from being pinched between the curb and a No. 1 bit—the "lightest" made. Having no No. 3's at hand the No. 1 was replaced by an old McClellan bit with a port at least two inches high, and what do you suppose was the result? This: that although the horse is a bolter, with a mouth of iron, he became more tractable, more easily controlled, from the moment he felt the larger port in his mouth, and this was due to greater "tongue freedom," to less pressure, the consequence being less pain. Henceforth, so long as the Shoemaker bit is furnished we shall require for none but No. 3's.

Possibly some one asks, "The space between the upper and lower jaws being only an inch, and the height of the port being an inch and three-quarters, what is to hinder it from striking and wounding the roof of the mouth?" The question is pertinent, but easily answered: 1st. As the port is now made, it must revolve forty degrees before it can even touch the roof of the mouth, and we have seen that it is only necessary that it should revolve thirty degrees. 2d. That in our judgment, too much stress has been laid on this "wounding of the horse's mouth," most of it existing only in theory—our own experience, so far as we are able to recall, furnishing not a single instance—but if there were any danger, the instinct to avoid pain, would come to the aid of the horse, and prompt him to drop the lower jaw far enough to prevent the upper from being injured.

Our investigations on this subject have included measuring the mouths of no less than fifty-one horses, with the following results: Three measured $4\frac{1}{4}$ inches wide; three, $4\frac{1}{8}$; eleven, $4\frac{1}{2}$; three, $4\frac{3}{4}$; ten, $4\frac{1}{2}$; one, $4\frac{1}{4}$; three, $4\frac{1}{8}$; four, $4\frac{1}{2}$; one, $4\frac{1}{4}$; seven, 5 inches; two, $5\frac{1}{8}$; one, $5\frac{1}{4}$; one, $5\frac{1}{2}$; and one, $5\frac{3}{4}$. And the mouth-piece of the Shoemaker bit which is $4\frac{1}{4}$ inches in length is supposed to fit all these mouths. What marvelous adaption! An examination of these figures shows that in thirty-four cases the mouth-piece was too long; in thirteen cases it proved to be too short, and that it fitted in four cases only.

The Dutch have a ship peculiar to that nation, called the "Galliot." These vessels are built with the sole view to their carrying capacity, and are more like our canal boat than anything that floats, the bow and stern being nearly vertical. The old sailor who almost

always has a bit of humor in his composition, has it that, "they are built by the mile and cut off as they want 'em." This nautical epigram, not inaptly illustrates the principles upon which the Shoemaker bit is constructed.

The Curb Strap.—Reviewing Major DWYER's chapter on "Bits and Biting," Major CARR, Eighth Cavalry, in a thoughtful article published in the CAVALRY JOURNAL for July, 1888, says: "The slot in which the curb-strap is fastened being vertical and admitting of no play of the strap, has a tendency to keep the curb-strap almost at right angles to the bit, when the latter hangs naturally, so that it cannot be made to drop into the chin-groove or embrace the jaw equally at all points. It is impossible to make it hang or lie so as to act upon the jaw in the proper direction or without pain. This fault is enormously increased, when, as frequently occurs, a horse is supplied with a bit from three-fourths of an inch to an inch too wide for his mouth. An examination of the horses at this post would show the existence of a number having the little ulcers or callosities on the chin, mentioned by Major DWYER as the results of the improper action of the curb upon the jaw."

In addition to the foregoing, we note: The curb-strap being made of leather, stretches when it is wet, and contracts when it becomes dry, and after it has been thoroughly saturated two or three times, it becomes hard and inflexible, and liable to bruise the chin-groove, or the jaw. The best curb that we have ever had was the flat double chain, which, from its weight and flexibility, was always found in its proper place—the chin-groove.

In August, 1889, there were in Troop "C," Tenth Cavalry, no less than seven horses with fractured jaws. Five of these have been cured, one has been condemned and the other should be, as he has not had a bit in his mouth for nine months. There are to-day (March 31st) in the troop, besides the fracture mentioned, four ulcerated jaws, two wounded chins and nine lacerated tongues. And all this horrible mangling, mutilation and torture is due directly to the Shoemaker bit, which it would seem it is impossible to have replaced.

The Pistol.—There are two patterns, the better being stored away in arsenals, where "rust may corrupt," but where requisitions "do not break in." Neither is what a cavalry pistol should be, both being constructed with a view to "accuracy" and "penetration in pine butts," but the "Schofield Smith & Wesson" is vastly superior to the "Colt," in that it embodies one of the main principles which should characterize a weapon designed to be used in hand-to-hand conflicts, viz: rapid reloading on horseback.

It is almost impossible for anyone, not an expert, possessing all the skill and adroitness which that term implies, to load the Colt on horseback at any other gait than a walk; while the "Schofield, Smith & Wesson" can be loaded at *any gait*, and even without looking at it, an important item by-the-way, as occasions frequently arise in action when it is desirable to be able to watch the movements of the enemy while getting ready to shoot him, or to try, which so far as the ability to observe is concerned, amounts to the same thing.

In a comparative test made at the National Armory some years ago, it was demonstrated that, starting with empty chambers, the "Schofield, Smith & Wesson" could be fired nearly seven and a half times faster than the "Colt." And notwithstanding this stupendous, this incalculable advantage, there are men, and cavalry men too, who prefer the "Colt."

The Carbine.—While the armies of continental countries, in the frantic race to anticipate their rivals in the possession of superior death dealing weapons, are adopting without adequate trial the magazine pattern, and finding when too late that repeating arms do not in all cases realize what is expected of them, we in the exercise of a wise conservatism, born partly no doubt of a thrifty sense of economy, have continued our faith in the Springfield pattern, the most simple and at the same time the most effective single loader of the age.

Captain MAYNE, in his chapter on "Magazine Rifles" (p. 501-2), says:

"The principle on which magazine rifles depends, is to suppress the movements of carrying the hand from the rifle to the pouch, taking a cartridge from the latter, moving the hand back to the rifle and placing the cartridge in the breech. But the time of these movements, however, is not very long, and as the magazines of the magazine rifles at present before the public cannot hold more than ten rounds, the gain is not very great, and only exists while any cartridges remain in the magazine.

"Numerous experiments have shown that the continuous fire of magazine rifles is only more rapid than that of the ordinary breech-loaders while any cartridges remain in the magazines, and that there is no general gain in rapidity of fire in filling it again as soon as empty."

In the movements, which, according to this author, the magazine principle seeks to suppress, the advocates of the single-loader find their best argument, for no matter how short a time these movements may consume, they necessarily constitute a break in the operation of firing, during which the soldier's attention will, in a measure, be diverted from what is going on in his front; his excite-

ment partially subdued, he will be more amenable to fire discipline, because more liable to *hear* the commands of his officers, and in every way better qualified to act coolly and intelligently than if armed with the magazine weapon, where the "pumping" the cartridges and the pulling the trigger are movements so nearly alike, and occur so closely together, that, under the fever of excitement, induced by his surroundings, he is liable to forget which he is doing, and thus throw his shot away. The Springfield rifle can be deliberately aimed and fired ten times in a minute (experts accomplish even a higher rate), and while a properly constructed magazine gun, if it held that number of cartridges, would probably be able to fire them in one-half the time, it would have to "hustle" to do it, and when done, every shot would, in all likelihood, have been unaimed, injuring the enemy, if at all, by accident only the chief result being noise.

The problem among the most difficult of solution in future military operations, will be the adequate supply of ammunition to the firing line, the difficulties increasing in proportion as the rapidity of the fire is augmented. Even with the old muzzle-loader, of "load-in-nine-times" memory, troops frequently, and at critical periods, found themselves out of ammunition, and when it is considered that this occurred with a weapon which, under the most favorable circumstances, could not be fired to exceed three times in a minute, and that the rapidity with which the single-loader can be fired, is capable of exhausting the "Mills belt" in five minutes, the frequency which troops, no matter how perfect the fire discipline may be, will find their supply of ammunition exhausted, is a prospect not pleasant to contemplate. And that this will occur oftener with troops armed with the magazine-rifle than with those using the single-loader, does not admit of question.

In what, then, has the magazine arm the advantage over the single-loader? The answer necessarily is: "Only in its increased rapidity in the delivery of 'unaimed fire.'" Unaimed fire, however, does not become a factor in the fight until the assaulting line is within two hundred yards of the enemy, at which distance the command, "Rapid fire!" is given, when it is, perhaps, discovered that a portion of the line has no cartridges to fire in any manner. There is no doubt that "rapid fire," in the last stage of the fight, independently of its *actual* effect (by which we mean the loss inflicted), produces a moral effect which cannot be disregarded, and in proportion as this influences the result, the unaimed fire of the magazine weapon becomes a factor to be considered. But, bearing in mind

that the gain in the rapidity of the fire of the magazine gun over the single-loader "only exists while there are any cartridges in the magazine;" that the magazine can be emptied in two minutes and a-half; that until the magazine is refilled the soldier is practically unarmed and the fire, consequently, interrupted; that the single-loader can fire twenty shots, and, in fact, any number of shots exceeding ten, as quickly as the magazine gun; and, finally, that in a hotly disputed contest, before Victory perches on the banners of either side, many more than ten shots will be fired, the increased rapidity with which the first ten shots are discharged would seem to be of little importance. What will tell at this juncture will be rapid and sustained fire, and this character of fire can be kept up as long as the ammunition lasts or the soldier's strength holds out to support the recoil.

Notwithstanding that, influenced by the fear that some one may possibly discover more expeditious methods of killing people, the tendency of professional thought abroad is in favor of the adoption of the magazine pattern, we claim that the angle of the trajectory being practically the same, the Springfield rifle is in all respects superior to any magazine weapon that has yet been invented, and for these reasons: (1) The time required in opening and closing the breech-block insures a certain degree of deliberation, which conduces to accuracy; (2) while the soldier is performing these operations, the noise of his own gun at least is not heard, and he is better able to hear the commands of his officers; hence improved fire discipline; (3) the better fire discipline, the less waste of ammunition, and (4) from the simplicity of its construction, the Springfield never gets out of order. Has any one ever seen a magazine gun that did not get out of order?

If, as is claimed, the single-loader is as efficient as the magazine in the hands of infantry, there is certainly no reason for discarding it in the cavalry, which will rarely, if ever, have occasion to employ fire action except with the revolver, or in the individual and deliberate action of the skirmish line, but whose supreme moment, corresponding to the infantry assault, will be found in the mounted charge, with a weapon which, however much it may have been derided and sneered at in the past, must be the distinctive weapon of cavalry, if it is ever to amount to anything as such. These reflections betray us into reminiscence.

We remember that for several years after the reorganization and consolidation of 1871, when promotion was suspended and vacancies filled by transfers from other arms of the service, the saber suffered

a period of decadence, during which, except in the hands of an officer, one was rarely seen, most of the troops having them stored away in anticipation of an order to turn them in. We remember as recently as 1879 attending an "officers' school" in Texas, where, when the manual of the saber was reached, the instructor announced, "Gentlemen, we will omit the saber exercise; it doesn't amount to anything anyway, and I don't suppose any of you know anything about it." And notwithstanding some present warmly protested against this degradation of *l'arme blanche*, the saber exercise was omitted.

But better days are upon us. Under the influence, partly of awakened thought, partly of the infusion of new thought, the saber is rapidly becoming rehabilitated; and we feel an abiding confidence that under those competent to direct it—under those who are not saturated with the heresy that "cavalry cannot charge unshaken infantry," the future will render good accounts of the glorious weapon with which BREDOW's brigade of *only six squadrons*, saved the Third Army Corps at Mars la Tour.

In his last report, speaking of the progress made by the board convened to test and report upon magazine small arms, Secretary PROCTOR said: "Their experiments and reports of similar trials abroad indicate that magazine arms are still so far from perfection that it is not wise to change from our present excellent single loader to a magazine system in too great haste." It would thus appear that it is the policy of the Government to make haste slowly in this matter, and that no change will be made until it has been demonstrated that magazine arms are superior in all respects to the Springfield pattern.

It is thought that the inventive genius has somewhat of a task before it.

There are several minor changes which could be made to the advantage of the carbine.

The rear sight, except as it automatically compensates for the drift of the bullet, falls very far short of being an improvement on the old "buckhorn" sight, the leaf of which, it will be remembered, rested in the recess formed by the two side pieces of the base, which protected it from injury while being inserted in or taken from the boot.

If in view of the fact that we are not considered equal to the stupendous task of repairing a rear sight, but whenever one becomes sprung or bent, are compelled to ship sight, gun and all to an arsenal to be repaired by an "expert," we may be permitted with bated

breath, to approach so scientific a subject, we would venture to suggest that the principle of the "buckhorn" shield be adopted to the wind gauge on the present sight; this might necessitate widening the base of the sight perhaps an eighth of an inch, and increase the cost of manufacture a trifle, but it would give us a sight calculated to successfully withstand the rough usage inseparable from mounted service, which is the main thing desired.

The figures on the leaf are unnecessarily small, and at times difficult to read. They should be made larger and cut on both sides of the leaf—hundreds on one side, fractions of hundreds on the other; and they as well as the lines of elevation should be whitened.

The front sight is thick and clumsy, made so presumably to resist the hard service of the field; but since the adoption of the front sight cover, which effectually protects it from accidents, so much strength has become unnecessary. It should be altered to conform to the dimensions of that on the rifle.

MARCH 31, 1892.

SNAP SHOOTING WITH THE RIFLE AND PISTOL.

BY FIRST LIEUTENANT JOHN PITCHER, FIRST CAVALRY.

AMONG all the fine shots which this country has produced, the art of snap shooting has been practiced by comparatively few, and these few were evidently not of a literary turn of mind or given to writing, for they have left no record of their accomplishments, and we are compelled to turn to traditions among sportsmen and reminiscences of the older officers of our service, to procure *facts* concerning what these men have done.

We have all heard the many stories told of an officer of the old army by the name of MARTIN SCOTT, commonly known as COON SCOTT. They say he was as brave as a lion and something of a fatalist. Almost the last words he uttered as he sprang upon a parapet during one of the battles of the Mexican War, to look after his favorite dog which had gotten outside of the lines, was that the bullet was not yet cast that would kill old MARTIN. But unfortunately just at that moment a stray shot struck him squarely in the forehead, and he fell dead on the parapet. Thus died one of the early pioneers of snap shooting, and one of the finest shots the army has ever had, killed by a wretched scratch on the part of the Mexican who fired the shot. We can almost imagine poor old MARTIN's disgust at being hit in such an unscientific way.

It has often been told as a most remarkable feat, that SCOTT could with a pistol, put a bullet through two oranges or potatoes thrown in the air, catching them as they crossed each other. This I now have no doubt he could do, though I must confess that at one time I had serious doubts about the accuracy of this story. In fact, I no longer doubt anything that is told me concerning shooting, save that it is possible to make *sharpshooters* of every man in any troop or company that we now have in the service.

My attention was first called to "snap shooting" with the rifle, while stationed at Fort McDermit, Nev., by reading the accounts of

the wonderful shooting of Dr. CARVER, of San Francisco. I then took up the subject to see what I could do with it, using the carbine and service ammunition in my practice. For a target I was compelled to use stones, tomato cans, etc., commencing first with the cans, as they were the larger objects and sailed more slowly through the air. My greatest trouble at first was to get some one to throw the stones and cans for me, owing partly to the work involved and partly to the lack of faith which my friends had in me. But this difficulty I got around later by using a swinging target.

It struck me with astonishment to see the effect which the bullet from a service cartridge had upon the hardest kind of stone when fairly struck in the air, the result being simply a puff of dust, not a particle of stone apparently descending to the ground again. There is, however, nothing particularly astonishing in this when one comes to think of it, for we all know with what terrible force the 405 grain bullet, fired from the carbine or rifle, reaches its mark, and its effect upon a stone or similar object in the air is simply a practical illustration of the force of the blow struck.

I was greatly encouraged by my practice with the carbine, but found it rather an expensive amusement, for service ammunition at that time cost \$30.00 per thousand.

Shortly after commencing this practice I was ordered to San Francisco, where I met Mr. HORACE FLETCHER, the President of the Olympic Athletic Club. This gentleman, I afterwards discovered, had given Dr. CARVER his first lessons in snap shooting, and from him I learned many valuable points on the subject. He purchased for me a Ballard rifle, caliber 22, and a case of ammunition, 10,000 rounds. Before that season was over I expended between 10,000 and 20,000 rounds of this ammunition, which, however, was very cheap, costing only about \$20.00 a case. I mention this fact to show that I have at least had sufficient practice at this business to warrant my having an opinion on the subject, and one derived from practical experience.

Through Mr. FLETCHER I also purchased two bell balls to be used as targets, instead of the stones and cans which I had heretofore been compelled to use. These were the invention of Mr. FLETCHER, and consisted of two hemispheres of bell metal joined by a rod of the same material, the edges of the hemisphere coming close together. Tossed into the air the bell gives the appearance of a perfect sphere and when struck by a bullet from a caliber 22 rifle, produces a ringing sound which leaves no doubt as to the accuracy of the shot. They were intended to replace the glass ball which is used in many

ways for target practice, and have many points in their favor, economy being one of them.

Mr. FLETCHER is the author of a pamphlet on snap shooting, a part of which was embodied in a circular by General KELTON and sent to all of the posts in the Division of the Pacific. This circular is probably on file in the troop records of our regiment, and those who are interested in the matter would do well to look it up. The definition of snap shooting there given is in my opinion the best I have ever seen or heard, and if I remember it correctly it is as follows:

"Snap shooting is simply that united action of eye, the brain and the hand, which enables a man to throw the piece to the shoulder covering *instantly* the object which it is desired to hit, and pulling the trigger the moment the piece has been placed against the shoulder, without deranging the aim."

In other words, snap shooting in its best form is simply quick aiming and firing, and any one with moderately good eye-sight and who is accustomed to handling fire-arms, can with practice become a good snap shot.

To become an accurate and successful snap shot with the rifle, two things are absolutely necessary: the first is perfect familiarity with the curve or drop of the stock; the second is perfect familiarity with the weight of the trigger pull of the piece to be used; this of course means perfect knowledge of the weapon.

The first is necessary to enable one to bring the butt of the piece into exactly the same position against the shoulder at every shot; the second, in order that you may discharge the piece without deranging the aim. It is more desirable in this kind of shooting than, in any other, that the trigger pull should be moderately light, but it is not absolutely necessary.

The piece should have a shot-gun stock, that is, with a perfectly straight butt plate, in order that it may be brought to the shoulder with the greatest ease and quickness. If the butt plate is curved it requires two motions to get the piece to the proper position for firing: first, to raise the piece, then to bring it back against the shoulder, and in the first motion the butt of the piece is very apt to catch some part of the clothing, and thereby cause considerable delay in getting it into the proper position, or what is more likely, to cause the piece to be fired before the butt is raised sufficiently high, and thereby overshooting the mark.

The best sights for the rifle in this kind of shooting are the open buck-horn rear sight and the silver knife-blade front sight. The trigger pull should not be more than three pounds.

In learning to shoot at moving objects, the practice should be commenced by two individuals, who should alternate in tossing the target and firing. The practice should begin at very short range, the range being gradually increased as proficiency is attained.

The man who tosses the target should at first take his place about ten feet in front of the firer, and about ten feet to his left, and endeavor to toss the ball or target about twenty feet into the air, and so that it will fall almost directly in front of the firer. This will give him the easiest possible shot. The target should not be tossed until the firer says "Ready!" and this he should not say until he is prepared in every way.

Success in snap shooting at moving objects, as in off-hand shooting at still objects, depends to a great extent on the position assumed by the firer. The piece should be grasped firmly but lightly with both hands, the left hand at a point a little in front of the center of gravity of the piece, the right hand at the small of the stock, forefinger on the trigger, pressing it lightly. The muzzle should be raised about the height of the eye, and the butt just below the right elbow, which should be slightly raised. The position of the feet and body should be the same as that described for off-hand firing in "Blunt's Manual."

The first effort of the firer should be to hit the target when it has reached the highest point of its flight, for at this point it apparently hangs for a second in the air, and after he has succeeded in doing this with ease he will soon find that he can catch it at any point of its flight.

In order to increase the interest in the practice, the firer should be given a certain number of shots, say five, with the privilege of shooting as many times thereafter as he can continue to hit the target, retiring and taking the place of the tosser on his first failure to hit after he has fired five shots.

A swinging target affords very good practice, and can be easily constructed by taking three pieces of scantling, ten or twelve feet long, fastening two of them in an upright position, supporting the third, and from the center of the third drop a piece of copper wire, five or six feet in length, at the end of which suspend a bell-ball or piece of steel. Each time this target is struck, unless hit fairly in the center, it will be given a different motion, thereby giving a great variety of shots.

At short range no allowance is necessary for the motion of the target, and the firer can aim directly at the object, but as the range increases, the allowance for the speed at which the target is moving

must be taken into account, and increases of course as the distance increases.

The ammunition generally manufactured for the .22 cal. rifles seems to be particularly poor, and on account of the light charge the rifle does not seem to clear itself after each shot, as in the larger caliber rifles. After firing one hundred shots and sometimes sooner, it will be observed that the piece has lost its accuracy, and it will be necessary to cease firing and clean before continuing the practice, for practice with an inaccurate rifle is worse than none at all.

Practice at snap shooting with the rifle at moving objects is of the greatest benefit to those who desire to become skillful wing shots with the shot-gun. Many fair shots with the shot-gun are perfectly satisfied when shooting at a flying bird if they score a point within a foot or two of the bird, or within a foot or two of the point on which they should hold, depending on the direction of flight, trusting to luck that some of the shot will reach the bird, and so they probably will, but the chances of killing are not nearly so great as when the aim is carefully taken, and the center of the charge of shot reaches the bird.

The absolute accuracy of aim which is required in practice with the rifle tends to produce the same accuracy afterwards in shooting with the shot-gun, and it also enables one to cover a moving object with greater ease and celerity.

There is another method of snap shooting, where the small of the stock of the piece is held at the hip, and when the piece is fired without any aim whatever, or any use of the sights. The piece is then used just as the bow and arrow are used, and about the same degree of proficiency can be attained with the rifle by this method as can be with the bow and arrow. Many theoretical shots claim this to be the true method of snap shooting, but with those who think in this way I differ most decidedly. I have tried this method, and met with so little success that I soon gave it up.

SNAP SHOOTING WITH THE PISTOL.

I should have left this subject for some one else to discuss, for I do not feel myself entirely qualified to do it justice, and it is one in which, just at present, we are all particularly interested.

I have on two occasions taken up the pistol with the intention of finding out for myself what could be accomplished with it, but on both occasions my practice was interrupted just as I was becoming deeply interested in it.

I however determined to my own satisfaction that exactly the

same principles apply in snap shooting with the pistol as with the rifle. In this my ideas conflict at once with the theory laid down in "Blunt's Manual." Colonel BLUNT is an exceedingly fine shot with the rifle, and has devoted a great deal of time and study to rifle shooting. What he has to say on that subject in his manual can scarcely be improved upon. He is, however, not an expert with the pistol, and frankly acknowledged that fact when he was directed to get up a system of pistol practice for the army. He called for recommendations from various officers on the subject, and the present system is the result. It is not an elaborate one, and was evidently gotten up with the idea that future experience would cause many changes to be made in it. Any system, however, is better than none at all, and therefore, those who are interested in the pistol should be duly grateful for what we have received. It only remains for us to point out the defects of this system, or to submit a better one, one which is the result of careful study and practice, and I am confident it will be adopted.

It is much easier to pick a system to pieces than it is to construct one. I shall not attempt either just at present, but I cannot refrain from calling attention to what I consider a decided error in Par. 833. Here it is prescribed that in snap shooting the pistol should be held raised and then quickly projected at the mark and fired *without pause or any effort to align* it upon the object.

This method corresponds to snap shooting from the hip with the rifle, and the same objections hold good in each case.

A certain degree of accuracy can be attained by this means, but a much greater degree of accuracy can be reached by using the sights, and doing what is here positively forbidden, that is, making a *slight pause* and an *effort to align the pistol*; if such pause and effort are found necessary, this necessity can only be determined by using the sights. The time required to do this is so little that it will be scarcely perceptible, yet the difference in the accuracy attained may be of the greatest importance. (Since this article was written a number of changes and improvements have been made in our system of pistol practice, and the modifications suggested above are now permitted.)

It has often struck me as a remarkable fact that the number of expert pistol shots that can be found either in the service or out of it is very small, or at least very small compared with the number of men who carry this weapon, and who are generally supposed to know how to use it. It is the only arm at present which an officer carries in the field, and the only one which he is likely to be called on to

use. Yet I think that in our entire army there are not to-day more than ten or twelve officers who can justly claim to be experts with the pistol in any kind of shooting. The reason for this is simply that up to the present day their whole attention has been devoted to the carbine or rifle, and the pistol has been almost entirely neglected. What little practice we have had with it, has been done in a perfunctory kind of way, and apparently only with a desire to get through with it as soon as possible, and with no hope of accomplishing anything.

Since the introduction of pistol matches at department competitions, however, quite a boom has been given to pistol shooting, and we may hope soon to have many fine pistol shots in the service. Practice is all that is required, but quite as much practice is needed to make a good pistol shot as is needed to make a good rifle shot.

There are some mistaken ideas concerning the use of the pistol, which are quite common. One of these is illustrated by this statement which is often made to the effect that, "I can not shoot very well dismounted; but just let me get on a horse and I can hit anything." In other words many men claim that while they are not good shots dismounted, they are good snap shots mounted. This has always seemed to me very unreasonable; a good shot dismounted will do well mounted, provided he can ride, and certainly better than one who is a poor shot dismounted.

In order to become a good snap shot with either the pistol or rifle it is necessary that one should at least become a fair shot by the ordinary method. This is necessary in order that one may become acquainted with the weapon and know all of its peculiarities, for like men, they all have them in one form or another.

The pistol which we have had up to the present time, has had many defects, but we have by no means exhausted its capabilities. The shape of the handle is, in my opinion, one of its greatest defects, and one which is the chief cause of poor shooting in rapid firing; the simple curve which is given it, renders it almost impossible for one to get the same grip at each shot. This defect is remedied in the new .38 cal. Colt's, which I hope may soon be adopted for the service.

METHODS AND ADVISABILITY OF THROWING HORSES.

BY SECOND LIEUTENANT ELWOOD W. EVANS, EIGHTH CAVALRY.

THIS is a subject that has, within the past few years, attracted some little attention from cavalry officers, and it is one well worthy of more than passing notice.

There are two reasons for throwing horses, requiring entirely different means. A horse may be thrown for a surgical operation or simply for discipline. In the first case, the sole object to be gained is to get the horse down, and in such a manner that as soon as he is down he will be not only unable to get up, but unable to move, thus making it perfectly safe for the operator to handle the horse at any part of his body. With this end in view, different methods are employed, varying with the position in which it is desired to have the horse when thrown. With these methods I will not deal, but will confine myself to the means of throwing a horse for disciplinary purposes.

The essential point to be gained in this is to convince the horse that the man is master. Hence the operation must be as far as possible a personal conflict between the trooper and the horse, thus requiring contact between the trooper and the horse.

Another reason that the trooper should be near the horse is that while throwing the horse the trooper should use his voice as well as his muscles, thus teaching the horse to obey the commands of his master. In other words, make discipline the means of education, and not solely a punishment.

Gentleness should characterize every action of the trooper in dealing with his horse, and this gives still another reason for the trooper being near the horse. When the horse turns his head or raises his foot as the trooper desires, the trooper should indicate by words and actions that the horse has done as he was wanted.

I will now give briefly a few of the methods used to throw or cast a horse.

Prof. GLEASON, who has had great success as a horse tamer, advocates the following: "Buckle around the off front leg below the fetlock joint, a strap to which a ring is firmly attached. Take a rope about eight feet long and fasten one end to this ring, the other end passing over the horse's back from the off side. Put a surcingle on the horse, and with the halter shank in the left hand, and the rope referred to in the right hand, take a position on the near side of the horse. Pull gradually on the rope till the horse raises his off fore foot, and continue till the fore leg is well doubled. Keep a tight hold on the rope so as to retain the leg in this position, and at the same time draw the horse's head around toward the left shoulder by the halter shank in your left hand. Press with your right elbow against the horse's flank," and Prof. GLEASON claims that in most cases the horse will lie down.

Continuing, he recommends the following for horses that fight too hard when the former method is applied: "Fasten a strap, with a ring attached, to each fore leg below the fetlock joint. Use a surcingle with a ring on the under side. Take a strap about twenty feet long and fasten one end in the ring on the left fore leg. Pass the end of the strap through the ring under the horse's belly, then through the ring on the right fore leg and back through the ring in the surcingle. Raise the left fore leg and tighten the strap. Take the same position as in the other method, but pull the horse towards you. As soon as he makes a move, pull quickly on the strap with the right hand, bringing up his off fore foot, thus throwing the horse to his knees. Then bring the head around to the left and push him over."

The following suggestions apply in greater or less degree to all methods of throwing horses heretofore proposed:

First.—When the horse is thrown, the trooper is in danger of being kicked, in the struggles of the horse to rise, inasmuch as he and the horse's legs are on the same side of the horse's body.

Second.—The trooper, when the horse is thrown, is on the wrong side to control the horse, the proper place being back of the withers.

Third.—The position of the trooper required in these methods is on the left side of the horse, between the shoulders and flanks, a position decidedly dangerous if the horse has any inclination to kick.

As far as I know the first officer to use the throwing of the horses of his troop as a drill, was Captain DODD, of the Third Cavalry. The method used by him, which is, I understand, the one adopted for the new Drill Regulations for Cavalry, is practically this: "Tie up the near fore foot; fasten one end of a strap about ten feet long to the off fore leg below the pastern joint, the other end passing over the

horse's back from right to left; let the bridle reins hang down, or place them on the horse's neck. The trooper takes position close to the near side of the horse and behind the surcingle; grasp with both hands the strap passing over the horse's back, and pull his off fore leg from the ground; this brings him to his knees; then with the left hand bring his head around to the left, and the horse will go over on his right side."

In no case does Captain DODD allow the trooper to push the horse over, and this constitutes one of the main differences between his method and that of Prof. GLEASON. The horse is afterwards taught to lie down without straps by holding up his near fore leg with the left hand.

Captain DODD's method is also open to this objection: In throwing a horse it is far easier to stand on the off side to turn his head to the left than it is to stand on the near side to do the same thing. Moreover, in many, and in fact most instances, throwing a horse is only a step in the process of teaching him to lie down. For this reason the trooper to throw his horse on the right side, should stand on the right side, and thus be enabled to raise the right foot with the hand, when not using straps. In this way the horse, after a little training, will generally go down without dropping on both knees. He will first rest on his right knee, with the left fore leg extended to the front, and from this position drop over on his right side. This of course, supposes that his head has been turned well around towards his left shoulder.

Lieutenant J. R. RICHARDS, of the Fourth Cavalry, in an article which appeared in the JOURNAL OF THE CAVALRY ASSOCIATION, recommends the following method: "Tie up the off fore foot, and put on the horse a surcingle with a ring fastened to the top of it; attach securely to the halter at the two lower rings in the cheek straps, a rope, and pass the end of this rope through the ring in the top of the surcingle, from left to right; the trooper stands on the off side of the horse some six or eight feet from and opposite the hind leg; pull slowly till the horse yields his head to the near side, and then give a sharp, long, continuous pull till the horse goes down."

The method proposed by Captain RICHARDS possesses the great advantage of leaving the trooper back of the horse when he is thrown, and hence in no danger of being kicked, but the trooper is too far away from the horse to pet him when he does as he was wanted, and also the trooper is so far off that the idea that the rope has thrown him is left in the horse's mind, rather than the fact that the trooper has done it.

A method used by Captain (then Lieutenant) GILLMORE while he was in command of "C" Troop, of the Eighth Cavalry, seems to me to be safer and more effective than any that I have referred to. It is this: "Saddle the horse and put on him a watering bridle; tie up the right fore leg; fasten a strap (an ordinary halter shank will serve the purpose) to the near fore leg, below the pastern joint, and pass the bight over the seat of the saddle from left to right; throw the reins over the horse's head and pass them along the left side of his neck and through the fork of the pommel of the saddle from front to rear. The trooper takes his position on the off side of the horse, close to the shoulder, and takes the strap referred to in his right hand and the reins in his left. By gently pulling on the rein turn the horse's head well to the left, at the same time pull with the right hand on the strap attached to the near fore foot. This will bring a downward pressure on the horse's back, indicating to him the trooper's desire that he should go down, and also, in case the horse should move his left fore foot, as he is likely to do, it will raise his foot up and throw the horse on his knees. Then, by keeping his head well turned to the left, and pulling easily on the pommel of the saddle with the right hand, the horse will soon drop over on his right side."

My experience has been, that in a short time it will not be necessary to use the strap from the left fore foot, nor to use a strap to tie up the right foot. The horse will go down by raising his off fore foot with the right hand and turning his head to the left. Later the horse can be thrown, or rather made to lie down without the trooper dismounting, the trooper simply turning the head to the left by pulling gently on the left rein. I think that this method is superior to the others to which I have referred for the following reasons: The trooper, after the horse is thrown, is behind the horse, and hence in no danger of being kicked. He is also enabled to hold the horse down, should he attempt to rise, by holding the horse's head near his left shoulder by the reins. In this position the horse cannot possibly get up.

The position of the trooper at the shoulder of the horse while throwing him is safer, as by holding on to the pommel with the left hand after turning the horse's head, the movements of the horse can be easily followed, and the trooper is also in a better position to control the horse. Again, this position near the shoulder is the one that is necessary when teaching the horse to lie down without the aid of straps.

As to the practicability of this method, my experience with the

horses of "C" Troop, has shown that it is eminently so. Every horse in the troop was not only thrown, but taught to lie down without the use of straps, and this was done, not by a few men, but by the riders of the several horses. Such progress was made that on one occasion, between six weeks and two months from the time the teaching of the horses was commenced, I was in command of the troop at a regular drill, and with a fourteen seconds after I gave the command, "Lie Down!" every horse was down, and not a trooper had dismounted. There is at present one, and I think, two horses in the troop, that will lie down on being told to do so by his rider.

I cite these examples simply to show that the method used by Captain GILLMORE, not only throws the horse, thus convincing him of the power of man over him, but also furnishes the means of teaching the horse to lie down.

It may now be well to inquire the use of all this; what is the necessity of throwing a horse? The main object is to teach the horse submission to the man. In one way or another this lesson has to be learned before a horse can be considered thoroughly broken. When a horse, four or five years old is taken into hand to break, the safest, quickest, and most humane way to accomplish it is to adopt this means of showing him who is master. The cowboy plan is much more brutal, and in the end the horse's spirit, rather than the horse, is broken.

In the cavalry service, where we seldom have to break our own horses, this method may be advantageously used to accustom the horse to unusual sounds, notably the rattle of the saber and the report of fire-arms. To do this, the horse should be thrown, and when he lies quiet he should be patted; then fire a pistol over or near him, and prevent him from rising by the means given; by petting and kind words he is given to understand that he is not to be hurt, and he will soon cease to pay any attention to the reports. I have seen the whole of "C" Troop firing with carbines over the backs of their horses while they were down, and few if any of the horses made any attempt to rise. As to the practical utility of this drill in field service, I claim for it nothing more than horse discipline, but this discipline will have its effect there as well as on the drill ground.

I do not wish to be understood as claiming that every horse in a troop should be thrown or taught to lie down; quite the contrary. I think the greatest judgment should be exercised in this matter, as well as the greatest care in the selection of the place to throw horses. This is particularly necessary when the horse is first thrown, for the chances are strongly in favor of the horse rearing and injuring his

knees; pads should be used or soft ground selected. After the horse has become accustomed to it these precautions will not be necessary, as the horse will drop very slowly and easily to the ground. The horses of "C" Troop were all taught on a large sand bank on the Cheyenne River. Even with this favorable place, one or two of the oldest horses became stiffened in the knees, and in consequence were unfit for hard work for some time. As a rule, however, it is the youngest and most restless horses that need the lessons to be taught by throwing.

This method of breaking horses is now having an excellent practical test at this post. Troop "L," Third Cavalry, now commanded by Lieutenant BYRON, of the Eighth Cavalry, is being supplied by contract with an entirely new mount. The horses presented by the contractor are all young and only partially broken to the saddle. Lieutenant BYRON is having each horse received taught to lie down. He told me a few days since that at the fourth lesson he could fire a pistol all around any of his horses, and they paid not the slightest attention to it.

Owing to the fact that some thirty or more horses, totally unbroken, had been turned over to this troop shortly after its arrival at this post, and that several of their number had been injured by these horses, the Indians had become rather timid in handling horses, but Lieutenant BYRON states that they are now rapidly regaining confidence in their mastership over the horse, and he ascribes this to the throwing. Thus it is seen that the practice of throwing horses is an education to the trooper as well as to the animal.

FORT MEADE, S. D., January 5, 1892.

SADDLE AND CAVALRY HORSES.

BY CAPTAIN WILLIAM P. HALL, FIFTH CAVALRY.

THE demand for saddle horses is confined to two general classes of our people: those riding for pleasure and those who ride as a matter of business. The wealth and fashion of our country largely compose the former class, and as a result, in the larger cities is found a market for the fashionable saddle horse. Riding, as a matter of recreation and exercise, is productive of a different seat in the rider, and different gaits in the horse, from those usually employed when it is of great importance to get the maximum amount of ease, comfort and endurance to rider and horse. The ever changing fashion produces its effect upon the size, appearance and gaits of the saddle horse used by its votaries; and as that class of people make our English cousins their model in horsemanship, it needs no other explanation to account for the walk, trot and gallop being the gait of the fashionable saddle horse, and the hackney and hunter their designation.

Those who ride for exercise and pleasure desire an animal gaited at the walk, trot and gallop, and it is needless to say the two latter gaits will give one a lot of work, within a short time, if he sits down in the saddle and takes the jar. The practice of posting makes riding at those gaits much easier for man and beast. A vast amount, much of it interesting and instructive, has been written upon the origin and peculiarities of the hackney and hunter, and while the best authorities do not agree upon all points, still the salient outlines of history pertaining to these two classes of magnificent animals can be arrived at with reasonable accuracy.

More than five hundred years ago the importation into England of stallions from Arabia, Persia, Barbary and Turkey was commenced, and has been continued to the present day; the judicious mixture of this blood with the better grades of English mares has produced the world renowned thoroughbred and hackney, and the

progeny of the former, after years of breeding with our native mares, has produced what is known as a standard trotter and the gaited or standard saddle horse; both of these we believe improvements on anything in the shape of horseflesh ever produced. The gaits common to nearly all horses before they have been encumbered with a burden on their backs, are the walk, trot and gallop. The fashionable saddle horse has never been allowed to use his intelligence for the purpose of accommodating his gaits to the burden he carries; that is, so as to enable him to carry it with greatest ease to himself and comfort to the rider.

In our country the intelligence of a large class of horses, with the assistance of man, has so modified and changed the walk and trot as greatly to diminish the jar to the rider and horse when the latter is in motion, and these we believe are the best saddle horses to use when it is necessary to make long, hard rides at rapid gaits, and leave man and horse in fit shape to take the road next day. The gaits of this remarkable class of horses are the fox trot, running walk, rack and single-foot, and are so universal or so easily taught to certain families that they may be considered to a great extent natural gaits. The same horse rarely attains any great degree of excellence in all of these gaits, but so well are they adapted to the needs of the rider that during an experience of over twenty-five years with this class of saddlers, we have yet to see the first man who would choose anything else after becoming once well acquainted with this kind of a saddle horse.

A standard for the gaited saddle horse has been established about three years, and is based upon the number and quality of the gaits at which the animal is able to move, and these gaits are the ones most conducive to the comfort and endurance of both rider and animal. These horses in their easy gaits make fine "saddlers" for ladies, and we have heard it stated by parties who should be excellent authority on this subject, that it is only the strongest women who can ride a trotting horse for a very long time without permanent injury to themselves.

The walk, trot, pace and gallop are generally considered the natural gaits; the pace is common to a number of families, and as a rule, they do not trot without being forced. The trot is of course a diagonal gait—that is, a gait in which the diagonal front and hind feet move together and come to the ground at the same time. In the pace the hind and fore feet on the same side come down together, and when the pacing horse rolls from one side to the other, he is termed a "side-wheeler," and as a rule is an awkward, clumsy animal.

Pacing horses are easily converted into trotters, and the reverse, but the converted pacer and trotter is seldom so speedy at his acquired gait as he was at the original. A pacer is made to trot by weighting his shoes and riding over soft plowed ground; and the trotter is converted into a pacer by hobbling the feet on the same side within about twenty inches of each other, and giving the animal considerable travel in this shape.

Both pace and trot are poor saddle gaits, for the reason that both feet coming to the ground at the same instant gives to the horse, rider and load the maximum amount of jar; the rider can overcome this by posting or bending his body to the front or rear: the saddle and pack cannot do this, and as a result is a dead weight pounding upon the animal. It certainly needs no argument to prove that the amount of this jar will be twice as much when two feet come down at once as it will be when each foot comes to the ground at a different time. And this brings us to the fox trot, running walk, rack and single-foot, as they are designated by the dealers.

The fox trot is a modification of the regular trot to the extent that the front foot reaches the ground a little in advance of the diagonal hind foot; the feet and head are carried low, and consequently there is little knee action; it is an all day gait, easy on both rider and animal, and takes one along at from five to seven miles an hour. One can drop the reins upon his horse's neck at this gait and take frequent naps during an all night ride.

The running walk is the fox trot quickened by raising the horse's head, holding a tight rein and increasing the speed, which, with many horses, increases the knee action. At this gait the horse has a much more stylish appearance, and easily strikes a four minute rate; the feet, however, are moved in the same order as in the fox trot.

The rack is found in pacing horses, and is easily taught by causing the reins to vibrate while the animal is pacing, to such an extent as to break up the pace, which will produce a sort of modified diagonal gait with considerable speed, in which the hind foot touches the ground in advance of its diagonal front foot. This gait is seldom acquired by any but pacing horses, and while it is an easy and comfortable gait, there is apt to be too much of a rocking motion to allow the horse to appear very graceful.

In the single-foot, as its name indicates, each foot comes to the ground at a different time and with equal intervals between them; it can be taught, we believe, only to trotting horses, and is the most delightful and easy gait one can imagine. A good single-footer is a

"thing of beauty and a joy forever." The part of the animal's body holding the saddle has a smooth, gliding motion, swaying very little in any direction, the feet coming to the ground separately and at regular intervals gives the minimum amount of jolt to the rider and horse. We believe this gait can be taught to most trotting horses with little trouble, by gently breaking up the trot by vibrating the reins, not enough, however, to make the animal take the gallop. Horses having a low trotting action make the most graceful and easy single-footers, and will carry a saddle and pack weighing one hundred pounds, including nose-bag, lariat, hobbles, etc., without that everlasting jolting, pounding and flapping incident to a cavalry command equipped for the field and put at the trot.

The rack and single-foot are fast gaits, sometimes attaining a mile in three minutes. These saddle horses are bred quite extensively in Missouri, Kentucky, Illinois and Tennessee, where much attention is paid to the selection of the sire, and we think nothing in the shape of a horse can be more beautiful than these saddle stallions. Their carriage, style and action is grand, and they have the power of transmitting it in a greater or less degree to their progeny. All of these horses of any note trace their pedigree back to four mile DENMARK, a thoroughbred race horse, from whom it is claimed this strain of saddle horses had its origin. They have been bred to mares generally owned by farmers, and produced animals possessing to a greater or less degree saddle gaits. The better grades of these horses are disposed of at private sales; a few of the more indifferent ones drift into our cavalry service.

Our cavalry mounts are purchased by contract, let to the lowest responsible bidder, and are carefully inspected by competent officers of the Quartermaster's Department or cavalry arm of the service, and it is the exception to the rule if these officers fail in doing their duty up to the handle; it is, however, equally the exception to the rule, if they get a good saddle horse.

Much has been written upon the size, appearance and conformation of good saddle horses, and many rules are laid down to guide one in selections; a majority of these rules, however, are of little use in practice, for the reason that it takes a vast amount of experience to learn the relative proportion, which the different parts of a horse should bear to each other. The plan we believe to be better than all others put together, is to get on the animal's back and try him at all of his paces, and if these are satisfactory the other points are generally good. The size of a saddle horse depends upon the height of the rider and the weight the animal has to carry; and we believe

they should never be over sixteen hands for the largest men and heaviest weights.

The three greatest drawbacks to our cavalry service having good saddle horses, are the lack of a suitable bit, want of knowledge in our cavalry officers and consequently in our men in the proper methods of breaking, training and biting horses, and lack of quality in the animals purchased by the Quartermaster's Department.

A properly broken saddle horse must have a mouth sensitive to the action of the bit. Our bit is a powerful, heavy curb, and very few of our soldiers can sit a horse at the fast gaits without holding themselves in position by the reins; then again, when the horse moves at a rapid gallop or a run he must be supported by the bit. This heavy pull with a powerful curb ruins the animal's mouth, and the only remedy for it is a double reined bridle and a lighter bit; there are some excellent bits made of this class with double reins, with which the horse can be easily supported without injury to the mouth. To anyone at all skeptical on this point, let him observe any of our cavalry troops when they charge in line, and the command is given to trot, it will be seen that a number of horses keep up the charge and leave the ranks at different rates of speed with their riders swinging back with all their weight and strength upon these heavy bits. We believe there is not one horse in ten that can stand much of this treatment without having a broken jaw. By this is meant the small bones resting on top of the jaw bone, which become crushed and slough out of the animal's mouth by a slow and painful process, and this unfits him for saddle purposes.

There is generally little difference between cavalry troops stationed together for some time, and having about the same amount of drill. *A casual examination of one troop during the past six months, indicates ten horses with broken jaws, from the effect of our cavalry bit alone.*

The biting, breaking, suppling and bending lessons to a saddle horse, are just as essential to make him a good performer under the saddle, as the gymnastic exercises of the tumbler to make him demand good wages from the circus manager. The training to which we refer is suppling the muscles of the head, neck, fore quarters, back and haunches; and the proper training of the muscles in a saddle horse is more important to make a good "saddler," than dancing lessons to a good dancer, or sparring lessons to a good boxer; and it needs but a casual comparison between the saddle action of a well trained school horse and of the untrained "saddler," to convince any one of the inestimable advantages of a thorough system

of this kind of training. The best work on this subject is "Modern Horsemanship" by E. L. ANDERSON, and if his directions are carefully followed, excellent results will certainly be obtained.

We think it is much to be deplored that none of the systems for training and breaking saddle horses are considered of sufficient importance to be introduced into the course at the Fort Leavenworth School, as it is the one thing without which it is absolutely impossible to have a properly educated cavalry horse. At the present writing we know of no cavalry officer competent to teach any of the systems of schooling horses. Suitable instructors in this business could, however, be easily obtained, but we fear this would be too near the practical work that should be required of a cavalry officer, to allow of its introduction into our military schools.

In order that this work may produce a good "saddler," we must have the proper material to begin with. This is not furnished, and the fault is with the head of the bureau making the purchase, which lets the contract for furnishing cavalry horses to the lowest responsible bidder. This results in our mounts being supplied from a class of horses known in the market as "plugs." Occasionally a good saddle animal will be obtained, and as a rule each troop of cavalry has two or three, and sometimes four or five decent saddle horses; our troop at present has two, and we believe that to be not far from the average.

Any one at all familiar with the business of buying and selling horses, knows that first-class animals in all the grades are disposed of at private or special sales, and any one desiring a good saddle horse simply goes into a section of the country, where such animals are to be had, and announces the fact that he wishes to buy a \$175, a \$200 or a \$250 saddle animal, and there is no trouble in getting the horse, provided he is a judge of horseflesh; if he is not, it is far better to pay some expert a commission. If the Quartermaster's Department would send a reliable and competent officer into any of the saddle horse sections of Missouri, Illinois, Kentucky or Tennessee, and let him announce that he is buying \$175 saddle horses, or simply buying saddle horses, and not limit him to the lowest market price of "plugs," then we would soon have a class of horses in which any captain could take a pride, and to which the rider would become attached.

The average "plug" now purchased for the cavalry lasts from three to four years, and rarely becomes fit to ride. The very few good saddle horses which drift into the service last ten or fifteen years, and are then sold, with many regrets. A cavalry troop

mounted on \$175.00 or \$200.00 horses would, with the average amount of wear and tear incident to our service, require remounts every ten or twelve years. In other words, a \$200.00 saddle horse will last more than three or four times as long as a \$100.00 or \$125.00 "plug," leaving out of question the extra expense incident to frequent purchase and shipment of this "plug."

When it is considered that this "plug" at his best is seldom satisfactory for cavalry purposes, and that this matter has been represented time and again during the last quarter of a century, by officers who have made a life study of our cavalry service: when all these things are considered it would certainly seem a matter of surprise that a sensible method has not been adopted in so important a matter as furnishing remounts for our cavalry.

The trouble is not, as we have before stated, in the assistant quartermasters or the cavalry officers making the purchase, but is in the head of our bureau system of supplies. These heads are, as a rule, appointed from officers who have been the longest absent from any contact or touch with the line, and as a result know and care least about its requirements, and they are responsible to no one taking any interest in cavalry horses. We believe a former Quartermaster-General is responsible for the present system of buying cavalry horses by contract to the lowest bidder.

NOTES ON TRAINING REMOUNTS.

BY FIRST LIEUTENANT WILLIAM H. SMITH, TENTH CAVALRY.

AS far as I have seen, very little attention has been given to training remounts in our service, except in individual instances, and even in these cases it has been more in the nature of an experiment, or for the experience gained by the officer himself, rather than any settled method or plan.

Officers will generally admit that the setting-up exercises accomplish a large amount of good for soldiers, and especially for recruits; whether or not they will admit that similar exercises would be equally beneficial for horses, and especially for remounts, I am not prepared to say, for I have heard very few officers express themselves on the subject; but I believe that a fair trial would convince almost every one of the good effects of a systematic course of training.

I do not believe it practicable to give our remounts the same amount of training as those of continental cavalries, and with the small amount of regular cavalry which we maintain I do not think it desirable; but on the other hand, to practice such methods of training in this, as in other respects, as would be applicable to our volunteers, upon whom we have to rely in case of war.

Every one will probably agree with the statement that a cavalry horse should be trained so as to readily obey the reins and leg of the rider, or in other words, that the rider should be able to hold and control his horse at all gaits with one hand and his legs, so as to leave the other hand free to use his weapons.

That he, the horse, should be trained to passage, turn on either his fore or hind feet, to walk four miles per hour, trot eight miles and gallop at the rates of twelve to sixteen miles leading with either foot at the will of the rider, to jump safely all ordinary obstacles under four feet high or ten feet wide.

I think all this, except probably the walking four miles per hour, can be accomplished in three months' training unless the horse has

been spoiled by previous bad handling, or is so badly shaped as to be unfit for cavalry service.

It is rare that more than six remounts per troop are brought to a post at one time. If some troops have more, others will have less, so I think it will be safe to say that the average will rarely exceed six. Supposing this to be correct, and that each horse is to be given two lessons per day of a half hour's duration each, then three men per troop will be able to train the remounts, each man training two horses; and for reasons given further on I would recommend that these men be the troop quartermaster-sergeant, blacksmith and farrier.

I would propose then that when remounts arrive at a post they be put in some empty corral or stable, or if none are available, that a picket line be established in some sheltering place, and sufficiently remote from other animals to prevent contagion in case disease should break out among them. Then for the purpose of feeding and guarding these remounts I would suggest that a non-commissioned officer and three privates be added to the regular guard detail; that some energetic officer, who takes special interest in training horses, and if possible, one who has had practical experience in the subject, be detailed to take charge of these remounts and supervise their care and training until they are ready to be assigned to troops.

In order to assist this officer in his work, I would recommend that the troop quartermaster-sergeant, blacksmith and farrier of each troop be ordered to report to him daily for an hour in the forenoon and an hour in the afternoon. In training horses it is very essential to have the same men each day so that a regular course of instruction can be pursued without wasting time in giving fresh instructions every day, and I have named the quartermaster-sergeant, blacksmith and farriers because these men can easily be spared from their troop for two hours daily, provided they are excused from other drills, parades, etc. And these men are usually bright, and have more or less aptitude for handling horses; besides after having undergone this course of instruction once they would be available for training other horses in the troop.

The same object might be accomplished by having three selected men from each troop put on daily duty for this purpose, but my experience has been that it is a very difficult matter to get a detail of this kind except for fatigue work. But I think it would be an excellent plan if troop commanders would voluntarily send all or some of their men when off duty to watch and assist in the remount drill, as the officer in charge might direct; and I might here remark that I think it would be most beneficial to all young officers to do the

same thing. To cite my own experience as an example, I can state that, although I have been studying and practicing this matter for over eight years, I believe I could have been taught all I now know about it in less than six months if I had had some competent instructor. It is something that cannot be learned entirely from books; they can aid one very materially, it is true, by giving him methods, ideas and the object to be attained, but to put these methods and ideas into practice is often a very difficult problem unless one has seen that practically applied.

Now as to the details of the training:

I would recommend that each horse be given a lesson in the forenoon and one in the afternoon of a half hour's duration each, and that the first, or as many more as may be necessary, be devoted to making the horse come to you with the whip, as described in paragraph 556, new Cavalry Drill Regulations. I regard this as the best foundation one can build on for training a horse. After the horse has been made to obey completely in this respect, the trainer has established such a morale over him that he yields much more easily in other respects. This can usually be accomplished in a very few minutes, and during the first month of the training I would recommend that each lesson be begun with it. This preliminary effected, I would suggest that the following course be pursued:

First Week.—Bendings of the head and neck, with trainer dismounted, as described in paragraphs 558 to 565, Cavalry Drill Regulations, making this part of the lesson last about a quarter of an hour; then for the other quarter of an hour the horse should be put on the longe, the first few days at the walk and then at the trot.

Second Week.—Same as for the first week except that the trainer should be mounted during the bending lessons, and the gallop be added to the longeing, being careful to circle the horse about equally to each hand, unless the horse shows a preference for leading with one foot, in which case he should be practiced more on the other. In case a horse shows obstinacy at any period of the course of instruction, I would recommend throwing him, and repeating the operation as often as the obstinacy recurred.

Third and Fourth Weeks.—First five minutes of each lesson devoted to bending the head and neck, the next ten to the bendings of the croup, as described in paragraphs 387 to 389, Cavalry Drill Regulations, and in place of the longeing the horses should be ridden around on small circles, alternately at the walk and trot, changing direction frequently, the men being careful to see that the horses bear lightly on the bit and carry their heads in a good position.

Fifth to Eighth Weeks.—The next four weeks should be a repetition of the last two, and in addition, once per day the horses should be exercised in the "jumping pen," commencing with slight obstacles and increasing them a little every few days, until jumps four feet high and others ten feet wide are attained. A good form of "jumping pen" may be constructed as follows: Build a circular fence about 100 yards in diameter and about six feet high; then on the other side of this and about twelve to eighteen feet from it, another circular fence, thus making an enclosed track of from twelve to eighteen feet wide and between 300 and 400 yards long; on this track hurdles of various kinds and ditches are constructed. Into this inclosed track several horses are turned by means of a gate or pair of bars. Men with whips are standing at intervals along the fences on each side of the track, and urge the horses over the jumps, care being taken that some steady jumper is put in with the other horses to lead them. In this way a horse learns to jump by himself, and without associating the exercise with the pain of the spurs or the pulling on the bit.

Ninth to Twelfth Weeks.—The first ten minutes of each lesson should be devoted to the bending of the neck and croup, and the last twenty to circling the horse at the walk, trot and gallop, paying particular attention to the carriage of the horse and his bearing on the bit. After the horse leads equally well with either foot, he should be practiced at changing step while at the gallop; and towards the end of each lesson he should be ridden over a few jumps.

It may be remarked here that the new Drill Regulations are wrong in their directions for making a horse lead with either foot, and that it can only be done by employing exactly the opposite means to that laid down. That is to make him lead with the right foot for instance, one must carry the bridle hand slightly to the right, and press the left leg and vice versa. The above course is laid out for the average horse. Some will require more of one kind of practice than others, and to prescribe variations in the course to suit each particular horse, requires considerable experience and study. But I believe that if the foregoing course is thoroughly carried out, that the remounts will be settled in their gaits, and easy to handle and ride, and that they will remain good and serviceable horses for years longer than they otherwise would. But for the first year or two after being assigned to troops, the remounts should be ridden by well instructed men.

CONVERSATIONS ON CAVALRY; BY PRINCE KRAFT ZU HOHENLOHE-INGELFINGEN.

TRANSLATED FROM THE GERMAN.
BY FIRST LIEUTENANT CARL REICHMANN, NINTH INFANTRY.

PREFACE.

THE conversations on cavalry, which I bring to the knowledge of the cavalry officers of our army in the following pages, did actually take place as rendered by me. I had these conversations with one of our highest cavalry officers, a man of large experience in war and peace.

When he unfolded to me his ideas, I urged him to make them the common property of our cavalry, by means of the press. But his endless duties left him no time for it; I therefore undertook to write down the contents of these conversations.

That the conversations took place and were written down before the publication of the latest Cavalry Drill Regulations of 1886, is apparent from the date of each conversation. To this point I only invite the attention of those of my kind readers who may fail to notice the date of each conversation, in order that they may keep in view that whenever the latest regulations are mentioned, those of 1876 are meant. On the whole, it is a matter of indifference upon which of the two regulations the discussion is based, my only purpose being to lay down indisputable truths for cavalry action.

A cursory reader may perhaps charge me with useless repetition in many places; I ask his indulgence. But the professional man, who follows attentively the evolution of the ideas here laid down, will concede that frequent repetition of the same principles cannot be avoided, if in the different duties and training of cavalry they lead to conclusions which must be discussed separately.

Again, if the character of a friendly conversation is to be adhered to, it is more difficult to avoid repetition than in a strictly scientific work, which this work does not claim to be.

For this reason, I also ask the indulgence of those who peruse this little work superficially as "sola literature."

DRESDEN, July, 1886.

THE AUTHOR.

FIRST CONVERSATION.—GENERAL REMARKS.

S. I have read your military letters on cavalry with great interest, and must, as a cavalryman, express my thanks for having a non-cavalryman defend our branch of the service against the many exaggerated charges recently made against it.

H. I did it from a sense of gratitude, for even now I vividly recall the feeling of security on the march, and when at rest, which the army enjoyed under the protection of the cavalry, scouting far in advance.

S. Having told you only that I am grateful to you for your good opinion, I hope you will not be offended if, nevertheless, my opinion differs from yours on many important and unimportant points.

H. On the contrary; it would be foolish not to admit differing opinions. It would be doubly foolish on my part not to listen attentively to the opinions of a professional man, who has served all his life, wide awake, in a branch of the service which I can judge only from the standpoint of the amateur—the disinterested spectator. I shall listen to your objections all the more willingly, as they come from the branch of the service for which I took sides. For this reason a discussion between us two can never assume the character of an impassioned controversy, which so frequently impairs good comradeship and prevents mutual elucidation and useful information. Go on, therefore; I listen.

S. In the first place, I am of the opinion that you have bestowed far too much praise on us.

H. But my praise, my admiration for the achievements of the cavalry, are the expression of what I saw and felt. Even during the war I often stood up for the cavalry, when in the course of the conversation it was asserted that infantry and artillery alone had done great deeds.

S. Believe me, I am not standing alone with my opinion, that you have bestowed too much praise on us. It is shared by every comrade of our branch of the service who has formed his own opinion from the experiences and the study of the war. You have set forth our achievements as though we had been the ideal cavalry, while every one of us feels how far we fell short of that. In reading your words one realizes again how far our actual achievements fell short of what should have been achieved, and how much is still susceptible of improvement.

H. If that is the case the superabundance of my praise has had a good effect only, for nothing but striving for perfection will revive

the feeling of not having done enough. If this feeling is caused, not by adverse criticism but by praise, something agreeable, the effect must be all the greater. Without knowing it, it seems, I effected much good.

S. That is all very nice, but unfortunately such praise is apt to confirm many in the opinion that everything is best as it stands now, and does not need improvement. We must recognize, confess, express, how and where mistakes were made. The first condition for improvement is, that imperfections be recognized.

H. It goes without saying, that wherever men undertake anything, human weakness becomes perceptible, and therefore even what is most perfect falls short of the ideal. In reading my work you probably perceived that I am well aware of mistakes made by individuals. But I did not feel called upon to uncover the mistakes of individuals, to criticise them, to expose them before the public.

S. Nor do I think of such a thing: that is the business of the superior officers, and, in the last instance, of the supreme war lord. But the red thread that goes through your work is the assertion that the principles on which our cavalry was used in the War of 1870–71 were correct, that as a rule it was well led, that its action was correct, and that, on the average, its performance was very satisfactory. You go so far as to call the use of the cavalry at Vionville-Mars-la-tour a normal one.

H. It is the opinion that I have actually formed. Nor did I mean thereby to convey praise beyond what was actually earned, in order, perhaps, to urge some on towards the ideal. Those individuals only, who fell short of what was the average achievement of the whole cavalry may feel themselves urged on. I believe I was right to say so. Was not the Uhlan the terror of all France?

S. The Uhlan could easily become a terror to all France, since the French cavalry was even less judiciously used than ours. I simply deny that our cavalry was properly used, well led, that its action was correct, that its achievements were satisfactory; I deny that the use of the cavalry at Vionville was a normal one.

H. It often happens that those who criticise themselves, do so too harshly. To know oneself is a fine thing; but he who judges himself too harshly, runs the risk of despairing of himself, instead of sharpening his appetite for work. Is not the principle on which in the War of 1870 our cavalry was used by the supreme command of the army a correct one? Were not the masses of the cavalry pushed far in advance for reconnaissance? In case of battle, was

not the cavalry held ready in reserve? Are there not numerous examples of ample pursuit?

S. In so far as concerns the demands made on our cavalry from army headquarters, I have no fault to find. But how far did it often fall short of these demands?

H. Simply because nothing done by man is perfect. You also said you did not wish to expose the mistakes of individuals.

S. Nor do I mean to; I say it was the fault of the principle, not of the individual. A genius like SEIDLITZ would probably have accomplished more with that cavalry. But you cannot demand that every cavalry leader be a genius like SEIDLITZ. Such geniuses are not often born. The system of the training of the cavalry must be such as to produce leaders who know how to direct properly the masses, who undertake great risks with them; yet these leaders need not be gifted by nature above mediocrity, so long as they are vigorous, active, brave and chivalrous, like all our officers. But our system of training the cavalry is not apt to produce such leaders.

H. I am surprised; then you call our cavalry poor?

S. Not at all; our cavalry is imbued with the very best spirit. Our officers yield to those of FREDERICK THE GREAT neither in zeal, bravery, nor self-sacrifice; our horseflesh is even more blooded and effective than that of the last century.

H. Well, what more do you want?

S. Spirit and horseflesh alone are not sufficient to make good cavalry. If the horseflesh is not trained and kept up in a rational manner, it will fail to keep up with the spirit in its flight.

H. I should think that our horseflesh proved very effective in 1870, and kept up with the flight of the spirit.

S. You have, it is true, mentioned in your letters several instances of important services rendered by the cavalry. I can add to the number of these examples from my own knowledge. I might name you a brigade, which marched from Beauvais to Gisors to participate in the capture of that place, and returned to Beauvais (sixty kilometers) the same afternoon, marched next day from Beauvais to Gournay and returned (fifty kilometers), rode on the fourth day from Beauvais to Breteuil, where several charges were made by individual squadrons, and returned to Beauvais the same afternoon (sixty kilometers), 9th, 10th and 12th of October, 1870. Our horseflesh is, therefore, very effective and enduring, if appropriately and rationally handled. But were we always ready to make such demands on our cavalry? How many times after a victory did we lose touch with the enemy? How was it possible for VINOY to escape

to Paris? Why did not our masses of cavalry, which were in readiness, swarm around him and destroy the railroad in his rear? Did our cavalry reconnoiter sufficiently during the winter? How could the enemy's armies, coming to the relief of Paris, have appeared in some places as though sprung from the ground, and without our knowing anything about them until they were close upon us, if our cavalry leaders had dared to make from fifty to one hundred kilometers per day with sufficiently large bodies?

H. During winter ice impeded the rapid movement of cavalry.

S. Ice! Why did it not learn to ride over ice? That is just it. Not even SEIDLITZ could have accomplished anything on ice with cavalry which had not been taught how to ride over ice. Some individual brigades had been taught how to ride over ice, did reconnaissance duty on ice; the others could also have done it if their leaders had convinced themselves of its feasibility by practice in peace. This, however, is a point which I do not desire to discuss to-day, but to which I shall perhaps refer later on.

H. But you will concede that whenever the cavalry charged, its action was unsurpassed.

S. So far as it was within its power, yes; it was brave, we must admit; what bravery and zeal could accomplish, it did; but that is not everything. What were the isolated, loose attacks to effect, which in the battle of Vionville you call normal? What would have been the result of closed attacks?

H. Well, let me remind you that formerly we were taught that in nine attacks out of ten of cavalry against cavalry, one party would wheel about before the contact; this rule was based upon the experience of former wars. In the War of 1870 such a wheeling about did hardly ever occur; nor did it in 1866. The cavalry of both sides invariably rode into each other and decided the fight by individual combat. The cavalry of 1870 could, therefore, not have been inferior to former cavalries in vigor of action.

S. That's just it. This riding into one another discloses the weakness of the cavalries of to-day. I must concede that the vigor of action, bravery and eagerness for the fray of the present cavalry leave nothing to be desired; but the reason why former cavalry did not ride so much into one another, was that they rode so well closed that they could only ride against, not into, one another. FREDERICK THE GREAT specifically criticised loose charges, because they were followed by a *mêlée*, and added: "I do not want a *mêlée*; the cavalry must charge *en muraille*." Thus it became imperative for the party, which knew it would be overthrown, to avoid contact. Our present

cavalry is not always able to ride so well closed, because frequently the horses are not well enough trained.

H. But you will concede that at Vionville the cavalry was used several times in quite respectable numbers?

S. Masses were used, not, however, in masses, but in driblets. A regiment became engaged and then everything in the vicinity was sent for by regiment, even by squadron, and thus the atoms were flung into the fight without following a premeditated plan and without unity of command. Who, I say, commanded the entire German cavalry on the left flank? The official account does not name a common leader.

H. That was, I think, principally due to the considerable numerical superiority of the French army, which compelled the German infantry to fight in a single thin line, to which the cavalry, distributed in rear, formed the second line. When it became necessary to oppose cavalry to the French cavalry on our left, our cavalry brigades and divisions were already scattered and the units of command broken up. Is it not in the first place the duty of the commander-in-chief to direct the cavalry masses to a place on the battle field from which they are all able to coöperate, taking into consideration the character of the ground? If he does not direct them so, or is prevented by circumstances from doing so, the result will probably be that the cavalry is flung into the fight by driblets or arrives by regiments, brigades or troops.

S. It is true, in order to ensure the fullest use of this branch of the service as well as the others, the first requisite is that the cavalry be assigned to a proper place for its action. But even where this was the case, our masses of cavalry did not always achieve what might have been achieved. The principal reason was that we had too few leaders competent to lead large masses of cavalry in the charge against the enemy in proper shape and with full force.

H. I thought you did not mean to criticise individuals?

S. Nor am I criticising them—neither the individual leader nor the leaders in general.

H. But you just said—

S. That we had too few leaders competent to lead a large force of cavalry in the charge against the enemy in proper shape and with full force. It is not the fault of the leaders, it is the fault of our system of cavalry training; it failed to produce the leaders.

H. I do not understand you.

S. Do you believe that a SEIDLITZ, ZIETHEN, DRIESEN, GESSLER, etc., were born as cavalry generals and cavalry geniuses? They are

the exponents of their time, i. e., of the system of training which the Great King inaugurated for his cavalry.

H. So far as SEIDLITZ is concerned, he distinguished himself as cornet in the First Silesian War; in the Second Silesian War, WINTERFELD, in a report to the King, calls him the coming man.

S. And DRIESEN? Did not the Great King, upon DRIESEN's great achievement at Leuthen, exclaim in surprise: "What! DRIESEN, that fool?" and you must allow me the King knew his men. You see here both a genius and the opposite of a genius gaining great successes with large masses of cavalry. Better proof cannot be produced, that their successes are the result of their time, i. e., of the principles on which their training was based.

H. But we hear and read nothing but that our cavalry are following the rules laid down by the Great King for his cavalry.

S. Theoretically, yes; practically, not quite; in general tactical rules, yes; in their practical application, not always; in the demands, yes; in the execution, no; in the plan how to employ masses, yes; in the method of preparing them for such use, no; least of all in the method of training the atom to take its place in the mass, and to move with the mass; I mean the individual training of the cavalry soldier.

H. But surely, cavalry, although its individual training may be incomplete, can be used to advantage in masses, provided it is led according to the principles of FREDERICK THE GREAT.

S. Allow me to dispute that point.

H. Take MURAT for instance; the individual training of his cavalry was below mediocrity, yet it achieved many a great success.

S. MURAT did not lead his cavalry at all according to the principles of FREDERICK THE GREAT; he formed deep massive columns and put them in motion toward the point of attack. Not one of the horsemen of these masses would have been able to give his horse another direction, had he meant to do so. Besides, MURAT attacked at a trot to preserve the close formation; that was not in accordance with the principles of the Great King either.

H. I admit the fact that the men had no control over their horses. My own uncle who brought up a brigade against MURAT's great attack at Liebertwolkwitz, told me that his horse ran away with him (he had just mounted a troop horse, his own having been killed). It ran with him toward MURAT's masses and passed them within ten paces. The hostile horsemen cursed him and struck at him, but not a single one had sufficient control over his horse to approach him, and all rushed on in the direction once taken, in one

wild, deep mass, without order and without stop. Hence it would seem that, although MURAT started the cavalry at a trot, it became voluntarily or involuntarily a runaway at full speed. Nor did they remain closed up, at least they did not preserve order, for my uncle describes them as a wild, runaway mob.

S. And what did the charge with the runaway horses you just mentioned accomplish? They rode through some Russian batteries, when they were charged by several regiments of the allies, which although greatly inferior in numbers, drove them back as fast as they had come.

H. But at Hagelsberg, MARWITZ's newly formed cavalry with its untrained, runaway horses also achieved success.

S. A large part at least of MARWITZ's horsemen were efficient, veteran cavalymen of a good school. But I have little use for cavalry, which bolts in the first charge and is not on hand afterward. Colonel von BISMARCK did not dare to let them charge again, and said: "It is easy enough to let them loose; but whether I shall again see a single one of them, is another question. I cannot take the responsibility." (MARWITZ).

H. That is not to be expected from our present cavalry.

S. It is! In one of my engagements during the last war I ordered a troop to charge a troop of the enemy. Both sides rode into each other, as you call it, approvingly, then the whole mass moved forward (as seen by me), and beyond control, all bolted, friends as well as enemy. Hostile masses approached. Our horsemen could not be restrained. The trumpet signal "Rally" had no effect. They only stopped bolting when they received hard knocks from the enemy's supports. I am almost inclined to believe, that with cavalry which bolts thus, the direction in which it bolts is pure accident, and also whether it will be victorious or defeated.

H. Is not your criticism too severe?

S. Perhaps upon the whole I have expressed myself too strongly: I will, however, quote the following instance: A cavalry division of six regiments, defeated, was to be relieved by another division of the same strength. Owing to a misunderstanding the former ran into the latter "*en débâcle*," carried it along at full speed, and both divisions bolted *pêle-mêle* in wild haste.

H. I must say, that I do not recall an instance in war history in which twelve regiments of cavalry ran away together.

S. I believe you, for to know it, you would have to read peace history, still unwritten. This case happened in the field exercises

of an army friendly to us. Neither division was opposed to an enemy, not even an outlined one.

H. How fortunate for them not to have that experience in war. Both divisions would have been charged with cowardice and disgraced.

S. And yet they would have been innocent. To a cavalry which is apt to bolt, such a thing may happen, no matter how brave it may be otherwise. Am I right now in saying that the direction in which it bolts is accidental?

H. It would almost seem so. But it is possible to train cavalry so that it will never bolt, even involuntarily.

S. Certainly it is. What was possible in the time of FREDERICK THE GREAT must be possible now also. In FREDERICK's cavalry such bolting was unheard of.

H. You think so? How was it with ZIETHEN's entire cavalry in the battle of Prague?

S. That is a special case. The horses of that cavalry did not bolt against the will of the riders; during the pursuit they struck the enemy's baggage train and began to plunder. Did not ZIETHEN report it to the King, that his entire cavalry was drunk? A rider whose horse bolts, can neither plunder nor drink.

H. I still fail to understand what you said just now, that it was due to our system of training, that we had few leaders competent to lead closed divisions against the enemy.

S. Nor can you understand it by yourself, because you have not gone through this method of training yourself. But you will easily understand it when I explain the reasons.

H. I am curious to know them.

S. Our instruction in riding during the entire winter takes place on the level ground of the riding hall or drill ground. This winter lasts from the first of October to the first of April or May—six or seven months. It is followed by troop and regimental drills, also on level ground. It is only during the short time of detachment exercises and maneuvers, not quite four full weeks per year, that our cavalry has an opportunity to ride over any kind of ground. Will the horse thus be sufficiently practiced to pay attention itself to the ground? Can the rider gain the confidence in his horse, that it will carry him over any kind of ground, so long as he remains firm in the saddle, and lightly feels the horse's mouth? Can he keep his eye exclusively on the enemy and on his proper place in the troop? Must he not look out carefully for every rock or furrow, disquiet the horse by pulling the rein, derange the formation of the

troop? A leader brought up in this school cannot have the confidence to lead his closed division against the enemy, knowing that every potato field, every new direction across or oblique to the furrows, loosens the formation. He prefers to send his cavalry against the enemy by troops or regiments, keeping a reserve on hand, rather than to ride across country with the whole formed in several lines. The vigor of the mounted man begins to decline at forty or fifty years of age. With our system of training the leaders become accustomed to spend most of the time of duty in the riding hall standing around dismounted. They become disused to riding, in war it becomes a hardship to them, and this has a bad influence upon the enterprise, the eagerness for the fray, the headlong charge upon the enemy with the whole mass.

H. But it is the division commander's duty to keep a formed reserve and not charge upon the enemy with all his troops.

S. If cavalry cannot rally quickly, certainly. In the time of **FREDERICK THE GREAT**, when cavalry rallied quickly at the first signal, you do not find any rule that charging cavalry was to have a reserve, because a closed reserve could be quickly formed upon giving the signal. The instructions of the Great King lay down the formations to be used for the charge of large bodies of cavalry—a first echelon, closed, in line. On each wing, overlapping, and at a distance of a few hundred paces, five or ten troops of hussars to assail the enemy in flank and rear, and pursue, also to cover the flank, then a second line (to-day we would call the hussars the second, his second line the third), which frequently follows directly in rear of the first and is to fill up gaps. This formation the Great King prescribes for the charge of masses of cavalry of twice or three times the strength of a modern cavalry division. His masses of cavalry had to charge that way over all kinds of ground, without selecting level drill grounds.

H. I should think the cavalry, in those days, also had riding halls, rings and drill grounds.

S. Yes, for the first training of the remounts and recruits and for practicing the first principles of elementary tactics. But inspections of troops or regiments were not made on the drill ground, nor of the riders in the riding hall. The Great King inspected the cavalry on any kind of ground; he took position wherever he happened to be, and required the cavalry to charge toward him without the ranks becoming disordered by the ground.

H. Then you think that troops and regiments should now also be inspected on any kind of ground?

S. That alone would not be a thorough remedy, nor could it be carried out very well.

H. Why not?

S. Because our horses are not fitted for it by the winter course of training.

H. What has this training in winter to do with it?

S. If I wanted to explain it to you thoroughly, I would have to write a book about it. To-day I shall only give you an outline. Our horses are broken anew every year for seven months, and by what kind of riders? Look at that traverse, renverse, true gallop, which is there sometimes—I can find no better expression—committed. The riders hang on by the reins and thus play riding-master for seven months in the year. A good remount rider may have broken a horse correctly for a year; next year it is perhaps all undone by a bad rider. The men get in the habit of believing that "kniebeln"* and pulling back, is riding, for the instructor strives to have his class pass well on inspection, to stand the test of the prescribed program. If he does so, he is in favor, hence during these whole seven months he works with his class (be it the class of remount riders, second class or recruits), with the sole view to this inspection (inspection of riding with snaffle or final riding inspection). If he only passes according to the program, he does not care what comes afterward. The horses are thus tormented into unnatural paces, horses and men mistreated, for training, instead of being a means to an end for cavalry, becomes devoid of purpose and is mistaken for riding. There, by rude use of bit and thigh, spavin and curb are caused; there the rider hangs on by the reins and ruins the forehead by a gallop, in which the hindquarter flings instead of carries, and the weight is put upon the forehead. Many horses are already half broken down when presented at the final riding inspection. By this mode of training the horses are being stupefied during eleven months in the year, at least their intelligence as to the ground is not developed; they do not learn to look out for themselves. Would you lead a mass of horsemen across country with confidence if you knew that a large part of the horses were broken down, and if you had to anticipate that on uneven ground a large part of the horses would stumble over insignificant obstacles from sheer stupidity, and fall?

H. I begin to understand you.

S. I am not through yet. Through faulty breaking many horses get into the habit of bolting. As long as the riding hall and ring are used, the horse will stand the ill-treatment five times a week for

* Indiscriminate and faulty knee action of the rider.

three-quarters of an hour, but when he is taken out into the country, if he becomes excited, he puts his chin against the chest and bolts blindly, seeking relief. Two or three such bolters throw a whole troop into disorder, and many a troop has more than two or three of them. But nowadays the cause of the evil is never investigated at all. You can hear a troop commander say: "This horse is a bolter; that horse is broken down," as though it were a matter of fate: the same as one says: "It snows," or, "it rains."

H. Can it be really as bad as that? On watching a troop at drill one sees but few crooked legs.

S. Yes, in the spring, but not in the fall. Then the troop commanders complain that the horses cannot stand the strain of the maneuvers. After the divisional maneuvers we have seen horses barely able to move, and which had to be dragged along by their dismounted riders into the garrison from the first rendezvous. What is the cause? That the winter training, instead of increasing the efficiency of the horses, has deformed, ruined them, and laid the seeds for breaking down, which only shows itself under the fatigues of the maneuvers.

H. In what particular detail did the training of *FREDERICK THE GREAT* differ from ours?

S. I can only touch upon this point briefly, but shall explain it in detail later on. In the time of *FREDERICK THE GREAT* most horsemen were taught to ride and use their arms, on well broken horses only. The young riders were not allowed to break their own horses or teach them paces, but they left the riding hall and ring for good as soon as they had learned how to ride, to exercise their horses at will (*tummeln*), as the Great King called it in his orders, in winter and summer, or to drill. Thus they learned how to ride in the terrain, to ride on frozen, smooth ground in winter, for they found time for it, because in those days the horses were not ill-treated by the rider's knee (*kniebeln*) in the riding hall seven months in the year; nor were horses mistrained, because the horseman, without aptitude for breaking horses, never learned at all how to train—mistrain—"kniebel" horses.

H. Then you think that riding in the hall was not much thought of?

S. On the contrary, it was cultivated more and more thoroughly than now. Only specially fitted horsemen, however, were trained in it after several years of service. They broke the remounts. The few recruits required by the troop, owing to the long term of service, were put on the best broken horses, where they at once learned the proper seat and touch; and if an awkward recruit happened to teach

a horse a bad habit, it was at once turned over to an experienced old rider to rebreak it.

H. All this was well enough then, with the long term of service, requiring few recruits and furnishing many experienced horsemen of long service. But it seems to me impracticable with a three years' service.

S. Yet it is practicable in a modified way; I'll explain it to you at some other time. The transition from the long term to the short term of service, together with the universal liability to military service did not take place properly. It is not the fault of our generation that we do not have a cavalry like that of the Great King; it is not the fault of those leaders who could not be in a position to lead great masses of cavalry. The system of training universally adopted after the Wars of Liberation, is to blame, if the great grand-children of the *SEIDLITZES*, the *ZIETHENS*, the *DRIESENS* fall so far short of the ideals which formerly had been realities. You see I do not blame individuals; I do not censure any one for insufficient achievements in the last wars; on the contrary, I defend them all. The principles of our present system of training are what need improvement.

H. Then you mean, that since 1815 our cavalry has gone backward?

S. I do not; the cavalry has advanced wonderfully, for in 1815 it was almost naught, as appears from the reports of *BLUCHER*, *THIELE-MANN*, *BORSTEL* and *MARWITZ*. Since then it has worked hard and improved from year to year. I think now is the time to give the last impetus to bring it up to the level on which it stood in the time of the Great King.

H. A thousand questions are occurring to me which I would like to ask you on this point. I will arrange them in my mind and ask them at some other time.

S. I shall be glad to answer them, for night and day I am working in this, my vocation, and nothing gives me more pleasure than to talk it over. Then I will also explain to you how the principles of our training have brought on the influenza.

H. The influenza? You are joking; that is an epidemic, which like all epidemics, appears at intervals.

S. That is true; an epidemic, which like all epidemics is regarded by the great mass of the people as a public calamity, descended from heaven. But a thorough investigator proves that the mode of living renders the soil susceptible to the epidemic. Next he proves that a change of habits will make it impossible for the epidemic to take

root. I tell you, the mode of life of our horses, due to our system of training, has brought on the influenza. In the times of **FREDERICK THE GREAT** there was no influenza; now it is increasing from year to year.

H. That too, you must explain to me yet in detail.

S. I shall be glad to, the next time.

[TO BE CONTINUED.]

CAVALRY UPON THE FIELD OF BATTLE; BY LIEUTENANT-COLONEL PREJENTSOFF, OF THE GENERAL STAFF OF THE RUSSIAN ARMY.

TRANSLATED FROM THE RUSSIAN.
BY FIRST LIEUTENANT GEORGE W. READ, FIFTH CAVALRY.

INTRODUCTION.

THE use of cavalry upon the field of battle in latter campaigns has been extremely limited. Concentrated in masses and placed at a distance from the fighting line, it appeared rather as a spectator than as a participant; the battle was begun, obstinately carried on, and for the most part finished by the infantry and artillery.

Such inertness has involuntarily forced many to the conclusion that the active part of this arm of the service in battle does not justify its maintenance in such considerable numbers, and that in war time it scarcely makes return for the enormous sums spent upon it in time of peace. Since the campaign of 1870-71, the question of the employment of cavalry in battle has more than once been discussed in military literature, with a view to determining whether it can have its former importance upon the battle-field; whether it may take an active part in the victory of future wars, showing the most energetic coöperation with the infantry, or whether it will be devoted exclusively to the service of security and information. Contemporaneous military literature is also occupied in considering these problems, and they are in the highest degree important, as upon the one or the other solution depends the establishment of the correct view, that cavalry possesses the greatest capacity for operations with the *arme blanche*.

The holding of certain views in regard to the active part in battle of any arm of the service, has an undoubted influence upon its training in peace time. It is therefore essential to determine *the kind of battle action in which the cavalry should be trained in time of peace*, and

the convictions with which its officers should be inspired, in order that they, with a firm faith in their system, may infallibly attain the final object.

Nothing is worse than vagueness or indefiniteness in the exercises of peace time, for in consequence of this, complete ignorance is shown in regard to the very things to be done in time of war. Doubt as to the possibility of certain operations will generate irresolution in all the actions of the cavalry in future campaigns, and will reduce its effects to a minimum. The existing fermentation of opinion with regard to the functions of cavalry is shown by the views of its directors themselves. Cavalry officers are gradually becoming imbued with the idea that it is impossible for their arm to take any active part upon the field of battle, and they refer with great doubt to its fruitful operations upon the theater of war in front of an army, on account of the extremely undeveloped contingent of non-commissioned officers. All this must lead to the complete downfall of the cavalry as an independent arm, and to its gradual degradation to the rôle of a simple accessory to the infantry.

Many contradictory views are expressed in current military literature in regard to the use of cavalry, and the idea is conveyed by not a few that the time for this arm of the service to take an active part upon the battle-field, particularly in masses, has been irrevocably dropped into eternity. Not sharing in the last idea, and claiming that cavalry has by no means lost its former importance in battle, we shall attempt, in the present article, to confirm our views by the choice of some instructive examples—from a positive or negative standpoint—from military history.

We deem it far from superfluous to touch with considerable detail upon the epochs of **FREDERICK THE GREAT** and **NAPOLEON I**, in consequence of the importance possessed by the cavalry in those days, and also to call to mind how these great generals understood the use of cavalry, and what enormous importance they gave this arm in general, and upon the field of battle in particular.

I. THE FUNCTION OF CAVALRY.

Cavalry upon the field of battle has always been designed chiefly for operations with the *arme blanche*, which, as is known, has existed without improvement since the most ancient times. The rapid improvement of fire-arms, and the general growth of technical knowledge in the present century, have given decisive importance to fire-arms in latter times.

All training in time of peace has become subordinated to the most careful instruction in firing, not only in the infantry and artillery but also in the cavalry, and a great portion of the time set apart for the instruction of the soldier is thus consumed. The improvement in fire-arms and the complete immutability of the *arme blanche*, together with the ease of proof in time of peace, by means of certain calculated percentages, of the results of training the men in firing and the utter impossibility of an estimate of the probabilities of action with the *arme blanche* in battle—have gradually led men to the false conviction that in future battles all will depend upon the knowledge let out at the enemy in heaps of projectiles.

The decided importance of the *arme blanche* in battle seems to be forgotten in time of peace, on account of the denial of the possibility of the immediate participation in the battle of its representative—the cavalry.

NAPOLEON I. said that the causes of victories and defeats, are first of all, in the heads and hearts of the soldiers and their commanders, i. e., that in war, success depends chiefly upon the moral condition of the army. If it is sufficiently prepared and so trained that it is in condition, notwithstanding any losses, to come face to face with the enemy and attack him with the *arme blanche*, then, however fire-arms may be improved, bullets will not break the attacking columns of this army.

It is said that in the battles of the present, cavalry cannot attack undisordered infantry, as it will be shot to pieces ere it reaches, at full gallop, the object of the attack; and examples are cited of unsuccessful attacks in which bodies of cavalry have met with great losses. It seems to us, first of all, that it is difficult to determine in battle what body of infantry is disordered, and what not, as frequently and even for the most part, troops may appear in good trim from an exterior view, and meanwhile have suffered a considerable loss of moral strength.

We are firmly convinced that when a properly trained force of cavalry, attacking infantry, has decided to bring an engagement to an end (and when moving to the attack there is no involuntary shortening of the reins), it will reach the infantry at full gallop and break through it. It is not likely there will be great losses in this cavalry at the time of attack, even if the enemy's infantry discover it at 3,000 or 2,000 paces, as it is too movable for the infantry aim.

The losses in cavalry forces advancing to the attack and turning back without reaching the infantry, have taken place chiefly not

during the attack, but during the retreat. No one contends that in consequence of the permanent immutability of the *arme blanche*, and of the battle characteristics of the troops destined exclusively for its use, the active part of the cavalry in battle must also be immutable; the conditions under which cavalry is obliged to act in battle are considerably complicated, however, at present. Therefore, if it is desired to have the cavalry take an active part in battle, it is necessary that it be suitably trained in time of peace for operations under the more difficult situation in a modern battle.

Up to the time of **FREDERICK THE GREAT**, the Prussian cavalry took very little part in battle; in this respect it was defective. And in those times the opinion was expressed by military men that with the invention of fire-arms, cavalry had lost its importance upon the field of battle. But meanwhile, in about five or six years, **FREDERICK** raised the Prussian cavalry to unparalleled eminence. This was accomplished by a proper organization and by the judicious training of the cavalry in time of peace, and its corresponding use in battle.

The reign of **FREDERICK THE GREAT** is considered the epoch of the regeneration of cavalry, and the principles which guided the Prussian King in the improvement of this arm of the service were unchangeable up to his time, and have remained so to the present.

II. CAVALRY IN THE TIME OF **FREDERICK THE GREAT**.

In the Middle Ages, cavalry was of preëminent importance in all Europe. The infantry was a secondary, an auxiliary arm. The greater part of the troops were cavalry; it decided the fortune of battle. The infantry was charged with the defense of castles, towns, etc.

The invention of fire-arms changed the relation between infantry and cavalry, and the former began gradually to acquire the greater importance; this led to an increase of its numbers, as compared with the cavalry. Frightened by the weapon with which it seemed no courage would be able to grapple, it was supposed that the fearlessness of the individual had lost its force, and that only the ability of the commander to direct lines armed with guns could lead to victory, or that a greater number of guns would always overcome a lesser number.

The arming of all the infantry with the new weapon gave rise to an inclination to unite the advantages of the fire-arm and the *arme blanche*; the wish was manifested to organize mounted infantry.

i. e., bodies of troops possessing the mobility of cavalry and steadiness of infantry.

Those who were captivated by the efficiency of small arms fire, began, little by little, to lessen the importance of cavalry; in consequence, the *arme blanche* was removed from action, and the cavalry provided with guns and taught to shoot from the horse. This had little influence for good upon the cavalry fight, making it less decisive, and limiting the part of cavalry in battle. Even during the Thirty Years' War, (1618-1648), cavalry had ceased to be considered the principal arm of the service, although in separate engagements it still continued to exercise an influence upon the course of the battle.

From the end of the Thirty Years' War to the wars of **FREDERICK THE GREAT**, several substantial reforms were made in the cavalry, particularly with respect to its armament, and partly in the method of conducting an engagement. Its armament was more and more lightened, increasing its mobility, but even at this time, from the superiority of fire over the *arme blanche*, a cavalry attack continued to be regarded as unusual. The Austrians and their allies held as a principle, especially in their wars with the Turks, that the attack of the enemy's cavalry should be awaited in position with loaded carbines, (with which all the troopers were provided). The energetic attack of the Turkish cavalry was usually met in the best possible order, the closed ranks and lines opening a brisk fire, but on account of the skill of the Turks in wielding the saber and their mobility, they defeated the Austrian cavalry on most occasions.

While giving an enormous importance to fire-arms in battle, the conclusion was finally reached that cavalry was only good when it was able to shoot well. It began to receive more dismounted and very little mounted instruction. In the mounted order of battle, it fired in the same manner as on foot—volleys by rank—and a cavalry fight consisted principally of this firing. At a distance of about twenty-five paces from the enemy the attacking cavalry was halted, opened fire, and then moved forward to the attack at a trot.

Such was the condition in which **FREDERICK II.** found his favorite arm of the service, upon his accession to the throne in 1740. "No one was employed in the instruction of the cavalry," wrote the Prussian King in his memoirs, "as, in consequence of its unsuccessful use in battle, it was imagined that this arm of the service was hardly worth considering on account of its uselessness. This unfortunate prejudice was so ruinous to our cavalry, that, being left without discipline, it proved utterly worthless when there was occasion

for its use. It was unable either to move properly or to fight. Not a single drill took place, without troopers, thanks to their awkwardness and ignorance of riding, being thrown from their horses. The trooper was not master of his horse—being instructed more on foot than on horseback—but he fired excellently in both cases. Cavalry officers had no conception of the cavalry service, and as was shown during the battle itself, were ignoramuses in theory and in practice."

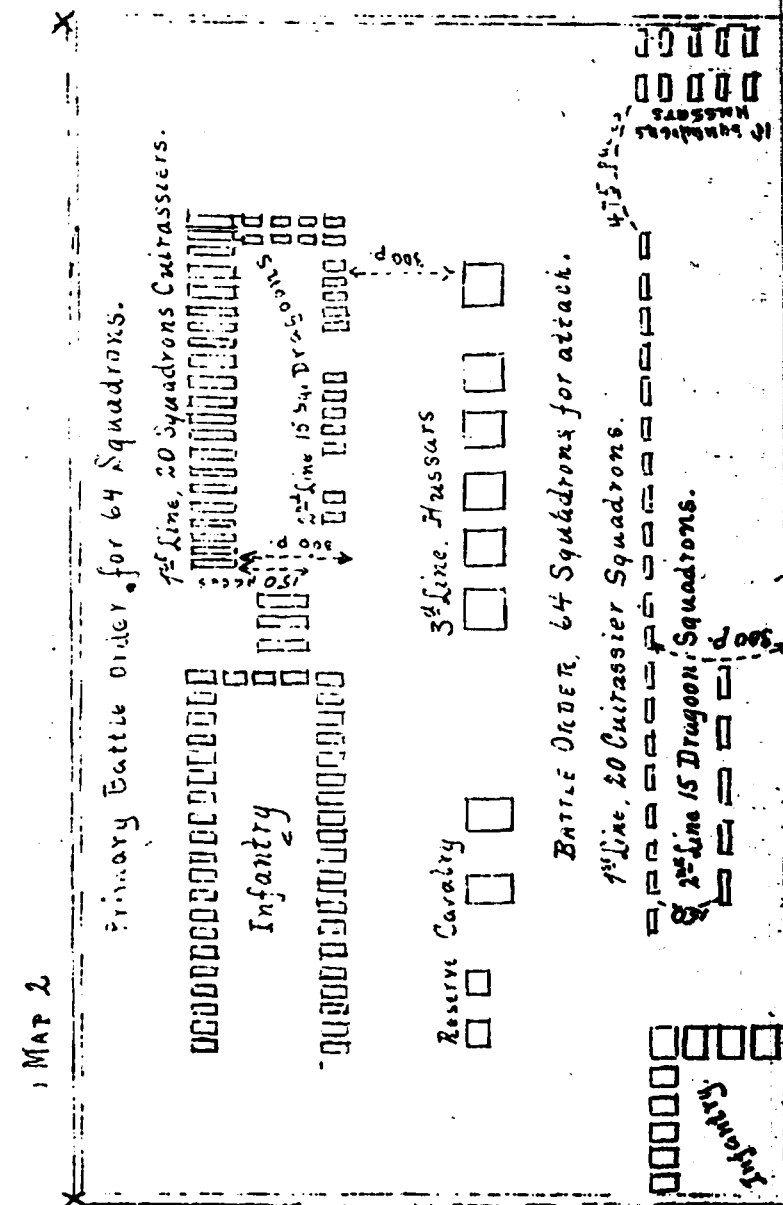
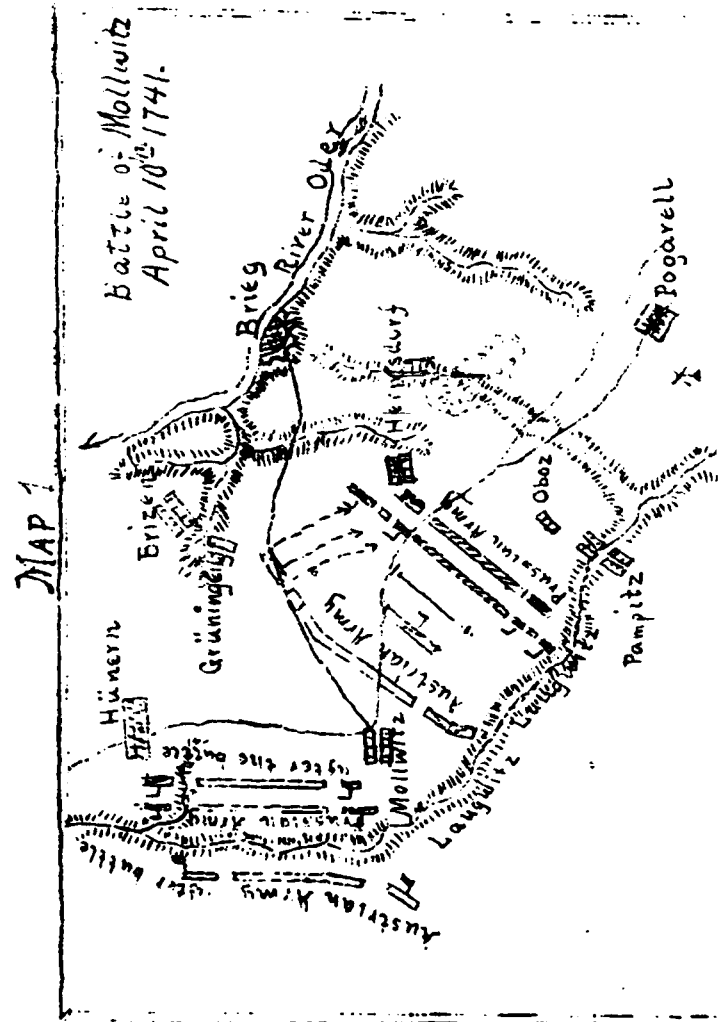
At the beginning of his reign, however, FREDERICK gave special attention to the improvement of cavalry instruction, and fully understanding the function of this arm in battle, personally directed the training of his cavalry.

His first acquaintance with the Prussian cavalry in battle was made on the field of Mollwitz, where its deficiencies were very apparent. The occupation of Silesia in the winter of 1740-41, and the retirement from Jägerndorf to Mollwitz, presented no occasion for cavalry operations of importance. At Mollwitz, on the 10th of April, 1741, the Prussian King appeared for the first time as commander-in-chief of the army—the strength of which was twenty-seven battalions, twenty-nine squadrons of heavy cavalry, and three squadrons of hussars.

Moving with five columns, on the 10th of April, from Pogarell Mill, along the road to Ohlau (Map I), and making the advance with entire success, in spite of the foot or two of snow covering the ground, the Prussians were drawn up in battle order at 2,000 paces from the enemy, who occupied the defensive position of Mollwitz.

The Prussian infantry was in two lines, with the cavalry on the flanks. The right flank rested on the village of Hermsdorf and the left on the brook of Laugwitz, the banks of which were quite bold. For want of a place on the right flank, three battalions of the first line were thrown back and placed as a support to the right wing of the line of battle. On account of the enemy's superiority in cavalry, two grenadier battalions were placed between the cavalry squadrons of both flanks to give them greater security.

The Austrian cavalry, thirty squadrons strong, discovering the enemy, immediately attacked in columns the more exposed flank of the Prussian line. Galloping upon the ten Prussian squadrons of the right flank as they were being marched by squadrons to the right, to extend to the village of Hermsdorf, the Austrian cavalry overthrew them, but being met by the strong fire of the grenadiers, was obliged to abandon the pursuit and turn back for the attack of



the infantry. Thanks to the coöperation of the three battalions which happened to be behind the right wing of the Prussian line of battle, the Austrian attack was repulsed. At this time the operations of the Prussian cavalry upon the left flank were sufficiently successful. The persistent attacks of the Austrian cavalry were repulsed by the strong fire of the Prussian infantry, and a fortunate movement of the Prussian left wing against the flank of the Austrians led to the defeat of the latter and to their retreat from the field. The pursuit was very weak, as the Prussian cavalry suffered great loss in this battle.

These unsuccessful operations of the Prussian cavalry proved to the King that it needed a great deal of work yet before it could occupy a suitable place on the battle-field. "I found the cavalry too heavy and immobile," wrote FREDERICK in his "Memoirs" of the battle of Mollwitz. "I took advantage of the cessation of military operations to attend to its training, to make it capable of maneuvering, and to turn its immobility into rapidity. I aspired to have it acquire lightness and mobility and a conviction of its own superiority over the enemy; wherefore I sent it frequently to considerable distances in large bodies in order to cultivate independence in the officers, to accustom them to command, and to accustom them also—when left to themselves—to rely upon their own strength."

Publishing various instructions and regulations for the guidance of the cavalry chiefs and officers, the Prussian King was sternly observant of their execution. For example, in the regulations of 1745, among other things, the following was announced in regard to the formations and movements of cavalry:

"All evolutions and movements of the cavalry must be executed with great rapidity, all deployments at the gallop. His Majesty most rigidly enjoins all commanders of cuirassier regiments to give their attention and care exclusively to making good and steady troopers out of the ordinary recruit. They should sit their horses with the ease of hussars, should know their horses well, and should wield the saber skillfully."

Every day, winter and summer, the soldier was obliged to ride. Each trooper was allowed to ride a single horse and to train him. In the training season, in summer, there were five mounted and one foot drill per week; one day in the week as well as Sunday was designated for training the horses. The King prohibited firing from horse-back, allowing it only as an exception during the pursuit:

"The troopers must be thoroughly imbued with the idea that the firing taught them upon drill must not be used before the first and second lines of the enemy have been destroyed by the saber.

"The squadrons upon hearing the signal of attack, rush upon the enemy, with weapons unsheathed and standards unfurled, while all the trumpeters play a march. At this time not a single squadron, at the peril of its honor and reputation, must dare to fire; on the contrary, all must fly upon the enemy, saber in hand. Brigade commanders will be responsible for this."

Although prohibiting firing from horse-back, the Prussian King took every precaution to have his cavalry skillful in making an impetuous attack in the closest order. The order of battle of the cavalry of that time (in one line, mixed with the infantry), was acknowledged by FREDERICK, from the beginning, to be unsuited to the fighting characteristics of this arm of the service; very soon, therefore (immediately after Mollwitz) he introduced into the Prussian cavalry an order of battle comprising strong bodies in two lines without intermixture with the infantry. The first line was composed of cuirassiers, the second of dragoons—the first being made considerably the stronger.

Within a year after Mollwitz, the Prussian cavalry was formed in three lines (at the battle of Czaulan * 1742); the third line consisted of hussars, which up to this time had been used only in the scouting and guarding service. The second line was intended to support and develop the success gained by the first, and the third was to secure the flanks of the first two lines and the rear of the entire order of battle of the cavalry.

With reference to the execution of the attack, the following is contained in the instructions of 1744:

"When the general orders the attack, all the lines will begin to move at a walk, passing afterwards to a trot, and at a distance of 200 paces from the enemy—giving free reins and spurs—will take the run. Frightening yells may possibly be needed with greater strength in order to break through the enemy's lines; but in other respects the order of battle should be rigidly preserved so that all three lines shall be constantly at 300 paces distance, with the hussars on the flanks. It is impossible to expect that the enemy will be in a condition to withstand such an attack; it may rather be surmised that he will be thrown back upon his second line; hence the attack of the enemy's second line should follow the attack of his first line without stopping.

"When both the enemy's lines are completely disordered, the first rank of the first line should move in pursuit, together with the hussars upon the flanks. The remaining squadrons should close and halt in perfect order at 200 paces from the place of the attack. During the pursuit of the defeated enemy, the cuirassiers and hussars are not to permit him to recover his breath, but are to drive

*Also called Chotusitz.

him until a defile or dense wood is reached. Only through the observance of these conditions will the enemy suffer great loss. Should the pursued enemy scatter, an effort must be made to overtake the foremost; those who straggle will not escape. During the pursuit it is necessary to kill, to saber and to shoot, and only to begin taking prisoners when the pursuit may be considered at an end. In this connection the King orders the commanders of all the squadrons which are in the fight to act independently after the first attack, and immediately collecting their squadrons, to again fall upon the enemy without awaiting commands or orders, for the generals may have been killed in the action, or have lost their horses.

"In like manner, the obligation rests upon squadron commanders to act in their own front without giving attention to the flank bodies. It is necessary to observe as a general rule, however, never to detach the first rank for the pursuit until both the enemy's lines shall be overthrown, and this must be impressed upon every soldier. His Royal Highness calls attention to the fact that during the entire battle, squadron commanders should carry out these orders most strictly, and on no occasion after the first or second encounter should they permit the enemy to rally, and in his turn fall upon their squadrons. On the contrary, each regimental or squadron commander, after the first attack, must not fail to again fall upon the enemy as soon as he is seen to be collecting himself, and is bound not to allow him to reorganize.

"The generals of the second line must observe that in case one of the squadrons of the first line be overthrown by the enemy, the second line may be always in readiness to support the squadron forced back, and to drive away the enemy. When both the enemy's lines are thrown back, the generals of the second line must not forget that while the enemy keeps his reserve, he can easily fall upon the flank of our first line; to avoid this it is necessary to throw out, 150 paces in advance of the second line, three or four squadrons of dragoons, so that they may project beyond the flanks of the first line. Thus the dragoons will always be in readiness to drive away the enemy's reserve, or even to defeat it, should it move against the flanks of our first line; in this case the commander of the second line can himself take the enemy's reserves in flank."

In these instructions the action of the lines of the order of battle of the cavalry is explained in detail, and one cannot fail to observe to what an important degree FREDERICK THE GREAT increased their reciprocal support.

In the instructions for the battle action of cavalry masses, the order of battle based exclusively upon the properties of the *arme blanche* and the peculiarities of cavalry fighting, stands out in bold relief. A thorough knowledge of the function of cavalry upon the field of battle was necessary to so correctly define its battle formation. Exacting from the cavalry impetuosity and unity in action

with the *arme blanche*, the Prussian King was mindful of its training in the execution of its maneuvers, with the object of the rapid assumption of the battle order.

Thus, in the instructions of 1748, he touches upon this question, among other things:

"In battle, the cavalry must quickly rush upon the enemy and attack him; this is one of its fundamental maxims, and is my standing order. Upon this basis special attention turns upon the quickest formation of the army in order of battle, so that it may be prepared to fight sooner than the enemy, and not permit him to forestall it. If our cavalry has already formed while the enemy is still in process of formation, its work is half done, when it attacks the enemy at this moment."

FREDERICK attached great importance to the initiative, and instructed his cavalry officers in that direction, suggesting to them continually that it is always necessary to anticipate the enemy, and never to await his action.

In the above cited extracts from FREDERICK's regulations, the leading idea of every system of instruction for cavalry in time of peace, is evident. Add to this that the King forbade the reception of foreigners into his cavalry, in consequence of which it was filled up from among Prussian land owners—and it is clear that the very structure of the regiments was cemented by moral ties. The best men were chosen for the hussar regiments intended for light cavalry service and for scouting.

In general, the Prussian cavalry under the supervision of its highly talented director, was soundly improved and was gradually prepared to become the model arm of the service in the performance of its battle functions. In consequence of the system of obtaining men and of the training adopted, the cavalry—from the moral qualities acquired—became more trustworthy than the recruited infantry, and in subsequent campaigns, with the able generals chosen by FREDERICK at its head, unquestionably took the first place among the three arms of the service.

In a majority of cases, the initiative was taken by the Prussians. FREDERICK's object in battle was not usually confined to the menace of the enemy by different maneuvers, but to his destruction, in which the numerous Prussian cavalry showed the greatest coöperation.

Giving great importance to the pursuit of the defeated enemy, the Prussian King invited the special attention of his generals to this in his regulations; for example, in the regulations of 1778, the following is said in this connection:

"The cavalry must show the greatest activity after the battle is won, as it is then charged with the persistent pursuit of the enemy. It is absolutely necessary that the cavalry shall always execute this. It is impossible to derive any advantage from victory if the cavalry does not finish the enemy—taking prisoners and destroying the retreating forces. During the pursuit officers can make themselves useful, not by sparing the horses, but by harassing the enemy until his strength is completely exhausted."

We also find in one of the King's letters to ZIETHEN:

"I enjoin you above all to pursue the enemy as long as strength lasts, without allowing him to rest or to bring his troops into order. I am fully convinced that your cavalry is fatigued, but bear in mind that the enemy is a thousand times more wearied still, and that it is absolutely necessary to drive him away without allowing him to slip from your hands. In our time, a single day's work more; afterwards, a rest for a hundred days. And so, General, without dismounting, follow upon the heels of the enemy."

At the time of FREDERICK's accession to the throne, the Prussian cavalry consisted of 114 squadrons, organized into twenty regiments, numbering in all 13,000, as follows: Twelve regiments of cuirassiers, of five squadrons each; six regiments of dragoons, of from five to ten squadrons each; and two regiments of hussars, of three and six squadrons respectively. The proportion of cavalry to infantry was about one-fifth. At the end of FREDERICK's reign, his cavalry comprised 224 squadrons, organized into thirty-five regiments, as follows: Thirteen of cuirassiers, of five squadrons each; twelve of dragoons, two regiments of ten squadrons and the remainder of five; ten of hussars, of about ten squadrons each—in all about 30,000. Its proportion to the infantry was one-fourth, and on special occasions it was increased to one-third of the effective force of the army.

In battle, the Prussian King grouped his cavalry into masses of twenty, thirty, and even fifty or more squadrons (depending upon their number), and placed them upon the outward flanks of the order of battle of the infantry. It was considered inexpedient to place the cavalry behind the infantry when the latter was formed for battle compactly along the front of the line with the regimental guns in the intervals. Besides the two cavalry masses upon the flanks, bodies of cavalry were sometimes placed near the infantry designated for the main attack, or behind the order of battle as a general reserve. Placing the cavalry upon the flanks was considered normal, because from there it was easy for its commander to observe the course of the battle and choose the opportune moment for the attack.

In view of the nature of cavalry and of its chief function upon the field of battle (operations with the *arme blanche*), the Prussian King declared its most suitable battle formation to be in three lines, one behind another (Map 2), with intervals of ten paces between the squadrons of the first line and of sixty paces between those of the second line, which was 300 paces distant from the first; the third line, 300 paces distant from the second, was disposed in platoon columns of hussars. On the outward flank of the first line was placed a hussar regiment of ten squadrons in columns of wings. The object of placing the hussars on the outward flank and in rear was to give freedom of action to the main mass of the cavalry while securing it from attack in flank and rear. The Prussian King permitted the prescribed normal order of battle of the cavalry masses to be somewhat altered, depending upon local conditions.

In such a formation, the Prussian cavalry in a majority of cases gained the victory over both the infantry and cavalry of the enemy. This order was afterwards modified; notably in 1770, when FREDERICK proposed the following battle order for the cavalry: the second line was not placed directly behind the first, but projected beyond one or both of its flanks, and the third projected beyond the second line, wherefore it seemed unnecessary to protect the outward flank by the hussar regiment.

Thus we see that FREDERICK THE GREAT, understanding the essentials of fighting cavalry, gave it a formation corresponding to its characteristics, and by degrees perfected it, working out from battle experience the same formation for cavalry, which in spite of the arguments against it, has been approached at the present time.

It follows from this that the immutability of the battle characteristics of cavalry as an arm of the service, gives it one and the same battle formation; the complex situation in a modern battle should be met, not by a change in the formation of the cavalry, but by the skill to adapt this formation to the more difficult conditions. The last, however, requires the greatest development of mobility in the cavalry, and of the capacity to maneuver and handle it in masses. Talented chiefs knew how to manage cavalry masses in the time of FREDERICK THE GREAT, although, perhaps, without a special military education; but now talented cavalry commanders with solid military educations are necessary, and cavalry officers of independence, skill and unparalleled daring.

The genius of FREDERICK was able to discover talented men among his subjects, and if the Prussian cavalry was indebted for the

brilliancy of its operations during the Seven Years War, to the King as its chief director in peace time, and its commander-in-chief in campaigns, no less was it served by his fellow champions and closest assistants in training the cavalry, viz: ZIETHEN and SEIDLITZ. Subsequent epochs failed to produce their equals as cavalry generals. Their system of conducting cavalry affairs is so eminently instructive that its principles might serve as a guide for the cavalry commanders of the present. ZIETHEN and SEIDLITZ possessed the inspiration which enabled them to foresee the final object without being confused by the accessory circumstances. Having the ability to handle masses of cavalry in battle, they did not lose sight of the many trifles, a knowledge of which they brought from their service in the subordinate grades, and thanks to which a commander always knows what may be demanded at a given moment from both horses and men.

The conclusion may be drawn from the above that FREDERICK THE GREAT alone in his time had the correct idea of cavalry as an arm of the service, and while accurately estimating its importance in battle and upon the theater of war, knew how to take suitable measures for its proper training in time of peace.

The Prussian King understood that only simplicity in the exercises of instruction in time of peace, and the use of cavalry in masses exclusively for action with the *arme blanche* in battle, could lead to good results. The tactics of his cavalry were to attack impetuously and to a finish, and to pursue the defeated enemy to the last limits, whence it was proposed to form the order of battle in several lines, independent of each other, within the limits of attaining the common end; to support the flanks by parts of the order of battle itself; to combine the frontal with the flank attack; to support the advanced parts by a reserve; to aim at the development of the greatest mobility in the cavalry masses, and of their ability to maneuver rapidly — while uniting their administration in the person of a single chief, not the oldest in the service, but of proved abilities.

It is necessary to add that for the instruction of cavalry in time of peace, FREDERICK organized riding schools, which up to his time did not exist in Prussia; looked after the individual training of the troopers; required the execution of drill upon cut up ground, and gave definite problems for maneuvers, concluding every exercise by a criticism upon its execution. By means of these peace time exercises with a strictly defined object, it became possible in battle to execute a timely attack with the *arme blanche* with the greatest swiftness and unity, whether against cavalry or infantry.

Among his generals and other officers the King aroused a love for military study, taking part, personally, in discussions upon various military operations, and thus improved the accurate *coup d'oeil* of the subordinates, developed their independence, and gradually prepared worthy cavalry commanders. To secure correct and uniform training, he published regulations and instructions, based upon battle experience. This was especially important, as up to his time almost every regiment had been trained in its own way.

The correct views of **FREDERICK THE GREAT**, upon the battle function of cavalry, have resulted in the survival without change, even to our time, of the fundamental principles created by him for the use of this arm of the service in battle.

[TO BE CONTINUED.]

GYMNASIUMS AND RIDING HALLS AT CAVALRY POSTS.

BY SECOND LIEUTENANT U. G. KEMP, EIGHTH CAVALRY.

“**A**CTIVITY, endurance and perfect bodily culture, too much neglected in our system of military training, are important requisites in a modern army. As elements, their possession must ever go far towards insuring success to that contestant having their advantage over an adversary without it. Considering the results depending upon the army, the demands it is expected to meet, and the care bestowed upon it, there is no community in which the cultivation of athletics is more necessary, or can be better promoted.

“It is a small body of well provided, healthy men, living much in the open air, and when active operations commence, is always called upon to do, and is expected to do well, an immense amount of work. Yet the supply of surplus strength that the ordinary military pursuits are able to store up is seldom such as to meet at once and fully the sudden, long continued demands so often put upon it. This, however, is only the fault of the present military system, and is open to immediate correction by the army itself. Let the skill with which the modern soldier has learned to use his rifle be supplemented by a proper cultivation of bodily strength and endurance.

“These requisites to military achievement will be as inevitably demanded of him upon the modern field of battle as they ever were of his ancient predecessor in arms in personal encounter. In their possession he will accomplish results otherwise impossible, and have, moreover, an invaluable reserve wherewith to meet whatever strain may come upon his powers.

“Interest in athletic games in this country is constantly increasing, and it cannot be doubted that military competitors can secure brilliant reputations, which will redound to the credit of the army, and the country as well.

“An interest to the individual soldier and an advantage to the service, as great and wide spread as that in target practice, may soon be expected to grow out of such contests. The field of competition is infinitely broader, and the opportunities of excelling all the greater. Hence, results as honorable to the soldier and as beneficial to the army as those attained on the rifle range may also be expected.*

*See TOTTEN'S "Laws of Athletics."

It has been said, and most properly, that the American is naturally an individualist. This is, in great part, a consequence of our institutions and form of government.

The cavalryman, more than any other person either in civil or military life, should have this characteristic promoted to its highest state of perfection; his development physically and mentally is an all-important consideration, and it is to his physical training in particular that this paper is devoted.

It is essential that the recruit be up to a certain standard, both mentally and physically, else he should not have been enlisted, and we may assume that we are dealing with men of fair intellects and good physique. Our aim is, or should be, to make of him the best possible soldier, in the least time, and have him attain a high degree of excellence in all the requirements that go to make a good cavalryman. Some of these requirements are, that first and foremost he be a good horseman, that he have a good eye, quick ear, and sound judgment.

A good horseman should have a thorough knowledge of a horse, as regards his treatment, care under all circumstances, and, above all he should be an excellent rider. Therefore anything that we can do for the cavalry recruit to make him confident of his own powers, independent and self-reliant when alone, or in other words, to develop that natural characteristic—individuality—is that much towards making him a good cavalryman.

We all know that a man, who is well developed physically is more confident and self-reliant than one who has had no training in that direction. One who has reached a high degree of physical excellence, has an eminent right to be so. Not that we want, of necessity, a corps of athletes, but we want men who have sufficient confidence in their physical capabilities, and control over their bodies, to give them a very important component of the modern cavalryman. Out-of-door exercises, such as foot-ball, base-ball, running, jumping, etc., have a wonderful influence, and are beneficial to the mental as well as the physical powers; but there are many essential exercises that require a sheltered place wherein they may be carried on. Regularity of exercise has much to do with results obtained, and besides, a place of this kind would be resorted to by the men, during their leisure hours, with both pleasure and profit to themselves. A gymnasium fitted up with the simplest appliances, would go far towards supplying this much needed want.

The setting-up exercises can be taught in the open air, as long as the weather is favorable; but at many posts this is sometimes im-

possible, and there is not sufficient space in the squad-room to properly instruct even a few men at a time. The drill-master should be a non-commissioned officer, proficient, not only as an instructor in the ordinary setting-up and manual drills, but he should be able to take the recruits through a course of gymnastics which should be made a part of the drill regulations.

There have been numerous books published on this subject, and from them it would be an easy matter to choose such exercises as would be directly suitable and beneficial to every man in the ranks, and the officers as well; for once established, the gymnasium would become as much a place of diversion for the officers as for the men. Should there be a building set apart for this purpose at each post, it would take but a short time and a nominal sum to have it in such shape as to render practicable a very great improvement in the physical condition of the recruit who, as a rule, finds it difficult to even mount his horse, not considering his ability to retain his seat, and handle himself and horse, when mounted.

It may be taken for granted that the recruit will, in the gymnasium, become more or less expert in the exercises of mounting and dismounting, vaulting and leaping on the dummy horse, and along with these could be taught various exercises on the horse bare-backed, and with the saddle, such as the reaches, facing to the front and rear, etc. Strength in the arms and wrists sufficient to bear the weight of the body, is gained by exercising on parallel bars and with dumb-bells. It may seem strange, but there are numerous instances where men, who otherwise are quite strong, cannot do the simplest exercise on horseback, because of their inability to sustain the weight of the body on the wrists or arms. This can, with but little practice, be acquired by any one; to see a man mounting a horse bare-backed and have to make two or three attempts is no uncommon occurrence. This is not entirely confined to recruits, either. Why is this? Simply because the man has had no instruction or training to prepare him for these apparently minor details.

Strength in these particular muscles is also gained in exercising with the saber, the cavalryman's very important weapon in the charge. This also could be introduced as a part of the course of gymnastics, and the use of the saber and foil, now so entirely neglected, would be a step in the direction of an advance that is certain to come in time.

After a course of two or three months in the gymnasium, the muscles are fairly well developed and under control.

With parallel and horizontal bars, clubs, dumb-bells, the saber

and foil, and a dummy horse on which many of the most important exercises can be taught, the recruit could be advantageously instructed in the first principles of riding.

In order that the saber be of any use in the hands of a mounted man, he must be such a rider that he can devote his whole attention to the use of his weapon, and not be compelled to use both of his hands to keep himself on his horse. You can judge of a man's riding to a great extent by the manner in which he mounts and dismounts. It is no uncommon occurrence to see a man, when mounting, fall into the saddle in a heap, as it were, instead of placing himself carefully in the seat and assuming immediate control of his mount, where as a rule, the horse is master of the situation, and does pretty much as he pleases for the time being. Fortunately most of our horses are sufficiently well trained on account of long continued service, and intelligent enough, to give but little trouble.

With his superior powers of intellect and judgment man can overcome and train the most vicious horses. This, of course, is not at all times required, but the cavalryman should be prepared for any emergency; and if he has sufficient confidence in himself, and has his physical and mental abilities fairly well developed, the average recruit can train his horse to be perfectly manageable under all circumstances. Once the horse is made to realize that his rider is master, there will be no further difficulty.

This part of the instruction is and must be accomplished in the riding hall, and it is needless to say that no one in our branch of the service will doubt for a moment the advantages, to both horses and men, to be derived from the riding hall drills and exercises.

The necessity for a riding hall training becomes apparent as soon as anything in the form of a charge is attempted. Even in our ordinary drills, if a charge is made, invariably there are horses scattered in every direction, and have the riders entirely at their mercy.

A few mounted exercises have been introduced into the new Drill Regulations, and form a basis for the instructor. He, however, should be allowed considerable latitude, and should not be required to confine himself to a limited number of movements. Every exercise that a man learns and executes successfully on horseback adds so much to his confidence in his horsemanship, and when that has reached a high degree of cultivation, he can get on his horse and feel at ease.

It may not be considered by many as an advantage to have horses trained to lie down, but in the training the horse and man have learned an invaluable lesson.

A man may never be required to run and jump on his horse from the rear, or vault clear over him in an actual encounter, but should there be competitions instituted, at which feats in horsemanship formed part of the programme, an interest would be developed among the different cavalry regiments, and troops also, that would, I doubt not, in time even surpass that shown in target competitions.

The cavalryman should be a good shot, but he should be a better rider, and when it is made an object for us to attain a high degree of proficiency in that most desirable and quite uncommon accomplishment, of being excellent and graceful riders, the question of interest will readily be answered. It is not intended to depreciate the horsemanship of our cavalry, for its standard is not beneath that of other countries, in fact, it surpasses most of them. But it will still bear a wonderful amount of improvement, and this can be accomplished by beginning with the recruit and cultivating his physical powers from the outset, leading him by successive steps through the gymnasium and riding hall to that perfect ease and confidence which mark the good rider, and which we all want to possess.

This century has been, and is certainly a progressive one, and the armies of all countries have not been slow to appreciate this fact. In modern arms and changes in tactics to meet those improvements, we have most striking evidences of the progress made in our profession. And with this progress, it becomes more and more necessary that each individual man should be taught to be self-reliant, and to stand on his own merits. This can be done in no better way than by training each and every man from the beginning; and let us hope that the Board of Officers, recently appointed to consider and report upon reading rooms, gymnasiums and other places of amusement for the enlisted man, will find it advisable to establish at least a gymnasium and riding hall at every cavalry post.

"JIGITOFKA" (COSSACK VAULTING).

BY A. N. KOVRIGIN.

SECTION 144, of our Military Regulations, respecting active service of Cossacks, reads: "After obligatory exercises in vaulting with obstacles, voluntary vaulting should also be allowed. The conductor of such exercises must lead the good will and enterprise of the riders to useful and practical exercises, preferring them to aimless and risky vaulting, which, however considered, non-obligatory or voluntary, should nevertheless be permitted when it is undertaken by the personal initiative of Cossacks."

The "jigitofka" has long been practiced by this valuable element of the Russian troops, becoming known to it nearly simultaneously with its birth, and therefore such vaulting is to be considered as an absolutely natural appurtenance of Cossack cavalymen by nature and not as a matter prescribed and inculcated in them by any regulations whatsoever, or frivolous ideas of killing leisure time in peace. It is possible, upon all accounts, to suppose that this sort of exercise has passed to the Cossacks from those martial mounted tribes with whom they once constantly struggled for the right of existence and from whom they gradually copied and appropriated those particular ways and battle qualities by which they have deserved the reputation of a bold and indefatigable natural cavalry.

Although these exercises, from the present decrease of the term of active service of Cossacks to four years, and increase of the programme of their general training, cannot be practiced so often as before, yet they are still considered strictly necessary and even more obligatory than many of the other subjects of their studies.

Not many, we trust, will object to the opinion that Cossack vaulting in general develops the fearlessness, skill and presence of mind, so peculiar to these people, and that it (if such expression can be employed) "fastens" the rider to the horse.

A good "jigit" (vaulter) feels himself as comfortable in the saddle as on the ground, and being well acquainted with the qualities of his horse makes use of every means to prevent its falling or other disagreeable casualties happening.

Those who have ever lived in "stanitzas" (Cossack villages) and have interested themselves in the training of Cossack boys and in their equipment for active service, have undoubtedly observed that a good vaulter is at the same time also a good rider, who, if his means allow him, enters the active service always well equipped with a good horse, saddle, etc. In this category of boys, we naturally do not include children of Cossack merchants, who sometimes also enter the service well equipped, but never have the qualities belonging to good "jigits," as at home they generally pass their lives behind the shop counter, and therefore are not inclined to participate in the general training of Cossacks.

On an attentive examination of the Cossack life in the "stanitza," one can easily indicate the Cossack children who promise to become valiant vaulters and riders; firstly you see them riding to the horse-pond, very often at a gallop and never slower than a trot, without either saddle or bridle; their eyes sparkle, and one clearly sees that the chap feels himself fully contented when he reaches the horse's back. In meeting a herd of horses you observe them racing, most of them being provided with a rope attached to their horse's neck to which they clutch during their first exercises in picking up anything from the ground at full gallop. Ask such a child to show you the best and fastest horses in the herd and he will surely point them out, as well as those which being also good are, nevertheless, useless for a Cossack, as they always fall when the rider practices throwing himself forward to the ground. Then you meet these children already enrolled in the preparatory section of Cossack troops in which they pass their first drilling assembly mounted on their own horses, well known to them by this time, and on which they fear neither falling to the ground nor crossing obstacles at full gallop, standing on the saddle, either on feet or head. After the drilling assembly is over they return from the camp with the name of "jigit," and their horses by this time are, of course, splendidly trained for performing their characteristic exercises at all gaits. The skillful and bold riders serve as an example to the less trained ones, and in this way vaulting during the period of early childhood and youth generally sufficiently develops many of the most essential qualities of a Cossack before entering active service.

Obligatory vaulting consists in—

1. Vaulting with obstacles, accompanied by firing and cutting in all positions.
2. The practice of throwing their horses while going at a gallop and immediately firing over them.
3. Exercises in lifting up and transporting wounded men at a gallop.

Non-obligatory or voluntary vaulting includes—

1. Exercises in falling forward to the ground.
2. Mounting and dismounting at full gallop.
3. Races, accompanied by leaping from one horse to another.
4. Exercises with obstacles, standing either on the head* or feet.
5. Galloping in groups of one or more upon one horse, with firing.

More time is naturally generally given to the most useful exercises, the final object of which is to develop in the Cossacks every accomplishment in the management of their horses and arms, deriving from them all that is required in order to defeat the enemy.

Quiet, firm and good shooting in every direction at any gait, using the saber in every position of the rider, rapid horse throwing with immediate firing from behind the horse, rapid mounting with unexpected saber attack—such are the results obtained by these exercises.

Tests have shown that it is not the sentiment of self-preservation, natural to every one, but the material question that obliges many Cossacks to dislike vaulting exercises: equipping himself for active service on his own account, the government supplying him only with a rifle, he naturally desires to preserve his own property, limiting the expenses for its repair as much as possible. In most cases it has been observed that falls while "jigiting" generally did more harm to the Cossack's horse and equipment than to the Cossack himself, and, in consequence thereof, his fear of spoiling the horse or breaking or tearing anything expensive to repair are just the circumstances that induce the Cossack to evade vaulting exercises, which sometimes do not meet with his sympathy in consequence of their destructiveness. The military department, in order to remove all obstacles hindering such exercises, intends to assist the Cossacks by covering all their expenses in the purchase of either horse or equipment spoilt or lost in vaulting; such means guarantee the development of "jigitofka," which, seeming so wild at the first appearance, can never be forgotten by those who have ever admired the skill with which it is performed.

*The rider in fact does not stand on his head but leans on the saddle with his shoulder.

In ending the description of Cossack vaulting we must mention another form of "jigitofka," which is being at present practiced by some of the Caucasian Cossack troops, and consisting in casting darts at a gallop, is called "djereet." The rider either striking the ball or piercing the ring, covered with paper and having a diameter of thirty inches, hanging at about fifteen to twenty steps from him, must, while galloping, immediately turn his horse short and disappear from the article which has been pierced by his dart. "Djereeting," is, properly speaking, not new; it long ago existed among some of the mounted tribes of the East, and seems to have been temporarily forgotten.

These exercises have largely improved with our Cossacks who successfully participated in the great Tiflis "djereet" challenge in September last, taking the seven first prizes out of eight, and nine second prizes out of ten, the last one being gained by the same Tartar who took one of the first prizes. Representing no danger or risk, the "djereet" nevertheless requires skill, strength, accurate aim, and knowledge in managing the horse, which qualities are gradually obtained by both of the above exercises, the description of which we end with some remarks on the Cossack saddle.

The existing model of such a saddle requires a high tree and a seat on short stirrups, and in consequence thereof the rider seems to be sitting needlessly high.

Through such construction of the saddle the rider's feet are so placed in the stirrups that the middle of the ball of the foot falls in the same vertical plane with the ear, and the legs, through the shortness of the stirrups, seem to be needlessly bent.

These two circumstances produce the impression that the Cossack seat seems forced, unnatural (or wild, as they call it in St. Petersburg), and bring forth the following reflections among the representatives of our regular cavalry: A high tree places the rider too far from the horse, making the balancing difficult, and the short stirrup embarrasses the management of the horse with the thighs.

The Cossacks, in discussing this opinion, maintain that a high tree obliges the rider to regard more assiduously the center of gravity, and the short stirrup, producing some defect in the eyes of a stranger, gives a stronger support, and that both these peculiarities of its construction make the rider sit firmly, although in a somewhat constrained manner, in the saddle. Moreover, such a seat almost entirely removes all unsteadiness in the saddle, and therefore the horse, being relieved of such involuntary balancing of the rider, carries its burden more easily.

In the cavalry saddle, where there is a deep seat (nearer to the horse), the rider undoubtedly balances easily, and the long stirrup enables him to manage the horse with the thighs, but these "supposed advantages" are seldom useful outside the manège. When long distances are to be covered, the natural weariness resulting from them (these same advantages, deep seat and long stirrup), lead, in the Cossack's opinion, to the fact that the rider, having no strong support, begins to sit unsteadily in the saddle through fatigue, which, in its turn, brings a needless weariness to both horse and rider. This has a significance, especially in movements at a trot; the cavalry trot is considered heavy even by the Regulations, so it was necessary to introduce a lessened trot, in comparison with which the Cossack trot must be acknowledged altogether light.

Such a conclusion must, in our opinion, be attributed to the fact that the Cossack, strongly resting his feet against the stirrups when in his saddle, removes needless balancing movements, and produces the impression of complete harmony of movement with the horse, forming *one whole* with it.

Many Cossacks, entirely denying the construction of their saddle, nevertheless do not consider its present model as an irreproachable one, and have raised the question of increasing the height of the tree, in order that the saddle-cloth attached to it may give a more free circulation of air next to the back, and of lengthening the sides of the tree, for the purpose of increasing the surface of the saddle's contact with the horse's back, and thus proportionally distribute the weight of the burden carried by the horse.

St. Petersburg, April 23, 1892.

BOOK NOTICES AND EXCHANGES.

REVUE DU CERCLE MILITAIRE. 1892.

No. 9: The German Manual of the Lance (illustrated). Operations and Antiseptic Dressings in Armies (illustrated). No. 10: Operations and Antiseptic Dressings in Armies (continued). Notes on the Austro-Hungarian Army. No. 11: Garrison Life in the British Army. Notes on the Austro-Hungarian Army. No. 12: Mounted Firing in Russia. Operations and Antiseptic Dressings in Armies (continued). No. 13: Notes on the Austro-Hungarian Army (concluded). Operations and Antiseptic Dressings in Armies (continued), illustrated. No. 14: Practical Instruction at the Military Academy of Toledo (illustrated). Operations and Antiseptic Dressings in Armies (continued). Making the Squadron the Administrative Unit in the British Cavalry. No. 15: Practical Instruction at the Military Academy of Toledo. Infantry Combat Tactics. No. 16: Employment of Railways in the Turco-Russian War (illustrated). Infantry Combat Tactics. The "Lava" of the Cossacks and their Methods of Fighting. The Employment of Railways in the Turco-Russian War. No. 19: The "Lava" of the Cossacks and their Methods of Fighting. The Employment of Railways in the Turco-Russian War (concluded). No. 20: The "Lava" of the Cossacks and their Methods of Fighting. A New Small-Caliber Rifle in Spain. No. 22: The "Lava" of the Cossacks and their Methods of Fighting.

MILITÄER WOCHENBLATT.

No. 20: Hoenig's Twenty-four Hours of Moltke's Strategy. How to Improve, Without Expense, the Soldier's Bare. No. 21: Field Service of Infantry. War Studies by Verdý du Vernois. No. 22: Conclusion of the two preceding articles. No. 23: Moltke's Military Correspondence. Firing While Advancing. No. 24: What Can be Done in Battle by Field Artillery Maneuvering by Brigades. No. 25: Continuation of Preceding. The Winter Campaign of 1807 in Prussia (with maps). No. 27: The French Cavalry Maneuvers of 1891. No. 28: Russian Artillery Against Cavalry. Winter Marches in Russia. No. 29: A Vital Question for Field Artillery. No. 30: The Organization of French Provincial Armies in 1870-71. No. 34:

Continuation of the preceding. No. 36: English Quick-Firing Guns. Instruction in the Russian Army, Formerly and Now. No. 37: Ballooning in the French Maneuvers of 1891. Continued in No. 38. No. 39: The Military Situation in Upper Egypt. No. 40: The Steinbrecht-Plinzner System of Equitation and Training, and Instruction in Training Horses. No. 40: War Dogs in Tonquin. No. 41: The War of 1806-7. The Krupp Rapid-Firing Guns. No. 43: The Cavalry School at Saumur. No. 45: Remounts. No. 46: Russian Literature on Mounted Cavalry Firing.

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THE TACTICAL USE OF MOUNTED TROOPS IN FUTURE
CAMPAIGNS, WITH COMMENTS ON THE RECENT RE-
HABILITATION OF THE LANCE IN EUROPEAN ARMIES.

BY FIRST LIEUTENANT GEORGE W. VAN DEUSEN, FIRST ARTILLERY.

FROM the earliest traditions of the human race down to the present day, its records teem with accounts of wars, and, in the waging of these, the horse has always played a more or less important part. At first, if we may believe tradition, he was not ridden, but attached to a chariot; was used to convey his master swiftly from one part of the field of battle to another, enabling him from the shelter of this chariot to deliver his missiles against his enemies, and ride down the opposing footmen. These charioteers were always the chiefs and most distinguished warriors, which may be considered as one of the first of the many reasons why the mounted arm has always been the one more especially affected by the nobility.

There is no definite record as to the first appearance of cavalry as such, but it was in use as early as 800 B. C., in a comparatively organized form. It is probable that the first to use the horse for this purpose were the tribes in Asia Minor, known as the Scythians, and for hundreds of years the Parthians of that region formed the most

effective irregular cavalry in the world, against which the trained legions of Rome dashed themselves to pieces without avail.

From these tribes this use for the horse spread throughout Asia Minor, and thence to the Grecians, who organized their horsemen and produced troops more like the cavalry of to-day, especially under ALEXANDER THE GREAT, who may be considered the originator of shock tactics and also of mounted infantry.

The Romans were at first very deficient in this arm, and depended almost entirely upon their foot soldiers, and to this fact may be ascribed no little of their lack of success in the early wars against the Carthaginians, whose cavalry was very skillfully handled by HANNIBAL. The Roman horsemen were members of the nobility, and were used for reconnaissance and pursuit but very seldom for a charge, while the contrary was the case with the Carthaginians. After the lessons taught by this war the Romans reorganized their cavalry, and thereafter it formed an important factor in their successes.

After the downfall of the Roman Empire came the rise of the Feudal System in Europe and the Age of Chivalry. During this period cavalry was the principal, and it may almost be said, the only arm, the foot soldiers being looked on with contempt as only useful for the horsemen to ride over, and who, if they resisted too long, incurred the displeasure of their own horsemen, who punished them for their insolence in attempting to arrogate to themselves some of the glory of victory. But although such was the state of affairs, the tactical employment of cavalry was entirely different from what we now understand by that term, and, in fact, it may be said, there was no tactical employment. Battles were almost entirely determined by individual combats between the different knights, supported by their retainers. There was no cohesion in the armies and very little attempt at discipline. The armor in many cases became so heavy that a knight unhorsed, was completely *hors du combat*, since he could not rise without the assistance of his retainers. The same state of affairs continued during the crusades, and the horsemen were even depended upon for the attack of walled towns, although the reappearance of infantry was foreshadowed by the fact that in several cases the knights were compelled to dismount and plant their lances in front of them like pikes in order to resist the onslaughts of SALADIN's light horsemen. During this period Europe was several times invaded by hordes of Asiatics, all of whom were mounted, but who fought in an irregular manner like the ancient Parthians.

After the Crusades commenced the decay of feudalism, and the centralization of power in the monarch. To maintain his authority

against the more powerful vassals it became necessary for the monarch to maintain a force of mercenaries under his control. These were, at first, generally soldiers of fortune, mounted, many of them knights and gentlemen, who took service under the prince who would pay best for their services, and these bands may be considered as the origin of the European standing armies of the present day. Heavy armor was still used, and the casualties in battle were not very great, as may be imagined from an instance given by MACHIAVELLI of a great defeat in 1423, famous throughout all Italy, in which the only deaths that occurred were those of three men who fell from their horses into a morass and were drowned, presumably on account of the weight of their armor.

Although these bands of irregular mercenaries which formed the nuclei of the standing armies of to-day could not be very completely organized and disciplined, yet as the central power increased, the monarchs were enabled to gradually do away with troops of this class, and depend more and more upon their own subjects; and thus the cavalry came more and more to assume its present shape, this change being hastened by the increasing importance of infantry, as first illustrated at Crecy, Morgarten and Sempach by the English archers and Swiss pikemen. The experiences of these battles had shown very conclusively that the day of winning combats by the individual prowess of knights was about over, and that cavalry in order to preserve its usefulness must consent to be placed in some regular formation, which would enable its commander to use it tactically on the battle-field. And this fact was emphasized by the increasing value of gunpowder, although it was many years after its introduction ere the weapons for its use were so improved that they could replace all other missile weapons, and produce a greater effect than the English arrow in penetrating armor.

After fire-arms had fully demonstrated their value, the cavalry became imbued with the idea that they should depend chiefly upon arms similar to those used against them. Consequently from about 1500 until the time of FREDERICK THE GREAT, nearly all of the European cavalry abandoned the charge at high speed, and advanced to the attack slowly, seldom more rapidly than the trot, firing their carbines and pistols as they advanced. The custom was also introduced of mingling small bodies of infantry with the cavalry when advancing to the attack, thus greatly decreasing the mobility of the latter. It can hardly be open to doubt that the form of attack in use at this period is the one least suited for cavalry, and the one which would be the most easily repulsed by the fire of good infantry,

and such was generally found to be the case. Exceptions to this manner of using cavalry were shown in the cases of CHARLES XII and GUSTAVUS ADOLPHUS of Sweden, and Marshal SAXE of France, all of whom advocated the use of the charge at high speed, and who were generally successful in such charges.

The examples of these illustrious leaders were not lost upon FREDERICK THE GREAT, and with the assistance of his great generals, SEIDLITZ, ZIETHEN and DRISSEN, he created what was, in many ways, the most efficient body of cavalry ever known. He prohibited firing mounted, charged at a very rapid gait in several lines, caused his troops to depend entirely upon the *arme blanche* and the shock, and originated horse artillery as an auxiliary arm for use with the cavalry. Under these conditions and leaders the Prussian cavalry achieved the most brilliant results against the lighter cavalry and infantry of their opponents, and in many cases decided the fate of the battle. Consequently, from this time until the French Revolution, the Prussian system was copied with almost ridiculous exactness throughout all Europe as the height of perfection for cavalry. Nevertheless, there was one particular in which the Austrian cavalry was far superior to that of FREDERICK, and that was for purposes of reconnaissance and information, and this fact often placed the Prussian army in rather unpleasant situations, from which all the military genius of FREDERICK was required to extricate it. This same defect was continued in Europe, as Austria at once dropped her own system and copied that of Prussia, until the time of NAPOLEON, who first seemed to understand how to utilize cavalry in all its forms. Although the French cavalry at the beginning of the Revolution was of a very inferior quality, and probably never did become fully equal to that of some nations at the same period, yet so well did NAPOLEON know how to make the best use of it that not only did it perform the most effective service as a reconnoitering and screening force, but it was a most potent factor on the field of battle under such leaders as MURAT, KELLERMANN and LASALLE. The pursuit of the Prussian army after Jena by MURAT and his cavalry is one of the most remarkable instances ever seen of what can be accomplished by such troops properly handled.

During the latter part of the NAPOLEONIC era, another element was introduced into the history of mounted troops by the achievements of the irregular cavalry of Russia, the Cossacks. To these troops, possibly, as much as to any other direct cause, may be ascribed the final downfall of the Emperor. Fighting at first in a most irregular, almost disorderly, manner, as they became more ex-

perienced in civilized warfare they gradually acquired a more regular formation, and at the end were able to perform most of the duties of regular cavalry with a great superiority in mobility.

From the battle of Waterloo until the adoption of rifled fire-arms, there were very few essential changes in the formations of the mounted troops in Europe, most of them retaining the ideas in vogue at the former epoch. But when the increased range and accuracy of the new arms became generally known, there set in a reaction against cavalry which resulted in a reduction of the mounted forces in many of the European nations. So firmly had the principles of the great FREDERICK become fixed throughout Europe that it did not seem to be imagined that cavalry could act in any other manner than by the shock and with the *arme blanche*, and that by arming it with the improved fire-arms it could be rendered fully as effective in many respects as formerly, and possibly more so. It remained for our Civil War to demonstrate what could be done by mounted troops when properly armed and handled. The cavalry of that war was found equal to any task imposed upon it, whether charging at full speed with the saber or revolver, or, dismounted as infantry, defending and attacking positions with the carbine. But these facts were not properly appreciated in Europe, and so, in the "Seven Weeks' War," we find the cavalry playing a very minor part, being generally kept in rear, and not even efficient in reconnaissance duties. But the lessons of this War of 1866 were not lost upon the Prussians, and at the opening of the War of 1870 we find them with a force of cavalry inestimably superior for practical work to that of their opponents, and this fact was to prove a very marked element in the succession of victories which crowned the Prussian arms.

Since the close of that war, and especially during the past few years, there has been a decided reaction in Europe in favor of the mounted arm, and most of the nations are now engaged, to a greater or less extent, in remodeling and improving that component of their armies.

Having thus very briefly sketched the history of cavalry down to the present day, let us enter into a few of the considerations which play a part in its use in the future.

It is probable that during recent years no military subject has been more profusely discussed in current service literature, both at home and abroad, than the function to be performed by mounted troops in the wars of the future. Into this discussion have entered men of all arms and of all opinions; from the enthusiastic cavalryman of the old school, who looks back to the days of SEIDLITZ and

ZIETHEN, and indulges in dreams of dashing charges in which his troops, armed only with the *arme blanche*, ride down and disperse all foes, to the equally enthusiastic infantryman, who considers that all cavalry will soon be nothing more or less than mounted infantry, using their horses simply as a speedy and convenient mode of transportation from one point to another. Between these two extremes are men of all shades of opinion; sometimes inclining to one point of view, sometimes to the other.

Deductions regarding the future can be drawn only from the lessons of the wars of the past, coupled, of course, with the necessary considerations caused by modern progress in arms, ammunition and material. But the results in the past have been so widely divergent in character that each disputant finds in them material for upholding his own views, and very often condemning as meretricious those of his opponents. The question will probably never be decided to the entire satisfaction of either side, not even by the next great war, since whatever the results every disputant, especially if a theoretical one, will find plenty of authority of some kind for supporting his own especial theories.

And the subject may at present be looked upon as presenting the best possible ground for theories. Although all European nations, and our own as well, are reorganizing their cavalries and drilling them according to new tactics and regulations, yet these regulations have not the positiveness of those for infantry, and there is a view of "if" running through many parts of them which cannot well be avoided. It is difficult to fix with exactness the extent to which the use of mounted troops will be carried in certain directions, and this difficulty is somewhat increased by doubt as to the exact tactical formations for attack, which will be adopted by the infantry against which they may be called upon to operate.

However much discussion there may be in other directions, there is one branch of the mounted service on the usefulness of which all authorities and nations are in accord, and that is the horse artillery. Originally organized as such by FREDERICK THE GREAT, it has gradually increased in importance since his day, until at present, a cavalry division starting out on independent duty would almost as soon think of leaving behind its horses as its artillery. When the division is with the rest of the army, as during a battle, its artillery may, and probably will, be used to strengthen the artillery of the army, but should always be at the service of the cavalry when needed.

Although for a long time the majority of foreign military critics were inclined to look with disdain upon the operations of cavalry in

our Civil War, and in many cases considered that we had no troops that could be called cavalry in their understanding of the term, yet as the years have gone by they have gradually been coming to the conclusion that many things were accomplished by those same despised troops which might be studied with advantage, especially when taken in connection with the lessons taught by the Wars of 1866 and 1870. Nevertheless after the close of our war, the volunteer cavalry was mustered out, and the few regiments of regulars were broken up into police detachments for guarding the frontier against Indian outbreaks, operating generally by themselves and in small commands of from one to six troops. The occasions on which an entire regiment could be assembled for field duty or maneuver have been extremely rare; consequently, although our cavalry officers are sounder theorists on the subject of their arm than, possibly, any other in the world, it is to the continental nations of Europe, with their immense standing armies and continual preparation for war, that we must turn to see practical steps being taken for the future utilization of cavalry in large masses.

Although England takes great pride in her mounted troops and their deeds in the past, and of late years has had some few maneuvers, especially in India, in which comparatively large forces of cavalry have been used, yet the size and distribution of her army, system of recruitment, etc., are in many respects too similar to our own to render their study fruitful in the information desired; and the eye naturally turns to France and Germany as the two great nations which have, in recent years, been through the most bitter experiences of war; since the Russo-Turkish War may practically be left out of the question in so far as cavalry is concerned, and this more especially because the steps of these two nations in the reorganization of their armies on the basis of the lessons learned in that war, and in the anticipation of a renewal of that war in the future, have been followed to a greater or less extent by most of the other nations of Europe. This has been more particularly the case with regard to the victor, and for some time it seemed to be considered that everything German was bound to be the best and must be followed, even to the German helmet.

The general organization of the cavalry of to-day is probably very similar in general character to what it will be for some years to come, in fact until some war shall indicate the changes to be made and defects corrected. Of course there will be minor changes, due to alterations in arms and equipments, but the principles will remain the same.

There are now two general systems in use in Europe, the difference being that in one divisional cavalry is employed and in the other it is not. There has been considerable discussion as to the advisability of the former method, and there is some little doubt as to its being the best even among those who continue to use it. Its opponents claim that by dividing up the cavalry into such small masses, say a regiment to a division of infantry, it is not numerous enough to be used to advantage; it is often in the way of the infantry on the march; its services for reconnaissance and screening will always be more efficiently performed by the independent cavalry of the army, and that the cavalry in the independent divisions are apt to look down upon the divisional cavalry, and thus cause bad feeling to arise between the two. One argument urged in its favor is that the infantry division may be called upon to act as an independent unit, and in that case should be made up of all three arms. But even in that case it would certainly be very easy to attach cavalry for the occasion from one of the cavalry divisions under the control of the corps or army commander.

But there is no doubt that it will very often be convenient for the division commander to have a small number of mounted men under his direct orders for use as escorts, patrols, messengers, etc., and they will, sheltered near the line during a battle, often find opportunities for being useful that would not occur to the large masses of cavalry, and they may often materially assist the other arms. For these reasons a large number of European nations still retain their divisional cavalry, though the amount, especially with the Germans, has been considerably reduced during the past few years, and it has even been proposed to relegate this duty to the Landwehr cavalry.

It is now universally conceded that the division is the largest tactical unit for mounted troops that can well be handled by one commander, and that the days of corps of cavalry are past. As to the size of these units, DERMÉCAGIAX, reasoning on the principle that there should be three different units within the unit, one for attack or shock, one for support and one for reserve, holds that the division should be composed of three brigades each of two regiments, and that each brigade should have a battery of horse artillery. This composition would seem to be a very reasonable one, not only for the attack but for the other duties required of the division when acting independently. For instance, if it should be necessary to detach a certain portion of the division for advanced or other duty, a brigade could be sent, giving a detachment of considerable size and

complete organization, and the organization of the main body would not be seriously disturbed.

In this connection it may not be out of place to glance at the systems of the different European nations. In the first class, those employing divisional cavalry, come Germany, Austria, Italy and England.

Germany, up to a very recent date, has attached one cavalry regiment of four squadrons to each infantry division. An article in the May number of *Harper's Monthly* of this year states that at present each infantry division consists of two brigades of infantry and one brigade of cavalry. But in view of the statements that have been so generally made, that Germany is reducing her divisional cavalry, it would seem that the above statement must be an error, or possibly the cavalry mentioned may be attached to the division only during peace, and that, in case of war, these brigades would be consolidated into the cavalry divisions. The cavalry divisions, as a rule, consist of three brigades, of two regiments each, and two or three batteries. The cavalry division of the Guard has four brigades.

In Austria the divisional cavalry consists of only two squadrons for each infantry division. The cavalry division consists of two brigades, of two regiments each, two battalions of infantry and one battery of artillery.

Italy has two squadrons to each infantry division. There are no cavalry divisions, but one brigade of two regiments is attached to each army corps.

England has one regiment of cavalry to each infantry division. As in Italy, there are no cavalry divisions, but each army corps has a brigade of three regiments.

In the second class come France and Russia, neither of which has divisional cavalry.

In France the normal type of the cavalry division consists of three brigades, of two regiments each, and two batteries.

In Russia the size of the division is variable, one being attached to each of the army corps. The two divisions of the Guard have each three brigades, while those of the line and the Caucasus have only two.

The foregoing represents, as nearly as can be ascertained from the information at hand, the general tactical organization at present of the cavalry in those nations which are maintaining large standing armies, each of which is constantly striving to make its own estab-

ishment fully as good as those of its neighbors, and if possible, a little better.

In the United States the new drill regulations recently issued provide for both divisional cavalry and cavalry divisions, and also for cavalry corps, and even larger bodies. The divisional cavalry would consist of one or more regiments attached to each army corps, from which a squadron or less would be detailed when necessary, to report to the division commander for duty. This would seem to resemble more the corps brigade of cavalry of the British army than what is known as divisional cavalry abroad. The cavalry division is to consist of three brigades of three regiments each, and two or more batteries of artillery. The corps is to consist of three divisions. It can hardly be imagined that a body of cavalry of the size of a corps would ever be assembled under one commander, even for the most extensive raid that could be planned. Allowing a strength of 100 men to a troop or 1200 to a regiment we would have a corps of 35,000 horsemen, besides the accompanying artillery, trains, etc., which would be rather an unwieldy mass to be handled in a proper manner.

Before passing to the consideration of the functions to be performed by the mounted troops in the campaign, it may be appropriate to devote a few words to the much discussed question as to the arms to be used by them, especially as regards the subject of fire-arms.

The cavalryman who upholds the traditions of the old school, and there are many of them abroad as well as some at home, looks with great suspicion on any attempt to arm his service in such a manner as would seem to assimilate its action with that of the infantry, and thus render it liable to be subjected to the—to him—opprobrious epithet of "mounted infantry." He would have the cavalry trained to act as such and not to do any portion of its fighting on foot, leaving such work to the mounted infantry proper. At the other extreme is, as we have mentioned before, the one who considers the days of cavalry, as such, over, and that in the future they must throw away the sword and depend upon the rifle. But it would seem that a mean between these views will more nearly represent the truth of the matter than either alone. The advocate of the first must remember, when he refers to the cavalry of the great FREDERICK, that he did not prohibit his cavalry fighting on foot, and in fact, encouraged it in many cases. What he did forbid was the firing of their carbines from the horses' backs during the charge, a most uncertain method of firing, and one which caused disorder in the ranks and took away much of the moral effect of the movement.

Yet it can hardly be believed that the day of the sword is entirely past, and that many opportunities for its use will not occur in the future, not only against the cavalry but even against infantry.

During our Civil War there was created a body of cavalry which, in this country, we consider the finest for practical use that has ever been in existence. And it may safely be said that this opinion is to-day shared by many prominent military authorities abroad. Although it was at first regarded with contempt and considered not to be cavalry at all, yet it did combine, in the highest degree, the attributes which must be possessed by successful mounted troops in future wars. That this fact is recognized abroad is shown by the fact that their cavalry of to-day is becoming more and more as was ours at the close of the war, when it was ready to either dismount and hold a position against infantry or engage in a dashing saber charge against cavalry.

In our opinion the ideal cavalryman of the future should be able to maintain himself under all circumstances, and if necessary, operate with perfect independence of the other arms, excepting, of course, its own horse artillery. Armed with a saber, long-range repeating carbine or light rifle and revolver, he will be equally prepared for a charge on the battle-field or for holding his own on reconnaissance duty, even against infantry. As for the need of heavy and light cavalry, the former for the charge and the latter for the work of security, it is hard to see the necessity for the distinction. When charging is to be done it is not likely to be against masses, where the weight of the horse will tell as much as formerly, but against scattered men, in which agility will be likely to count more than weight.

It is not probable that there will be seen in the future any example similar to that of the Prussian Uhlans in 1870, who, without long-range fire-arms, were held in check by small squads of irregular Franc tireurs armed with the Chassepot, and could do nothing until they had picked up enough of the Chassepots from the enemy to arm themselves.

In our army, since the Civil War, the cavalry service has been entirely on the frontier, and in starting on campaigns the saber has generally been left in garrison, and the sole dependence placed upon fire-arms. But this has been due to the peculiar nature of the warfare in which we have been engaged, and not to any distrust of the cavalry officers in the saber as a weapon in its proper place, and we think very few of them would consent to the abandonment of the saber as part of the cavalry armament. But there is no reason for

its abandonment, as a mounted man will not be overburdened by carrying all three of the weapons above mentioned, and the cavalry thus armed will possess the requisites for cavalry action of all kinds, strength and mobility. In this connection we would say that hardly a worse arrangement can be imagined than the Austrian, in which each cavalry division is accompanied by two battalions of infantry.

As to the objection raised against cavalry fighting on foot, that it will be able to throw only a small portion of its strength on the fighting line, this would seem to be rather overestimated in Europe. According to our drill regulations every fourth man is a horseholder, which would give about three-fourths for the first strength of the dismounted line. And it would seem practicable, since the horseholders will remain some distance in rear of the line under shelter, if possible, for one man to hold a greater number of horses than indicated, taking eight or even ten in an emergency, and giving that many more combatants. Such troops may be called mounted infantry by their opponents if it please them so to do, but they will be, nevertheless, cavalry, and cavalry of the best type.

Let us now consider very briefly the services to be performed by cavalry armed according to our theory, from the declaration of war up to the end of the struggle.

The cavalry will be called upon from the very commencement, and its duties will begin during the mobilization and concentration of the armies upon the frontier. Both nations will probably keep large forces of cavalry, under a permanent organization and on a war footing, near the frontier and in the closest possible proximity to those points which offer the most strategic advantages for the concentration of the enemy. Upon the declaration of war it will devolve upon these troops to cover the concentration of their own armies and at the same time do all in their power to hinder that of the enemy. As both opponents will be actuated by the same ideas, it is probable that the next war will be inaugurated by a series of cavalry combats, some, probably, between bodies of considerable size. In this concentration time is a very important element, in which days and even hours must be considered. Hence, if one cavalry commander can elude or drive back his adversary, he may be able to execute a raid into the hostile territory which may do no little damage and cause some considerable delay in the transportation service. A few important railroad bridges burned at some distance from the frontier, depots destroyed and track torn up, as was done by the cavalry during the raids in our war, might be the means of giving a great advantage to the side of the successful cavalry.

The raids at this stage should be very limited in extent, as the cavalry ought not to be allowed to get too far away from the main army until it is completely concentrated and ready for action. The information obtained during these preliminary operations will be of the greatest use to the commander of the army in determining upon his plan of campaign. It is upon his cavalry at this time that he must chiefly depend for details as to the number and state of concentration of the enemy, their situation, probable movements, etc. Hence, would seem to arise the necessity for having the cavalry, during peace, kept in a more complete state of drill and instruction than the other arms, so that it may be ready for service upon the shortest possible notice. Especially should the officers be made thoroughly conversant with the duties that will be required of them, and be trained in that quickness of perception and ability to grasp details, without which they will fail to reach the high standard of efficiency necessary for such important services.

After one army has assumed the initiative and crossed the frontier, thus opening the campaign, the duties of the cavalry become more and more important up to the actual contest on the battle-field. This "service of security," or of reconnaissance and screening, is considered by many to be the one use for cavalry in the future, and that it might just as well be kept away from the battle-field except in so far as it will render there the same services as on the march.

The function of the cavalry of both armies is practically the same, to screen its own troops and protect them from surprise, and to obtain all possible information as to the movements of the enemy; consequently it should be far enough in advance of the main army to give it time to concentrate if threatened with attack, and should be so armed and in such force that it can hold positions against the enemy or, if need be, capture those not held by too great a force. It is for this purpose that the need of a good fire-arm becomes evident.

It has been the rule in many cases that cavalry under such circumstances should be supported by infantry. But mobility is one of the chief advantages of the mounted arm, and how much would this be injured if every time it met with even a trifling resistance, as occurred frequently in 1870-71, it was compelled to delay until the supporting infantry could come up to its assistance.

These reconnoitering and screening details for the main army are performed by the cavalry divisions, which should be thrown out in advance of the army at least one day's march, and more, if possible, and the importance of this in adding to the comfort and safety of the other troops cannot be overestimated. Knowing that the sur-

rounding country for a long distance in advance has been thoroughly scoured by their cavalry and that it would be impossible for any considerable body of the enemy to be within striking distance, the men can march in comfort by day and sleep in peace at night, preserving their strength and morale for the crowning effort—the battle. An army in which such a condition of affairs exists has already advanced a long step towards victory when opposed by an enemy moving under contrary circumstances.

The cavalry division then on duty in advance of the army, should keep the larger part of its force in one main body, and should cover the country in all directions for at least half a day's march in front of this body, with detachments and patrols of all kinds. The main object is to gather in all information regarding the enemy, and not let any possible opportunity for so doing escape. Officers' patrols would be used when especially important information was to be obtained. In ordinary cases a patrol under a non-commissioned officer would be sufficient, the men being selected for fitness for such duty.

During all movements of the army the mounted troops will, in addition to the reconnoitering service, form an important part of the composition of advance and rear guards. In fact, with cavalry properly trained to fight on foot, it would seem as if the greater part of the duties of advance guards, which are especially arduous and fatiguing for foot troops, could be performed fully as well, and even better, by the mounted troops. The main object of the advance guard is to protect the army from any possibility of surprise, which requires a thorough reconnaissance of the country in front and on the flanks, and this can be done more quickly by mounted troops. Of course with cavalry of the old school this would not hold true, as the advance guard may often be compelled to maintain a position against infantry attack, and that would be impossible with the lance or saber, or even with a short range carbine. But to-day the conditions are different, and furthermore, the advance guard should never be called upon to unexpectedly withstand a serious attack if the reconnoitering cavalry in advance has properly performed its functions.

It may happen that even at this early stage of the operations it will prove advantageous to attempt those incursions into the enemy's country which were so largely used in our war, and so little in Europe, called raids, although it is probable that they will have more chance of success later in the war, when both the armies and the country supporting them have become demoralized to a certain degree. European writers, as a rule, though recognizing the great

results obtained by the cavalry leaders on both sides during our war in their numerous raids through the enemy's country, maintain that the conditions existing in Europe are so different from those under which our mounted troops operated that it will not be possible for such raids to be used to any great extent in their wars of the future. This may be true when we take into consideration their views as to the use of cavalry. But we cannot help believing there were many opportunities on both sides in the Wars of 1866 and 1870 of which our leaders would have taken advantage, and inflicted almost incalculable damage upon the enemy. If the Prussian Uhlans with their lances were allowed to ride freely over a large portion of France during the first stages of the war, especially as it was shown later how easily they could be stopped by a few irregular troops, what could not have been done by a force of ten or fifteen thousand efficient cavalymen, armed after our model, and led by a FORREST, MORGAN, WILSON or GRIERSON! And how much damage could not the French have done later in the war under such leaders against the long lines of the German communications!

The same also holds true of Prussia and Austria in the Seven Weeks' War. And if these opportunities have occurred in the past, and there is no doubt to us that they have, they are just as likely to be repeated in the future, and will accrue to the advantage of the nation which has foreseen them and possesses the leaders and troops capable of rising to the occasion.

One of the principal arguments against them seems to be that in our war the raids were made through a comparatively thinly inhabited country with few roads, and that in Europe they would be made through a country thick with a hostile population, and open, with many roads by which the raiders might be intercepted by troops sent against them. But it is hardly possible that such a force as has been indicated would be much delayed by the unorganized efforts of a population consisting, as it would at that period, largely of non-combatants, while the large number of roads might operate fully as much in their favor as against them, since they would afford so many more outlets for eluding pursuit.

It is probable that, at the present day, only a short time will elapse from the opening of the campaign until the first battle. Both armies will be advancing to the conflict or one will be advancing and the other awaiting its coming in some chosen position. As the armies approach each other their respective advanced cavalries are gradually concentrated and drawn in towards the main armies. Every effort is made by each of them up to the very day of battle,

to keep in the most intimate contact with the enemy, gain all possible information as to his dispositions, strength and intentions, while at the same time screening the front of its own army as thoroughly as possible from all attempts of the opposing cavalry to gain like information. When the critical moment comes and the battle is a thing of immediate certainty, the cavalry should be withdrawn from the front and placed in favorable positions on the flanks and in rear, where it will be able to take advantage of every possible opportunity to make itself useful during the conflict.

That the importance of the foregoing duties of mounted troops has not been fully recognized in the past by European nations, is very decidedly shown by a study of the latest wars, even the Russo-Turkish War in 1877-78. In the Seven Weeks' War the service of reconnaissance was wretchedly performed on both sides, and afforded their respective commanders very little useful information. How absurd seems to us to-day the state of affairs just before the battle of Königgrätz when the First Prussian Army was within three and one-quarter miles of the Austrians and did not know it. The Prussians profited by their experience in this war in this respect, so that the beginning of the War of 1870 found their service, though still far from perfect, so much superior to that of the French that it seemed perfect by comparison.

To-day there may be said to be no difference of opinion among civilized nations as to the great importance of these duties of mounted troops. But the same cannot be said of their employment on the field of battle, and it is regarding this point that most of the controversy of the past years has been excited. After the successful introduction of breech-loading arms it became the popular opinion that the days of usefulness of the cavalry on the battle-field as an offensive arm were over. This view obtained to a great extent even after the War of 1870; but in the last few years there has been a great revival, especially in Germany, in favor of the cavalry, and extremists now consider that its services on the field of battle in the future will be even greater than in the palmiest days of the past. With this view we cannot agree, and it would seem that the use of cavalry, acting on the field of battle with the other arms, will always be secondary to its duties before and after the combat; but, this much admitted, there will still be found many occasions in the actual conflict where cavalry can make itself most decidedly useful, and may even exert an important influence on the result, although the days are past when the battle can be won by the onslaught of the mounted brigades.

The old adage that cavalry cannot charge unshaken infantry, has been emphasized by the adoption of the magazine breech-loader and possibly by smokeless powder. But it is not often necessary for cavalry to charge *unshaken* infantry, and, in fact, it would not be used under such conditions except in very extraordinary cases. However, infantry cannot always remain unshaken, and when it has been subjected to the fire of artillery and infantry for a long time, possibly for hours, it may well become disorganized and in a condition of nervous strain in which such an influence as a charge of cavalry on the flank or even in front would produce a decided effect and cause such a panic that, for the time, it would not make the slightest difference whether they were armed with magazine rifles, muzzle loaders or even clubs. Such a charge, promptly supported by the infantry, might prove the turning point of the battle.

The fact of increased rapidity of fire does not necessarily imply increased accuracy, and it is a well known fact that men in the excitement of action are much more likely to waste their fire than when required to use more deliberation and load more slowly. It certainly does not seem to be a fair test to take the hits made by a skirmish line on the drill ground, and infer from this result that it would be a physical impossibility for cavalry charging on this line to ever reach it. In VON BRENDOW's celebrated charge at Vionville, made against victorious infantry armed with the Chassepot rifle, only about fifty horses and men went down before the infantry fire in the 1500 paces charged over before reaching the enemy's line.

In comparing the rapidity of fire of the breech-loader with that of the old muzzle-loader, it should not be forgotten that the breech-loader will be in the hands of a thin line of men, while in the old days the opposing infantry was in a mass of several ranks, so that the discrepancy in the amount of fire during the short time occupied by the cavalry in the charge is not so great as it might at first seem. Of course it is very much in favor of the breech-loader, and this is increased by its much greater range and the consequent increased length of time during which the cavalry must be subjected to its fire. To counterbalance this as much as possible the cavalry should take all possible advantage of cover, and not expose itself until it becomes absolutely necessary. And recent maneuvers in Europe have shown that there are frequently in a battle-field certain undulations of ground, by the use of which the cavalry can, during the excitement of the frontal combat, gain unperceived a position within easy striking distance of some portion of the enemy's line, very possibly on

the flank, which might place some of the artillery of the enemy in a very critical position.

The recent reduction of the caliber of the military rifle in most nations seems to work to the advantage of the cavalry in action. The effect of the charge is, to a certain extent, produced by the shock caused by the weight of the horse being thrown against the enemy at a high rate of speed. So long as he can sit on a horse the cavalryman, after he is wounded, can be of much more use than a wounded infantryman; hence in order to break the effect of a charge it is important to stop the horses. As is well known, this is difficult to do even with the larger caliber bullet, unless some important bone is shattered or the wound made in an immediately vital part. This difficulty will be much increased with the small bullet which, as experiments have shown, may perforate a bone without causing a fracture, and which will, under any circumstances, communicate much less of a shock to the horse and rider.

On the battle-field, as has been before stated, the cavalry should be kept as well covered as possible until the time has come for its use. It is generally placed on the flanks where it can discover and resist any turning efforts on the part of the cavalry or infantry of the enemy, and a portion might also be placed in rear of the center, to act as a sort of reserve, which could be quickly thrown into broken places in the line to hold them until infantry could come up. During the entire battle it must keep up the service of information, and strive to keep the commander informed as far as possible regarding the movements of the enemy. It is probably upon the flanks that it will be called on to meet the opposing cavalry, and that there will take place the cavalry combats of the battle. During these charges and counter charges the cavalry should confine itself to the "*arme blanche*," since it certainly cannot stop to fire, and firing mounted under such circumstances is to be avoided. Although it was at one time reported, and is so quoted by DENISON, that in the War of 1870 the Germans lost only six killed and 212 wounded by the saber, yet official returns show that their loss was 1163 killed and wounded by the lance and saber. As they were victorious in nearly every charge made against the French cavalry, the losses of the latter by the same weapons must have been much greater. And the effect of a cavalry charge does not depend so much upon the actual loss inflicted as on the demoralizing influence of a sudden onslaught upon broken infantry, who have possibly almost or wholly exhausted their ammunition.

Before closing this discussion of the field of battle, one very

important duty which may be required from the cavalry should be mentioned, that of sacrificing itself at some critical moment, to delay the progress of a victorious enemy until fresh troops can be brought up, or to cover the retreat of the defeated army. Such was the action of the Austrian cavalry after the battle of Königgrätz, and there were several similar instances in 1870, the best known of which is VON BRELOW's celebrated charge at Vionville. Under much the same head would come the charges of the Austrian cavalry at Custoza, by which 2400 horsemen held in check and kept from the field of battle all day two divisions of Italian infantry, numbering over 25,000. It is true that such charges may result in the practical annihilation of the cavalry, and so should be undertaken only as a last resort. But if the object aimed at is accomplished, it must be accounted just as much a victory for the cavalry as it was in the old days, when they rode down the squares of infantry and drove them from the field.

From the above considerations it would seem that although the days of great offensive charges, by which the cavalry prepared the way for the other arms and decided the fate of the combat, may be said to be past, it is still far from being a useless factor on the field of battle, and when handled understandingly, may exercise no little influence on the fate of the day.

It is probable that in the great battles of the future the result will not be decided until very late in the day, even after nightfall, and the successful army will be too much demoralized and disorganized to at once commence the pursuit. During the night the defeated army will withdraw in the best order possible, and will endeavor by all means in its power to deceive the enemy as to the actual direction and objective of its retreat. It is at this time that the cavalry of the victorious army should come promptly to the front, get into contact with the retreating enemy, and maintain it at all hazards. To attain this end a certain portion of the cavalry should be kept in reserve on the battle-field, so that it will be fresh and in good condition for this duty, and care should be taken that it is not used for other purposes. The object of the commander of the victorious army will be to follow the enemy and strike him again as soon as possible. In order to do this he must know the direction of his retreat, his state of organization, and his probable point of concentration. This information can be furnished him by a vigorous and efficient cavalry service only. Light columns of mounted troops should also be sent out to endeavor to seize in advance of the retir-

ing columns important defiles and positions which are essential to their retreat.

These duties for the pursuing cavalry suggest in themselves those which will fall to the corresponding troops of the retreating army. They must endeavor in every possible way to deceive the pursuer regarding the facts he wishes to discover, and form such a screen about their army that the enemy will find great difficulty in penetrating it.

In the foregoing remarks we have endeavored to mention briefly a very few of what seem the most important functions of cavalry, without attempting to go into any detailed discussion. The subject would become a very voluminous one, far beyond the scope of a paper of this character, should any attempt be made to enter into the consideration of the various theories advanced, formations recommended, etc., all of which have already been very thoroughly taken up and discussed from every point of view.

We are inclined to regard with interest any step taken by Germany in a military direction, and even though it may not agree with our preconceived idea of what is best, yet we feel that the change and the reasons leading thereto are worthy of careful consideration. Germany has had so much practical experience in war during the past thirty years that it is safe to presume that any step taken is the result of mature deliberation, founded on the lessons of the past and probabilities for the future. Such a step is that which has recently resulted in the armament of the entire German army with the lance, and which precedent has been followed to a greater or less extent by nearly all the nations of Europe.

Our experience with that weapon as an arm for mounted troops has been very limited in extent, and such as we have undergone has not been very much in its favor. During the Mexican War the lancers of that country were objects of ridicule to our troops, and although this may have been as much due to the character of the troops as to the weapon with which they were armed, yet the stigma was attached as well to the weapon as to the man who carried it.

At the beginning of our Civil War a few regiments of lancers were organized among the volunteer cavalry, attracted, doubtless, by the showy nature of the weapon, but it was soon abandoned owing to their awkwardness with it and the ridicule bestowed upon them, and they were well contented to assume the regulation cavalry armament. As an illustration of the absurdity of arming raw troops with this weapon may be instanced the case of a regiment of New York lancers, about four-fifths of whose men were unhorsed in riding

through a narrow strip of woods, because of their inability to carry their lances in the proper manner.

The conditions of our cavalry service both before and since the war have been such that the troops have been obliged to depend chiefly upon their fire action, and have not, therefore, been favorable for the adoption, or even trial, of a weapon which, like the lance, is useful only for shock action, and, in the opinion of many, not very useful even for that. But, in spite of our limited practical experience with it, and possibly for that very reason, we, on this side of the Atlantic, can examine the facts for and against this weapon and form a comparatively unprejudiced opinion as to its merits. And this is the more true from the fact that we are not likely to be moved by two or three things which, trivial though they seem, may possibly have some weight in influencing the nations of the Old World in the step they have taken in this matter.

First, the lance has always been looked upon in Europe as the weapon of knighthood and chivalry, and it has come down from the Middle Ages surrounded by the glamour and romance connected with the history of the great deeds which have been performed by its assistance. And what more natural than that the descendants of those old knights should desire to emulate the deeds of their ancestors with troops armed with similar weapons.

Then, again, in foreign nations much more attention is paid to the "pomp and circumstance of glorious war" than in this practical money-making republic, and it would be hard to find a more gallant and inspiring sight than a regiment of lancers with lances raised and pennons fluttering in the breeze. Nothing could appeal more strongly to the popular mind, which would not stop to consider how very serviceable these same pennons might be in indicating to the enemy the whereabouts of this same cavalry.

Again, such has been the tendency to copy Germany that when, for some reasons of her own, she decided to adopt the lance, many of the other nations, and especially France, felt called upon to follow in her footsteps, and some of their military writers at once commenced to devote all their energies to proving that the lance is the queen of weapons, and that no cavalry can be of use in the future without it.

As first used by mounted troops before the days of Greece and Rome, the lance was much shorter than now and intended more for a missile weapon than to be retained in the hand of the horseman. It was thus used among the more savage tribes until quite a recent date. It was used in various forms by the Greeks, Romans and

other contemporaneous nations, and reached its highest tide during the days of chivalry, when it was the chief weapon of the knights and its use was forbidden to the common herd. Battles were very often little more than a series of combats between opposing knights, each endeavoring to unhorse his opponent. It was the weapon of the tourney and the battle-field, of love and of war, and the romance of those days still clings to it and causes it to be termed "the queen of weapons."

After the decline of chivalry and introduction of gunpowder, the lance lost much of its prestige, and although used to some extent, was little heard of in European wars. None of the generals who knew how to make the best use of their cavalry, CHARLES XII, GUSTAVUS ADOLPHUS or FREDERICK THE GREAT, employed it, but depended entirely upon the sword as the weapon for the shock. In France it was revived by Marshal SAXE and then practically disappeared until NAPOLEON created several regiments of lancers in his armies. After Waterloo the British created some lancer regiments and since that time nearly all of the European nations have had a small portion of their cavalry armed with the lance, although it has apparently been considered of very little importance until the recent German revival.

In 1890, according to information received from the Military Information Division of the Adjutant General's office, the different European nations had the following proportion of their cavalry armed with lances:

Germany.....	58	regiments out of	93
England.....	5	"	" " 31
Belgium.....	4	"	" " 8
Italy.....	10	"	" " 22
Spain.....	8	"	" " 24
France.....	12	"	" " 85
Russia.....	17	"	" " 75*
Austria.....	11	"	" " 41

Since that time the lance has been adopted as a part of the armament of all the German cavalry, while it is understood that Russia is the only nation which is not following the German lead, and that she has abolished the lance in all her regular cavalry and retained it only for some of the Cossack regiments, who look upon it almost as part of their religion. General SKOBELEFF, after considerable experience with the weapon, was decidedly opposed to it as a part of the armament of the Russian cavalry.

In the past the lance has generally consisted of a shaft of some

*Not including Cossacks.

kind of wood, preferably bamboo, on account of its lightness and toughness, with a metal head joined to this shaft. A lance of this kind was liable to be cut by the stroke of a sharp saber and was easily broken by the horses, while if the shaft was made heavy enough to resist these, it was too cumbersome to be easily handled. The lance now adopted in the German army consists of a hollow tube of thin steel about ten feet long with a triangular head and pointed butt. This is lighter than the wooden lance and much superior to it in resisting power.

Much has been written lately, especially in Germany and France in favor of the lance as the *arme blanche* for cavalry. Both of these nations now believe in the future use of the mounted arm for shock, not only against other cavalry but against infantry as well, and they naturally desire to find the best weapon for that purpose. The arguments in its favor may be condensed into the following brief statement:

The lance is considered to be the best arm for the cavalry on account of its superior moral effect, encouraging the troops behind it and intimidating those opposed; especially if these latter are untrained men or badly shaken by long exposure to infantry and artillery fire. And it is claimed that it will be especially useful in charging infantry, since the latter will probably be lying down and cannot well be reached by the saber, but can by the lance.

It may be admitted that certain exceptional occasions might arise in which the lance would be the superior of the sword for the shock, but at all other times it would be a decided incumbrance. In order to obtain a good effect with the lance the most favorable combination of circumstances must exist. Even MONTECUCCI, who is often quoted as one of the great advocates of the lance, says: "That of all arms on horseback the lance is the best, *provided* the lancers are vigorous, armed from head to foot, have first-class horses, and level, firm and unobstructed ground to operate upon, with a body of cuirassiers at hand to follow up success; otherwise the lance is useless."

There can be no question that for reconnaissance work and for all other purposes than the actual shock the lance would be not only useless but very much in the way. With the pennon it betrays the presence of the trooper, and in any case it interferes with his riding through pieces of woods or similar obstructions, when without it he would have but little trouble. It is universally admitted now that cavalry on reconnaissance or outpost duty must be prepared to dismount and fight on foot, and they are armed for just such a contingency. Under such circumstances the lance must be very much

in the way, and would interfere to a marked extent with the freedom of motion of the trooper in mounting and dismounting, and in moving the led horses. It is understood that such has been found the case in very recent European maneuvers, and to an extent which must be seen to be realized. Furthermore, in the German cavalry at present only two-thirds of the men can be placed on the dismounted fighting line. It has been proposed to obviate this by arming only the heavy cavalry which is to be used for the charge with the weapon, and omitting it from the equipment of the light cavalry. But this would seem to be introducing a considerable amount of complication to obtain the very doubtful good resulting from the lance, especially as circumstances may arise which will require the use of any or all of the cavalry for outpost duty. It would seem better to have an armament suited for any emergency.

Another objection is that in order to make a horseman skillful in the use of this weapon he should have a large amount of training, otherwise he will probably be more dangerous to friends than foes. The Germans claim that the three years with the colors gives them ample time to instruct the cavalry soldier thoroughly in the use of all his weapons, lance included. Those of us who have had some experience with the cavalry arm of our service, and have seen the difficulty often experienced in teaching the average recruit how to properly manage his horse without anything, even a saber, in his hands, may be allowed to indulge in a mild feeling of incredulity as to the absolute correctness of this statement. The Germans are far from being remarkable in their horsemanship, nor is the intelligence of their rank and file above that of our recruits. Consequently we feel safe in saying that among the men constituting a troop there would be found a by no means inconsiderable number who would never become expert riders, and who, if armed with long lances having sharp butts, might, in a charge at high speed, do most serious injury to their comrades and horses. And if these same men, or even more expert riders, should attempt in the charge to spit an infantryman lying on the ground, is there not a decided chance that the lance would miss the object at which it was aimed, and, becoming imbedded in the ground, unhorse its bearer? Those who may have ridden at rings with a lance know how very easy it is to miss the mark when going at speed.

Another awkward feature of the lance is, that after the first shock comes the period of hand to hand fighting, when the lance could not be used with much effect. The pointed butts might help a little, but what show would a man, holding by the middle of a ten

foot pole sharpened at both ends, have in such a *mêlée* against an expert swordsman or a good revolver. To be sure the lancers are armed with sabers for such contingencies, but during the time consumed in dropping the lance and drawing the saber, which may be some little time in the crowding and confusion, the trooper will be absolutely defenceless. The proposed remedy for this is to have only the front rank armed with the lance and the second rank with the saber. But since in advancing to the charge the vacancies which may occur in the front rank are supposed to be filled from the rear rank, by the time the objective was reached there would no longer be presented that unbroken line of lances to the moral effect of which so much importance is attached.

How long the present enthusiasm in Europe on the subject of this weapon will endure is yet to be determined. The young ruler of Germany is very much prejudiced in its favor, and so long as Germany persists in it, all the other nations, excepting Russia, are likely to follow suit. It may gradually die away or it may exist until the next war settles the question, in so far as it can be settled, either for or against the weapon. But in the meantime we may be allowed to persist in the belief that the theoretical armament of the American cavalryman is the best in the world, and if we can have long range magazine carbines, efficient revolvers and a saber that has a point sharp enough to penetrate at least the clothing of the adversary, other nations are welcome to surround each and every individual cavalryman with a forest of lances, if they so desire.

FORT MONROE, VA., June 18, 1892.

CAVALRY UPON THE FIELD OF BATTLE; BY LIEUTENANT-COLONEL PREJENTSOFF, OF THE GENERAL STAFF OF THE RUSSIAN ARMY.

TRANSLATED FROM THE RUSSIAN,
BY FIRST LIEUTENANT GEORGE W. READ, FIFTH CAVALRY.

III. THE FRENCH CAVALRY IN THE TIME OF LOUIS XVI., THE REPUBLIC, THE CONSULATE, AND THE FIRST EMPIRE.

WHILE the cavalry of FREDERICK THE GREAT was being so rapidly improved, in France and Austria this arm of the service remained in the same condition as during the Seven Years' War.

Up to 1750 the French cavalry was placed upon the flanks in the general order of battle, with battalions of infantry in square on the outward side to support it by their fire. It met the attack of the enemy at first with fire and then with the *arme blanche*. The Austrian cavalry in most cases acted in precisely the same way. In the minor operations of war the French cavalry was considerably more energetic and mobile than the Austrian. Many of the French generals of the period gave special attention to the correct training of the cavalry in time of peace, and to the development of its ability to use the *arme blanche* upon the battle-field.

The views of Marshal SAXE, a contemporary of FREDERICK THE GREAT, serving in France, in regard to training cavalry in time of peace, are highly instructive. Among other things on this subject he says in his "Rêveries":

"In order that cavalry may be mobile it must be mounted upon horses inured to work, and must have the most limited baggage. Under no circumstances should an attempt be made to fatten the horses. In Poland I had a regiment of German cavalry with which I made more than 3600 miles in the course of eighteen months, and I can affirm that at the end of that time this regiment was in better fighting trim than any other with fat horses; but the horses must be inured to work gradually, and should be strengthened by long rides and

spirited drills, which will improve their health and endurance. In this way only can the cavalry always be fully prepared for war. All this also improves and trains the personnel and prepares it for battle. Cavalry should also be exercised in the gallop and charge, by deployed squadrons, afterwards passing gradually to a slower gait. It will not suffice to execute cavalry maneuvers only once in three years, and then maneuver at the slower gaits for fear of making the horses sweat. I affirm that if a horse is not worked much in time of peace and is not trained to endurance, he is exposed to many accidents in campaign, and in the end will refuse to perform service."

These views of Marshal SAXE cannot be considered obsolete; they are so correct that it can only be regretted that what he advocated is to-day forgotten, and that in time of peace the cavalry puts forth claims of quite another character. Time was necessary to prove the soundness of the cavalry system established by FREDERICK THE GREAT, and to make the proper application of his fundamental principles understood.

The renown of the brilliant deeds of the Prussian cavalry upon the battle-field compelled other rulers to attend to the proper training of their cavalry in time of peace, and to its proper use in action. And, indeed, they gradually began to imitate the system of training of the Prussian cavalry, giving attention to individual instruction; the troopers were taught the progressive attack, taking the trot at one hundred paces from the enemy, but afterwards increasing the gait, and at thirty paces passing to the gallop.

Marshal SAXE considered this insufficient, and claimed that the attack should be made, as with FREDERICK THE GREAT, at the most rapid gait. "*Squadrons which are not in condition to attack from 2000 paces at full speed without being broken,*" wrote the Marshal, "*are good for nothing for war; the Prussian cavalry does it easily.*"

To attain good results in the instruction of cavalry, Marshal SAXE considered it indispensable to make long rides even in winter, and to drill at the more rapid gaits at least three times a week. He gives the following advice: "*In time of peace, tire the men and horses as much as possible, for it is only in war that it is necessary to save them.*"

The Marshal criticises the order of battle of the period on the ground that mutual support was not given by the intermixed infantry and cavalry. "If the cavalry is turned back," says he, "the flanks of the infantry are uncovered and the battalions upon the flanks of the cavalry must be considered lost." He proposed the placing of separate bodies of infantry in square behind the second line of the cavalry, to serve as a final support as well as a rallying place.

It is impossible to pass over in silence the views expressed by Count HEBERT in his "*Essai de Tactique*," which appeared in 1773:

"In the less civilized nations, cavalry has always been the first arm of the service; in the more enlightened ones, although it has passed to second place it yet forms an indispensable part of the army and often has decisive importance in battles. Improvements in the art of war give a greater scope to infantry than to cavalry; infantry being capable of all kinds of fighting, in all seasons, day and night, and upon all kinds of ground, can act independently; but cavalry is adapted to but one kind of fighting and to ground which is known to be favorable, and therefore it cannot be used without infantry. I consider cavalry the second arm of the service," says HEBERT. "I acknowledge, also, that it must form an indispensable part of every army."

"In fact, the cavalry often decides the fortune of battle, makes it possible to more fully reap the fruits of victory, and protects the defeated infantry; it exclusively performs the scouting service, and upon it are imposed all operations in which celerity of movement is essential."

"Infantry, it is true, could operate without cavalry, but all its movements would be extremely sluggish; it would risk being often stopped unnecessarily, and would meet with accidents. Cavalry without infantry could not take advantage of the results of its success and strengthen itself at the points occupied; but in general, cavalry should rather be few and good than the reverse."

"The greater the improvements in the art of war, the more convincing is the truth that cavalry needs special training and must be maintained in time of peace in the same numbers as in war. Cavalry in battle acts in the attack by shock alone; its fire has very little effect upon the enemy. Capable of moving quickly from one point to another, it can quickly change the course of events, but in order to preserve this ability, it must not be weighted down with equipment and armament, nor impeded by a variety of complicated formations."

"While moving to the attack, cavalry acquires strength of shock, which depends chiefly upon rapidity and the number of men in the first rank; in order to increase the strength of shock in a cavalry attack, it is necessary to increase not the depth of formation but the rapidity of movement. The usual formation of cavalry should be in two ranks, not because the second rank can increase the strength of the shock, but because it is necessary to make good the losses of the first rank and thus preserve its intervals. The strength of a

squadron should be from 150 to 160 horses, for the cavalry fight is not decided by a frontal but by a flank attack, and therefore squadrons of the less strength are better adapted to envelop the enemy's flank, preserving the better order for the shorter front.

"Much time is necessary," says HEBERT, "to make a good trooper with a firm seat on his horse, and the ability to manage the worst. It is only after a service of some years that a soldier becomes a trooper who will acknowledge nothing as impossible for himself and his horse."

"Cavalry is the arm of inspiration; it is necessary to grasp the situation and to choose an auspicious moment both for the maneuver and for the attack. *In a cavalry fight, all depends upon the commander, who must possess an accurate coup d'œil and experience.* There is still a great deal to do for the cavalry; it is necessary to solidly establish the principles upon which it shall be organized, to determine its battle order, to simplify its formations, and to seek to have them assumed with the greatest rapidity and boldness."

These views of General HEBERT at first had many enemies, but it was finally understood in France that it was necessary to improve the training of cavalry during peace, and it began to be taught—not to shoot, but to execute an attack in deployed order. Efforts were also made to develop great mobility and skill in using the *arme blanche*.

At that time particular attention was given to instruction in horsemanship, special schools were founded, and in many places garrisoned by cavalry regiments the manège was established. In other words, in imitation of FREDERICK THE GREAT, a more careful individual instruction of the troopers was begun.

At the beginning of the Revolution, new principles in the conduct of war appeared in the French army. Not being able to stand against the well formed and tactically well instructed troops of their enemies, the French devised a new kind of fighting which permitted them to avoid any decisive engagement. Military operations assumed the character of a multitude of small skirmishes which might be renewed daily without producing important results. Such fighting of course required an abundance of men, and could only be carried on in close country.

There was no deficiency of men in France, and notwithstanding the steady decrease, bodies of irregular troops could be formed instantly; therefore it was possible for the Republican armies to oppose masses to the skill of the enemy.

As it was difficult to provide such an army with all the neces-

saries and to subsist it from magazines, the French renounced the existing systems of supply and required the country where military operations were being carried on, to furnish all that was needed by the soldiers, who were without kettles, tents, baggage trains, and even provisions and clothing. There was neither time nor means to train this huge army, and therefore the personnel of the bodies of irregular troops could be improved only by the daily skirmishes with the enemy. In reality, however, the masses which had received no training in time of peace but uninterrupted training in fighting with the enemy, began, little by little, to win some success.

That to which necessity involuntarily, so to speak, gave rise in 1792, was approved by the citizens in the following year.

In his report in 1793 to the Committee of Public Safety, CARNOT says with respect to the system of operations in the war:

"The number of soldiers must be doubled, so that in spite of the inevitable losses, and without being troubled in regard to promptly making them good, all the efforts of the military skill of our enemies may be opposed by masses. Nothing can be easier than to conduct the war by masses, i. e., to surpass the enemy at all points in numbers and artillery. We must always wage an offensive war. The generals must be charged, as a sacred duty, with fighting at the head of the columns and with being an example of courage and self-sacrifice to their men, accustoming them never to consider the enemy, but to promptly attack him with the bayonet without being checked by firing and maneuvering, in which our soldiers are insufficiently, or rather say, not at all trained. Moreover, this kind of warfare is quite natural to the character of the Frenchman, to his dexterity and vivacity, and should gain us the victory because its novelty will embarrass the enemy."

In consequence of the adoption by the French of the new principles for conducting military operations, the battle itself became more movable. The Republicans, scattered by whole battalions in crowds of skirmishers, and having dense columns behind them, acted as light infantry supported by light artillery. *Like the infantry, all the cavalry was transformed to light.* Heavy regiments, while still so designated, acted as light.

In the first wars of the Revolution cavalry was rarely present on the field of battle, as it was too poor in composition, and without proper training. There was no time to train it properly, and the masses of the French people were far from abounding in natural cavalymen; moreover, at that time, French horses were almost worthless at best. Consequently the cavalry of the Republic seldom took part in the fighting, but was found for the most part in reserve behind the line of battle, or was sent from the field to perform the minor operations of war.

By the decree of 1793 the organization of the French cavalry was defined as follows: Twenty-nine regiments of heavy cavalry, four squadrons in each, 177 horses to the squadron; two regiments of carabineers and fifty-four regiments of light cavalry, composed of twenty dragoon regiments, four squadrons in each, 225 horses to the squadron; twenty-five chasseur regiments, four squadrons in each, 220 horses to the squadron; and eleven hussar regiments, four squadrons in each, 250 horses to the squadron — in all 332 squadrons, about 60,000 horses.

Organized at first upon the model of FREDERICK THE GREAT, the horse artillery consisted of eight regiments (4000 men); each regiment had six batteries, with six guns and eighty cannoners to the battery — in all 288 guns, or almost five guns per 1000 cavalry.

Infantry, artillery (foot and horse) and cavalry entered into the composition of the division which, at the time of the Revolution, was the established independent tactical unit; in each division were four demi-brigades of infantry (twelve battalions), one dragoon regiment (four squadrons), one chasseur regiment (four squadrons), one battery of foot artillery with six guns, and one battery of horse artillery with six guns — making twelve battalions, eight squadrons, six foot guns and six horse guns; in all about 12,000 men, the proportion of cavalry to infantry being one-sixth.

Such an organization was favorable to mobility, and made it possible to undertake more decisive operations, though the distribution of two regiments to a division lessened the importance of the cavalry, and limited its use upon the battle-field.

There were no independent bodies of cavalry of importance, and the chief function of this arm was lowered to the minor operations of war and to service with the infantry. The absence of cavalry from the field of battle soon illustrated all the disadvantages resulting from its apportionment among the divisions, and therefore at the beginning of the campaign of 1797, General HOCH, commanding the forces upon the Sambre and Moselle, began to consolidate the cavalry into strong units, and to form entire divisions of hussars, chasseurs and dragoons. General BONAPARTE, commanding the Army of Italy in 1796 and 1797, also frequently detached the cavalry regiments from the divisions of the three arms, to obtain a cavalry reserve, with the object of using this arm in masses upon the field of battle.

From what has been stated it is seen that at the time of the Revolution the French cavalry lost all importance upon the battle-field, not in consequence of the efficiency of fire-arms and of the

impossibility of attacking infantry, but on account of its good for nothing composition and the absence of training in time of peace. The organization of divisions with tactical independence caused the French cavalry to lose all importance in battle, converting it into an auxiliary, a secondary arm of the service; but afterwards the first plan of the new principles in regard to the reciprocal action of the three arms was abandoned. The First Consul appreciated the importance which may be attached in battle to the union of the three arms of the service in bonds of the closest intimacy among themselves, and therefore found a method of deriving from this the greatest advantage in attaining the final end. General BONAPARTE, like FREDERICK THE GREAT, found a suitable place for cavalry in battle, and if it did not appear to him as the sole decider of the engagement, it was at any rate not considered a secondary arm of the service.

The changes which took place in the battle formations of the infantry and artillery, and the great efficiency of fire, were bound to have an influence upon the leading of cavalry in action. In the battle formations, cavalry was no longer placed upon the flanks but behind them in echelon or in the second line, in order that its commanders might not allow the favorable moment for an attack to escape them, and might not be in want of orders from higher authority.

For the first time in the epoch under consideration, the French cavalry took a more prominent part in action at Marengo, in 1800. In this battle the glory of the victory belongs chiefly to the cavalry, which, in close conjunction with the infantry and artillery, exercised a decisive influence upon the results of the day by its attacks upon the infantry and cavalry of the enemy.

As the use of cavalry at Marengo was in an entirely different situation than in the time of FREDERICK THE GREAT, we consider it necessary to touch upon this battle somewhat in detail. Undertaking a sudden descent upon Italy from the snowy summit of the Saint Bernard, the First Consul could not have a suitable proportion of cavalry with his army. The formation of this expeditionary army was effected with great secrecy, and it was therefore unsafe to fill up the cavalry in good time by the purchase of horses or to concentrate it at the starting point in greater numbers. Under these circumstances, General BONAPARTE was limited, in the composition of his force of 50,000, to about 7000 cavalry, *i. e.*, one-seventh part.

After the movement on Milan, when General BONAPARTE came out to meet the Austrians under General MELAS at Marengo, he had

in his army the following cavalry commanded by General MURAT, *viz.*: five regiments with infantry brigades (one heavy regiment, one of dragoons, one of chasseurs, and two of hussars), one squadron of grenadiers and one squadron of chasseurs of the Consular Guard, aggregating 1461 horses, and three separate bodies: General KELLERMAN's, composed of three heavy regiments, in all 470 horses; General CHAMPEAUX's, of three dragoon regiments, 998 horses; and General RIVAUD's, of two regiments, one of chasseurs and one of hussars, 759 horses in both; making a total of forty squadrons, about 3688 horses, which in proportion to the 23,790 infantrymen taking part at Marengo, was about one-sixth.

Approaching the village of San Giuliano (map 4), on the 13th of June, the First Consul immediately sent out cavalry to reconnoiter. The French cavalry while dislodging the advanced posts of the Austrians as far as the river Bormida, discovered a force of the enemy in the village of Marengo, which was immediately reported. In consequence of this information, General BONAPARTE ordered General VICTOR, with the advanced guard division to take the village, which was accomplished, the Austrians being driven back to where the Tortona Road crosses the Bormida. The pursuit by the French was checked by a strong artillery fire from a *tête de pont* constructed by the Austrians on the right bank of the river. VICTOR fell back a little to the village of Pedrobona.

In the evening of this day the French army of forty-five battalions and forty squadrons, under command of General BONAPARTE, occupied the following places: General VICTOR with two divisions as the advance guard, had the division of GARDANNE (3600 men) at the village of Pedrobona across the high road from Alessandria to Tortona, in front of the *tête de pont* at the Bormida occupied by the Austrians, and the division of CHAMBARLHAC (5200 men), and the cavalry brigade of KELLERMAN in the village of Marengo. General LANNES, with WATRIN's division (5000 men), and the cavalry brigade of CHAMPEAUX, occupied the village of San Giuliano, about four and a half miles behind; and still further, about nine miles from Marengo, at the village of Torre di Galifolo was General BONAPARTE with the Consular Guard (1200 men), and the division of MONNIER (3600 men); General DESAIX with BOUDET's division (6000 men), was at Rivalta, on the road to Novi, about six and a half miles south of Torre di Galifolo, to impede the Austrian movement on Genoa; and RIVAUD, with a cavalry brigade was in observation on the extreme right flank at Salé, about ten miles north of Torre di Galifolo. The Austrian army, about 35,000 strong (of which number about 7000 were cav-

alry), was concentrated upon the left bank of the Bormida in the fortress of Alessandria, and occupied the tête de pont on the right bank of that stream upon the road to Tortona, with a strong advanced guard.

The plain of Marengo, where the battle took place upon the following day, lies between the rivers Scrivia and Bormida, and extends from west to east for about nine and a quarter miles. It is intersected by three highways leading from Alessandria to Pavia, to Piacenza through Tortona, and to Genoa. To the east of the Bormida, near and parallel to it, the brook Fontanone flows in a strong and rather deep channel. Two miles east of the Bormida bridge, on the road from Alessandria to Tortona, is the village of Marengo, the buildings of which are mostly of stone. Northeast of Marengo, on the road from Alessandria to Pavia, is the village Castel-Ceriolo, upon an elevation commanding the entire locality. Between these villages and the Scrivia, the plain presents an entirely smooth surface, with no local obstacles, excepting here and there a village or a vineyard, so that it would be hard to find more favorable ground for cavalry operations, and it could be seen in advance that this arm of the service would possess decisive importance in the battle which was imminent for the following day.

At sunrise on the 14th of June the Austrian army set out from Alessandria, and about eight o'clock in the morning, having completed the crossing of the Bormida by two bridges, debouched on the plain of Marengo in three columns. The right column, General O'REILLY, four battalions and six squadrons strong (2800 men and 800 horses), moved up the Bormida in the direction of Stortigliona; the middle under the immediate command of MELAS, and comprising twenty-eight battalions (14,200 men), under Generals HADDICK and KAISN, and twenty-two squadrons (3700 horses), under General ELSWITZ, moved directly on Marengo; the left column, General OTT, of sixteen battalions (6800 men) and six squadrons (740 horses), was directed on Castel-Ceriolo. Seventeen squadrons of the general strength of the Austrian army were detached from the field of action and dispatched towards Cantalupa.

Having received a report of the Austrian advance, Victor deployed CHAMBARLHAC's division in a semi-circle in two lines, with the right flank at Marengo and the left on the brook Fontanone, with the cavalry brigade of KELLERMAN behind the left flank. The columns of the Austrian advance guard under O'REILLY began the fight at Pedrobona with GARDANNE's division, and soon forced it to retire to Marengo, where it connected its left flank, prolonging the battle

order of CHAMBARLHAC to the right. Thus the foremost French divisions were in order of battle at the village of Marengo, having in their front the quite difficult, though fordable, brook Fontanone. In view of the greater accessibility of the left flank, a French cavalry brigade was placed behind it. Up to 11 o'clock in the morning the fighting was for the crossing of the Fontanone; the French obstinately resisted the attempts of the Austrians to cross the brook, and this obstinacy was increased when LANNES came up on the right flank with WATRIN's division, having the cavalry brigade of CHAMPEAUX echeloned to the right rear.

The position of the French cavalry was entirely suited to the ground, and while securing the flanks, made it possible more than once to coöperate with the infantry; for example, about 11 o'clock in the morning, when the Austrian dragoons completed the crossing against the left flank of the French, they were immediately attacked by KELLERMAN and thrown back beyond the brook. Up to noon the attack of the Austrians was checked, but after that, with the arrival of reinforcements and the successful building of a bridge across the Fontanone opposite Marengo, the French, being without reserves, began to waver. The position of the French troops at Marengo became critical when their left flank was turned by General O'REILLY, about 1 o'clock in the afternoon, and General OTT, who had moved upon Castel-Ceriolo without continuing the advance towards Sale, deployed within gun-shot on the right.

The numerous Austrian cavalry operated energetically though unsuccessfully against the flanks of the French battle-order, but the enemy's infantry, more and more reinforced by arriving troops, pressed in front more persistently.

VICTOR and LANNES, having against them forty-eight Austrian battalions, were soon in no condition to hold the position occupied; orders were therefore given for the retirement of the twenty-seven and one-half battalions which had already undergone three hours' fighting. The French infantry began to retreat by echelon from the left, in full order, sometimes halting and defending itself by firing and always covered by its cavalry. The cavalry brigade of General KELLERMAN followed, screening the infantry in its front from the enemy, and in spite of the heavy infantry and artillery fire of the Austrians, moved at a walk, by platoons, wheeling about whenever it appeared to be necessary to check somewhat the pursuit, by an attack, and thus deprived the pursuers of all trophies. The right flank of the retreating French was also actively protected by the cavalry brigade of General CHAMPEAUX.

During the retreat of the divisions of LANNES and VICTOR, General BONAPARTE, with the Consular Guard and the division of MONNIER, (nine battalions), arrived upon the field between 1 and 2 o'clock. The arrival of the First Consul, although it improved the morale of the French army, did not change the course of the battle. General BONAPARTE, seeing that it was infeasible to resist the Austrians with a front so superior to him in strength, ordered the division of MONNIER to move to the right of LANNES and hold the position of Castel-Coriolo with a view to attracting the attention of the enemy and of checking somewhat the attack of the Austrians against the front. At the same time an order was sent to DESAIX to hasten to the field of battle. General MONNIER took the village of Castel-Coriolo and drove a few Austrian troops to the Bormida, but without influencing the operations of the enemy's center, which continued the attack with its former persistence. To fill the gap between the right flank of LANNES and the division of MONNIER, the Consular Guard, with a few squadrons of CHAMPEAUX's brigade, was used. This model French force stubbornly repelled the attacks of the infantry and cavalry of OTT's Austrian columns; but, crushed by the numbers of the enemy and with a loss of one-fourth its strength, it was obliged to retreat; whereupon, forming square and placing its wounded inside, it began a gradual movement in the direction of San Giuliano. After the Consular Guard followed the division of MONNIER, and thus the French army in all its parts retreated under the pressure of the numerous enemy, bestrewn by the shells of the artillery and attacked in front by infantry and upon the flanks by cavalry. The battle seemed lost. That the French army was not dispersed by the considerable Austrian cavalry, thanks were due only to the brigades of KELLERMAN and CHAMPEAUX, which sacrificed themselves to save the infantry.

The Austrians, having gained such a victory, passed from order of battle into columns of march for the pursuit, the main body moving along the high road to Tortona. General MELAS, wounded during the battle, returned to Alessandria in order to send word to Vienna of the victory gained over the French, and the chief command passed to General ZACH. At this time the First Consul received a report of the appearance of the head of DESAIX's column at San Giuliano. This was about 5 o'clock in the evening.

General BONAPARTE immediately determined to check the enemy, and, assuming the offensive, to wrest the victory from the grasp of the Austrians. The French troops occupied the following positions: DESAIX, with BOUDET's division of nine battalions (5800 men), was

placed in front of San Giuliano; his infantry, covered by hedges and vineyards, occupied a position on the right and left of the high-road to Tortona and formed the left flank of the order of battle, having two regiments of cavalry in echelon on its left; 500 paces to the right of BOUDET's division was the cavalry brigade of KELLERMAN, numbering in all 150 horses; it covered a twelve-gun battery established by MARMONT to sweep the road. Three other squadrons were soon after added to KELLERMAN's force, so that he was able to count 400 horses. Within cannon shot to the right of KELLERMAN were posted the chasseurs of the Consular Guard, numbering 600 horses. Behind the brigade of KELLERMAN were collected the fragments of the divisions of GARDANNE and CHAMBARLHAC. The division of MONNIER, with the infantry of the Consular Guard, formed the right flank; in the center was LANNES with WATRIN's division. In the rear, General DUPONT rallied the disorganized French troops to form a reserve.

Meanwhile the Austrians continued the attack with the main body in column of march, without special precautions, on the high-road to Tortona. Upon the left flank of the main body were six regiments of cavalry, and to the left of them, about three and a quarter miles, in the direction of Salé, moved the column of OTT; O'REILLY followed on the right flank. They numbered in all about 20,000 men, with eighty guns and 5000 cavalry.

To these forces of the enemy, General BONAPARTE was able to oppose 5000 who had not been in the battle and 5000 who had taken part and were arranged in order, with twelve to fifteen guns and 1000 cavalry.

No sooner did the Austrian troops reach the line of the village Cassina-Grossa than they were met by the fire of BOUDET's division, which forced them to deploy. Taken by the cross-fire of MARMONT's artillery, the Austrians were stopped; their first line retreated upon the second, and immediately afterwards the Austrian grenadiers were attacked by the French cavalry regiments of BOUDET's division. The attack was unsuccessful, whereupon the Austrian grenadiers assumed the offensive, and in view of their increased reinforcements, might finally have brought about the full and conclusive defeat of the French army; but this did not happen, because the French cavalry was able and was not afraid to attack the enemy's infantry, and to sacrifice itself for the relief of its own infantry, and because the cavalry generals of the French army possessed sufficient independence, understood the situation of the battle, and did not need directions from higher authority in regard to what was necessary to be done.

As soon as General KELLERMAN, who, with his brigade in order of battle, was upon the right flank, and somewhat covered by vineyards, observed the approach of the enemy, he deployed his brigade and commanded: "By platoons, to the left; march!" The attack was made at exactly the right time; it checked the Austrians, cut up a few of their battalions, and threw the remainder into great disorder. The trophies of the fight were the capture of General ZACH, six colors and four guns. The shock of the French cavalry had a decisive effect, and served as a signal for the French troops to assume the offensive. The second brigade of BOUDER's division broke through the enemy's center and cut him in two; at the same time KELLERMAN, with 200 horses, on the approach of the Austrian cavalry from the right, changed front and rushed upon the enemy; the Austrian cavalry retired without awaiting the attack. Reinforced afterwards by the cavalry of the Consular Guard, General KELLERMAN moved against the main body of the Austrian cavalry, detained up to this time on the road to Salé by the French cavalry brigade of RIVAUD. About 2000 Austrian dragoons were overturned upon the column of General OTT, which was thrown into great disorder. The hitherto victorious Austrian army, in complete confusion, began to retreat, and found safety only upon the banks of the Bormida, within the fortifications, after crossing that stream. The column of OTT fell back upon Castel-Cerolo, and afterwards beyond the Bormida.

The losses of the adversaries in this battle were as follows: The Austrians, 963 killed, including fourteen officers; 5518 wounded, including five generals and 283 officers; 2921 captured, including General ZACH and seventy-four officers; the Austrian cavalry lost 1493 horses. The French had 1100 killed, including Generals DESAIX and CHAMPEAUX; 3600 wounded, including three generals, and 900 prisoners.

Such was the battle of Marengo, which lasted thirteen hours, and which shows what wonders can be accomplished upon the field of battle by cavalry having at its head experienced and resolute generals.

Concerning the use of the cavalry in this battle, it may be said that the Austrians were unable to take advantage of their numerical superiority in this arm of the service. The Austrian cavalry, the administration of which was not united in a single hand, set out from Alessandria mixed with the infantry columns, and completed the passage of the Fontanone under the enemy's fire; but afterwards, caught in the sac between the villages of Marengo and Castel-Cerolo and the brook Fontanone, it was impossible to take advan-

tage of its numbers and of the favorable conditions of the locality. The sending of the seventeen squadrons from the field of battle only weakened the Austrian troops.

The action of the French cavalry was above reproach; in the general order of battle it occupied the most suitable position, covering the flanks of the infantry and protected by the latter from a front attack. Controlled by a single chief, it could always exert its influence, and in masses. The brigades of KELLERMAN and CHAMPEAUX were in line of battle all the time and did not allow a single favorable movement to escape for the attack of either the cavalry or infantry of the enemy. When the French infantry wavered and began to retreat, it was covered by the cavalry, which acted with so much energy that the attack of the still undisordered Austrian infantry was temporarily checked. The French infantry retreated in order, thanks only to the exemplary conduct of its cavalry, and when the infantry was reinforced and again assumed the offensive, the French cavalry attacked both the infantry and cavalry of the enemy and cooperated so effectively with its army that General BONAPARTE was enabled to gain a complete victory. At the beginning of the battle General KELLERMAN's brigade numbered 470 horses; at the end, in all only 150; but losses did not weaken this body of cavalry in the hands of its experienced chief, and when necessary, it continued to protect its infantry with its former energy, and in a brilliant manner performed the functions of cavalry upon the field of battle.

The operations of the cavalry at Marengo clearly showed the First Consul that this arm of the service, by its suitable use in battle, could contribute immensely to the victory; therefore, General BONAPARTE, like FREDERICK THE GREAT, immediately took measures for the proper training of the cavalry in time of peace, and at the same time urged on, by means of the joint instruction of his cavalry with the other arms, the strengthening, as far as possible, of close relations between the different arms of the service.

The First Consul also gave attention to the development in all cavalry formations of the greatest flexibility and of the capacity for rapid maneuvering. Afterwards, while he was Emperor, NAPOLEON considerably increased the cavalry. In 1796 it composed one-tenth of JOURDAN's army, and one-twelfth of MOREAU's; but in the middle of NAPOLEON's reign, its numbers reached one-fifth and even one-fourth those of the infantry. The French cavalry at the time of the Empire was organized as the heavy: Carabiniers, cuirassiers, and horse grenadiers; the line dragoons. And the light: Hussars, chasseurs, chevaux-légers, guides, and guard of honor. In 1804 there

were in all seventy-eight cavalry regiments of four squadrons each, viz: Two regiments of carabineers, of 640 horses each; twelve of cuirassiers, of 640 horses each; thirty of dragoons, of 888 horses each; twenty-four chasseurs, of 832 horses each; and ten of hussars, of 640 horses each; aggregating, according to the returns, about 62,000 horses. The heavy cavalry and the cavalry of the line were used as a reserve; but the light, consolidated into divisions, though sometimes only into brigades (of two or three regiments), formed part of the newly organized corps of the three arms of the service, and was also added to the reserve cavalry for the performance of the security and information service. Cavalry was omitted from the composition of infantry divisions.

According to the statements of military writers, the composition of the French army, in 1805, was excellent in every respect, especially as far as the cavalry was concerned. The latter, with the experience of the Revolution, was well instructed and possessed great mobility and capacity for operations with the *arme blanche*. Its commanders were experienced generals, who understood the function of their arm of the service. The infantry, intimately acquainted with the efficiency of its cavalry in the preceding wars, regarded it with great respect. The First and Second French Corps had each at this time a light cavalry division of two brigades; the Third, Fourth and Fifth Corps, a brigade; the Sixth Corps, not a complete division. Most of the brigades of light cavalry had one regiment of chasseurs and one of hussars. The reserve cavalry, under chief command of General MURAT, comprised two divisions of heavy cavalry and four of dragoons. The cavalry of the Guard, General BESIERES, numbered 2500 horses. The entire cavalry comprised 40,000 horses, of which 18,000 were light cavalry and 22,000 reserve, and constituted one-fifth part. In the reserve cavalry was also a division of foot-dragoons.

This organization of the cavalry lasted almost without change during the years 1806 and 1807.

The greatest strength of the French cavalry was attained in 1812. In the French army which crossed the Niemen in the middle of June of that year, in number 480,000, there were 80,000 cavalry, i. e., one-sixth. Each of the eleven corps had a light cavalry division of 2500 horses; in the cavalry of the Guard under command of Bessieres were 8000 horses, and the reserve cavalry under MURAT consisted of four corps: The First, NANSOUTY, of three divisions, 12,000 horses; the Second, MONTBRUN, also of three divisions, 10,000 horses; the Third, GROUCHY, of three divisions, 6654 horses, and

the Fourth, LATOUR MAUBOURG, of the Polish, Saxon and Westphalian divisions, in all 7684 horses, and 6000 horses of the corps of SCHWARZENBERG.

In the campaigns of 1813, 1814 and 1815, the cavalry of the French army was of poor material and very inferior in numbers, which were only one-fourteenth or even less, of that of the infantry, and could have but little effect upon the battles of this period, making them unfruitful of results in a majority of cases, in spite of the complete success of the infantry and artillery.

With the formation of strong cavalry units, NAPOLEON gave close attention to inspiring them with the greatest independence in order that they might not require frequent aid from the infantry.

Uniting cavalry with horse-artillery was considered by NAPOLEON to give greater scope to its activity, and hence it could be charged with more serious problems.

In analyzing the battles of NAPOLEON I. in the course of his long and continued wars, one is struck with the fact that the French cavalry took a most active part in them both before and during the battle; for the most part, also, it finished the success by a pursuit upon the field of battle and upon the theater of war. In battle the French cavalry attacked the enemy's infantry, cavalry and artillery; its chiefs knew how to choose the favorable moment for the attack, and when circumstances required, did not spare their arm of the service. Before a battle the light cavalry usually made a reconnaissance, sometimes running foul of the cavalry of the enemy; but in case of a considerable superiority of the latter, it quickly retired, either through the intervals of the infantry or around the flanks. The reserve cavalry was grouped in the second line, or even in the third, and was frequently upon the flanks of the battle-order of the infantry, where the locality presented facilities for cavalry operations.

We do not meet with reproaches on the part of contemporaries in regard to the inaction of the French cavalry of the Napoleonic era upon the field of battle; on the contrary, this cavalry frequently sacrificed itself to save the other arms of the service, and operating side by side with the infantry, earned the entire confidence of that arm.

The Duke of Wellington thus characterizes the action of the French cavalry in battle in the time of NAPOLEON I.: "NAPOLEON used his cavalry, supporting it properly with his numerous artillery, to seize in time the position which he afterwards occupied with infantry or artillery; he directed the cavalry around the flanks of

the battle dispositions of the enemy, thus influencing the morale of the latter."

The attacks of the cavalry had the object of checking a dangerous movement of the enemy, or of subduing his obstinacy at the point attacked, and were always supported by the artillery and infantry, which secured the success obtained by the cavalry. For the most part the masses of the French cavalry attacked in regimental or brigade columns, i. e., by deployed regiments or brigades immediately following one another. On those occasions when it chanced to pass through the intervals of the infantry, the attack was made in close column.

With respect to the position of the cavalry masses in the general order of battle, definite orders were not given by NAPOLEON I., as it was found to depend upon the locality, the enemy and the object of the action. In analyzing the battles of this epoch, however, one cannot fail to observe that in the disposition of the cavalry in the order of battle a few general principles were observed, viz: the light cavalry was usually placed upon the flanks, or upon that one which was the less secured, behind the corps to which it belonged; in the second line, and preferably in the center, the reserve cavalry was placed; farther back, and in the third line, were part of the reserve cavalry and the cavalry of the Guard, which was usually placed upon the flanks of the infantry divisions of the Guard. Such a distribution of the cavalry in the battle-order of the three arms of the service existed only before the battle, in the preparatory battle formation, so to speak; during the battle the cavalry frequently, under the personal orders of NAPOLEON, changed its position.

As above mentioned, the cavalry regiments and brigades were disposed in lines one behind another; but the cavalry corps, without being governed by fixed regulations, formed a particular order. Usually the divisions of heavy cavalry of the cavalry corps were disposed in columns with a front equal to a regiment or brigade with from fifty to eighty paces distance between the lines, consequently almost closed in mass. The light cavalry was placed on the flanks to secure them.

The favorite formation of General MURAT, who commanded the reserve cavalry in nearly all of NAPOLEON's battles, was as follows: In the first line were placed two regiments of cuirassiers with an interval of twelve paces; 200 paces behind them were four regiments of dragoons or chasseurs, of which three regiments formed the second line, with intervals of eighteen paces, and the fourth regiment divided into groups of two squadrons each, was behind the

outward flanks of the second line in columns of squadrons (map 3, fig. 1).

Both battle lines advanced simultaneously to the attack. In case the first line was overthrown, the second doubled the flank squadrons at the center and allowed the first to pass to the rear, afterwards closing and moving to the attack at the trot or passing to the gallop. Under cover of the second line the cuirassiers were rallied and became the reserve. In case of a successful attack, the four squadrons originally behind the flanks pursued the enemy.

General KELLERMAN arranged the cavalry as follows (map 3, fig. 2): The first line was formed of scouts with a small reserve. Upon the approach of the enemy, the scouts, closing towards the flanks, uncovered the second line immediately behind them, formed of dragoons or chasseurs, and which did not cover the third line of cuirassiers or the main mass of cavalry, which was 200 paces behind the second. In attacking, the cuirassiers repeated the attack of the second line, breaking through the enemy's ranks. The battle order of KELLERMAN approached more nearly the type of the order of FREDERICK THE GREAT, and was better suited to the character of cavalry fighting.

At the battle of Eckmühl, 22d of April, 1809, we meet with an order of battle entirely unsuited to the fundamental properties of cavalry. Nor does it appear alone, for it was repeated at Wagram in the same year and at Waterloo in 1815.

On the 22d of April, 1809, at the place of battle the French reserve cavalry was primarily composed of two cuirassier divisions of five regiments each, sixteen squadrons of Wurtemberg light cavalry, and twelve squadrons of Bavarian cavalry, in all about sixty-eight squadrons. All this cavalry was posted in the following manner (map 3, fig. 3): In the first line upon the right flank were the sixteen squadrons of Wurtembergers, deployed by regiments at closed distance, and to their left in the same order the twelve squadrons of Bavarians; 400 paces behind, in the second line in similar columns, were the cuirassier divisions. In the face of the collision of this French cavalry mass with twelve Austrian regiments, the Bavarians and Wurtembergers drew off on the flanks and received the formation shown in fig. 3, map 4. The French cavalry overthrew the Austrian cuirassiers, and the Bavarians dashed upon an Austrian battery, drove it from its position and carried off sixteen guns. On the same day this reserve cavalry was designated for the pursuit of the retreating Austrian army. At Egglosheim the French cavalry overtook the Austrian rear guard, which consisted of two regiments

of cuirassiers, five regiments of dragoons, and four regiments of Hungarian hussars, with 2000 infantry and fifty guns.

Notwithstanding the strong fire opened by the enemy, the French cavalry moved to the attack in the following order: The cuirassier division of NAMOURY deployed three regiments in the first line and two in the second, one hundred paces apart; upon the right flank in columns of divisions* echeloned from the center were the sixteen squadrons of Wartembergers and upon the left flank, in similar order, the twelve squadrons of Bavarians. The cuirassier division of SULPICE was placed in reserve in a third line (map 3, fig. 5).

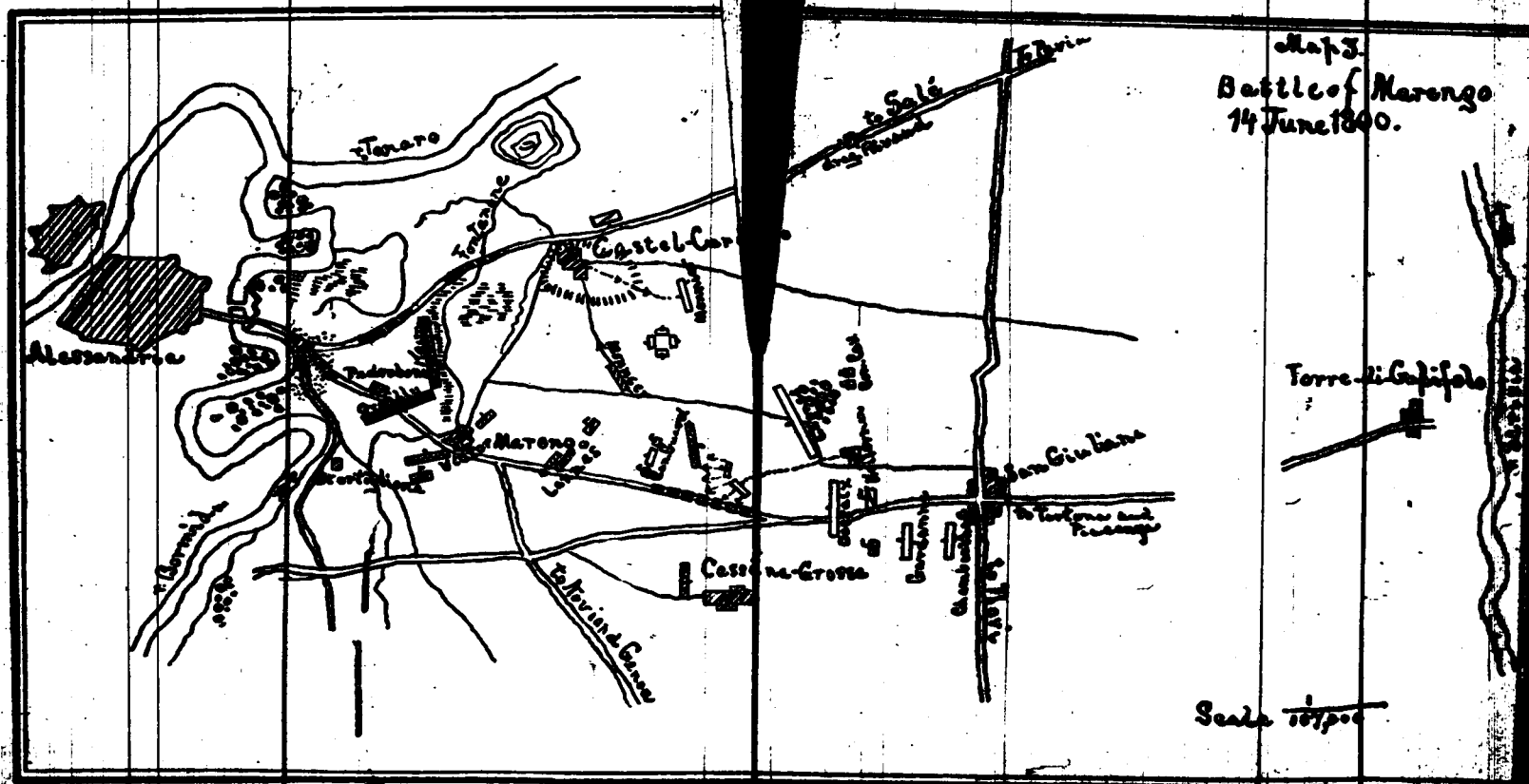
The Austrian cavalry attacked the French, having in the first line a deployed cuirassier regiment; behind the intervals came the second cuirassier regiment; the dragoons were upon the right flank and the Hungarian Hussars upon the left. The collision of these masses took place at a trot, and, according to the declarations of contemporaries, formed an unimaginably dense and disordered crowd.

From what has been stated, it is seen that the battle array of the cavalry of NAPOLEON I., gradually took a form entirely unsuited to the properties of that arm. In consequence of this the attack was made without the necessary speed, frequently at a trot, and sometimes even by opening fire immediately before the shock—rapidity of movement was replaced in too great a degree by extreme closeness and depth. The losses in cavalry making an attack were always considerable. Many military writers reproach NAPOLEON for a formation of cavalry not suited to its battle characteristics; some even consider that the French Emperor was ignorant of cavalry affairs in general and did not concern himself about them. This is probably not a well founded view, as one can hardly imagine that his military genius failed to grasp sufficiently the true function, the properties, and the correct use of cavalry in battle.

If we remember how much labor and pains it cost FREDERICK THE GREAT to train his cavalry in time of peace, and how much time was spent for this purpose, the inference may be drawn that NAPOLEON could not have good cavalry in the course of all his military operations, as there was no time to instruct it. The long continued wars, almost without interruption, practiced the cavalry in the performance of the service of security and information, but could not teach masses of horsemen to maneuver in thin lines, and at the same time made it impossible to develop a good contingent of officers and leaders.

In view of all this, the absence of the peace-time training of cav-

*As here used division means two squadrons.



Map 4.
Fig. 1.

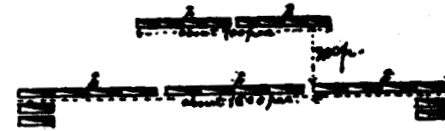


Fig. 2.

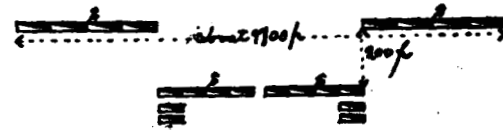


Fig. 3.



Fig. 4.

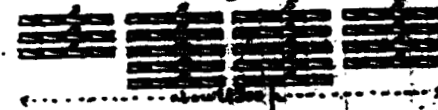
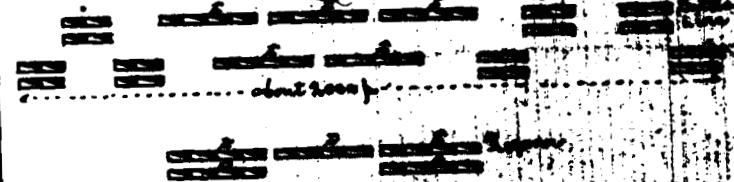


Fig. 5.



alry in maneuvering and in making a closed attack by thin lines, and generally, in consequence of the incomplete training of the individual trooper, it was ventured to change the battle-order of FREDERICK, and masses, in the original signification of the word, came to be used.

FREDERICK THE GREAT notably raised the cavalry; he made it the decider of the battle; he prescribed *a system of peace-training* by following which excellent cavalry could be formed; and with an extensive battle experience, he defined a formation for cavalry masses, based entirely upon the properties of that arm of the service.

NAPOLEON I., developed *the closest connection between the operations of the cavalry and those of the other arms of the service*, and knew from experience how much the attainment of the final end in battle is facilitated by the coöperation of the cavalry. If in the epoch of NAPOLEON the cavalry did not independently decide the battle, it always helped the infantry and artillery at the most difficult moments, extricating them from danger and developing the success gained by a most energetic pursuit of the enemy, at first on the field of battle and then upon the theater of war. It is impossible to point to one of NAPOLEON's battles in which the French cavalry was only a spectator; on the contrary, it always took an active part, and without troubling itself about losses, successfully attacked the enemy's infantry, artillery and cavalry.

We do not see this in present campaigns. Notwithstanding the most comprehensive work in training cavalry in time of peace, notwithstanding the application to it of the principles of the battle-orders of FREDERICK THE GREAT, the cavalry masses of European armies appear in modern battles as an accessory element with respect to the other arms of the service, and the main cause is to be attributed to the pernicious influence of the great efficiency of fire-arms, which paralyzes the movements of the cavalry upon the field of action.

We shall investigate the use of cavalry upon the field of battle in the campaigns of 1866 and 1870-71, and shall attempt, at least in part, to explain the causes which, besides the efficiency of small arms and artillery fire, so limited the part taken by the cavalry.

[TO BE CONTINUED.]

THE GREAT INDIAN COUNCIL: A MEMOIR OF THE DISTRICT OF THE INDIAN TERRITORY DURING THE LAST YEAR OF THE CIVIL WAR.

BY CAPTAIN T. M. SCOTT, ASSISTANT ADJUTANT-GENERAL, U. S. A.

IN THE spring of 1865 there occurred an event in the Indian country near the head waters of the Wachita River, which, in consequence of the important transactions that took place in the armies east of the Mississippi in April, attracted but little attention, but which was of vital importance at the time, and most beneficial and lasting in its results to the prosperity and continued advancement of Texas.

I purpose writing a narrative of the time, manner and consequences of that event. In doing so, nothing will be said that has already been written, except so far as may be necessary to make intelligent transactions, which, coming under my observation, have not, to my knowledge, been made public, the conclusion not having been reached until after the war was over.

During the autumn, winter and spring of 1863-64 the Texas volunteer Confederate troops being with the armies east of the Mississippi River; in the Indian Territory, Arkansas and Louisiana, the only protection on the border against incursions of roving bands of wild Indians of the mountains and plains was a cavalry regiment, under Colonel BOURLAND, stationed at Gainesville, and a battalion of like troops, under Major QUAYL, at Decatur. This force being inadequate for the defense of the long line of the frontier, the Indians entered the State, sometimes penetrating far to the interior, burned the cabins of the settlers, murdered the old men, killed or carried away captive the women and children, drove off horses and cattle, and in a general way laid waste the frontier from the Red River to the Rio Grande.

In August General GANO wrote from Fort Worth, at that time a

frontier village: "In one family the Indians killed the mother and carried off four children; in another family the wife and two children were killed and two children were mortally wounded; several men have been killed, and many herds of horses driven off."

In October General MAGRUDER requested the Governor of Texas to concentrate at Fort Belknap any troops he could control, to prevent a raid the Indians were preparing to make into the frontier counties.

Colonel BOURLAND, in December, wrote: "The number of persons killed in the last raid made by the Indians was nine citizens and three soldiers; the number wounded, four citizens and three soldiers. They burned eight or ten houses, and carried off a number of horses. The ground over which they advanced and the route along which they retreated are strewn with horses killed by them." These incidents are given to illustrate the condition of the whole length of the settled frontier.

At the same time the six semi-civilized tribes living west of Arkansas and north of Red River, whom General PIKE had induced to join the South immediately after the organization of the Confederate Government, were growing dissatisfied on account of the failure of the Confederate States to strictly carry out the treaty stipulations, and had already, by action of a grand council, held at Armstrong Academy in the Choctaw Nation, November 24th, sent a delegation of chiefs and some of the principal men of the several tribes composing the Six Nations on to Richmond, to confer with the Confederate Government.

The complaints of the Indians, and the result of the conference, will be understood by the following letter:

RICHMOND, February 22, 1864.

Israel Folsom, President of the Grand Council of the Six Confederate Indian Nations:

I have received and read with much interest your communication of the 24th of November, 1863, which conveys to me for my information certain resolutions passed by the delegates of the Six Nations, and the executives of the same, in general council assembled. The welfare of the citizens and soldiers you represent are identical with those of the Confederate States, in the great struggle in which we are now engaged for constitutional rights and independence, and you are regarded by this Government as peculiarly entitled to its fostering care.

I am, therefore, very much concerned to hear that you consider the Confederate Government has failed fully to redeem its pledges made to the Six Nations for supplies and protection. It is consolatory, however, to be assured by you that the attributed failure does

not arise from any want of good faith on our part, but from other causes which you have mentioned, and you may rest assured that those officers and agents to whom you allude as not only having neglected their duty, but perverted their authority to the commission of wrong, this Government will hold to rigid responsibility, whenever the proper proof in each case is brought before it.

Your requests, as well as your complaints, have received my earnest consideration, and I take pleasure in saying that, while it will always gratify me to be able to grant the one, I will ever most respectfully give heed to the other. All treaty stipulations between us shall be sacredly observed and carried into effect to the full extent of my power as President of the Confederate States. The policy of constituting the territory of the Six Nations a separate military department, outside the control of the Commanding General of the department west of the Mississippi, has been thoroughly considered by the Executive Government here with your delegates elect.

In pursuance of the result of that discussion, I have caused the Indian Territory to be designated a separate military district, and the Indian troops to be placed under the immediate command of General COOPER—the officer of your choice. It was thought manifestly better for the interest of all concerned that your Territory should be constituted a separate military district rather than a department, so that the Commanding General of the Trans-Mississippi Department may be responsible for the defense and protection of your district, as well as for all others under his charge, and will feel it his duty to aid and protect you with all the promptitude and efficiency that unity in the whole force will confer. This view has been presented to your delegates, and I hope, when fully explained, will meet your approval. * * *

Very truly your friend,

JEFFERSON DAVIS.

The provisions of the letter were carried into effect. Brigadier-General STEEL was relieved from command and Brigadier-General MAXEY ordered to report to General SMITH, commanding Department Trans-Mississippi, for assignment to duty as commander of the District of the Indian Territory.

General MAXEY graduated at West Point, and was assigned to duty as Second Lieutenant, Seventh U. S. Infantry, and joined his command at Vera Cruz; was in every engagement in which his regiment took part on the route to and around the City of Mexico. Was brevetted for gallant and meritorious conduct, and after the war was over resigned and settled in Lamar county, Texas, bordering on the Indian Territory. In the practice of his profession as an able lawyer he had, before the Civil War, formed an extensive acquaintance in Texas as well as among the more intelligent men of the Indian tribes along Red River. This much is said of General MAXEY, to show the character of the officer whom the people of

North Texas and the Indian Country had petitioned the President to assign to the Indian District.

The snow lay about a foot deep over the whole country, and the temperature was fearfully cold when General MAXEY arrived in the Indian District, accompanied by his adjutant general and his aid, and established his headquarters in the country house of SAMSON FOLSOM, about one mile from Fort Towson and near the Indian village of Dooksville. The Indians had fallen back to the line of Red River, and were in refugee camps along that stream and the Blue River; only a few of the Indian troops were in camp, the men being with their families among the refugees, and General GANO's brigade on duty somewhere about the Line Road.

General McCULLOCH, commanding the Northern Sub-District of Texas, had issued orders to the people of his district that if the enemy advanced from Fort Smith, they were to fall back to the interior of the State, burning and destroying everything that would benefit the enemy which could not be carried or driven away. As a consequence of this order, gloom and despondency prevailed throughout the district. The causes that to some extent created this depression were, however, the means of protection; the fearful cold and snow preventing the Federal forces from moving.

Quoting from a letter written about this time by General MAXEY to the Department Commander, he said: "It will be needless for me to say, I had to do the best I could with means wholly inadequate to the task imposed. I found the army demoralized and disorganized, and drawn back to Red River, where Nature has presented no line of defense." Notwithstanding the disadvantages with which the General was environed, within a few days he was fully informed as to the number, place and condition of his command, what supplies were on hand, what needed, and where obtainable. But few staff officers have worked harder, or more cheerfully, than those of the Indian District.

In a short time the weather grew warm, the snow was gone, and as the roads improved the results of General MAXEY's energy and activity became apparent. The people in the counties in Texas, along the Red River, well acquainted with his ability and integrity, came forward tendering wagons and teams to haul supplies. General McCULLOCH, recovering from the slough of despond into which he had fallen, seeing the improving condition of the Indian District, coöperated with General MAXEY; the refugees and troops were satisfactorily fed, and the whole country took on a more cheerful and hopeful tone.

Whilst passing through Texas en route to his command, General

MAXEY learned how the Indians were depredating along the frontier; and being informed, after arriving in the district, that there would be a grand council shortly held at which there would be a plan proposed by the United Indian Nations, whereby peace and friendship could be established between all Indians, and to win them to the side of the Confederacy, the General determined to be present at the council and so wrote General SMITH; In reply he approved the plan of visiting the Indian council, and earnestly desired him to do all in his power to cheer and encourage them.

The council met on the first day of February, and General MAXEY in his speech, in substance, told them that he was present with them in council at the request of the Department Commander, and as ex-officio superintendent of Indian affairs, commander of the Indian district and as a citizen of Texas, the frontier of which joining that of the Indian country all along its border, the interests of the two peoples were identical. He then told them that in compliance with their request made to the Confederate Government by their council held in November last, and conveyed by their delegates to Richmond, the President had directed the present District Commander while still east of the Mississippi, that when he reached the Indian country, he was to assure the people of the Six Nations that every stipulation of the treaty between the Confederate Government and the Indian tribes should be sacredly observed and carried into effect. That Major LEFLORE, their agent, was on his way from Richmond with arms specially designed for the Indian District, and that Mr. SCOTT, Commissioner of Indian Affairs, would soon reach the Indian country with funds to pay their annuity, and other moneys due the Indians. He then referred to the purpose of the council to treat with the wild Indians of the mountains and plains, approved of their plans and advised the propriety of widening its scope, so as to include Texas and the Confederate States, each of which would send delegates to the great council, and troops to secure safety should anything go wrong; would furnish beef and supplies to feed the Indians while in council, and presents for distribution in the event of a satisfactory treaty being concluded.

The speech was listened to with close attention and was well received. General COOPER, who had long been Indian agent before the war, said: "It had a most excellent effect." MOTY KANARD, chief of the Creeks at the time of the treaty, and by a secret clause, a colonel of cavalry for life, asked to have a "copy of the noble address made us on the 5th instant," stating he "would like to have

it written out and have it interpreted so they may all understand it thoroughly."

The day the council convened at Armstrong Academy, Colonel W. A. PHILLIPS commanding about 300 renegade Indian infantry and a portion of the Fourteenth Kansas Cavalry under Major WILLETTTS, left Fort Gibson on a raid through the Indian country. A few days after, on the Canadian, the Seminole battalion with inferior numbers, fought the cavalry, and were worsted, Colonel JUMPER losing eleven men. The expedition made but little impression on the country, and none on the deliberations of the council, and after committing some outrages on defenseless Indians, fell back to Fort Gibson, STAND WATIE pursuing with the Cherokee Brigade.

When the Union land and naval forces entered Red River and captured Fort De Russy, the attention of the Commanding General of the department was given alone to that expedition. All troops that could be spared were hastily concentrated on the line of Red River. The Confederate forces that had been guarding the coast of Texas, were replaced by the militia from the north and west frontiers, leaving both unprotected. General STEEL, before moving out from Little Rock to form a junction with General BANKS in his movement on Shreveport, called in all available troops from Fort Smith and the upper Arkansas River, and this relieving the pressure on the Indian District, General MAXEY was ordered to report with his command to General PRICE, then in front of Camden. A treaty stipulation, exempted the Indian troops from being taken out of their own country, but on this occasion they voluntarily rode away with the white brigade, and did excellent service in the engagements at Prairie D'An and at Poison Springs.

The removal of the militia from the frontier, which was soon known, opened wide the door for the Indians to enter Texas, and they were not slow to embrace the opportunity.

Early in May a heavy raiding party of Indians came in near the forks of Red River, heading in the direction of the Concho, depredating as they went. About Rio Hondo two citizens were killed, and in the neighborhood of San Antonio, Captain WALLACE, an old Texan, and one of the most skillful Indian fighters, was killed. A few days previously to this a party of Indians, in the same neighborhood, killed three men and drove off a large number of horses. These occurrences were not confined to Texas alone, for while the Indians were making these thieving and murdering incursions into Texas, General POPE, U. S. Army, was making preparations for an active, aggressive campaign so soon as the horses could subsist on

the grass, against the Cheyennes, Arapahoes and hostile bands of the great Sioux tribes in Nebraska, Colorado, Wyoming and Montana, who were raiding the frontiers of Minnesota and Iowa, and were, by murder and robbery, obstructing the overland emigrants on their way to the gold mines of Idaho.

General SULLY, the officer entrusted with the details of the campaign, was directed to concentrate what forces he had at Fort Pierre on the Missouri River; from there move up to the mouth of Boudache Creek, where he would be joined by a large cavalry force and some light batteries. While these preparations were being made, General SIBLEY, with a body of infantry, was sent out to establish posts along the emigrant routes. The arrangements being completed, the cavalry moved out, sweeping the country, killing or driving all hostiles beyond the line of posts. Many bands of Indians, however, slipped through or around the flanks of the driving force and fled south, where they found some buffalo grazing on the great plains of the Llano Estacado, that furnished them food, and the grass forage for their ponies, and the unprotected frontier of Texas an inviting field for their predatory incursions.

After the battles of Mansfield and Pleasant Hill, General STEEL evacuated Camden and returned to Little Rock, fighting on his way the bloody battle of Jenkins Ferry, and took up his old position in defense of the line of the Arkansas River; and the Indian and white troops withdrawn from the Indian District, returned to the Territory. Shortly after, the Six Indian Nations met to select a suitable messenger to send out to the wild tribes, as provided for in February.

After the preliminaries of lighting and smoking the pipe, they chose TUK-A-BA-TCHE-MIKO, a Creek Indian, as their runner, and gave him directions to go west as far as the Rocky Mountains, and north as far as he could in safety, visiting all the tribes and inducing them, if possible, to send delegates to the great peace conference to meet May 1, 1865, at a designated point on the Arkansas River.

TUK-A-BA-TCHE-MIKO started on his long journey about the middle of September, passed north into the countries of the Big Osages and Pawnees, then southwest to the Iowas, Kickapoos and Pottawatomies, thence to the Wichitas, Kiowas, Comanches and Apaches; from there he turned north and smoked the pipe with the Southern Cheyennes and Arapahoes. Thence crossing the panhandle country of Texas and the border of New Mexico, he met in the grassy valley of the Rio Pecos the Navajoes and Mescalero Apaches. Northern Cheyennes and the Uncapapas, Teton and Yankton bands of the great

Sioux Nations, with some Sisseton and Cut-head bands of Sioux, who had slipped away or refused to surrender at the time STANDING BUFFALO and SWEET CORN made a peace treaty with the United States authorities at Fort Abercrombie in March.

It is evident that General SULLY's campaign rendered very much easier the mission of TUK-A-BA-TCHE-MIKO to the northern Indians, as great numbers of them were found ranging over the hunting grounds of those Ishmaelites of the desert, the restless, roving, thieving bands of the wild Comanches and Apaches of the western plains.

At irregular intervals the messenger sent in runners with little sticks tied in bundles representing the tribes and bands with whom he conferred, and whose promise he had to attend the council. At length these messages were no longer received. TUK-A-BA-TCHE-MIKO had passed into New Mexico, Arizona and up along the head waters of the Rio Grande, the San Juan and Grand Rivers in Colorado. Several months passed without intelligence from the messenger, and hope had given place to regret at his supposed loss, when one spring day in early March, the hearts of the Indians were made glad by the return of TUK-A-BA-TCHE-MIKO with many bundles of little sticks, showing he had the promise of one hundred and sixty tribes and bands who would join in conference the Six Confederate Indian Nations, with the design of forming a peace treaty among all Indians.

The result of the action of the Six Nations in securing the promised attendance of so many of the wild tribes decided the Confederate authorities to send delegates to the council, and commissioned a gentleman of Arkansas, named W. D. REAGAN, and Brigadier-General J. W. THROCKMORTON, of Texas, as delegates, and JAMES PETTEGREW, as Secretary; THROCKMORTON was chosen specially to represent Texas. A more judicious selection than that of THROCKMORTON could not have been made, his whole life having been marked by sound judgment and prudence; he was endowed with the faculty of quickly discerning and dispensing justice; had grown to manhood on the frontier, and was well acquainted with the chiefs and principal men of many of the Indian tribes, and familiar with their manners and customs.

A demonstration made by the Federals on the coast of Texas, in March, necessitated a rapid concentration of the Confederate forces near Houston, in readiness to repel the threatened invasion. General MAXEY, with the white troops in the Indian country, was also ordered to that place, leaving General COOPER in command of the district.

The representatives of the Confederate States, the delegates of the Six Confederated Indian Nations, the chiefs and principal men of the friendly Indians in the Territory, with transportation and supply trains, a large herd of beef cattle, and a motley throng of squaws, children, ponies and dogs, that always accompany the Indians, except when on the war path or a thieving foray, with Captain Toddy's troop of Colonel BOURLAND's cavalry regiment, as a rear guard, marched out from the rendezvous at Fort Wachita, one bright morning in April, and took its way across the treeless prairie, following the guides to the northwest, the direction of the council ground, high up on the Arkansas River.

At Cherokee-town, Colonel ADAIR, commanding the Second Regiment Cherokee Cavalry, joined the expedition as escort. While in camp at this place a council was held to determine the manner of proceeding when treating with the wild tribes.

Upon the arrival of the expedition at the Canadian River, the Big Osage Indians, under their chiefs, BROKE ARM and BLACK DOG, were detached and sent forward to scout to the front and right flank of the marching column and ascertain if the country was clear of Federal troops, as it was possible they had gained knowledge of the meeting and had taken measures to disturb the council. The command awaited here the return of the scouts, who, after a few days, reported a Federal force on the north side of the Arkansas, and the river bank full of water. A Union soldier, caught on the south side, was killed and scalped.

The presence of the Union troops on the Arkansas made it necessary to change the place of meeting, and a council ground was selected south of the Wachita River, where the expedition went into camp along that stream, and ESSA-HA-BA, a chief of a band of wild Comanches, who, from boyhood, had roamed over the vast, treeless, and almost waterless desert, and was familiar with every trail and water-hole on the Western plains, was sent out with a party to meet and direct the approaching Indians to the new council ground.

The wild tribes soon began to come in—warriors, old men, squaws with papposes strapped to their backs or in curious pole contrivances drawn by ponies, children, ponies and dogs, continued to arrive for several days, and passing below, pitched their lodges along the river bank. ESSA-HA-BA at length returned, having in charge a band of Uncompaghe Indians from the borders of Colorado, and reported the Indians all in. Stretching down the Wachita for two or three miles, were gathered over 20,000 Indians, probably a greater number than had ever before assembled for peaceful pur-

poses. Out over the wide prairie, grazing under the care of herders, were droves of beef cattle and multitudes of Indian ponies.

Back a little way from the river the ground rose slightly, forming a kind of knoll, the crest of which for several acres was level, and covered by a grove of wide-spreading post oaks, forming beneath their leafy branches a dense shade all day long. This grove was selected and cleared and cleaned out specially as a meeting place for the council, and here in the morning the council met. The chiefs and principal men of the various tribes and bands assembled, and as they arrived, seated themselves in circles, grouped according to their respective nations, with their interpreters in front, all facing to a common center. On one side, a space was reserved for the white commissioners representing the Confederate Government. At a respectful distance outside sat, or stood, the few white men and the numerous bands of swarthy natives who had followed the delegates to the council.

Much gravity and decorum and a profound silence prevailed as TUK-A-BA-TCHE-MIKO, the Creek, entered the circle, provided with some dry sticks, and kindled a fire. As the smoke ascended, he commenced an invocation to the Great Spirit, to assist with his presence the purpose of the council; to fill their hearts with kindness and their minds with wisdom; to direct and guide their footsteps in a straight and broad path leading to peace and lasting friendship. As the smoke died down he filled, from a pouch at his side, a large pipe, and lighting it with the fire he had made, took three puffs and passed it to the white delegates, each of whom did the same, and so it went through the entire assembly. This ceremony occupied several hours, and when concluded the council adjourned for the day.

When the council met next morning, Commissioner THROCKMORTON presented the synopsis of a treaty for the consideration of the delegates, which he stated, would, if adopted, and its provisions afterwards adhered to, have the happy effect of preventing, in the future, depredations and bloodshed, not only between the whites and the Indians, but between the different nations and tribes of Indians themselves.

The first article of the treaty stipulates: "That all white captives in possession of the Indians shall be restored to their friends, except the captives themselves choose to remain with the Indians. The like obligation to be observed on the part of the whites with Indians held by them." Under this agreement there were surrendered twenty-three children, boys and girls, who had been carried away

by the Indians in different incursions into Texas. One girl in their possession, the daughter of German parents, not being present, was restored later in the summer.

Another article of the treaty provides: "That all Indians named in the treaty shall hereafter abstain from marauding incursions into Texas. Should bad men among them commit a wrong or depredation upon the person or property of any one, a citizen of the Confederate States, and at peace therewith, they will, on proof made, deliver up the wrong-doer to the Confederate States, to be punished according to its laws; and any one, a citizen of the Confederate States, who commits a wrong upon the person or property of any one a member of a tribe mentioned in the treaty, shall, on proof made, be in like manner punished in accordance with the laws of said Confederate Government."

There were other articles regulating intercourse between the various Indian tribes and for adjusting difficulties that might occur between them, and between the Six Confederate Nations and the wild tribes, particularly referring to the Indians, all of which were arranged to the satisfaction of those specially interested, but when the commissioners on the part of the Southern Confederacy proposed inserting an article into the treaty that the Indians were never to cross to the south side of Red River, Commissioner THROCKMORTON giving as the reason for the adoption of the article, "that the people of Texas could not distinguish one Indian from another, as they all dressed and looked nearly alike; that if the Indians making the treaty would adopt the article, the people of Texas would know when they saw an Indian south of that stream that he was an enemy and not a friend, that it would avoid mistakes and prevent collisions with friends."

Commissioner THROCKMORTON, when a member of Congress some years after, in addressing the House, in Committee of the Whole on the state of the Union, and having under consideration a bill making appropriation for the expense of the Indian Department, made use of this incident in illustrating a point in his speech, and said:

"With one voice the chiefs participating in the council protested against this proposition. The debate *pro* and *con* on both sides was long and animated. Finally one of the prominent chiefs, of fine form and feature, of dignified mien, with great gravity addressed the Confederate Commissioners and the chiefs of the civilized tribes who sat in counsel with them, and said:

"My friends, when the Great Spirit created the white man, He endowed him with qualities different from those He bestowed upon my people. He made the white man to labor with his hands, to

cultivate the earth and make it produce corn and wheat for his subsistence. He created him with power to turn streams of water on thirsty valleys, to enrich and vivify the soil, so that he would not only reap abundant harvests but beautify his home. He gave him an inventive genius, so that he could build houses, create villages, and rear great cities. He endowed him with the faculty of making all kinds of tools and implements with which to build houses, cultivate the soil, and erect great workshops. He gave him power to catch the lightning's flash, and with it talk to his friends in distant places; to build great wagons that breathe fire, and force their way with the speed of the wind across the plains, through the valleys and over the mountain tops. These things I have not seen with my own eyes, but my brothers who have been to see the Great Father in Washington, have seen them.

"Your people build ships that cross the great waters and visit the people of strange lands; you make the most terrible and destructive weapons of war. The Great Spirit gave you all these qualities, and gave you the rich spots of earth where the rains fall, and made for your use cattle, horses, sheep, hogs and fowls. But, my friends, when He created the red man, He made him for a widely different purpose, and gave him only simple and untutored habits. He did not intend him to labor with his hands for support. He filled the rushing waters from the mountains with fish, and made the deer, the antelope, the bear and the buffalo for his support. Instead of making him with a genius like the white man's, to be devoted to the art of peace, He created him with simple tastes and war-like instincts, that he might live by the chase, by war, and by violence. He taught him to live by stealth, and to take from his enemies by force whatever he wanted. For generations and ages back, far beyond the memory and tradition of our people, we have been brought up to the belief that stealing is right; and the more scalps we take from our foes, the more prisoners we capture, the better and more inviting will be the hunting grounds to which we go after death. The Great Spirit made for our use the wolf, the bear, and the buffalo; their meat supplies us with food, and their skins with raiment and material for our wigwams. He gave us these boundless plains from the mountains to the Rio Grande, as our domain upon which to roam, where there are no forests, and where the rain seldom falls.

"When the cold winds of autumn blow and the leaves begin to fall, the buffalo leaves the great lakes and the mountains and travels south, crossing the Missouri River, the Platte, the Arkansas, the Canadian, and Red River, and continues south to the waters of the Brazos, the Colorado, and the Concho, where the winds are soft and the grass green, and there remains until the warm days of spring approach; and then he takes up his march northward and pursues it until he is again upon the waters of the Missouri and Mississippi.

"As we cannot live in the north in the winter and without the buffalo for support, we are compelled to travel with them as they journey to the south or north; therefore, if we were to sign this article in the treaty, as you desire, and agree not to go south of the

Red River, when the buffalo reaches that stream in his southern march he would know nothing of this treaty and such a promise, and would cross over and disappear from our view, while we and our squaws and little children finger, and shiver, and starve on the northern bank through all the cold months of winter.

"My friends, I hope you will see this plain and simple statement of the truth, that your proposition involves a question which to us is one of life or death. We are to-day making a treaty of peace and friendship with you and with our red brothers of the woods here. We propose to make a great white road of peace between your country and our country, where there shall be no more briars and brambles, no more stains of blood and bleaching bones; but a broad, clean road of peace, as white and pure as the snow from the sky.

"We have invoked the Great Spirit to fill our hearts and your hearts with the desire for peace, so that this good end may be accomplished. We hope the Great Spirit will incline your hearts not to press this proposition, fraught with so much mischief to our people. We are making peace with you and our brothers, and will not steal your horses and mules, capture your women and children, or murder your people any more; but we cannot live except by stealing, by war and violence. We have been stealing from the people of Mexico, killing their people and capturing their women and children always. Our fathers, and their fathers before them, did it, and we must continue to do it.

"We cannot get to Mexico without crossing Red River, and to tell you the truth, my young men are now eager for the war path, and hungry for horses and mules, and as soon as we finish this treaty with you and our friends here, we are going directly to Mexico."

The speech was written down as spoken, by McCLASKEY, a discharged U. S. soldier, who had lived many years among the Indians, and was interpreter for TOSH-A-WA, a chief sitting in the council. The impression created by the speech was so profound and striking that the Confederate Commissioners no longer pressed the proposition. It being withdrawn, the council proceeded harmoniously to the work in hand, which being soon finished, duplicates of the treaty were made and signed, and exchanged in the most ceremonious and impressive manner.

This being accomplished, the Confederate Indian Nations and the Commissioners of the Confederate States, giving the presents selected Major VORRE, and the wild Indians chose MIO-WA, a Comanche chief, to make allotment of the presents to the one hundred and sixty chiefs of the wild tribes who had participated in the peace treaty. Seven army wagons, closely packed, were loaded with presents, consisting of blankets and such articles and trinkets as it is customary to give Indians on like occasions.

The distribution was so equitable that general satisfaction was secured, and the purpose of the council having been accomplished, the wild tribes pulled down their lodges and quietly went back to their hunting grounds on the Western plains, the Confederate Indian Nations to their homes in the Territory, and the troops to their stations.

Whilst the transactions mentioned were being enacted in the country of the Indians, not a whisper was heard of the stupendous events of that Sunday in April at Appomattox; not a rumor of the meeting near Durham Station, that 27th day of April; not a word of the surrender of the Trans-Mississippi Department to General CANBY on May 26th; not the slightest intelligence reached the council grounds that the Confederate armies had surrendered, the troops been disbanded and the war concluded, and that the Confederate Government was a tradition, a memory, a thing of gray and glory forevermore.

On the return of the Commissioners to what had been District Headquarters, finding no authorities to whom to report, General THROCKMORTON, on his return to Texas, made deposit of the treaty papers in the State Department at Austin.

The benefits secured to Texas by the peace conference were not lost by the overthrow of the Confederacy. The Indians, mindful of the stipulations of the treaty, ceased their depredations along the border for many months, and peace and quiet and a feeling of security prevailed as never before. The returned Confederate soldiers seeking new homes, took advantage of this and moved out to the cheap, fertile lands of the West. The disbanded soldiers of the Union army remembering with delight the soft winds of the south land and the fair faces of the daughters of the sunny clime, came to Texas by thousands, and settling on the rich lands of the frontier, peopled those counties with a brave, robust class of immigrants, inured to toil, and being fitted for it by their soldier life, made the border land safe against marauding incursions of bad Indians, until at length General CUSTER, penetrating the Indian country, fought the Kiowas and Arapahoes, killed some two hundred of their warriors and captured several hundred of their women and children, who, for a time were held as hostages; since when there have been no Indian troubles on the frontier.

The result was, that Texas rapidly recovered from the evils of the war. No State in the restored Union made such continuous and rapid development. Line after line of railroad was built, city after city was built where a human habitation before was unknown,

where the morning dew on the rank grass wet the knee of the rider as he crossed the prairie. Towns and villages, and wide spreading farms sprang into existence as if by magic. The thousands of the days of the treaty, have grown to three millions of prosperous and happy people.

NAPOLEON after having defeated and destroyed five of the choicest armies of Austria, was driving the remnants of the last one back under the walls of Vienna. In proposing to Arch Duke CHARLES the preliminaries of the peace of Leoben, he said: "With respect to my own feelings, General, if this proposition should be the means of saving one single man's life, I should prefer a civic crown so merited, to the melancholy glory attending military success."

CONVERSATIONS ON CAVALRY; BY PRINCE KRAFT ZU HOHENLOHE-INGELFINGEN.

TRANSLATED FROM THE GERMAN
BY FIRST LIEUTENANT CARL REICHMANN, NINTH INFANTRY.

SECOND CONVERSATION. (NOVEMBER 20, 1885).—OF THE TRAINING OF THE RECRUIT IN THE TIME OF FREDERICK THE GREAT.

H. You promised to answer the many questions which arose in my mind after our last conversation. First of all, I ask you to inform me of the principles governing the individual training of FREDERICK'S cavalry. I was unable to find any regulations or book in which they are laid down.

S. I believe you. For an art cannot be taught by written instructions. Its limits may be fixed. Within these limits one must be skilled in it, because it is an art. He who is skilled in it, illustrates it by word of mouth and example. The schools of art are live schools only, teaching from mouth to mouth, from eye to eye. Science may be acquired from books alone; not so art, and the art of riding no more than that of painting.

H. Were all the horsemen of FREDERICK THE GREAT artists in riding?

S. Certainly not, if thereby we mean the high school of equitation; but the art of campaign riding, which differs essentially from that of school riding, was highly developed.

H. Then you do not think school riding essential for campaign riding?

S. That is quite another question. I might say yes or no. School riding forms the foundation of everything necessary for campaign riding. Yet it is not necessary that every good campaign rider be a good school rider. Still less necessary is it, that every good campaign rider should know how to train a horse for school riding.

H. Please make this plainer. With us every horseman is taught, in his second and third year, how to make a horse obedient and how to put it to work.

S. Just there is the great difference between the modern principles of training and those of the Great King.

H. How was the individual training conducted then?

S. I confess I find it difficult to begin, for I do not know whether to begin with the man or the horse. For the man is put on a trained horse to become a good rider; the horse is trained by a good rider to become a good horse.

H. That is the story of the egg and the fowl. Which one was first, the fowl that laid the egg, or the egg from which the fowl was hatched?

S. Correct! Let us begin with the man. In those days the recruits were put on the best trained and best tempered horses.

H. That is also done at the present time.

S. It is, as far as practicable, but on account of the short term of service the number of our recruits has increased, while that of well trained horses has decreased.

H. That brings us back to my former remark, that the short term of service prevents us from equaling our forefathers.

S. I state again that later on I shall explain to you my ideas as to how the demands on cavalry may be met in spite of the present term of service.

H. All right. In order not to move in a circle let us confine ourselves to the principles of individual training at the middle of the last century.

S. Agreed. It was the endeavor then to teach the recruit how to ride well on a well trained horse. It was not at all the intention to teach every rider how to train horses; it was sufficient if he learned how to sit well and firmly on a trained horse, ride in ranks, use his arms, and have confidence in the ability of his horse, ride across country, and know how to rally quickly when the ranks were disordered.

H. Is it not a requisite of a good rider to know how to break a horse?

S. That is exactly the error of the present time; it is not absolutely required of a good campaign rider.

H. But must not cavalry be able to break and train their own horses?

S. The cavalry yes, but not every cavalry man; I can name you many excellent campaign riders of the present time, who never

learned how to break a horse. Look at all the members of ruling houses, who have prominent places in the army; they are, almost without exception, excellent and bold riders, exemplary campaign riders, and, I am inclined to assert, that none of them ever had time to concern himself with the training of unbroken horses.

II. These gentlemen have equerries who break the horses for them; but you cannot detail an equerry to every recruit.

S. In a certain sense you can: from the old, trained riders, those showing special aptitude are to be selected and trained as remount riders, who break the horses for the troop; that is what was done in those days.

II. And it is done to-day also, to a certain degree.

S. Only with this difference, that all the other men also are taught to dabble in breaking horses. This is plainly not only unnecessary, but injurious.

II. Nor were all the horses perfectly broken in those days.

S. It certainly also happened then that a rider who had gained some proficiency was given a horse which was imperfect in its gait, and had no incurable faults. But when the rider has once acquired a certain degree of efficiency on a good horse, he will gradually learn how to manage a less obedient horse, to put up with its faults, although unable to break the horse of them. Look at many of the above named distinguished gentlemen: they finally, without having become riding masters, tamed quite difficult horses sufficiently for use.

II. Let us return to our recruit. In those days he learned on a trained horse how to ride. What was demanded of him when presented for inspection?

S. We are not so far yet; there was no such thing then as presenting the recruit for inspection. Of this, however, hereafter.

II. How then were the recruits trained?

S. We ought not to say "the recruits," but "the recruit," for there were no squads of recruits as we understand them, in the cavalry of FREDERICK THE GREAT, in times of peace.

II. It is true, there were few recruits then. MARWITZ who joined the regiment of gendarmes on January 2, 1790, estimates the average number of recruits for a "company" (half a troop), of seventy-five horses and sixty-six privates, at eight per annum; hence it would seem that on an average every man served ten years. For a troop therefore, numbering 150 horses, including non-commissioned officers, some sixteen recruits must have been enlisted annually; that would still give a squad.

S. We may assume that under FREDERICK THE GREAT the per-

centage of recruits was still smaller, for the horsemen made the soldier's trade their calling; therefore, unless great losses in battle called for a large number of recruits, it is probable that the troop of 150 horses required annually, at the most, ten or twelve men. Losses in battle were, however, not fully replaced, for during the Seven Years' War the King's cavalry became greatly reduced in numbers: finally its quality suffered also, on account of large additions of recruits, of which the King complains.

H. Let us then assume ten or twelve recruits per troop, irrespective of the fact that there were troops of as many as 200 horses.

S. Very well. Let us assume ten or twelve. But they did not join the troop together on a fixed date, but were enlisted as required. Thus the recruit, or two or three, were turned over to an old, trusty non-commissioned officer for instruction. He taught them how to ride, instructed them in the use of arms and the details of the service, and when the non-commissioned officer reported the instruction completed, they turned out with the troop.

H. MARWITZ states that at the beginning of 1790 he first did duty, and then drilled with the troops at the end of March.

S. It is probable that things went as quickly as that with a young nobleman who had learned some riding before joining. The instruction of the ordinary recruit must have required more time.

H. In his professional opinion on cavalry MARWITZ assumes for the last decade of the past century, that the man was a recruit for two years.

S. I do not think that it was quite so long before he drilled with the troop. But the main thing is that the recruit learned to acquire seat and touch on a perfectly broken horse. He who receives his first instruction in riding on a horse not thoroughly broken, imbibes with the mother milk, as it were, faulty habits.

H. That is easily explained; for if a horse fails to respond to the proper "aids," the beginner at once substitutes faulty ones.

S. You speak of aids much too soon. The first thing a rider has to learn is the seat. Upon a proper, firm, secure seat, depends the rider's independence of the motions of the horse. Only he who has learned how to sit, and to sit correctly, is able to use his lower thigh at will and as ordered, in handling the reins as well as the arm. Only he who sits correctly is able to use his lower thigh as he wants to, and as he ought to.

H. That is plain. For he who has no seat, but holds on with his hands by the mane and with the heels by the flanks in order to

not fall off, can neither handle the reins nor apply his legs as a rider should do.

S. That is an extreme case, but it illustrates the many shades of this kind of thing. It would therefore be desirable, if practicable, not to instruct the beginner in the use of the thigh and reins, nor to allow him their use until he has learned to maintain a correct seat at all gaits.

H. How could that be done?

S. Only by the use of the longe, and by not putting any reins in the hands of the beginner. But the same result can be gained approximately, by requiring, in the beginning, until the seat is firm, a steady position of the hand and normal slope of the lower thigh, and by not saying anything of the management of the reins or application of the lower thigh, until the seat has become firm.

H. In that case the horse could run away with the beginner.

S. It is not so bad as it would seem. Only the horse must be well trained, for even the seat alone can be taught the recruit on a well broken horse only, which shows a faulty seat by wrong motions, so that the rider only feels secure when he has the proper seat.

H. Then you require for every recruit a horse perfectly trained in the school of equitation.

S. That would be neither practicable nor useful; for horses too nicely trained would play all kinds of tricks induced by the involuntary and unconscious actions of the rider. For the campaign rider a horse well broken to campaign riding will do.

H. Then you do not think a too nicely trained horse adapted to campaign riding?

S. A horse trained only in the high school of equitation cannot well endure the long gaits of campaign riding.

H. Then you think that for campaign riding the high school can be dispensed with?

S. The high school will ever be the basis of the principles of the individual training of cavalry. A cavalry that has no school horses at all gradually loses sight of the proper course of horse breaking and instruction in riding.

H. How many school horses per squadron would you think necessary?

S. Not a single one per squadron; for it cannot have a rider that can ride according to the high school. School horses should be kept only in the Central* Riding School, the only place where the

*The author here refers to the riding school at Hanover, which has the designation "Central Riding Institution."—(TRANSLATOR.

knowledge of proper "aids" in riding is to be developed to the highest perfection in some specially gifted riders; but there at the Standard Institution the high school must never cease to be cultivated.

H. I enticed you into a digression from our theme. We had come to the point that the recruit must, in the first place, learn how to sit before he is made acquainted with the uses of the thigh and rein. He must learn them afterward.

S. Not for a long time yet. He must learn how to turn to the right and left; he must learn how to drive the horse forward with his thighs; how to hold him back by the reins; he must learn how to ride at the three gaits—walk, trot and gallop (in this instruction it would, at first, be a matter of indifference whether the horse galloped to the right or left); he must learn how to stop him, rein him, back and support him. He must thus learn to employ the thighs and reins as a kind of conventional language spoken to the horse, but he must not regard them as the science of the "aids." That is all he needs in the ranks and in the field; and when he has learned the use of arms, he is ready to drill with the troop.

H. Do you mean to say that in the cavalry of the Great King the recruit was so soon put into the ranks?

S. I am sure of it. Under SEIDLITZ he was put between two reliable men, who would "cuff" him into his place, if he could not manage his horse. Tradition also has it, that SEIDLITZ put the least courageous, i. e., the youngest recruits, into the front rank. The old soldiers in the rear rank had to watch them and drive them forward, if in the charge they did not ride fast enough, by "tickling" them, if necessary, with their sabers. This, it is true, was a little harsh, and would hardly be allowed at the present day.

H. But MARWITZ says that in his first drills he rode in the rear rank. I am always quoting MARWITZ, because he is the only one from whom I could find out anything of the interior service of the cavalry of the last century. He also states (vol. I., p. 46) that in his first charge his horse bolted through the front rank, past the officers and went to "the devil." "I deserved the flat of the saber," he says, "but fortunately escaped with being laughed at."

S. A fourteen-year-old child could not very well be put in the front rank, and an exception was probably made with such a young nobleman. You may infer from this, however, how rarely then a horse bolted, if the rider got the "flat of the saber" for it. (I refer to my statement in our last conversation, that in those days the horses did not bolt.)

H. But were they not rather liberal with the "flat of the saber"?

S. Less than is generally supposed. There may have been exceptions. Generally they were humane, kept in view the well-being of the subordinates and observed the prescribed rules.

H. What did the recruits do when sufficiently advanced to drill with the troop, which seems to have been practicable after six months' drill? But MARWITZ speaks of recruits of two years' service, and says that they rode one hour daily.

S. These statements of MARWITZ prove that in the last decade of the century the cavalry no longer strictly adhered to the principles of FREDERICK THE GREAT. For the Great King demanded two hours of outdoor exercise, daily, for every horse. Even on Sundays the horses had to have their outdoor exercise before church, under the first sergeant.

H. But they did not drill out of doors every day, winter and summer. Hence they must have ridden for some time in the riding hall or in the ring.

S. The King says: "The day is lost, on which the rider has not exercised his horse." This exercise was devoted to individual riding. The King laid great stress on it as a prerequisite for rallying. In this kind of riding the trooper learned how to turn his horse in all directions at all gaits, how to clear obstacles and go over uneven ground at full gallop, and how to use his arms without losing his seat. He said: "Whoever cannot stand a long gallop, is not an efficient cavalryman."

H. Then it seems to have been the custom to always sound the rally at the end of this individual riding.

S. Not only that, but the individual riding was also practiced as essential for rallying quickly. For he who, at any time and under all circumstances, can quickly put his horse in motion at any gait and in any direction, can get quickly to the place designated for rallying.

H. It must be clear to any one, even if he has never been on a horse himself, that cavalry capable of rallying quickly, is worth twice or three times as much as one, which, after the first charge, is out of the leader's hand for the rest of the day. For this reason the King directed that after every closed charge the command to disperse be given, "not that it should be done in the face of the enemy, but that it be explained to the men that it was done only for practice in rallying. For, after contact with the enemy, the rascals will always be dispersed."

S. On this point then we agree. But rallying must be practiced

daily and not during drill only, otherwise these principles will not become second nature to the men. At first it was thoroughly practiced on foot, especially by those riders (recruits) who were not yet sufficiently masters of their horses to do it mounted, merely to teach them what direction to take. When rallying is practiced in the drill season only, it is too late and the work is thrown away.

H. I suppose there are a good many things besides charges that will throw cavalry into disorder?

S. Certainly; and in such cases, it is very important that the cavalry should rally quickly and be ready for action. A troop which can rally quickly has confidence in itself, and the leader in it, for he knows that he can rely on his troop. It fosters enterprise and boldness in the charge. Do you think that ZIETHEN at Rothschloss, in 1741, would have ridden across country; that the cavalry at Hohenfriedberg would have crossed the Striegau in the face of the enemy; that SEIDLITZ at Zorndorff would have dared to break his whole mass of cavalry into column of troops riding across country and to pass the deep water of the Zabern, if these leaders had not been confident that whenever the troops became disordered by the ground, order could quickly be restored by rallying?

H. But the drill and maneuver seasons were but a small part of the year. MARWITZ mentions a drill season of nine weeks in the spring, (from March 16th to May 23d), one of three weeks before the special review, one of three weeks in the fall, and there were maneuvers besides, which, including the march to and from the garrison, could not have exceeded three weeks. That makes nineteen weeks. That leaves thirty-three weeks of the year. I do not believe they spent all these thirty-three weeks in individual riding; besides I do not see how supervision could have been exercised over every individual rider.

S. In any case, in the times of FREDERICK THE GREAT, old riders on old horses were never put into the riding hall. This is proven by the small size of the riding halls and rings in those days. However, you must not think that in individual riding every rider was allowed to ride how and where he pleased. The rider was constantly and diligently practiced in leaving the ranks and quickly reaching the place to which he was called. Nor did the rider exercise his horse at will, so long as his training was not completed, but as he was ordered, and for such a time and at such gaits as were prescribed.

H. In that case they must have been divided into classes, each under charge of its own non-commissioned officer or officer.

S. I think so too, and that officers and non-commissioned officers superintended the men of their own squads.

H. There are seasons of the year when outdoor exercise is out of the question. At such seasons recourse must be had to the riding hall and to riding by squads, with distances.

S. It should be made a principle that the covered halls are to be used only for recruits, remounts, and such recruits of the past year, and such horses as are to be trained over again.

The squadron always rides in the open. If the rings cannot be used, if it is very cold or raining too much, the troop simply turns out for horse exercise.

Riding in the hall only leads simply to parade work; riding in the open makes the practical riders we want in the field: riding in all kinds of weather keeps men and horses healthy, makes them hard, and trains them for field service.

There is no lack of interesting exercises if there be a sufficient number of men to form one or two platoons; they may be drilled, practiced in marching, or drilling in single rank, etc. War may break out at any time: how then about the closed riding, the charges, the passage of defiles, and the movements for forming in close order, when even the old soldiers have not been practiced in them for months?

H. I return to my first question: What was done during the thirty-three weeks in which there was no drill, or, if we deduct four or five weeks during which the troops were compelled to use the hall, in the remaining twenty-eight or nine weeks? Only individual riding and rallying?

S. And then, the use of arms and riding across country. You see if the rider, who has learned to sit well and use rein and thigh merely as a means of communicating his wish to the horse, learns in the first year how to ride over uneven ground instead of tormenting his horse in the hall; if he executes on horseback gymnastic exercises, and all kinds of preparatory exercises for the use of the saber without changing his seat or fretting the horse with the reins, he gains more steadiness of seat for work under all circumstances than he would in the hall. The officer in charge must see that the recruit sits easily, feels the reins lightly and uses them seldom, disturbs the horse as little as possible by "aids," and inspires confidence in his horse. The horse of course must be steady, fresh and obedient, then the horse will also gain confidence in the rider, and the oftener they ride across country and clear obstacles, the more practice the horse gets and the better the horseman likes it.

H. That is true; I saw it in the paper chase instituted for very poor riders from the infantry. They finally rode across country previously deemed impracticable for horses, nor did anyone remain behind or meet with an accident.

S. Yes; what all mounted infantry officers can do, the cavalry private must surely be able to learn. It is only a question of getting the necessary time for it, and not spending it in useless, soul killing hall riding, which only serves to make an imperfect rider believe that he is a perfect horseman.

H. Were not these riding squads finally inspected? Certainly you cannot let the officers and non-commissioned officers do as they like for twenty-nine weeks in the year, and go riding wherever they please? There must have been some regular control over their exercises, and a regular repetition of the instruction in the same, and I know of no other opportunity for control and instruction than the inspection. If you wish to control cavalry you must inspect the riding squads.

S. This constitutes one of the principal differences in the interior service of the cavalry of the Great King and our own. Inspections, and very thorough ones too, were also made then, the cavalry was rigidly inspected, but never were riding squads in the hall presented to the inspector in the ring. The hall was considered a necessary evil, and school riding as a means to the end of acquiring campaign riding; the result only, campaign riding, was inspected.

H. Was only the drill of the whole troop inspected then?

S. Oh, no, certainly not; on the contrary, the riding of the individual was then closely watched, but only with reference to his fitness for practical work. SEIDLITZ went so far as to ride alongside some private soldiers when going over difficult country or jumping ditches and hurdles, in order to see for himself how they acted.

H. How much stress SEIDLITZ laid upon the observation of the individual, and how thorough he was in it, appears from the anecdote, that he held a dollar between his fingers as a target for some good shot. The latter had to hit it with the pistol and was then allowed to keep it.

S. And how much stress the King himself laid upon the individual riding I have mentioned above.

H. Then you really think that in those days whole riding squads were never inspected?

S. All I can learn on this point confirms me in this opinion: besides, it is quite rational to have formal inspections of the result of the training only, not of the means by which it is accomplished.

because, otherwise, the means is apt to be mistaken for the end, or the end to be lost sight of through too close attention to the means. And here there is a special temptation, in the performances in the riding hall, to engage in some showy tricks, which are hurtful to the horse, spoil the rider, and impair the campaign riding. It is rational therefore to make inspections only of the several units, when the school of the platoon, the troop, or regiment has been completed, but not of the riding squad in the riding hall. In these inspections of the platoon, for instance, the individual riding can be inspected.

H. I cannot imagine that in those days the superiors should have resigned the method of instruction and waited quietly for the result, for, all control over, there would have been danger of having this or that entirely spoiled before necessary connections were made.

S. This the superiors in those days certainly did not do, but they convinced themselves frequently by their own presence, whether the instruction in riding was properly imparted.

H. But that is a kind of inspection too.

S. With some difference! For if the instructor does not know when the superior will be present at the instruction, he cannot get ready for it and prepare a riding exhibition for which he specially drills his men; and this he can do and is bound to do if he knows that the inspection will take place at the end of the riding course previously laid out, and for which he drills his squad as for a quadrille.

H. I should think that whenever the instructor reported a recruit proficient, the superior would have satisfied himself as to the riding of the recruit before giving his consent that he should drill with the troop.

S. That was probably done; but in that case the efficiency of the recruit in individual riding was tried, for you must not forget that the squadron as a completely trained unit never ceased to exist. For if we assume for a troop of 150 horses fifteen remounts per year, which turn out with the troop in the third or fourth year, and twelve recruits per year who turn out after six months' training, there were still at least one hundred horses available in each troop for drill or other purposes). MARWITZ assumed eight recruits for each company, i. e., sixteen recruits per squadron annually. If we assume ten or twelve in SEIDLITZ's time, then there were two recruits assigned to each squadron every two months.

H. That of course would be impossible now, when we receive nearly one-third of our recruits each year, and when, after dismissing

the reserves, the squadron is as good as disbanded and must be reorganized.

S. That is true. We must take into consideration the three years' (or four for the four year volunteers) term of service.

H. And how?

S. I have duly considered this point and made my plans. I shall explain them to you at some future time. The next time let us discuss the training of the older soldiers and training of the horses in the days of the Great King.

H. I'll have a good many questions for you yet.

MOUNTED PISTOL PRACTICE.

BY CAPTAIN GEORGE PADDOCK, FIFTH CAVALRY.

THERE is no kind of target practice more interesting than shooting with the pistol, mounted: yet the proper method of attaining proficiency is not generally agreed upon. This fact is due to several causes. We spend too much time trying to learn from the few phenomenal experts, and too little time studying the causes that distinguish the fair pistol shot from the more common poor shot.

The phenomenal shot is a poor one to go to for information. He may not know himself how he manages to make his record: he may know and not wish to cheapen his accomplishment, or he may know and deliberately deceive his audience.

Even if he is willing to impart information, the fact that in all likelihood the first principles came to him easily or almost intuitively, renders it hard for him to understand just what the naturally poor shot has to struggle with. Upon the same principle I have heard it stated that the brightest minds are not generally as good instructors as others less favored.

The latter, remembering their own early difficulties, understand more clearly and may have more patience with the failures of the beginner. Let us look then to the good shots that are not phenomenal.

There can be no question that good riding is a requisite of skillful shooting, mounted. It is noticeable, however, that mounted pistol practice will improve a man's riding much more rapidly than the monotonous movements around the riding school, possibly because something definite is to be accomplished, and if, while improving his riding, we can gradually teach him how to shoot, we will accomplish a double purpose, and eventually turn him out a good rider and a skillful pistol shot.

In a troop of cavalry will always be found a large percentage

of good riders, but among these good riders there will be only a small percentage of good shots. It is my desire to point out the peculiarities of the method of carrying the pistol and moving the pistol arm, common to the good shots, which are not noticeable among poor shots, being convinced that herein lies a most important first principle.

Careful observation reveals the fact that the good shots carry the pistol hand and move the pistol arm with the same ease and grace that characterize the movements of the body and the bridle hand. Horse, man and pistol move in the same cadence; as they approach the firing point the pistol is turned, and pausing a moment, is fired; no jerking or thrusting is seen; no sudden movement alarms the horse.

I agree with Captain PITCHER, that it is a "decided error" to prescribe that the pistol should be projected at the mark and fired without any effort to align it upon the object. As stated by him, "it is open to the same objection that he finds to snap shooting from the hip with the rifle."

There is a further objection to this method of shooting, arising from the fact that the sudden motion of the pistol-hand is invariably terminated by a jerk, which not only frightens the horse, as before stated, but which also imparts to the muzzle of the pistol, at first a downward, followed by an upward circular motion, that makes any kind of aim impossible, and the hit, if made, a pure "scratch."

Having developed, by constant and patient practice, the easy carriage and movements of the pistol-arm, it next becomes necessary to determine a number of minor points, such as the proper grip upon the pistol, the tension of the muscles of the arm, and lastly, the kind of aim that can be taken quickly enough to be uninfluenced by the motion of the horse, and yet accurate enough to hit a target of the size and shape of a man at any reasonable distance.

The grip upon the pistol and the tension of the muscles of the arm are best taught dismounted. While there is some reason to doubt that skill dismounted with the pistol is necessary to skill mounted, there can be no question of the desirability of attaining, if possible, a high degree of proficiency when dismounted and the aim is deliberate. In taking position to shoot dismounted, the feet should be well apart, the left hand on the hip, and the left shoulder well back; in fact, the man should face to the left and fire to the right; this position of the body exposes it the least possible to the fire of an adversary, and it also ensures a firm, steady pose of the body. The pistol-arm extended, but not straight, as in the latter position the

elbow and wrist cannot as easily correct, by slight movements, the unsteadiness of the shoulder and body.

Men often say and think that the reason why they cannot shoot well is because their hand is not steady; this theory is to me absurd. The unsteadiness comes from the waist or shoulder, or both, and is due usually to the strain upon the muscles of the arm and hand. Let a man extend his arm as he would when shaking hands, and his hand will be seen to be very steady. If taught to hold out his arm when pointing the pistol, with as little strain upon the muscles of the arm as he experiences when his arm is extended with hand empty, as in pointing at an object, or as in shaking hands, and he will soon show a marked improvement in shooting.

The grip of the pistol hand upon the stock must be firm, without any strain, the pressure being light, until the pistol is properly aimed, when the lower fingers increase the pressure as the forefinger is applied to the trigger. The position of the hand should be as far down the stock as possible, so that the thumb, in cocking the pistol, can just reach the hammer with its extremity when extended. Men are apt to try to cock the pistol by placing the second joint of the thumb upon the hammer; this not only makes cocking the pistol difficult and awkward, but it leaves the hand in the worst possible position for holding the stock. By grasping the stock well down, the wrist is not constrained, and better results will follow.

It will be noticed that many men will thrust the muzzle down just as they discharge the pistol; this habit can be broken by having them snap the pistol while some one watches the muzzle to see how much it moves.

Captain CUSHING, of the artillery, once devised a very useful little appliance consisting of a small mirror attached to the muzzle of a rifle, which throw a pencil of light upon a shaded wall, to make apparent the "jumping" of the muzzle when the trigger was pulled. A little practice soon enabled a man to hold his piece very still when he snapped it. It was only necessary for him to see that he had formerly habitually moved it at this important moment to enable him to overcome the habit. Some such device would be even more valuable for a pistol, as on account of its size and weight, and further, on account of its being held in one hand, it must be more likely to unconsciously deviate than the rifle.

The length of time that a pistol should be aimed, depends almost entirely upon the pull, and as safety necessitates the pull being far from easy, very quick aiming is not desirable dismounted. With an antagonist also shooting it is better to shoot once with good aim,

than a dozen times with uncertain aim. All attempts at so-called snap shooting is time thrown away. Aiming dismounted should commence the moment the pistol is pointed, and should continue during the interval required to pull the trigger without jerking. The practice of keeping the pistol at the aim for a moment after its discharge is an excellent one, and will tend to break the unconscious movement of the muzzle at the time the hand feels the hammer fall. It is at this moment that the pistol is most likely to be moved; the man firing knows that he held just under the "bull," and is usually at a loss to understand why it was not a good shot.

There is more skill in holding a pistol correctly after the trigger is pulled than before. Almost any man can point a pistol at fifty yards and hold it in the four ring until his arm drops from exhaustion. This fact I have frequently established by telling a very poor shot to hold as near the center as possible and to see how long he could keep it there. Such practice is good because it teaches a man how to hold without any strain of the muscles of the arm. This strain, which must be overcome, the man is frequently unconscious of, and it will often be necessary to feel the muscles of his arm and tell him to relax them before he is fully aware of it. The easy carriage of the arm, developed at dismounted practice will aid the man after he is mounted.

Every good rider has experienced the sensation of the perfect ease with which he drops into the motion of his horse; were it not so, riding would be a tiresome instead of a delightful exercise. The point I wish to emphasize is, that the man who wishes to shoot well must learn to carry his pistol arm with as much ease and naturalness as he does the bridle hand. After that is learned, comes the question of how to aim. In mounted aiming, I have gotten the best, and in fact, my only good results, by following the methods below: Keep the eyes both open and fixed upon the front sight, with the rear notch held a little below the line of sight; this will make the barrel always visible and prevent any great deviation to right or left; in fact the eyes will follow the direction of the pistol all the time it is being lowered, just as the eye of a billiard player follows the direction of his cue.

The depression of the line of metal below the line of sight should be about one inch at the rear notch; this will insure sufficient view of the barrel referred to above, and will enable the rider to see the pistol and the target at the same time, and to be fully aware of the rate of speed the line of sight is making as it sweeps toward the

target, so that he can pull the trigger as it crosses, having applied considerable pressure at its near approach.

While the pistol is at the "raise," and also as it descends to the point, this angle between line of metal and line of sight of which the tangent is about an inch at the distance from front sight to rear notch, should be kept constant. In other words, the same amount of barrel should be visible all the time. In practice it will be found very easy to hold the pistol in this position even while it moves very rapidly.

The main reason why deliberate aim can not be taken mounted, is, that the eye is kept so busy trying to bring both sights into line that it cannot watch the target and observe the rate of approach of the pistol's direction toward it. By keeping an eye upon the front sight only, and depending upon the wrist to hold the rear sight or notch in proper position, the apparent approach of front sight and target is clearly visible, no matter how fast the horse is traveling, and as before stated, the rider can begin to pull before coincidence takes place, and has a far better chance of shooting at the proper moment, as he can correctly gauge the arrival of that moment, just as the ball player can tell the moment when the ball will strike his hands.

The best catcher of the league could not hold a ball with his eyes shut, although it were thrown into his open hands. This method of aiming can be executed so quickly as to seem like snap shooting. It will be noticed that the ball will strike higher than the point aimed at; the rise being about one to ten, is too slight to make any objection to the method. I have noticed that by holding toward the feet of a standing figure, that the hits for ten yards are about the middle, and for twenty and twenty-five about the shoulders. If firing at longer distances of course more allowance should be made or less of the barrel be kept visible at the point and at the aim.

There is no other practice that yields better returns than mounted pistol practice. No one can fail to desire to shoot a pistol well from the back of a galloping horse after once seeing it well done. Almost any plodder can lie down on his back and sight and squint and perspire long enough to be shot a dozen times, and make a reasonably good record with a rifle, but the man who can manage a good horse and shoot at the gallop without picking out a calm day, without a wind gauge, or any other of the many requisites of the record-makers, and can yet make a good score, that man has an accomplishment, not only necessary to a good cavalryman, but one which will excite the envy of any one who may witness his skill.

THE CAVALRY HORSE; INSTRUCTION OF THE TROOPER IN DRILL AND DETAILS OF THE SERVICE, WITH SUGGESTIONS FOR THEIR IMPROVEMENT, ETC.*

BY CAPTAIN J. H. DORST, FOURTH CAVALRY.

UNDER the present system of supplying horses the cavalry horse should be from four and a half to six years old when purchased. He should have considerable school training after purchase, and the new drill regulations for cavalry will probably attach much importance to this point. In learning to carry himself properly, bend his neck, back, passage, pirouette, jump, etc., he goes through what corresponds to gymnastic training for a man, and uses his muscles and tendons in a way that he probably never had to use them before, and a certain amount of elasticity is necessary. A horse seven years old and upwards has his bones hardened, his muscles and tendons set, and has acquired confirmed habits, carriage and gaits. The younger horse will be more docile, will learn more quickly, and a tendency to bad habits or vice can be more readily overcome. The difference in results of putting a five-year-old horse and a seven-year-old horse through the same course of training, would probably be proportionately as great as would be obtained by putting a young man of twenty and another of thirty-five, who had no previous training, through the same course of gymnastics. There is no doubt the younger man would soon improve beyond a point the older could never reach. If the horses were thoroughly trained when bought, of course those eight years old would be satisfactory, but such horses are hardly ever found except in the riding schools in large cities, or in the possession of wealthy men who ride for pleasure, and such horses have a very high price.

The horse I have described will probably cost from \$175 to \$200, if bought by contract, though his first cost should not exceed \$150.

*Extract from report to the Inspector General, U. S. Army, June 5, 1891.

He will have some blood and spirit, and will require intelligent handling. It may be urged that he is too fine and high strung for the awkward and rough-handed men we get frequently as recruits. This is to a great extent true with our present torturing cavalry bit and recruits too old to learn to ride, but clumsy German peasants handle better horses almost to perfection. By enlisting men for the cavalry who are young enough to learn to ride, without short legs, long bodies, and splay feet, and by providing each horse with a bit suitable to his mouth, and giving a proper amount of time for instruction, our more intelligent soldiers ought to do as well as the Germans.

As to the measurement of horses requested, I am not able to furnish them, owing to the absence of nearly two-thirds of the troop on detached service. Some of them, especially the large horses, have grown quite thin with this mountain work, and the measurements of girth would have no value. Nor am I certain that I understand exactly what is meant by the length of the horse. The horse may be long by having a long neck and long body, and still have a short back. A long oblique shoulder will put the point of the breast well to the front. A long quarter, nearly horizontal on top, will put the rearmost point well back from the point of the hip. His body may thus be relatively long while his back is short. So far as these points are concerned the conformation is an ideal one, though an equally good horse, with quarters equally long, but sloping, will have a shorter body. The main point, however, is symmetrical proportion throughout. I am not able to state the relative proportions of a symmetrical horse in figures, having no book of reference with me. I have been familiar with them, but have tried rather to educate myself to judge of shape by the eye, particularly as the quality and size of bone and muscle in different horses depends to a great extent on their breeding, which can best be determined by observation. I can only surmise why the average of all measurements is requested. Of course this average would not represent the type of cavalry horse in use, for it may be that of a very well proportioned horse and at the same time not that of a single horse in the troop.

The standard cavalry horse must fulfill very few requirements, as prescribed by the regulations. The contractor, as a rule, begins by putting forward his worst horses first, and determines from the action on them the cheapest and poorest kind of horses that will be accepted. Those received will usually just fill the required conditions, and no more. Better horses are not offered. As a result the grade of the whole is low.

As far as mere riding is concerned, the portion of our cavalry tactics that refer to it is a rehash of European cavalry tactics. In European armies cavalry horses first receive a careful school training, and afterwards are turned over to the troopers. Their tactics are made for trained horses. We have copied the tactics, which are not applicable to the horses we buy. In fact, our tactics almost ignore the fact that any special training is necessary, and many officers, especially those who have not served in the cavalry, seem to be of the opinion that any man who can stick well to a docile horse that can be guided with reins in one hand needs only discipline and a knowledge of drill movements to be a good cavalry soldier, and that such a horse is a properly trained cavalry steed. From such ideas has probably grown the belief that an ordinary, tractable horse, eight years old, broken to ride and controllable by the reins, but otherwise untrained, is suitable for purchase for cavalry service.

Our tactics do give a few pages to the subject of training new horses, but the subject is treated so briefly as to give no idea whatever of its importance, and is placed in the back part of the book, where it is likely to be overlooked. The fact that no inspection is ever made of this matter by an authorized inspector shows at once how it has escaped attention and the little importance attached to it generally. Indeed, our tactics practically assume that a horse will draw in his nose by a slight pull on the reins, and bring up his hind feet by a pressure of the rider's legs, that is, gather himself; that he will back smoothly, without throwing up his head, by increasing the pull on the reins and alternately relaxing and closing the legs; that he will go forward by giving the hand and increasing the pressure of the legs; that he will turn to the right or left in obedience to leg pressure, and that he will move sideways in obedience to the combined action of leg and hand. Now, a horse will not do these things until after months of patient training. It cannot be hurried, for though the horse may soon learn to understand what is wanted, these unusual movements make his joints and muscles sore, just as unusual motions make sore the muscles of a man, and the horse will resist if the pain is too great, and may be spoiled. It takes some time, too, for the horse to learn to do these things quickly and without awkwardness. Yet these movements are the very elements of horse training, most valuable for the horse and for his control by the rider. The school of the trooper in our cavalry tactics applies only to horses so trained. In taking it from the European drill books that fact was ignored.

In Europe the training of the horse is considered to be fully of

as much importance as the training of the rider. The Germans have their cavalry horses in training from a year and a half to two years before given to a trooper. The recruit is drilled in riding only about eight months before he is put in ranks. In a methodical system of school training the horse should be ridden every day for at least one hour, divided preferably into two drills of thirty minutes each, and always ridden by the same man. The salutary effect is, first, that the horse is disciplined and becomes tractable, just as constant drills and restrictions make men obedient and well disciplined. Subordination and obedience are not then irksome, for they become a habit and the restriction is not felt. The horse is also brought in other respects more under the control of the rider, for he can be guided and urged to a great extent by the legs alone, leaving the hands free to use the weapons, and giving the rider some control if his hands or arms are disabled by wounds. In connection with the bending lessons and jumping the horse's muscles are developed and he becomes more agile, supple, and sure footed. He can gather himself more quickly, save himself more easily from a fall, recover himself more surely if he makes a misstep, will be more enduring, will last longer, will have easier and better action, and be in every way a safer and stronger horse than he would have been without such training. The difference is similar to that of two men with equal physical power, one of whom is trained in gymnastics and the other not. Both may be very strong, but the untrained man cannot use his strength to the best advantage, and is clumsy and awkward and more easily worn out. The conformation of the cavalry horse that I have described is one that is well adapted for this system of training.

Another item in training is to educate the horse to move always at one certain rate of speed at the walk, trot, gallop and charge. This requires much time, and also a considerable extent of level, unobstructed ground. Six troops of the Fourth Cavalry, when not scouting, were drilled daily, except Sunday, from early in the spring of 1878 to February, 1879, about eleven months, before they acquired the faculty of moving always at a uniform speed at the walk, trot, and gallop. I have since learned that horses with some school training can be taught as much in much less time.

To make my ideas clearer, I wish to refer to the cadets at West Point and their infantry marching. They form the only military body I know of in our country that execute drill maneuvers with precision, and they do so in infantry drill only. It is due to their uniformity of step in marching. To this day, when walking with

a graduate, even a very recent one, I find myself unconsciously keeping step with him to the old cadence. They learn to march regularly in going to and from meals, during the summer encampment when they march to music, and always at the rate of a certain number of steps to the minute; though I imagine the step is a little short, at any rate it is always uniform, the music marking the same number of steps per minute. The distance marched each time is about 500 yards, with only one slight change of direction, which hardly disturbs the length of step toward the pivot. It takes about five minutes to march it, and taking into consideration rainy weather, when the march is at route step, they practice this regular marching fifteen minutes a day, on an average, from June 15th to August 28th.

In barracks the dress parades, reviews, inspections, guard mounting, etc., have the effect of keeping them in practice, except in the winter, music always marking the steps with a uniform number of steps to the minute. In the latter days of the encampment, if one notices the corps marching to dinner, he will see that the men do not keep the touch of elbows closely, which is a grave tactical fault in some eyes, nor glance towards the guide, yet the alignments are almost perfection; occasionally, it is true, a cadet may be seen a little in front or rear of the line, but his thoughts are probably on anything else but that. In a moment or two, unconsciously to himself, without touching or glancing towards the guide, he is in his proper place. What threw him out was perhaps some little inequality of the ground. He keeps his place by taking only steps of uniform length in uniform time; in other words, by a uniform rate of marching and going straight to his own front. The guides of subdivisions keep their distances in much the same way. Regularity of marching is a habit and requires no thought. The ability to keep aligned has become an instinct, as shown by the man who gradually resumes his place after getting a little out of line. Owing to this training the battalion, as strong as the effective strength of some of our infantry regiments, can march in column of fours indefinitely without the last set of fours gaining or losing an inch, and without thought on the part of the cadets; when wheeled into line there will be no closing in or crowding. Militia regiments, having but little drill, have to depend on the touch of the elbow and looking towards the guide. By these means very poorly instructed men can keep a very fair alignment, and uninformed people are sometimes led to compare them very favorably with cadets. Our regulars, too, from want of sufficient marching exercise to music, have to depend to a

great extent on touch and glancing towards the guide. In their case and that of the militia the constraint of preserving the touch and of taking steps of a length and at a rate to which many are not habituated is most tiresome. This effect is often observed after a long march of processions in which militia have taken part, though the cause is never explained. It shows the difference in marching value between a raw soldier and a trained one. Music is of such assistance that for marching instruction alone regimental and post bands should be maintained.

Now, if the cadets were exercised in only a very contracted space, say one in which they could move in no direction more than 100 yards, which at quick time would take but little more than a minute, on account of their rather short step, and had no music to mark the time, it can readily be seen that it would take them much longer to learn to march, especially in double time. They would not be fairly settled in any uniform rate before they would have to halt or wheel, either of which would disturb the step and keep them from soon getting habituated to it. The difficulty would be greater if there were a number of organizations on the same drill ground, each frequently being in the way of the other.

One can see how, after troops learn to march and wheel properly, precision in drill evolutions follows as a matter of course. It is merely the small matter of memorizing the tactics, and very little practice in drilling the movements is sufficient. Always marching at a certain rate gets men so used to it that they can keep up the rate for many hours without fatigue. When our foot troops, regulars and militia, make a march of any length a most noticeable thing is the number of stragglers until after several weeks and perhaps months of practice. Regularity of marching is insisted upon in the German army, even at route step, and is the secret of its wonderful marching powers, displayed from the very beginning of the Franco-German War, and of the very small percentage of its stragglers. The practical advantage was shown in the few days before the battle of Sedan, when the Germans outmarched the French, and on a much longer route. This is the secret of the ability of the German generals to calculate the exact time necessary for maneuvers, and to plan grand combinations with certainty. It also accounts for the remarkable precision of all movements made by German troops. Such a quality in an army is one not to be despised. In comparison with it the grave consideration of minor "tactical points" seems absurd.

The cavalry horse must learn to move uniformly at the walk, trot, gallop and charge, the rate at each pace being that to which the

slower and weaker horses can be trained without danger of their breaking down on a fast forced march under ordinary circumstances. Music cannot mark the rate for the rider, and it must be guessed and learned by frequent practice. It is evident that cavalry will need much more time to learn the regular marching rates than infantry.

There are probably very few troops of cavalry in the service that can march at a uniform rate at all paces, and the chances are that there are none. In the first place, the early cavalry training of many officers has been such that they attach very little importance to the matter, and are perhaps not qualified to properly instruct the men and horses. Although the cadets have considerable cavalry exercise, it is not enough to teach them all they ought to know about training cavalry soldiers, nor is the cadet instruction given under favorable circumstances. Too many men ride the same horse, which is bad for the animal, and frequently the horses are used for draft purposes at light artillery drill on the same day they are used for cavalry. As cadets ride only on alternate days, no horse has the same rider on two consecutive days, and many have two or three different ones at different hours each day. It is impossible, therefore, to give the horses any but the most elementary school training, or to get the horses confirmed in a uniform gait, and without these drawbacks there is not even enough time allowed for platoon and company drill to educate horse and rider to march properly. In the little that is allowed a good deal must be taken up in teaching drill movements. The riding-hall instruction is fair, in some respects excellent, but the horses are not properly trained, and often three times too many cadets are crowded together for instruction at the same time. The cavalry drill on the plain is never even passably good. Precision and regularity are unknown, and this inadequate cavalry instruction has had, I believe, a very unfortunate effect on the cavalry arm. We get young officers from West Point thus imperfectly educated for the cavalry who believe the West Point standard can not be surpassed. They follow in the old rut, and cavalry instruction in our service improves very little. This, however, can not be helped with the present crowded course at the Military Academy. We must rely on the staff to assist in raising the training of cavalry far above what can be taught at West Point.

Other reasons why cavalry horses are not "gaited to obey commands" are, regulating the number and frequency of cavalry drills by the number only required by foot troops at the same post, the frequent absence of too many men and unfavorable drill grounds.

Equalizing the special and extra duty details between the cavalry and foot troops, and requiring detailed men to attend only the same number of drills in each arm, is bad for the cavalry. Cavalrymen are frequently so detailed while they are still very poor riders; but even with good riders it is not the man that needs the instruction so much as the horse. A cavalry soldier should ride his horse every day, winter and summer, in the riding hall or outdoors, in order to keep him trained and under control. Every one knows that a spirited horse is apt to be frisky and a little ungovernable after a few days' enforced idleness. On the days when the extra-duty men go to drill it is always poor. The fault is often attributed to the men for not controlling the horses, but the fault is with the horses themselves. Under such a system no cavalry can be properly instructed. It will not do to let other men use these horses at intervening drills to exercise them, for if the rider has an interest in his horse he will object to it, and when it has been practiced many horses have suffered by it. It must always be remembered that the cavalry soldier is a combination of two beings, one human and the other brute, and when the training of either is neglected this combination soldier is imperfect; and further, that on account of his lower intelligence the brute requires more training and handling.

Taking again the cadets, the most constantly drilled body of men in our country: during the winter they march frequently, in good order, to and from recitations and meals, yet the march is often at route step and the distances are short, and when the spring drills commence a deterioration in their marching is apparent. In the manual of arms their falling off is more noticeable: owing to their former training their improvement with practice is very rapid. A horse forgets his training much more quickly than a man, and after a long interval of rest does not recover his training so quickly. This is why a cavalry soldier should ride his horse every day. It should be just as much a matter of course as going to roll-call or to meals, not for most of the men only, but for all. The necessity for having all men available in a cavalry troop is just as great as it is in a light battery. The best relief, however, would be in having an authorized corps of mechanics, laborers and clerks sufficient to do the work now performed by detailed men, and in excess of the strength of the army.

For drill a troop of cavalry needs enough of clear, level ground for the horses to settle down to a certain gait and maintain it without interruption for some little time, so as to grow accustomed to the rate, and so that after awhile the rider will know the proper rate

intuitively when his horse strikes it and can keep him at it. Until the horses learn to move always at a certain uniform rate at each gait, and to go straight to the front, so that the alignment will depend almost entirely on uniformity of pace and straight direction, and not upon touch nor glancing toward the guide, the march of the troop should not be interfered with by halts, wheels, other troops on the drill ground, or drill movements. The latter can be introduced gradually in the latter part of the drill hour, to break the monotony, so long as they do not break up the horses. At an easy gallop a horse will pass over a mile in five minutes. On the drill ground some distance is needed in which to break progressively from a walk to a trot and from a trot to a gallop, and allow the horses to become confirmed in each gait before passing to the next higher. At the end of the gallop a little time is also needed, and consequently distance, in which to let the horse settle quietly into a trot. Five minutes is not too long a time to give horses to settle down to a uniform gallop; and get the rider so used to the rate that he will know it when the horse strikes it. The drill ground then should be no less than 2000 yards long and wide enough to let the other troops of the garrison drill at the same time without interfering with each other, otherwise the troops should drill at different hours. For one troop it should be wide enough for the whole troop in line to change direction at the gallop, get the horses quiet without changing the gait, and then have room enough to change direction again. With the cadets at West Point this would take nearly the length of the cavalry plain, or about 400 yards. With horses properly bitted, and with a proper school training, and with riders that can ride, a width of 300 yards ought to suffice.

In learning to charge a greater extent of ground is preferable. The days of charging over very short distances have passed, and in the present day the requirements of our cavalry tactics on this point are ridiculous. Cavalry may now be called upon to charge 600 or 800 yards, perhaps farther. After the horses learn to march steadily at the gallop the speed can gradually be increased to the charge and kept there until the line breaks; as soon as this happens, the troop can be brought to the gallop and kept there until the horses are quieted, when the gradual increase to the charge can be repeated, to be checked again as soon as a break occurs. In time the horses will learn to move quietly and in good order for considerable distances at the charging gait. This was the method followed by some troops of the Fourth Cavalry at Fort Huachuca, where there was good ground, nearly level, for four or five miles. For charging, the drill

ground should be large enough to allow of charging in oblique directions and across it. If horses are charged always over the same ground near the close of a drill they are apt to grow excited as they approach the ground, and the conditions indicate that the charge is about to take place.

It may be urged that all this care to teach horses to charge well is unnecessary, because the charging days of cavalry are over. If learning to charge properly had no other value, it would be admirable instruction on account of the disciplinary effect on the horse, and the control over him it would be likely to give the rider in a *mêlée* or time of much excitement. It also has a tendency to develop coolness and presence of mind under the same circumstances in the rider. That the days of cavalry charging *good* infantry in *good* order are over is probably conceded by every cavalryman. Cavalry might as well attempt to ride over a man-of-war. But in raids cavalry will often meet recruits, militia, and home guards, on whom a well-directed charge may have a wonderful moral effect. In France a dozen Prussian Uhlans would capture whole villages; in our own country forty or fifty hostile Indian warriors have kept in abject terror an area as large as the Middle States: JOHN MORGAN and his guerillas were more feared in Kentucky and southern Indiana than BRAGG's whole army when it marched on Louisville. But when two armies are approaching each other cavalry will meet the enemy's cavalry long before it reaches his infantry. The grandest cavalry combats of the world are yet to take place. Cavalry that can not fight mounted and charge will stand no chance with cavalry that can. Men that always have to get off their horses to fight when threatened with an attack can be kept on the ground by a comparatively small force constantly threatening, and will have very little value as an offensive force.

After learning to march regularly at all gaits, and to wheel, precision of drill, as in infantry, is only a matter of memory and some little practice. Horses and men are then prepared to learn any system of drill tactics whatever in a very short time. Good riding and proper training of horses are the elements of all drill. Knowledge of drill evolutions is entirely secondary. Neglect of the former qualifications and blind insistence upon the latter, with consequent slovenly performance, has been the rule in our service.

From the spring of 1878 to the fall of 1881, that portion of the Fourth Cavalry at regimental headquarters had been drilled almost daily, whenever practicable, both in the garrison and field, and, with very few exceptions, extra and daily duty men attended. This was

done even during the coldest weather in the winters of 1879 and 1880 at Fort Garland. The horses had no school training, but steady drilling and scouting had made all the men at least fair riders and the horses docile and settled in their paces. This command was inspected frequently by general officers, inspectors, and other staff officers, all of whom wanted to see drill movements, a lot of galloping around and quick action, and particularly dismounting to fight on foot. All seemed to be rather pleased by the performances, and that was all. In the fall of 1880, while the command was in the field on the Ute expedition, General SHERIDAN reviewed it. The battalion consisted of five troops, and it had not marched in review twenty yards, marching as easily and regularly as cadets, before the general turned to the regimental commander, and in a few words showed that he appreciated the time and attention that must have been bestowed on the instruction of the men, and that he was conscious of their capabilities. He was the only officer that ever inspected it who did, so rare was the knowledge of the principles of cavalry training. This shows how good an idea of the efficiency of cavalry can be gathered from a simple review. When the review is for purposes of inspection, and in fact always, it is better to have the cavalry review distinct from that of other troops. When reviewed with them it has to march behind infantry or artillery, and the infantry walk is too slow; while at a trot the artillery, with smaller platoon front and no slacking of the gait on the pivot at the turns, gains so much ground that the cavalry is kept at a fast trot and jiggling gallop to keep its place. The usual paces of the cavalry horses are disturbed and they are uneasy behind the infantry and worried behind the artillery. The spectacular effect may be fine, but no proper criticism of the cavalry can be made.

The essential qualities in a cavalry soldier are ability to ride well both in the riding school and across country, to understand the management and care of his horse in the field, in garrison, and at drills, to be able to shoot well, to handle his saber, to know how to pack a mule, to cook his rations in the field, to nail on a shoe, to mend his clothes, to patch up roughly his footwear, and to mend temporarily at least, broken or torn equipments. He should also have a good eye for country, so as not to lose his way, and be ready with resources and expedients. If a non-commissioned officer, he should also be able to make notes of a reconnaissance and prepare maps, not elaborate ones that it will take a day or two to make, but rough ones that he can sketch in fifteen or twenty minutes. On my present duty I have already been hampered because only one

man besides the blacksmith can nail on a fitted shoe, and but few can pack. The troop is divided into many small patrols or detachments in a very rough country, and all must come to the main camp for shoeing. The few packers must be kept out nearly all the time. In order to prepare a fair map of the park either my lieutenant or myself must go to every part of it. This is why I have said the non-commissioned officers are not properly instructed.

The only one of the above conditions required of a cavalryman is that he shall shoot. Various departments require different things from the cavalryman. If he can do nothing else, in order to equalize details he is given to the Subsistence or Quartermaster Department as a laborer; the Signal Corps demands certain instruction in signaling; the Medical Department requires a certain number instructed as litter bearers; if a recruit, he must go to school. In the Cavalry Department, with the exception of shooting, but little is required. The knowledge of packing that now remains in the regiment is due to the efforts of Colonel MACKENZIE nearly twelve years ago.

The equalizing of details among all the troops of a command has more evils than I think is understood. For weeks last winter, owing to the absence of men on extra duty and fatigue, the average attendance at stables to groom sixty-five horses was about seventeen men, including non-commissioned officers. The post commander partially helped this state of affairs by having afternoon stables after recall from fatigue, which gave many more men, but the extra men had already done a day's work. The cavalryman has just as much work about the barracks as the infantryman, but the quantity of details makes the duty of the cavalryman about the stables harder. He has to groom more horses, and go on stable police, as stable orderly, and on herd guard much oftener. The contrast in the amount of duty is apt to cause discontent. At the Presidio, while my few men were grooming sixty-five horses a full light battery in the next corral was grooming less than fifty. My men were kept at stables more than twice as long, doing the work of absent men. During the drill hour cavalry mechanics have been employed on artillery stables, while all the light artillerymen were at drill. Under the above circumstances it would be hard for a troop commander to have the discipline of his men criticised, or their efficiency compared unfavorably with that of a light battery, or even of foot troops.

The cavalry recruit should be not more than twenty-five years old, so that he can learn to ride. The recruits should be enlisted at

a certain time of the year, so as to form one class, then taken to the recruiting depot and kept there for at least a year, and placed under a discipline similar to that of West Point, though not necessarily so strict, and be given a thorough gymnastic and cavalry training, so far as the time will permit. All the school teaching considered necessary should also be done there, for it can be done systematically under well chosen teachers. This will get the recruit under some restraint, to which he will be accustomed, before he joins his troop. His comfort and welfare should be looked after just as carefully as possible, and the depot should be inspected as thoroughly and by the same high officers as the military prison. It should be a preliminary training school, modeled to some extent after West Point, but with considerable more practical military instruction and very little stress on bookishness.

Young horses for the cavalry should be bought, placed on a reservation, and trained. The depot for cavalry recruits should also, if possible, be at the same place, where the recruits will have the advantage of observing the handling of horses and be thrown into the company of old soldiers employed in this business. Provision should be made for discharging or transferring men who are backward in riding or show fear of a horse. I have two men now in their second enlistment who can not ride as well as a six months' recruit ought to do, and are probably too old to improve. They manage to get around fairly well at drill, though, and that is about all that is required. Horses that do not develop suitably can be sold, or transferred to the artillery. Their value will not be impaired by the handling and training they have received, but rather enhanced.

In cavalry matters it must be remembered that the cavalryman must be a man of action and not a dreamer, and that a little practice is worth a great deal of theory; that the way to learn to drill is by drilling, to shoe horses by shoeing, just as swimming must be learned, not from books or lectures, but by going into the water. Much of the time wasted in memorizing and reciting on tactics could be much better utilized by drilling. If any non-commissioned officers could not learn otherwise they alone might be made to go to school, but the better plan would be to reduce them for neglect or incompetence. The summer camp is also of but little benefit; the good effect is the opportunity it gives for getting a number of men together, away from "post duties," where the captains can have some opportunity to control many of their own men and get acquainted with them. But in the main, camp life is only garrison life under canvas. Good active field work, with a fair proportion of

forced and night marches in all weather and over every kind of country, kept up for thirty days, will be more instructive than camp life continued for thirty years. Assuming West Point as a standard, the militia have adopted summer camps because the cadets have one. With their inexperience of garrison life, and the short time they have to spare, it is as much, perhaps, as the militia ought to attempt. With our much greater experience we seem to have followed their initiative in what is of very little use to us. On the contrary, to cavalry troops accustomed to field work the summer camp is simply a holiday.

The improvement of cavalry can be begun at once by concentrating the cavalry as much as possible at purely cavalry posts, commanded by cavalry officers, where the facilities for instruction are good. In carrying out this, troops of the same regiment should be kept together as much as possible. The idea of getting troops from different regiments at the same post seems to be a favorite with some, but only troops that have been so distributed can appreciate the relief and better feeling that at once appears when they are garrisoned together again with their own people. Very little value apparently is placed on regimental pride at the War Department, but without it troops can never be as good as they might be. It is bound to be broken down now, for the young officers entering the service can not take the pride or interest in their regiments that was once taken, and promotion only takes them to another regiment which is simply an abiding place till the next step occurs. Still, it is worth while to try to hold on to the little pride that remains for the good it may do. At purely cavalry posts there are no contrasts between the duties of troops of the different arms. In technical matters, the cavalry should also have its own inspectors, as the heavy artillery has now. In time, when the examination for promotion is based on what a cavalry officer knows about cavalry service, and on his ability to train and handle men and horses, and his efficiency in the field, cavalry officers only, except the medical officers, should be placed on boards to examine cavalry officers, and the subjects should be selected by them.

Owing to the reduction in the number of cavalry troops and the cavalry strength, the concentration of cavalry and a much higher standard of training are more imperative. In the militia the number of cavalry is exceedingly small, and cavalry require such long training and so much care that in the event of war we would soon have practically none. It has been said by competent military critics that in the first two years of the War of the Rebellion bloody

battles were fought unnecessarily and many victories were practically fruitless for want of good cavalry, properly employed. We are not in the habit of heeding the military lessons taught by our history, but it may be worth while to make some effort to do so.

I have written thus fully because I understood while in Washington last winter that questions were sent out from the Inspector-General's office with the intention of having every officer express himself freely and fully upon all points connected with the welfare of the service, and that if he did not take advantage of it it was his own fault. I do not wish to obtrude my opinions upon those above me in authority and am not in the habit of doing so, but submit them only because I understand that I am invited and am expected to do so.

CAMP AT MINERAL KING, CAL.,
June 8, 1891.

PROFESSIONAL NOTES.

TWO LETTERS FROM GENERAL DRAGOMIROFF, ON THE SUBJECT OF "LES ARMES BLANCHES."

[Translated from the *Revue du Cercle Militaire*, by L. B. L. L. L.]

The Editor of the *Sport** conceived the idea of writing to General DRAGOMIROFF, asking his opinion in regard to *les armes blanches*. In answer, he received the following:

FIRST LETTER.

I. The various kinds of *armes blanches* may be divided into two classes quite analogous to those embracing fire-arms. On one hand we have the thrusting weapon, corresponding to the arms using "direct fire;" on the other, the cutting weapons, the counterpart of the weapons employing "curved fire;" there is no third class, and should be none. The reason is plain: man creates nothing which does not correspond to his own image and likeness. Now, his natural weapon is his fist, with which he can strike vertically, from above downward, or horizontally, by thrusting it out in front of his body.

And all kinds of *armes blanches* only reproduce this fist, with its two-fold character, considered as a fighting weapon, but with its power much increased. To strike down an enemy with a blow of the fist, one must be very strong and choose a favorable place for delivering the blow; while with the dagger, for instance, a mere child might kill a strong man.

II. The improvements made on the fist as a weapon are well known, of which the first was the club, or the ball attached to a leather thong; and, successively, the curved Cossack sword, the yataghan, the axe—all representing the improvements made on the fist employed as a weapon with a crushing effect.

The others, represented by the pike, lance, straight sword of the cuirassier ("lath"), bayonet and dagger, show the improvements made in the thrusting weapon.

The forms and dimensions of *les armes blanches* have undergone a variety of changes in order to produce different effects; and exactly

* A Russian paper.

in proportion to the frequency and effectiveness with which they were used, as, for instance, among the mountaineers and Cossacks in their struggles in the Caucasus, did they tend towards simplicity—the curved saber for the latter, and the dagger for the former, and nothing more.

The controversies concerning the superiority of the thrusting over the cutting weapon, and the reverse, have been numerous, over the most advantageous forms and dimensions of the blades, hilts, etc. Vain discussions, for they have generally taken place among persons who, during their whole lives, have never worn at their sides anything but virgin swords, which have never been sharpened, frequently not made of steel, and, in some cases, swords which have never been drawn from their scabbards, but have been actually fastened in them.

III. How shall discussions of this kind be explained? Simply by the fact that man prefers the creations of his own imagination to the pure and simple study of a question—to a study carried on without trickery and without a desire to merely discover something unknown before. The desire to be original, and, to speak freely, “to froth at the mouth,” explains the circulation of so much nonsense. Still, that might be forgiven, if this nonsense were harmless; if, for the purpose of bringing himself into notice one should simply explode a petard that would harmlessly burst and disappear; but in this particular case there is too much of it, to which notice is continually called by a vigorous and persistent beating of the bass drum. Let us, for a moment, look at the reasons for this discussion.

IV. Which is the better, a cutting or a thrusting weapon? If we return to the character of the fist we shall see that the study of this question amounts to a discussion of the following: “Which is the better manner of using the fist; from above downwards, or straight from the shoulder?” Evidently, the answer depends on circumstances and the individuals whom one strikes; and also on the method to which one is most accustomed.

In disposing of these two methods of attacking I must consider them equivalent within the limits of my familiarity with them. Familiarity which will be a personal quantity if it concerns me only in single combat, but which will be that of the troops to which I belong if it be a question of the combat of troops.

The partisans of the thrusting weapon cite the words of NAPOLEON: “Point, point, never cut!” were his directions to the French, among whom the knowledge of fencing, thanks to the authorized practice of dueling with the sword,* was so common throughout the army as to almost constitute it a national custom—certainly a military one.

If NAPOLEON had been addressing us Russians, it is very probable that he would have said, on the contrary, “Cut, cut, never thrust!” seeing that the art of fencing is not generally diffused among us.

*Among soldiers, as well as officers, dueling with the pistol was forbidden, for while any coward might face the muzzle of a pistol, it required a brave man to fight at sword's length. The practice of dueling was considered an important means of educating officers and men.

while the habit of “cutting,” and “cutting well,” is common to all our young men, excepting a few workmen and merchants in easy circumstances.

By placing you at this point of view, you will doubtless agree with me that all this talk about the “point” requiring more skill, and the “cut” more force, and other things of a similar nature, is of no value whatever; at least that is my humble opinion which, however, no one is compelled to adopt.

“But,” you will say, “if that be so, the infantry should also be provided with a cutting weapon, and yet that is not done in any army of Europe.” Of the infantry we shall speak later; for the present we shall discuss the question of *les armes blanches* from the cavalry point of view only, the cavalry being the highest representative of the employment of this arm, and having, so to speak, the exclusive privilege of striking the enemy directly, that is to say, first of all by its own mass, and then using *l'arme blanche* only in the details of the combat, and for the purpose of completing the victory. So the preference to be given in the cavalry, to the thrusting or the cutting weapon is determined, in the first place, by national customs; secondly, by the examples of the specialists who have really used them and not by those who employ them merely for purpose of display. I consider as specialists of the first class our ancient Caucasian mountaineers, and the Cossacks of the Caucasus, their brilliant pupils. The arms of both, as I have already said, are distinguished by a remarkable simplicity: the *chuckka*, a light and well balanced saber, and the *kinjal*, poniard: the last is, however, employed only on foot and for domestic purposes.

V. *Forms and Dimensions of the Weapon.*—The question of form naturally concerns only the cutting weapon, and even that is, to a certain degree, idle and unimportant. To be satisfied on that point it is enough to compare the curve of the yataghan (cimeter) with the less pronounced one of the *chachka*. And yet a Cossack would no more exchange his *chachka* for a yataghan, than a Turk would trade his yataghan for a *chachka*; it is entirely a matter of habit.

The question of the dimensions of the weapon is a much more important one; if not so of itself, at least because it has led men to talk nonsense more frequently and violently than any other. For thrusting weapons, this question is naturally the most important. At first glance, it would appear that the longer the weapon,* the better it is; but this opinion is founded only on a hasty conclusion, inspired by the instinct of self-preservation.

If one has reflected on this subject at all, he is apt to say to himself: “If I can attack my enemy at a greater distance with a long lance, he will not be so great a fool as not to avail himself of the same advantage, and, consequently, in the most favorable cases, the conditions being the same for both, things will be evened up again. But, as a matter of fact this does not happen; the experience of centuries showing that the ones who load themselves down with such weights are, in the end, hopelessly beaten on every occasion.

*Within the limits, be it understood, of convenience of handling and the strength of the man.

We have the proof of this in the history of the Romans, armed with relatively short swords who, in every encounter defeated the Greeks, whose first eight ranks were armed with lances so long that those of the eighth rank were obliged to be 6.40 meters long in order to extend beyond the front rank. What could be more threatening or apparently more invincible than to have one's whole front covered with a forest of spears, eight ranks deep? And yet it never stopped the Romans, and the Greeks were compelled to turn and flee.

How is this result to be explained? Very simply: The Greeks were so embarrassed by the weight of their arms that they did not dare to attempt to make an attack while marching; and the Romans were not inclined to take the word of their adversaries as to their own invincibility. They put them to the proof: that is to say, they dashed with impetuosity against this wall, made great gaps in it, approached to within sword's length of these pikemen, and then proceeded to carve them up in a highly artistic manner. What remained for the unfortunate Greeks to do in the face of this barbarous manner of fighting, except to turn their backs and run? That is exactly what they did, and probably finding themselves embarrassed by their heavy weapons, they soon threw them away in order not to delay their "strategical retreat."

In the face of these well established facts every man whose brain is not obscured by theories or personal prejudices, will necessarily arrive at the following conclusions:

1. In the employment of *les armes blanches* success does not depend on the length of the weapon, but on the attacker's determination to approach near enough to the enemy to make effective use of his weapon.
2. The guarantee of the attacker's success is to be found in the impetuosity of his forward movement. *CÆSAR* himself has said that a rapid advance warms the blood and makes a man lose all idea of danger. If, then, in this matter, movement has so powerful an influence, everything which can possibly hamper or slacken it should be dispensed with.
3. The greater the length of a weapon the more difficult it is to handle it. A long weapon retards movement and, sometimes, completely paralyzes it; consequently, even in an attack on foot, instead of being advantageous, it is positively detrimental: much more would it be so in a mounted attack.

These principles have been formulated much more briefly and clearly by *FREDERICK THE GREAT* in his well known reply to the report about the necessity of changing the Prussian cavalry sabers, which were two inches shorter than those of the enemy: "Well, let our cavalry get two inches nearer the enemy."

The American, *DR. HOLMES* has very justly observed on this subject that "Generally the nation that shortens its weapons extends its frontiers."

If these aphorisms are true, you can appreciate at its just value

the rehabilitation of the lance in certain European cavalry regiments, as well as the degree of importance which has been attached to this fact.

VI. But, however that may be, you will say the lance is advocated by many military authorities; and very recently, even in the first half of this century *Marshal MARMONT* has said that "the lance is the queen of weapons."

My answer to this is that authorities are not agreed on this point. In the first place, *Marshal MARMONT* had served principally on the staff. Besides he was fond of using phrases, and this expression did not come from him directly, but through a foreign channel. Consequently, we must not accept his remarks as gospel truth, especially on a question of armament. In a matter of that kind, any Cossack or intelligent non-commissioned officer's opinion must be sounder and more practical than that of a *Marshal*, even if he had spent his time elsewhere than in the staff.

This same phrase had already been used in the XVII Century by the Austrian General *MONTECUCULI*, but under what circumstances it is well to remember. It was used at a time when the bayonet had not yet been invented, and the infantry were either pikemen or musketeers, that is to say, when they were armed only with pikes or fire-arms. This aphorism was only used to indicate which arm would decide the success of the combat.

Consequently it was only the expression in another form, of the maxim of *SOUVAROFF*: "The bullet is wild, the bayonet is true." In *MONTECUCULI*'s day, as there were no bayonets, he said: "The bullet is wild, the pike is true," and he said it in his own way, not in the terms employed by *SOUVAROFF*.

We must, therefore, remember that if the lance has ever been the "queen of weapons," it was by comparison with the musket, and not with any other kind of *l'arme blanche*. As soon as the musket was crowned with the bayonet the lance or pike disappeared from the infantry, where it had always been of more importance than in the cavalry, for the infantry soldier always held and handled it, *with both hands, not with one*.

In a question of armament we must not study each arm by itself; we must also take into account its employment, the influence it exercises on the morale of men, and from this point of view, the relations between fire-arms and *les armes blanches*. If I have not already exhausted your patience, I shall write of this in a future letter.

M. DRAGOMIROFF.

On the subject of the bayonet, spoken of above, and after having given a hasty historical sketch of the invention and successive improvements of this relatively modern weapon, General *DRAGOMIROFF* adds, in the form of a "note," the following remarks, which we think worthy of reproduction:

Truth compels me to say that the lance had few partisans; *Marshal SAXE* in the XVIII Century, and in our time (the first part of the XIX), *JOMINI* and *DE BRACK*. The first advocated the lance, I

believe, more as a matter of tradition than anything else; the second reasons about it in a purely theoretical way. It is enough to remember that he considered it the best *offensive* weapon, while, in fact, of the whole family of *les armes blanches* it is precisely the best suited to the *defensive*, since its principle object is to prevent the approach of the enemy.

JOMINI wrote: "The lance is the best *offensive* weapon for a body of cavalry charging in line, for it reaches the enemy *while preventing his approach*." So, then, it is an *offensive* weapon, which will prevent an enemy, wherever he may be, from *approaching*; that is to say, whose object is to obtain a purely *defensive* result. What better example could be given of the way in which the best theorists sometimes confuse things by contradicting their own assertions at intervals of two or three lines? I do not think it necessary to discuss the pretended impossibility of attacking troops armed with pikes, a difficulty overcome, as I have already shown, in the conflicts of the Romans with the Greeks.

And yet, JOMINI knew the effect of the Roman swords on the Greek lances; yes, he certainly knew all about it, but he forgot it, and supplied a notable instance of a fact universally known being entirely forgotten.

As to DE BRACK, he commanded troops and consequently his opinion deserves greater attention. But even he supports the lance with arguments of a hasty kind, whose conclusion, whether intentionally or not, seems to have been overlooked. For example, he says: "The lance is *l'arme blanche* whose moral effect is the most powerful, and whose thrusts are the most murderous." If this argument be carried to a proper conclusion, it results that the lance is *l'arme blanche* which produces the greatest moral effect on cowards, but which will never stop the advance of brave men; whose blows are the most murderous if correctly aimed, but whose precision, on account of the length of the weapon, is always doubtful.

Again, the lance is a heavy load added to the weight carried by the horses; it constrains the movement of the trooper and it is impossible to teach its correct handling in the time allowed by the short period of military service at the present time. Consequently, its partisans can make only one claim for it: the possibility of keeping one's adversaries at a safe distance; all the other elements of the question, whether voluntarily or not, have been absolutely dropped out of consideration.

M. D.

SECOND LETTER.

VII. I had almost forgotten to answer the question: "Why are not cutting weapons used by the infantry?" The answer is simple: Because it would not be easy to secure weapons of that kind to the rifle, while there is no difficulty about attaching the bayonet. As in this way, the rifle serves a double purpose, that of a rifle first,

then as a staff for the bayonet—making a substitute for the pike—there is no longer any room for a cutting weapon.

No matter how much the "technique" progresses the rifle will never be changed into a pistol, and will of necessity, always remain of such a length that it will be impossible to handle it except with both hands. Add to it the bayonet, for the use of which both hands are necessary, and it is evident that it is completely useless to attempt to cut the enemy when you can reach him with a thrust. Consequently, it is plain that having for a thrusting weapon a handle like the rifle which can serve two purposes, there is no need to seek for a cutting weapon.*

"Yes," you will say, "but the national habits." The national habits are to be considered when it is a question of using a weapon under difficult conditions, as, for instance, using it with only one hand, which is the case with cavalry; but when both hands can be employed in using the weapon, it is sufficient to be able to deliver a thrust. Under such circumstances, however, national characteristics still show themselves: for that reason, among us Russians various weapons, good only for cutting purposes are brought into play in the *mêlée*. Every time that, for any reason whatever, the Russian infantry has found itself without a rifle, a cutting weapon has been brought into use. Thus, in the Crimea two ships' crews took part in the battle of the Alma, making use only of boarding cutlasses.†

At Sebastopol the militia of Koursk fought with axes.‡

* Formerly it was believed to be necessary to give to the musket armed with a bayonet, such a length that the trooper could not, from his horse's back, reach the infantryman with his saber. That is exactly one of the cases, mentioned in a previous letter, where considerations entirely foreign to the properties of the weapon, could determine its length.

This precedent has been observed from the time when it decided the length of the pike; and it has not even yielded to the arguments drawn from the Roman weapons, or the answer of FREDERICK to the remark about the sabers being "two inches too short." That is why the barrel of our Berdan rifle is four inches longer than is demanded by the ballistic conditions of the weapon, and why the bayonet attached to it is seven inches longer than is necessary to enable it to go clear through a man. Results: Reduction of the initial velocity, and the imposition of an unnecessary weight on the foot soldier.

These are all merely theories based on the desire of preventing the enemy reaching you, and which ignore this eternal truth, that the success in the employment of *les armes blanches* does not depend upon their length.

All similar ideas are inspired by the instinct of self-preservation which can never be made to harmonize with the military axiom that, in war he only will kill his enemy who has no fear of being killed by him.

"But," you may say, "he can kill you at three thousand paces." Well, I can also kill him at three thousand paces. Consequently, honors are easy: for, as a general thing, all the mechanical improvements made on the human "fist" are neutralized just as soon as both adversaries are provided with them.

As to instituting comparisons between arms of different powers, that is perfectly useless: for that can, in no way, elucidate a question which, in theory, must always be examined when all the conditions are equal, if we wish to arrive at conclusions founded on facts instead of mere speculation.

It is true, that in a transition state, like that of the present day, some of the adversaries may be better armed than others. But even this state of affairs would only show that superiority of armament is not entitled to the importance attached to it by those fond of making comparisons between the ranges, the "per cent" of peace times, etc. Take for example, the war of 1870, when the French had better arms than the Germans, and still later, that of 1877, in which the Turks had weapons much superior to those possessed by the Russians.

The truth is, that at last, we shall have to fight with weapons equally effective, and the victory will rest with the one who takes the greatest chances of getting killed, or, in other words, who troubles himself the least about losing his precious life.

† The testimony of an eye witness.

‡ In this it is naturally only a question of armed forces more or less regularly organized. In popular outbreaks weapons of all kinds are used: pitch forks, scythes and knives, all take part in the dance.

In the cavalry where the trooper has but one hand with which to use his weapon, the cutting weapon is preferred in any country where it is habitually employed. In all the Orient I know of no nation where anything like our cavalry "lath" could be found in use. It is true that some of them have lances, but I am inclined to believe that is explained by the character of the enemies these people have to fight, who are, evidently, not disposed to engage in hand to hand conflicts; whenever the adversary not only does not decline battle, but actually seeks it, for mounted fighters the cutting weapon has always been preferred to the thrusting.

VIII. *The Employment of the Arm.*—A good workman is known by his work. Everyone knows that a skillful carpenter can make, with nothing but an axe, things which an unskilled laborer would fail to make, even with the use of the most delicate tools of the trade.

Let military men answer this question: "Of what use is it to encumber a soldier with a whole arsenal of arms if he is not taught how to use them?"

Nothing is more evident than this truth, and yet it has remained a long time uncomprehended in regular armies, while the people of Asiatic nations have fully recognized its importance.

In a word, the use of any arm presupposes instruction in its use, as a necessary condition; if, be it understood, it is not admitted that it is only necessary to load down any given soldier with arms, and that he will know, without previous instruction, not only how to cut and thrust, but even to choose at any given moment, from the arsenal he carries, exactly the most suitable weapon in each particular case.

And thus is shown the necessity: 1st. Of instructing the trooper in the use of each arm he carries. 2d. Of inculcating in him the instinctive habit of instantly and without reflection, deciding in what order these weapons should be successively employed.

That, many persons will say, is a mere matter of course. How could it be otherwise? In fact, it seems that that should be the case; but, in reality, it is not at all so.

Let us remember how short a time has elapsed since the instruction of men in sabering and thrusting was first begun. And even now is it as much insisted upon as its importance demands?

I have no doubt of the answer which will be given by all who know whereof they speak, and have no desire to deceive themselves or disturb the settled convictions of others.

And yet we must not forget that we are concerned with the use to be made of arms, not in a state of tranquil mind, but in the very midst of danger. Now, under such circumstances a man does well only that which, in time of peace, has become an instinctive habit with him.*

*I cannot help narrating here an incident of the Crimean War, related to me by an eye-witness:

"A Russian battery had just gone into position and opened fire. All at once, I saw," says the narrator, an officer lately promoted and under fire for the first time—"the ammunition carrier of one of the pieces, make an about face, by the motions, strike himself on the thigh with the palm of his hand, and move with cadenced step towards his caisson: on reaching it, he extended his hands as though to receive a projectile, then faced about, struck himself

IX. That which has especially contributed to the neglect of the practical use of weapons, is the present organization of armies, and the continually increasing strength of their effectives. The study of the movement of masses has absorbed attention almost to the point of entirely forgetting those which the soldier should execute individually. For the benefit of readers who may doubt this statement, I shall briefly relate the history of instruction in rifle practice—a history little known to those who have entered the army since the close of the Crimean War.

In the last century, and the first of this, soldiers were only taught how to load and fire from the shoulder; never how to take aim, for each one was simply required to fire straight in front of him and not upon any particular object, and that with blank and not with ball cartridges.

I have also known the time when marching and the manual of arms absorbed the whole time, without anyone disturbing himself about the man's method of aiming: the time when, once only during the whole period passed in camp, and not even every year, a few companies of the regiment were sent to fire at a target, generally on Monday, and the men limited to the expenditure of three cartridges at most. And this regiment of which I write, was considered one of the best instructed; so you may see to what a condition target practice was reduced. The fencing with the bayonet was not even thought of: instruction in its use was limited to charging bayonets.

Such a neglect of target practice is a proof of the fact, apparently incredible, but perfectly true, that it was believed to be utterly useless to teach men how to use their arms. It was thought that if the soldier knew the manual of arms, and could fire a blank cartridge at the command, "Ready; fire!" he needed no further instruction.*

It was only with the introduction of rifled arms that the necessity of practicing, no longer with blank, but with ball cartridges, and the impossibility of learning to shoot without bullets and targets, were comprehended. Then it was seen how vain was the exercise of masses of troops in close formations, as they could not be made

again on the prescribed place, and then marched toward the piece. On arriving there, he went through the motions of inserting the supposed projectile, which he carried, into the muzzle of the piece, and then faced about again and returned in the same methodical way, to the caisson. I do not know how long he would have continued this dumb show, but he ceased only on the intervention of a non-commissioned officer who brought him to his senses by the methods then employed in such cases."

This example shows admirably the force of habit, and the advantage of training men to execute movements mechanically. This ammunition carrier, who, under the enemy's fire, had completely lost his head, still executed with perfect precision—not what should have been done—but that which he had been taught. At that day the regulations required a man in making an about face, to strike his thigh with his hand, of which fact, those who have entered the service since the Crimean War, are doubtless ignorant. The object of it was simply to press the short artillery sword against the thigh to prevent its swaying about during the movement.

"The 'carabineers' it is true, used to fire at a target; but they were merely a drop of water in the great sea, since there were only six of them to a company. In connection with this subject I cannot refrain from relating, that during the Crimean War, a non-commissioned officer was sent to the Opolitchénie as an instructor to teach the manual of loading the musket. And having been invited by an officer of the militia to teach the execution of the manual, using ball cartridges, very respectfully but firmly declined, saying that he understood thoroughly how to go through the motions of loading in twelve, eight and four times, and at will, but that the loading with 'cartridges' was entirely unknown to him.

ready to fight until each soldier had been individually taught not only how to march, but especially to shoot and thrust. And it was only then that the training for parades was exchanged for military instruction and "education."

The history of *les armes blanches* was exactly the same; to teach men to saber appeared so useless, that until within a short time the blades were left unsharpened, and, if recently, it has been decided to sharpen them, it is principally, if I am not mistaken, on account of the impossibility of sharpening so great a number of weapons at the moment of mobilization; and yet, naturally, sabering begins only after the saber has been sharpened.

X. In the same way it has been only recently discovered that the practical use of *l'arme blanche* demands the employment of a target as much as the fire-arm does. I would even assert that the employment of a target in this case is even more necessary; for in the use of *l'arme blanche*, comes in a question of time, which in shooting, plays only a secondary part.

In fact, *l'arme blanche* being used only in a hand to hand combat; it is clear that if you delay in giving your blow, be it only for the infinitesimal fraction of a second, it is the adversary who will strike you; and the combat will be terminated often in a very definite way. If your blow misses its object, that is to say, if you strike in space, or if you deliver only a harmless thrust, the instant afterward you are put beyond all possibility of repairing your want of skill.

It is clear then, that in the employment of *l'arme blanche* it becomes a matter of enormous importance, and one of which one can form no idea in shooting, to measure, in the twinkling of an eye, both time and space.

To understand the importance of the double telemeter, which one must carry in his head, is only a small part of the affair. It is also necessary that all the observations of this instrument should be instantly communicated to the eye and hand, that the combatant should apply them, without reasoning, and by simple reflex action. There must be no hesitation, for a moment of that may cost you your life.

And that is not all. You may have seized the proper moment, and rightly estimated the distance, but, in directing the blade upon the line of shock, you have not held it parallel, but oblique to the plane in which the shock is produced, and, in place of a serious cut, you have made only a harmless scratch. Never forget, at the moment of striking, to give the blade a gliding motion, and not cut with it as you would with an axe. All which goes to show that to deliver a saber blow is far from being a simple and easy thing, and, that without repeated practice, it is an operation almost impossible to perform.

Therefore, people who see in a weapon something else than an insignia of military office, something besides a "window-bar" for

* Unsophisticated men are pitiless in their unconscious irony, and have no hesitation in calling things by their right names. It is not so very long ago that troopers always called their sabers "window-bars"; and why shouldn't they, since a saber, so long as it is unsharpened, is no better than a "window-bar"—whether made of iron or of steel, makes but little difference.

saluting, have always attached extreme importance to the study of its practical employment. They have even laid down sundry original rules, full of sound sense, as is generally the case with whatever has been evolved under the pressure of a constant necessity.

Among the mountaineers of the Caucasus, for example, they begin, as a kind of child's game, by practicing the cutting of a thread of running water. Isn't that a curious thing? But among these primitive people observation operates otherwise than with us. The savage only observes many things which would escape the notice of civilized men for ages, and notably this: that it is only the blow, crookedly delivered on water, that produces a splash.

And that is only the beginning of a course of instruction which is continued afterwards by life-long practice and by cutting exercises upon objects of various kinds.

M. DRAGOMIROFF.

General DRAGOMIROFF, in quoting DE BRACK as an authority in favor of the employment of the lance, seems to have overlooked the very important remarks on the subject, contained in the post-face to DE BRACK's work on "Cavalry Outpost Duty," which are as follows:

"I have already told you how lancers should attack, but have not instructed you how to attack them: to an officer of intelligence the first instruction gives the key to the second. Still, a few words on the subject may not be amiss.

"Lancers should charge in compact, and retreat in dispersed order. In attacking them, carabineers should act as they do when dealing with cuirassiers; that is, form in column and pierce their center. Once in their midst, the carabineers must close with them, hand to hand; endeavor to crowd them together, and press them back in a confused and inoffensive mass as far as possible. Thrust; thrust; always thrust! The lancers, jumbled together, can neither parry nor point, and one of two things will inevitably happen: either they will throw away their lances in order to draw their sabers—in which case you will fight them with equal chances—or they will endeavor to hold on to their lances, in which case you will get them very cheaply.

"In the lancers of the Imperial Guard the flank files did not carry lances. I remember two instances in 1814 at Hougstraten, near Breda, and at Port-Arrecin, near Lille, where we fought the Russian and Prussian lancers, who, like ourselves, were endeavoring to hold on to some narrow roads, bordered by deep ditches. I placed at the head of my column our intrepid carabineers, and ordered my lancers—who had put their lances in the boots—to follow, saber in hand; as soon as we forced an entrance into the crowded masses of our enemies, our success exceeded our highest expectations, as we used our sabers mercilessly without the enemy being able to harm us."—[EDITOR OF JOURNAL.]

blab. brr.

INDIAN CAVALRY MANEUVERS, 1891.

[Extract from Military Correspondence of London Times, February 4, 1892.]

MERRUT, December 19th.

The cavalry exercises and maneuvers, which have lasted about a month, are over to-day, and Brigadier-General Luck, the Inspector-General of Cavalry in India, may be congratulated on their success. Thirteen cavalry regiments were engaged—four British, the Fifth Royal Irish Lancers, the Sixteenth Lancers, the Eighteenth Hussars and the Seventh Dragoon Guards, and the following native regiments: The Second Bengal Lancers, the Third Bengal Cavalry, the Fourth Bengal Cavalry, the Sixth Bengal Cavalry, the Seventh Bengal Cavalry, the Eighth Bengal Cavalry, the Tenth Bengal Lancers, five squadrons of the Central Indian Horse, four squadrons of the Gwalior Imperial Service troops, and the "A," "C," "Q" and "T" batteries of Royal Horse Artillery, also a novelty in the shape of a detachment of sappers mounted on mules. Unfortunately glanders appeared in the Eighth Bengal Cavalry, so that this

regiment had to be sent out of camp, and could not take part in the final maneuvers.

The exercises were divided into two portions; the one, of some three weeks' duration, consisting of drills and work against a marked enemy at Aligarh; the other portion, from the 11th to the 17th of December, comprising maneuvers carried out as if on active service.

Before describing the exercises undertaken by the cavalry, I will briefly refer to the camp at Aligarh. For those who have not seen a camp in India it is difficult to imagine such an immense canvas town as was there created. The camp was divided by a broad central street, two miles in length, lined on either side by officers' tents, the lines of the horses and the tents of the soldiers stretching away on either side of this central thoroughfare, while still further away were the encampments of followers and sayces. The lighting at night was done by each officer hanging a lamp on to a pole outside his tent, so that the central street was well lit up. The tents inhabited by the officers were double, as a protection against the sun, but were nothing approaching the sort of tent that was taken about in the old days of luxurious Indian life.

The fighting against flag enemies undertaken from Aligarh was interesting, the various squadrons being represented by detachments of ten men, each detachment of men being provided with a disc, painted red on one side and white on the other, the first line of a division or brigade being represented by squadrons with the red disc showing; the second line and reserve by squadrons with the white disc showing.

The command of a flag force is somewhat difficult to carry out to perfection. A leader must not mind conniving at his own defeat. To explain what I mean: A squadron of a flag regiment should not work quicker than a squadron of ninety men and horses, but the flag group can wheel about and get into fighting position in far less time than a real squadron. Thus a flag enemy leader is always tempted to secure victory or ward off defeat by moving his pawns on the chess-board quicker than is allowed by the rules of the game. It was observable that this was done at Aligarh, but, taken as a whole, there is no doubt that the flag enemy is a good substitute for a real enemy, and the device was of great value in instructing the various leaders in their work. Each day some men remained in camp to rest and provide the brigade horses for the flag enemy.

For the purposes of the maneuvers the cavalry were divided into two divisions—Northern and Southern. The Northern, consisting of twenty squadrons and one battery, was under Colonel BULLER, Central Indian Horse, as divisional leader, with Colonel GRANT in command of the First Brigade, and Colonel CLIFFORD, Second Bengal Lancers, in command of the Second Brigade, Colonel FRENCH acting as chief umpire of this division. The Southern force consisted of twenty-eight squadrons and three batteries of horse artillery, the whole under Colonel COOKE; the First Brigade under Colonel JENNINGS, Sixth Bengal Cavalry; the Second Brigade under Colonel GOUGH, Eighteenth Hussars; the Third Brigade under Colonel MAC-

PERSON. Fourth Bengal Cavalry; Colonel YEATMAN BIGGS commanding the artillery, and Colonel the Earl of Dundonald acting as chief umpire of this division.

The ground selected for the maneuvers was about eighty miles long, by from twelve to thirty miles broad, bounded on one side by the river Jumna, and on the other side by the East Indian Railway. It contained many villages, and also canals and a river, and provided a typical Indian country, well adapted to the concealment of large bodies of cavalry, and presenting splendid battle grounds on which the qualities of the contending horsemen and their leaders could be roughly measured; at all events, as much as is possible in peace maneuvers, when the great factor of courage must of necessity be left out of the reckoning.

The general idea given out for the maneuvers stated that an army corps was moving on Delhi, covered by the Southern Cavalry Division as a screen. The Northern Cavalry Division was supposed to have advanced south from Meerut, with the object of piercing the screen of the Southern Cavalry, and finding out the numbers and disposition of the enemy beyond.

On the 11th of December the maneuvers commenced by the Southern Division forming a cavalry screen, and advancing northwards in this formation. There is not space enough to describe minutely all the various skirmishes and combats between the forces, with the detail connected with their halts and bivouacs, interesting though such a description would be. I will, however, give a rough idea of some of the work done, and the tactics followed. Take, for instance, the Eighteenth Hussars, which formed the left portion of the Southern Cavalry screen. They left the camp on the morning of the 11th at 7 and arrived at their halting place for the night at 8 p. m. In a straight line measured upon the map they marched about forty-four miles, but the distance actually covered, as they were performing scouting duties, must have been at least ten miles more—say fifty-four miles. On arrival at the halting place for the night the officers and men bivouacked, and as the mules with the blankets did not arrive, they went without them; a considerable deprivation, as the nights in this part of India are now cold. The horses also had no hay that night, and received as a total ration during that day ten pounds of grain (a sort of pea). The next day the Eighteenth Hussars started at 8 a. m. and marched a distance which measures thirty-six miles on the map, but the distance gone over was in reality probably more like forty-six miles; then they took part in an action, and got into camp at Ghaziabad at 10 p. m. The horses again received only their ten pounds of grain, without hay. The baggage mules also were again not in with the blankets. It will be seen that the Eighteenth Hussars in two days covered about one hundred miles of country—no mean performance with the choking dust which arises whenever cavalry moves—besides taking part in the scouting and fighting. The horses are Whalers (Australian). There were, I understood, one or two deaths and a good many casualties amongst the horses of the Eighteenth during their

hard work; but deaths and casualties are the price paid for efficiency, and no cavalry can be considered efficient that limits its peace maneuvers to the capacity of the weakling, instead of weeding out the weak and bad constituted horses by work such as will have to be faced on active service.

General Luck's standard of a good cavalry regiment is its efficiency for real work, not measured by its capacity to trot or canter past on fat horses, or to do a short, slow exercise and then home, but by its capacity to do real work in the field; and he does not mind making the sleek, fat condition barrack-yard school grumble, of which school there are now very few left in the cavalry, nor does he shirk the responsibility of killing off weak horses by his peace maneuvers if they cannot stand the work.

With regard to the drill, all the squadrons worked in four divisions, now called troops, a formation that seemed handy. When the cavalry were working in large bodies, and notice had been given of the vicinity of the enemy, the order was given "to form preparatory formation," Brigadier So-and-So's brigade leading; Brigadier So-and-So's brigade echeloned on the right flank, Brigadier So-and-So's brigade echeloned on the left flank.

The leading brigade at once formed line of squadron columns at deploying intervals; the other brigades formed in echelon on either flank of the leading brigade at 200 yards to the rear, and fifty to 100 yards from its flank. The batteries formed in rear of the center brigade. This position of the batteries was altered during the maneuvers to a position in front of the leading brigade, so that the guns might get into action quicker.

As soon as the disposition of the enemy is reported, the guns advance to a good position from which to fire on the enemy, and after the front line has completed its maneuvering, to gain the enemy's flank—that is, the flank furthest from the guns—the order is given, "Form for attack!" when the brigade or line in rear of the exposed flank will be ordered to reinforce with a named number of squadrons. These squadrons are taken from the inner flank of this brigade, and gallop up and join the leading line. The remainder of this brigade will then become the "support"; the other brigade—that echeloned on the protected flank—is ordered to give a certain number of squadrons in direct support, the remainder of the brigade dropping back to its position as the reserve, either covering the interval between the first line and the support, or echeloned on the protected flank from 350 to 400 yards distance from the leading line.

If the enemy breaks through the leading line, the direct support squadrons, which are scattered in rear of it, in a rough line with the support and outflanking the leading line on the protected flank, will drive him back.

As soon as the attack is delivered, all the lines in rear halt at the proper distance and watch the course of events. This is in substance roughly the form of attack now under trial by the Indian cavalry. It may be here remarked that a very considerable use is made of the whistle as a means of calling attention to commands or signals.

On the 16th the Northern Cavalry retired over the river Jumna, pursued by the Southern Cavalry, and destroying the bridges before the Southern Cavalry arrived. It was intended to swim the Southern Division across, but finally, owing to the quick sands on the margin of the river, only a portion of the force was allowed to swim over. A troop of the Central Indian Horse, under Lieutenant GRANT, whom I closely observed, dismounted from their horses, stripped and swam with their horses across, without hitch or delay, in seven minutes from the time of dismounting; a very good performance, but then the Central Indian Horse is renowned for its smartness and efficiency. The saddlery was to have been taken over on a raft, made by the detachment of native sappers, of inverted earthenware jars, but as time pressed, this portion of the arrangement was not strictly adhered to.

Sir FREDERICK ROBERTS was out daily with the troops, riding long distances and taking great interest in the maneuvers. His final judgment on the result of any combat about which there appeared to be some divergence of opinion was frequently invoked by the Empire-in-Chief, General Luck, and it invariably commanded the respectful approval, as well as silent acquiescence of those present. Whilst I am referring to Sir FREDERICK ROBERTS, I may say that I heard on all sides the wish that he may stay on in India in his present high command. It is impossible to hear him talk with the native soldiery in fluent Hindustani, as I had the privilege of doing on more than one occasion, without remarking the extraordinary influence his personality has for these impressionable men. In every regiment he knows many of the native officers by name, his wonderful memory for faces and names assisting his kindness of heart to gain for him an ascendancy over the native army, which must be seen bit by bit, as I have seen it, or heard story by story, as I have heard it, to be thoroughly realized. It may be said with truth that the whole army, British and native, would, if he led them, follow with an enthusiasm which no other man could rouse. Such is the power of a sympathetic nature, when joined to the halo of great achievements in the service of his country and personal valor. When one thinks of all that this quiet, unassuming man has done for India, the scientific frontier he has so largely assisted to create; the native army he has brought to so high a state of efficiency; the great development in artillery and rifle practice which has taken place since he has had supreme command, one can feel no surprise that the Government is finding some considerable difficulty in picking out a worthy successor.

The maneuvers were over on the 17th, and after a day's rest the march-past took place to-day. It was indeed a grand sight; the cavalry were formed up in line, with the horse artillery on the right, and stretching away across the plain for two miles in front of the saluting point.

Sir FREDERICK ROBERTS was received with a general salute, and was joined on the extreme right of the troops by a large and brilliant staff of officers, British, native and foreign, amongst whom

were conspicuous several native princes in their gorgeous uniforms. The procession, with the Commander-in-Chief on a white Arab at its head, passed slowly down the long line of squadrons. After a minute inspection of their ranks, the Chief and staff took up a position by the saluting point, which was marked by a large Union Jack.

Lady ROBERTS was there, with the Russian Prince GALITZIN in her carriage, who was still full of the kind reception that he had received at the mess of a gallant Highland regiment on St. Andrew's night, and there were also many other persons of rank and distinction. Then began the long defile of the parade. First came the Royal Horse Artillery, the "A" Battery, with its guns and carriages painted khakkee color, an experiment tried to hide the position of a battery from the enemy. Some of the horses of the horse artillery showed work, and one could detect they had undergone a good deal of galloping about: but taken as a whole, they were in very good working condition. It is now universally acknowledged that the twelve-pounder gun is too heavy for quick work with a cavalry division, and is a great strain upon the horses. The British cavalry regiments, with their large squadrons, looked magnificent. Of all, I think that I should give the palm to the Seventh Dragoon Guards' horses. The Fifth Royal Irish Lancers were mounted on native Indian-bred horses, which have, I am told, stood their work well. It is hoped, if this experiment answers, that the whole of the British cavalry regiments in India may before very long be mounted on country-bred horses, the endurance of which is above praise. If this takes place, it will be one more element of strength to our troops in India, brought about by the foresight and energy of the military advisors to the Viceroy, in encouraging and improving the native breed of horses. The Gwalior contingent of Imperial Service troops of four squadrons attracted attention. These troops are all paid and maintained free of expense to the Government by the native Prince of Gwalior, for service, in case of need, side by side with the Imperial troops. They appeared to be strong, active men, on wiry horses, led by native officers, one British officer only being attached to the regiment.

After trotting past by squadrons, the troops wheeled about and galloped past by regiments, which was done in splendid style. The troops then wheeled into line of squadron columns at the far end of the ground facing the saluting point and spectators, and advanced, first at the trot and then at the gallop; the whole forty-eight squadrons forming line to the front as if to attack as they advanced at the gallop, the halt being sounded a few yards from the Commander-in-Chief. After a general salute, the Officers' Call was sounded, and Sir FREDERICK ROBERTS addressed General LUCK and the officers in a few clear and well chosen sentences, full of sound advice and criticism. He enjoined the officers specially to take great heed with regard to scouting duties, and good-humoredly advised them to spend less money on polo ponies, as this would enable them to buy more horses to carry out reconnaissance rides and compete for a challenge cup, which he suggested would be presented as an encouragement

to this all-important branch of cavalry activity. He ended by thanking General LUCK for his efforts in making the cavalry so efficient, and the officers, both British and native, non-commissioned officers and men, for having so energetically worked in the same direction.

THADDY O'BRIEN.

BY CAPTAIN W. R. HODGES.

Air: Ta-ra-ra Boom de ay.

Thaddy O'Brien was a sergeant gay,
In the U. S. Cavalry,
The fresh recruit would often say,
"I earnestly long to see the day,
When 'neath the sod he's put to stay,
That son-of-a-gun from Dublin Bay,
That sergeant with the 'superior' way,
My life's a burden every day."

CHORUS: Ta-ra-ra Boom de ay,
Ta-ra-ra Boom de ay,
Ta-ra-ra Boom de ay,
Ta-ra-ra Boom de ay,

Too long were the trousers by a span,
The recruit received from Uncle Sam,
The sergeant bawls as loud as he can,
"Go and let out yer suspenders man!"
The hat he drew was much too small,
And failed to stay on his head at all,
"Stretch it ye spalpeen!" Thaddy would call,
"Ye'll never be a throoper at all!"

CHORUS.

Now Michael Flynn a soger bold,
At the bivouac fire this dream once told,
"I thought I was dead, to the gates of gold
Me spirit flew like the saints of old,
They opened the dure and in I went,
St. Peter didn't ask for a squint
At me discharge from the rigimint,
Or where I had served, divil a hint.

CHORUS.

"An Irish angel took me in hand
To show the sights of that beautiful land,
He'd been a soger wid plenty of sand,
Killed by the divils of Sittin' Bull's band,—
The first thing he said—I thought he was lying—
'Av coorse ye'd loike to meet Sergeant O'Brien,
Ye'll find him in there with other galoots,
Ishoon halos to the recruits."

CHORUS.

"In the urtherly room a blazing wid light
Was Thaddy O'Brien, a beautiful sight,
A corpral to help on the left and the right
Ishoon halos in a manner polite,
He handed me mine, I saw 'twas too small,
I gave it him back, and Thaddy did bawl
In a voice so terrific 'twas a terror to all,
"Stretch it ye blackguard or have none at all!"

CHORUS.

BOOK NOTICES AND EXCHANGES.

PRINCIPES DE DRESSAGE ET D'EQUITATION. (Second Edition. Revised and Corrected). By James Fillis. Paris, 1891. Large Octavo. 377 Pages. In paper covers. 10 francs.

There has been no dearth of treatises, scientific and otherwise, issued from the press of this and foreign countries, on the subjects of horse training and equitation, and their merits are as varied as the covers in which they have appeared. A few are good, more tolerable only, and many simply the means of exposing the ignorance of their writers.

The systems advocated by the different authors have run the whole gamut, from the complicated instructions based on the practice of the *haute école*, to the simple, if not entirely satisfactory, lariat-choking and tail-twisting methods of the ordinary Mexican, and his apt pupil, the American cowboy.

There is another method than those named, although it may be unknown to some of our readers, by which the horse, without being conquered by the application of mere brute force, is made to understand, under all circumstances, what is required of him, learns to balance himself and the shifting weight on his back, and, with any decent kind of treatment, willingly submits to the control of his rider, and shows a desire to execute his slightest wish as conveyed to him through the medium of legs and reins.

The advocate and teacher of this method is M. James Fillis, the title of whose book is given above. The work is based on a practical experience in riding and horse training extending over a period of more than fifty years.

A want of space prevents any extended notice of his clear, sensible and extremely practical course of instruction. It suffices to say that the first part of his book treats of every subject directly or indirectly connected with the perfect training of the saddle-horse; and so clearly and concisely are his instructions given that a single reading of them will almost fix them in one's mind. The second part of the book is devoted to the *haute école* and the fancy gaits and show movements taught therein.

While the author speaks in the highest terms of Baucher as an

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instructor in the *haute école*, and as one of the most successful exponents of its principles, he also shows wherein it is glaringly defective for the purpose of teaching actual riding on the road or across country.

In the course of his remarks he says that Baucher, confining himself to the training of the riding hall, never allowed a horse to show his powers in the trot or gallop, and that he (Baucher) could not be induced to indulge in open air riding; from which it may be inferred that although Baucher succeeded in obtaining control over a horse, it was of little practical use except for purposes of display.

The subject of horse training can have but little interest, perhaps, for our cavalry officers so long as the use of the monstrosity misnamed the Shoemaker bit is obligatory in our service; but as a time must come when it will be discarded for a bit with which a horse can be ridden with comfort to him and safety to his rider, preparation for its rational use might be begun now.

Mr. Fillis' book is beautifully printed on clear, white paper, with wide margins, and profusely illustrated, with full page lithographs and photogravures. It is to be hoped that some enterprising publisher will reprint it in English, with the consent of the author, so that it may be brought into more general use.

The Cavalry Association is indebted to the courtesy of Captain Fairman Rogers of the Philadelphia City Troop, for a bound copy of the work.

L. B. L. L.

JOURNAL OF THE UNITED STATES ARTILLERY.

This is a journal devoted principally to the arm of the service from which it derives its name. It is bound in paper characteristic in color, and makes the third journal devoted to the service, edited by officers of the army. It is published at the Artillery School, Fort Monroe, by authority of the school staff, and edited by officers on duty at the school as instructors. It appears as a quarterly; subscription price \$2.50, single numbers seventy-five cents. Three numbers have made their appearance. The table of contents embraces such subjects as Sea Coast Guns and Steel Armor; the Determination of Velocities by Sound; Study of the Effects of Smokeless Powder; Chemistry and Explosives at the Artillery School; the Effect of Accelerating and Retarding Winds; Field Artillery, its Organization, Role, etc., by officers whose names are already familiar to our readers as specialists in their arm of the service. While this journal will be of particular interest and benefit to artillery officers, it will prove both instructive and interesting to all officers who desire to keep themselves informed of the changes and improvements in armament and explosives.

W. A.

THE UNITED SERVICE. Hamersly & Co. 1892.

June: Europe in 1890-91, by S. B. Hölshird, Brigadier-General, U. S. A. (retired). Marshal Masséna, by Edward Shippen, Medical Director, U. S. A. The Attack on Pine Ridge Agency, S. D., by

Thomas H. Wilson, First Lieutenant Second Infantry, U. S. A. On Our Army. A Legend of "Old Seabrook." The Boarding, Capturing and Burning of the Gunboat "Underwriter," by D. B. Conrad, M. D. Military Order of the Loyal Legion United States. Rear Admiral Samuel Phillip Lee, U. S. N. July: The Modoc War: its Origin, Incidents and Peculiarities, by James Jackson, Major Second Cavalry. Recent War-Ship Construction, by Henry Lawrence Swinburne. Europe in 1890-91 (continued), by S. B. Holabird, Brigadier-General, U. S. A. (retired). Captain Pierre de Landais, Commander of the Continental Frigate "Alliance," by H. D. Smith, Captain U. S. Revenue Cutter Service. The Old Flag Staff, by Albert Tracy, Colonel, U. S. A. General Cullum's "Biographical Register" of the Officers and Graduates of the United States Military Academy, by W. H. Powell, Colonel U. S. A. Andre's Ride. Military Order of the Loyal Legion of the United States, by Surgeon-General John Mills Browne. August: Infantry Action and Our New Drill Regulations, by Carl Reichmann, First Lieutenant Ninth Infantry, U. S. A. Europe in 1890-91 (continued), by S. B. Holabird, Brigadier-General U. S. A. The Ram Question, by Charles H. Rockwell, Commander U. S. N. The Battle of Woerth, by Lonsdale Hale, Brigadier and Brevet Major-General Alexander McD. Cook, U. S. A. September: The Supply of Small-Arm Ammunition to Troops in the Field and on the Line of Battle Under Fire, by D. J. Craigie, Captain Twelfth Infantry, U. S. A. Infantry Action and Our New Drill Regulations (continued), by Carl Reichmann, First Lieutenant Ninth Infantry, U. S. A. Sir John Franklin, by Henry Elliott. Europe in 1890-91 (continued), by General Holabird. What the Fleet Surgeon Saw of the Fight in Mobile Bay, August, 1864. Whilst on Board the Confederate Ironclad "Tennessee," by D. B. Conrad, M. D. Fort Sheridan, by H. R. Brinkerhoff, Captain, U. S. A. Military Order of the Loyal Legion of the United States, by ex-Paymaster-General Thomas H. Looker, U. S. N. (retired).

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No. 23: The Effectives of the English Army. No. 24: The Austro-Hungarian Regulations. The Lines of Water Communication, and the Improvement of Harbors in Germany. No. 25: The Austro-Hungarian Regulations (continued). No. 26: The Austro-Hungarian Regulations (concluded). No. 27: Dahomey (with map). The Fortifications of Switzerland. Railway Construction in Germany. No. 28: First Combats on the Rhine, from the Personal Notes of an Officer. Marching and Target Practice in the Swiss Army. No. 29: Dahomey (continued) with map. The Depot Squadrons of the Cossacks. No. 31: The Divisional Ambulance. The First Combats on the Rhine (continued). No. 32: The Divisional Ambulance (continued) with plates. The First Combats on the Rhine (continued). Modification of the German Regulations for Field Service. No. 33: The First Combats on the Rhine (continued). The Divisional Ambulance (with plates). No. 34: The Divisional Ambulance.

lance (concluded). Punishment in the Belgian Army. No. 35: Pneumatic Guns in the United States. The First Combats on the Rhine.

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Antietam and the Lost Dispatch, by J. M. Bloss, Captain U. S. Volunteers. Personal Experience in Organizing Volunteer Soldiers in April, 1861, and Participating With Them in the First Battle of Bull Run, by H. Seymour Hall, Brevet Brigadier-General U. S. Volunteers. Personal Recollections of the Battle of Shiloh, by Leander Stillwell, First Lieutenant Sixty-first Illinois Volunteer Infantry. The Acting Signal Corps, by S. T. Cushing, Major and C. S., U. S. A. Wilder's Brigade of Mounted Infantry in Tallahoma-Chickamauga Campaigns, by George S. Wilson, Captain Twelfth U. S. Infantry. What I Saw and Did Inside and Outside of Rebel Prisons, by O. R. McNary, First Lieutenant One Hundred and Third Pennsylvania Volunteers. The Nicaragua Canal, by Major O. B. Gunn, Civil Engineer. Reminiscences of Services as an Aide-de-Camp with General W. T. Sherman, by John Taylor, Captain U. S. Volunteers.

MILITAER WOCHENBLATT.

No. 47: Souvenirs of Marshal McDonald. Punishments in the English Army. The Danish Fleet. Field Artillery of the Future. Experience with Hard Bread in the French Army. The Supplying of Ammunition. The Question of Secondary Railways. From a Military Point of View. The New Belgian Rifle. The Tactics of the Future. A Comparison of the Most Essential Dispositions of the Infantry Attack and Defense, in the German, Russian, Austrian and French Armies. Notes on the Employment of the Saber and Fire-Arms in the American Civil War. Gymnastic and Shooting Societies in France. Narrative of a Prussian Officer in the Russian Service During the War of 1877-8. The Spring Maneuvers in the Russian Army, 1892. Present State of the Question of Horse Training in the Army. Infantry Target Practice. No. 70: The New Regulations for the Maneuvers of Field Artillery.

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July: Smokeless Powder, by Captain Clark. Prussian Great General Staff, by Captain Brigham. Artillery Services in the Rebellion, by General Tidball. Practical Drill for Infantry, by Lieutenant Johnston. French Grand Maneuvers of 1891, by Captain Chester. Practical Workings of Rifle Practice, by General Wingate. Civil War in Chile, by Captain O'Connell. September: The Terrain in Military Operations, by Captain Petit. Artillery Service in the Rebellion, by General Tidball. Modern Drill Regulations, by Captain Richards. Organization of Militia Defense, by Captain Chester. Maneuvers and Kriegs-Spiel, by Lieutenant Barth. Physical Training of the Enlisted Man, by Lieutenant Harrison. Firing from Horse-

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June: Military Geography, by Colonel Maurice. Electricity as Applied to Torpedo and Other Naval Purposes, by Lieutenant F. G. Hamilton. R. N. Military Education, by Colonel F. J. Graves, h. p. late Twentieth Hussars. The Places and Uses of Torpedo-Boats in War, by W. Laird Clowes, Gold Medalist and Honorary Life Member of the United States Naval Institution. July: Modern Aerial Navigation, by Captain Fullerton, R. E. The Late War Game in the Open, by Major E. Sullerthwaite. Combined Tactics, by Colonel H. M. Bengough, C. B. August: Ambulance Work and Material in War, by Major John Furley. The French Maneuvers of 1891, by Major G. F. R. Henderson. The Dimensions of Modern War-Ships, by Captain S. M. Eardley-Wilmot, R. N.

PROCEEDINGS OF THE UNITED STATES NAVAL INSTITUTE. No. 62.

Prize Essay for 1892: "Torpedo Boats; Their Organization and Conduct," by Wm. Laird Clowes. Cellulose and its Application as a Protection to Vessels, by J. M. Cheneau. Official Report on the Behavior of the U. S. S. Baltimore, by Captain W. S. Schley, U. S. Navy, Commanding U. S. S. Baltimore. Electric Welded Projectiles, by Hiram Percy Maxim. The Influence of Range Finders Upon Modern Ordnance. Gunnery, and War-Ship Construction, by Lieutenant Albert Gleaves, U. S. Navy. Notes on the Date of Manufacture of the Three Guns at the U. S. Naval Academy, Captured in Corea by Rear-Admiral John Rodgers, by Thomas Wm. Clarke.

PROCEEDINGS OF THE ROYAL ARTILLERY INSTITUTION. 1892.

June: Some Notes on Applied Field Fortification. Operations of the Irrawaddy Column, Upper Burma. Field Artillery Fire. Notes of Lectures on Artillery in Coast Defense. Notes on Egyptian Artillery. July: The Battle of the Velocities. Achievements of Field Artillery. August: Fire Discipline; its Necessity in a Battery of Horse or Field Artillery, and the Best Means of Securing It. The Organization of a Garrison Company. Achievements of Field Artillery.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA.

May: A Musketry Signaling Dummy. Safety Arm Rack, for Use in Barrack-rooms, Guard-rooms, etc. The Capture of Noisseville. Notes on the Attack Formation of the French Army. Medical Services in the Field. June: Officers and Their Weapons. The Higher Training of Infantry Native Officers. Should Richochets Count on the Range.

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The Battle of Germantown Described by a Hessian Officer. John Claypool's Memorandum Book. Extracts from the Diary of Nathan Sellers, 1776-1778. Letters of Lieutenant John Richardson, 1776. A Letter of Miss Rebecca Franks, 1778.

OUR ANIMAL FRIENDS. August.

Road Making in Civilization. The Pleasures of Observation. Vivisection in Denmark. The Spirit of Sport. The Cry of Mad Dog. The Rights of Animals. Rosa Bonheur at Home.

OUTING.

June: The Maryland National Guard, (concluded), by Hansen Hiss. September: The Military Schools of the United States, by Lieutenant W. R. Hamilton, U. S. A.

FOOD. July, 1892.

Our Cooking Club. Food and War. The Nutritive Values of Food. Cool Drinks for Hot Days.

IOWA HISTORICAL RECORD. July, 1892.

Henry Dodge. The Old Pioneer. Men Who Made Iowa. War Memories. Indian Names.

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BROAD ARROW.

JOURNAL
OF THE
UNITED STATES CAVALRY ASSOCIATION.

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NO. 19.

CAPTAIN CRAWFORD'S LAST EXPEDITION.

BY LIEUTENANT W. E. SHIPP, TENTH CAVALRY.

IN the United States Army Register for 1887, we find the following entry: "Died — Captain EMMETT CRAWFORD, Third Cavalry, January 18, 1886, near Nacori, Mexico, of wounds received January 11, 1886, in an attack made on his command of Indian scouts by a force of Mexicans."

The circumstances attending his death were so sad and so peculiar, and the character of Captain CRAWFORD was so elevated and noble, that the story of his last expedition possesses a mournful interest for those acquainted with it.

It was the lot of the writer to be a member of this expedition, and to be thrown into intimate association with him, and so to learn to know and to love him; to witness his fall and death; and finally to see his remains buried in the land of strangers—of those who had killed him while he was trying to help them. It is the fact of having had these opportunities, together with the desire to pay a tribute to the memory of one so worthy to be classed among our heroes, that furnishes the reason for writing this account.

What is generally known as GERONIMO's outbreak led to the cir-

W. E. SHIPP.
Editor.

circumstances which resulted in the death of Captain CRAWFORD, and it will therefore be necessary to begin our story by a brief account of that outbreak.

In May, 1885, a large portion of the Chiricahua and Warm Spring Apaches, then united as one tribe, without cause left their reservation at Fort Apache, Arizona. NATCHEZ was their hereditary chief and, being a man of ability in addition, was the real leader; the son of old COCHISE, who was for many years the terror of the southwest. NATCHEZ was worthy of his father. GERONIMO was the medicine man and orator of the tribe. He was not a great warrior; but, like SITTING BULL in the North, his influence was powerful among his people. A man of diabolical appearance, and with a character to correspond, he always appealed to the bad side of the Indian nature; and they, like too many people in this world, generally listened to him in preference to better men. By some chance GERONIMO was always credited by the whites with being at the head of the renegades; this error is of so little importance that, for the sake of convenience, we will adopt it.

The Indians at once entered upon a career of murder and pillage, embracing in their zone of operations large portions of Arizona and New Mexico in the United States, and Chihuahua and Sonora in Old Mexico. The theater of war was so rough and barren that it was with great difficulty that they were followed at all by the troops. Fitted by nature and by long experience for such warfare, and finding plenty of food by stealing cattle and horses, they laughed at their pursuers and continued to spread desolation and terror wherever they chose to go. The broken down horses and the ragged and worn out soldiers showed the work the troops had been doing—work discouraging and doubly hard on account of the almost total lack of success.

Seeing that the efforts of the regulars were fruitless, General CROOK, the Department Commander, turned to a plan which had long been a favorite one with him: the employment of Indian scouts to subdue their own people. The hostiles, or "broncos," as they were generally called, had made their headquarters in the great Sierra Madre Range in Mexico, where they had a safe base for operating both in our country and in Mexican territory. A treaty was now made in Washington, which allowed our troops to cross the border, but it had the great drawback of not allowing us to establish any supply camps in Mexico.

Under General CROOK's plan two expeditions were organized, composed mainly of scouts, and commanded by Captain WIRT DAVIS.

Fourth Cavalry, and Captain EMMETT CRAWFORD, Third Cavalry. The latter had been recalled for this duty from Texas, where he had just gone with his regiment. He had entered the army after the war from the volunteer service, and had since been almost continuously in active service on the frontier, taking part in most of our great Indian wars, and making for himself a reputation for bravery and devotion to duty not surpassed by that of any officer of the army. Though he had distinguished himself in the northern campaigns against the Sioux and others, yet it is probable that his service in Arizona had been still more valuable. In 1883 he had commanded the scouts in General CROOK's expedition into Mexico, the first expedition ever organized for a campaign against Indians in that country.

Returning from this duty, he was placed in police charge of the San Carlos Reservation, where he had entire control of the Indians lately on the war-path, and where he also kept order among the other turbulent elements. Constantly opposed by employes of the Interior Department and other interested parties, his final overthrow of his enemies and the exposure of their frauds, led to a lasting change in the administration of affairs on the reservation; a change for which the people of Arizona have yet cause to be thankful. Captain CRAWFORD had a thorough knowledge of Indian (especially Apache) character; and he knew personally a great number of the men of this tribe. This knowledge, together with his high character, gave him great influence with them. They knew from experience that they could believe him and trust him; he was kind to them, yet never allowed familiarity; his pure life, his devotion to duty and his fearlessness in the discharge of it, won their respect. Hence he was peculiarly fitted to command them when they took service under the Government.

The two expeditions sent into Mexico were as successful as could have been expected, each capturing a number of squaws and children, and breaking up the camps which had formed the homes of the "broncos." The wearing-out process seemed to furnish the only hope of subduing them; this process, however, promised to be long and somewhat tedious.

In the fall the commands were brought in and thoroughly reorganized. It had been necessary to send out the first expeditions rather hastily; now time was taken to more carefully select the scouts, and to more thoroughly equip the commands. The commanders remained the same, but some changes were made among the other officers. Captain CRAWFORD chose the White Mountain Apaches and the friendly Chiricahuas as his scouts, because they

were mountain Indians, and were less civilized than the other tribes, and therefore, in his opinion, better fitted for the work to be done. The Chiricahuas were part of the tribe then on the war path, and had themselves been at peace only about two years. No soldiers were to be taken. The peculiar material selected was believed to be that best adapted to the task of following GERONIMO's people into their retreats in the terrific fastnesses of the Sierra Madre, where it was hoped to surprise them and compel their surrender. Surprise was absolutely necessary to success; once aware of the proximity of foes, the hostiles would scatter and render it impossible to follow them. Indians of other tribes and soldiers were not believed to possess the skill and endurance necessary to surprise the vigilant Chiricahuas; Captain CRAWFORD in his previous expedition had found the soldiers he had with him a burden.

The great risk taken in trusting so largely to relatives of the hostiles seemed justifiable, as they alone knew the haunts and habits of the enemy. Many gloomy predictions were made about their treachery, but the many eager offers of service by the young officers in the department showed that they at least were not daunted by the prospect. The selections made were First Lieutenant M. P. MAUS, First Infantry, and Second Lieutenant W. E. SHIPP, Tenth Cavalry, to command scout companies; Second Lieutenant S. L. FAISON, First Infantry, to be Adjutant, Quartermaster and Commissary; Dr. T. B. DAVIS, U. S. Army, to be Surgeon. One hundred scouts were enlisted at Fort Apache, and started for Mexico on the 18th of November, 1885. But before we follow the command on its march it will be necessary to take a look at its organization and personnel.

Two white chiefs of scouts assisted the officers, their principal duty being the daily issue of rations—daily, because the scouts would always eat up at once whatever was given to them. One of these men, HORN, also interpreted from Spanish into English. CONCEPCION, an old Mexican, who had been a captive, was Apache interpreter. The two interpreters were necessary, because no one could be found to interpret directly from Apache. The interpreters were used only in important talks, as the scouts and their officers understood each other well enough for ordinary purposes. NOCHE, a Chiricahua, was the Sergeant-Major, and performed the duties of leading guide and scout. His superior for these duties never existed. The other conspicuous scouts who were always selected for difficult service, were COONEY, CUSO, DUTCHY, WASSIL, KAT-E-KAHN and CHIKIZ-IN, among the Chiricahuas; NAH-WAH-ZHE-TAH, GOOD-E-NA-HA,

Loco and JOSH, among the White Mountains. Some of these deserve our notice. COONEY and CUSO were two short, big-chested men, with almost unlimited powers of endurance: in their savage way they were as honest and loyal as men could be, and were splendid scouts. DUTCHY was a known murderer; brutal and mean, but in many respects a valuable scout.

Our captain's treatment of DUTCHY well illustrates his methods with Indians. During the previous summer this man had mutinied and had been sent to Fort Bowie, where he was put in irons. Though he was undoubtedly guilty, Captain CRAWFORD took him again as a scout, but refused to give him the chevrons he demanded. He, however, selected him as his body servant, and trusted implicitly this man who had not long before threatened his life. The result was the establishment of a complete ascendancy over DUTCHY, and increased respect on the part of the others, as they saw how little he feared this dangerous man. WASSIL was an old man, a fine scout and the best hunter of all. His claim to fame rests, however, on his escape from the train conveying him to Florida in September, 1886, and his return from Independence, Mo., to Arizona. His long journey through an unknown country, part of it thickly settled, shows what an Indian can do towards finding his way. He is now (1891) a renegade in the mountains; has committed several murders, and seems safe from capture.

NAH-WAH-ZHE-TAH, or NOSEY, as he was irreverently but appropriately called, was a great medicine man—which means that he was a doctor, preacher, conjurer and prophet, all in one. Dressed in an old alpaca coat, ornamented with a pair of shoulder straps, and a pair of cavalry officer's trousers, much too long for his short legs, his first appearance was hardly in keeping with his solemn character and functions. Though undoubtedly a humbug, yet his influence was exercised for good, and rendered the task of governing the wild scouts much easier. Poor old NOSEY is now in jail for killing his own chief, the result of too much tiswin, the Apache intoxicant.

The scouts were not burdened with much clothing—the soldier's blouse, a pair of cotton drawers and a waist cloth, moccasins and a red head-band, constituted the usual costume. Their picturesqueness, and above all, their efficiency, were not spoiled by attempts to make them look like regulars. In these men were apparent the results of heredity and long training. Small and unable to compete with white men in any athletic sports, yet they made us feel like babies when it came to mountain work. The Chiricahuas, especially, were

a never-ending source of wonder. Their knowledge of country; their powers of observation and deduction; their watchfulness, endurance and ability to take care of themselves under all circumstances, made them seem at times like superior beings from another world. No wonder our soldiers could not catch people like these. If our little army of 25,000 were composed of such men, and animated by the proper spirit, it would be unconquerable by the best army now existing in Europe.

The command exercised over the scouts depended mainly upon the moral influence of the officers. Eager as they seemed to be to do their duty, care was taken to avoid trying to force them into ways foreign to their nature and training. They fully understood their work, and except to exercise a general control and supervision over them, no attempt was made to interfere. The temptation to be unduly meddlesome was, however, not strong, for most of the scouts had been on the war-path, which meant that many white men had been killed by them. They were, however, treated with perfect confidence, and soon little thought was given to their former bloody records.

The methods of camping and marching were in conformity with the character of these troops. They cooked their own food without the necessity of supervision, and, on going into camp, they always voluntarily took such precautions as circumstances made necessary. They were ready to start by sunrise, or sooner, and when not in a dangerous neighborhood, much liberty was allowed them, so that they scattered on foot in hunting parties; at the same time they were sure to find signs of the hostiles if the latter were anywhere in the neighborhood. The officers and chiefs of scouts, on mules or on foot, accompanied the scouts to see that no depredations were committed. This free life had many charms, despite the hardships often accompanying it. All supplies and baggage were carried on the pack-mules, these being divided into three big trains, under DALY, HAYES and ROVER, forty-five packs to each train. The aparejo was, of course, the pack-saddle used; each mule, when in good condition, could carry comfortably about 250 pounds. Each train was complete in itself, with its "boss packer," its cargador (the man who arranged the loads and kept everything in repair), its blacksmith, its cooks, and its bell-horse. Seven other men belonged to a train, but no matter what a man's position was—boss or cook—he was expected to help pack. Most of the mules were seasoned to mountain work and the packers were old hands, many of them having spent the best years of their lives in the Government service. There was very

little room for improvement in these trains: if the Government could always count on service as efficient as that rendered by the packers in this campaign, there would be no cause for complaint. The trains have now all been broken up, many of the mules sold, and most of the packers discharged without reward or recognition. It is a pity that these schools for the difficult art of packing no longer exist. Some day, perhaps even in a civilized war, there may be cause to regret it.

From the starting point at Fort Apache the command went to Fort Bowie, Arizona—General CROOK's field headquarters—where it was inspected by General SHERIDAN. After a few words of encouragement from him and from General CROOK, we started on a night march to the Dragoon Mountains, Arizona, as a band of hostiles had been reported in that neighborhood. After a week's scouting, no trail being found, we crossed the Mexican line into Sonora on the 6th of December, heading toward Fronteras. From there we went south to the mining town of Nacosari, and then, leaving all roads, struck into big mountains on the west slope of the Sierra Madre, where there was plenty of hard work. An abundance of deer made the fare good, however, and compensated us for other hardships. Emerging from the mountains, we found ourselves in the valley of the Barispe, a tributary of the Yaqui, and camped at the town of Huasabas, where groves of orange and lemon trees showed the tropical nature of the country. The fruit helped at the Christmas dinners, which otherwise would have been almost wholly made up from UNCLE SAM's army ration. The valley of the Barispe was fertile, but the inhabitants did not appreciate the advantages Nature had given them; they were a miserable people, living in mud huts almost bare of furniture and wanting in every comfort. Wheeled vehicles were unknown; the burro did the freighting for the country. The Apaches had long been a terror, but the Mexicans seemed to regard them as a natural evil not to be gotten rid of by any effort on their part. There were no doctors among them, and during our stay they availed themselves of the services of our kind-hearted surgeon, who was never idle, receiving, however, as fees, only a few oranges or a cheese, sometimes a welcome bottle of mescal.

Huasabas was the scene of our first serious trouble with the Mexicans. One of the scouts, who was drunk, but unarmed, was so badly shot in the face by a soldier that he had to be sent back home. At such times the exertions of the officers alone prevented bloody fights; their duties were dangerous and not at all pleasant.

There were plenty of rumors of outrages still farther south, so we

crossed the mountains in that direction, and came to Bacadehuachi, a tiny town for such a name. Here, hid away in these wilds, was a crumbling mission, one of those monuments to the wonderful old priests who, ages ago, braved hardships and dangers to plant their religion among the Indians; sometimes accomplishing much, their zeal too often brought their lives to an end in torture. The priests of that day must have been experts at solving the labor question to have gotten out of the ancestors of the lazy people we saw the work necessary to build this big brick church with its bells, its towers and its wings.

The Apaches had left their mark all through the country we were now traversing. The abandoned and ruined ranches, and occasionally a deserted village; the way in which the people spoke; the dismal stories they told, and the scars they showed, and the general desolation which prevailed in this fertile and well-watered, though rough country, all bore witness to the curse these Indians were. Nacori, the next village, was surrounded by a wall to protect the inhabitants, and the little fields hugging the town showed that they did not dare to go far from it.

Our hardest work was now at hand; the country was getting rougher still, and there was no doubt that the hostiles were not far away. The surplus rations were stored in Nacori, and Lieutenant FAISON was sent to Lang's Ranch, N. M., with two pack-trains for more. Taking DALY's train, Captain CRAWFORD, marching at night, went into camp about twenty miles to the south of Nacori, and sent out a small party on foot to explore. This party having returned without seeing any signs, it was decided to leave the pack-train in camp with a small guard, and to strike out on foot for the rough country near the forks of the Yaqui, where the Mexicans had reported GERONIMO's headquarters to be located. Safe in this retreat, where they had never yet been followed, the Indians had been sending out small parties to kill and to steal. Twelve days rations and one blanket for each officer and scout were to be packed on a few of the best mules, the three pack-trains accompanying them being the only men allowed to ride. When the scouts found that we were to walk with them, they begged hard to be allowed to go alone, as they felt certain that the white men could not keep up. But the Captain would not submit to such an arrangement, and they reluctantly gave up.

Before starting, there was a big medicine dance, at which old NAH-WAH-ZHE-TAH for the first time unrolled the sacred buckskin which he had worn over his shoulder since he had left Fort Apache.

The ceremonies were impressive, even to the white men. So thoroughly in earnest were the Indians that the solemn dances and marching, the kneeling before the sacred buckskin as it was presented to be kissed, and the old medicine man's blessing of the arms, seemed not meaningless to us as we looked on in silence. With NOCHE and a picked band, equally divided between the Chiricahuas and White Mountains, leading, we started out on the 3d of January, 1886, and camped that night on the Haros River, a large tributary of the Yaqui. On this and the following marches the advanced guard marched far ahead, thoroughly reconnoitering the country; immediately preceding the main body were a few good scouts; Captain CRAWFORD always led the main body, and allowed none of the scouts in it to get in front of him. Forging the river in the morning, we were toiling up and down the steep hills beyond when, about six miles from the river, a small trail of Indians was struck and, soon after, the trail of a big band traveling east. Many tracks of ponies and cattle showed how successfully they had been marauding. From some slight sign the scouts declared that NATCHEZ was with the band, which meant that GERONIMO was there also. Cautiously as we had been advancing before, it was now necessary to be still more careful, for we were on the trail of Indians whose vigilance never relaxed, even here where they had never been followed. The extreme caution of these Indians was shown by the location of their camps, which were always high up on some well guarded point, whence all the approaches could be watched. It mattered not to the bucks who selected them, how many miles the poor squaws had to carry wood and water. The way the trail ran, concealed as it ascended the hill and exposed to view as it descended, was another evidence that they did not intend to be caught napping. This necessitated many a weary detour, as their watchful rear guard might at any time discover us if we followed the down hill trail.

In the hope that the Indians would establish a permanent camp, we hustled on, thinking it possible that the scouts, as expert as they, might be able to surprise them. From the time we started on this foot scout, the hardships had been great. The country was so rough that it seemed Nature must have made a special effort in that direction. Wearing moccasins whose thin soles allowed the feet to feel every stone of the millions that lay in the path, we had to keep up with our Indians, who had been climbing mountains since they were babies, and whose ancestors had for ages been mountaineers. The days were fairly warm, but the high altitude made the nights bitterly cold. Without shelter and limited to one blanket each, and

with no fires allowed, sleep was almost impossible to all except the scouts, who slept in long rows, with one's head at his neighbor's feet, and seemed tolerably comfortable. We could not start till the advanced scouts had thoroughly reconnoitered the country, so that it was always late in the day when we broke camp. The marches did not end till late at night, when camp, cheerless as it was, was at least better than the endless climbing of mountains or falling over rocks. Often we had to follow some cañon in which lay immovable boulders made slippery by the water which had once flowed over them. Going through them in the dark, it seemed as if we would surely break our necks or dash out our brains, so often did we fall.

Deer were plentiful, but none could be killed for fear of betraying our presence. The blouses were turned so as to expose the gray lining, which was less conspicuous than the blue side, and all prominent marks about the person were discarded. When it was necessary to make fires for cooking, the scouts took charge: in the day time small smokeless fires were made from very dry wood; at night the fires were hid away in some gully or depression, so that they could not be seen a few yards away. In crossing ridges, care was taken never to expose the body against the sky line. Whether in camp or on the march the scouts exercised a constant watchfulness, and no precaution that could possibly be taken was ever neglected. Long habit had made these things come naturally to them. Watching the scouts, one could not help thinking how hopeless was the attempt to catch people like them with men trained and equipped in the manner of our own soldiers. The Apache seems to see everything and to know everything when in the field; no matter how dim a trail may be, it may be made by a few moccasined feet passing over rocks, he follows it by sight as easily as the good hound follows his prey by scent. Soldiers, I mean officers, as well, nearly always scorn the precautions that Indians never neglect. Many a time the pursuer has found himself only too glad to escape from the little band he had started out to destroy. We made but few miles a day, so many halts had to be made to reconnoiter, the country was so rough and night marching so difficult. Cattle from which only a few pounds of meat had been cut, were often found lying on the road. On the 6th, the remains of a number were found, the meat having been carried off and no more tracks were seen. On the 7th the trail crossed the Haros and we found ourselves in that terrible country between the Haros and the Satochi, so appropriately called by the Mexicans "Espinosa del Diablo" or "Backbone of the Devil."

On the 9th of January the start was made about noon, and we

had already made a good day's march when, at dusk, NOCHE reported that the hostile camp had been located. Fearing that we would be discovered if we delayed, it was decided to march all night and attack at daylight. The mules were far to the rear and had to be left behind; so, with empty stomachs, we began this toilsome march that was to test the strength of the scouts, no less than that of the white men. The doctor remained with the packs, as did also the old interpreter, CONCEPCION, who was worn out and unable to keep up. His absence was, afterward, a source of much trouble. During all this dark night we climbed steep mountains covered with loose stones, or struggled through gloomy cañons, following our Chiricahua guides, who seemed perfectly at home. Sometimes we almost despaired and felt like succumbing to the fatigue that nearly overpowered us; but at such moments the thought of what dawn should bring buoyed us up and revived our drooping spirits.

At length, just before daylight, we drew near the high, rocky point where the camp was said to be, and the command was divided so as, if possible, to surround it. After some delay we crept forward, scarcely breathing as we moved; and, to some of us, there came strange sensations, as in the dark, still night, we thought of the isolation of our position, for, in this wild and unknown region, we were led on by allies who had often proved how crafty and blood-thirsty they could be. But success seemed almost assured, and exultation was taking the place of these feelings, when some burros in the herd of the hostiles began braying and, like the geese of ancient Rome, aroused the camp to a sense of its danger. Some of the "broncos," running out to try and carry off their stock, were fired upon by the scouts, who then rushed into the rocks near by and opened a lively fusillade, accompanying it with their shrill cries of defiance. Answering shots came from the camp, close at hand in a cluster of large rocks, that we afterward saw formed a stronghold capable of defense by a very few men. The behavior of the scouts at this juncture was very disappointing. A rush into the camp would have insured the capture of the squaws and children at least, probably after a bloody fight. But they scattered through the rocks and, deaf to all appeals, allowed themselves to be held in check by the fire of the hostiles, who finally escaped in the darkness, leaving behind all their stock, provisions and blankets. The officers could do nothing, for Apaches always fight in their own way, and instead of following one who tries to lead them to a charge, they look upon him as a fool and unworthy of confidence. In this case it was impossible for us to tell friends from foes; every time I myself attempted

to shoot I was stopped, because I was about to shoot a scout; at last, in desperation, I fired two shots at some figure dimly seen. Who he was I never knew, for I missed him.

In this affair one "bronco" was slightly wounded. We suffered no casualties whatever. Soldiers in the place of the scouts would have behaved much better, but then a sufficient number of soldiers could never have been gotten so close without being discovered. Daylight before the end of the skirmish might have changed matters somewhat, but when there was light enough to see, the band had all escaped and were scattered through the mountains, and the scouts, worn out by eighteen hours' continuous marching, were no longer able to follow. It would have been useless to do so anyway, for once aware of our presence there would have been no chance of catching the hostiles until they had again settled down.

From what I saw of the Chiricahua scouts on this occasion, and subsequently when we had talks with the Indians, I am satisfied that though they fired a good many shots, yet they had little desire to kill, in spite of their wish to see the war ended by the surrender of the renegades. These men worked too hard and were too faithful under temptation to give any reason to suspect them of treachery. But it does not seem unreasonable to believe that they did not strongly desire the death of people belonging to their own tribe. They had not only been their friends, but some were relatives. Moreover, in their eyes, the hostiles had committed no crime, for they themselves had likewise been on the war-path. They wanted peace, but not at the expense of much bloodshed. The White Mountain scouts were too much afraid of their Chiricahua brethren to oppose them, so they have not been considered in the above statement. It was one of the many difficulties of General Crook's task that, at that time, there seemed to be no one except these Chiricahua scouts who could follow the hostiles to their retreats in this unknown region.

Disappointment at the result of the fight was, however, soon forgotten in the search for food. Supplies were not lacking, but the white men, exhausted by their long march without food, found little to tempt them in the lean horse meat without salt, and the roasted heads of mescal which lay around the abandoned camp. The meat, toasted on ramrods, was about as satisfactory as pieces of gunny sack, while the sweetness of the mescal soon produced nausea. The exhaustion of the command was shown by the way the men threw themselves anywhere on the ground to sleep. Some scouts were sent back to bring up the party with the pack-mules, but they went to sleep on the road and nothing was heard of the train. In the

afternoon an old squaw came in with a message saying that NATCHEZ and GERONIMO wanted to have a talk outside the camp. From what she told him, Captain CRAWFORD believed that they were ready to surrender; the correctness of his belief was shown by statements made by these chiefs to an officer eight months later, when on their way to surrender to General MILES. The absence of the interpreter, however, compelled a delay, and the meeting was appointed for the next morning. The squaw reported that her people were without food, begged some for herself and departed, leaving us very hopeful for the morrow. Having now nothing to fear from the hostiles and being worn out, the scouts relaxed their usual vigilance and all lay down to sleep by the side of the big fires, which had been built to keep off the bitter cold of the night, which caused much suffering. All the white men and most of the scouts were without blankets or covering of any kind. A heavy fog made the morning of January 11th very obscure and, just as it was getting light enough to see, the Indians shouted out that Mexicans were coming. Lieutenant MAUS, Chief of Scouts HORN and I, who were awake at the time, ran forward to prevent any trouble, at the same time calling out who we were. But shots from the advancing party drove us into the rocks, where the scouts had taken refuge. Some of them had commenced returning the fire, but this was soon stopped.

Our camp lay on the left bank of the Haros River, which was in sight, and was about fifty miles southwest of Nacori. The ridge on which it was located fell off abruptly to the river side in a high, rocky bluff, along the edge of which ran a line of big rocks; outside of these rocks was an open space containing a few scrubby trees. We had nearly all been sleeping in this open space, but the firing caused it to be speedily vacated. In the dim light we could not tell who our assailants were, but an idea soon began to prevail that they were Major DAVIS's scouts who had taken us for hostiles. The thought of being killed by our own friends was agonizing, and we loudly called out the names of the officers on duty with DAVIS's battalion. In a few minutes the firing ceased and the voices of Mexicans were heard crying out. HORN answered in Spanish, and a small party appeared in the open space near us. It had now grown light and the white men showed themselves, while HORN called out to the leader of the band, then about twenty-five yards from us. The scouts still lay hidden in the rocks; they did not trust Mexicans.

Captain CRAWFORD had been asleep when the first alarm was given, and it was not thought necessary to stop and wake him.

When the firing began he, like the rest, ran into the rocks. He now appeared, standing on a high rock, conspicuous above every other object. It is impossible to tell how he viewed the situation, though he must have known that in so exposing himself he ran a great risk, no matter under what circumstances the attack had been made. Thinking, no doubt, that by exposing himself to full view in his uniform, he might save us from being again attacked, he did not hesitate, but climbed the rock and stood waving a white handkerchief in token of peace. In a moment a single shot rang out, followed by a volley. CRAWFORD fell, struck, the scouts said, by the single shot. The Indians returned the fire and, for several minutes there was a hot fight. HORN was wounded by the leader of the Mexicans, who was dropped dead where he stood by a Chiricahua named BENDER, who lay at our feet.

The fall of CRAWFORD was not known at first to anyone except some scouts near him. Going to him, as soon as the news became known, he was found lying senseless at the foot of the rock with a ghastly wound in the side of his head, and his brains scattered over the ground near by. Some Indian had bound his head with a handkerchief, and the man who had shot him was already lying dead not twenty-five yards away. The captain was given such aid as was possible at the time; and then our attention was turned to the puzzling position in which we were placed.

The command had fallen to Lieutenant MAUS, the next in rank, who had to choose between continuing the fight or terminating it as soon as possible by acting strictly on the defensive. The latter course involved two considerations. The first was that, if the Mexicans believed us to be hostile Indians, we could defend ourselves until we could make them understand who we were. On the other hand, if they really knew us, we could demonstrate to them our ability to defend ourselves and show them how useless it was to keep up the fight. There were many good reasons why the offensive should not be taken, the principal one being the doubt that then existed as to whether we were being attacked by mistake or not. The first attack seemed to be due to a mistake. During the progress of the second, there were no means of determining whether the mistake still existed or not. As one looks back at any affair, things have a different appearance to him, and he wonders why he did not see them in their true light at first. In this case many incidents tended to show that the Mexicans were not acting in good faith. But at the time little thought was given to that; for we were under fire, and the situation was so unexpected and puzzling that every point was

not given due weight; in fact, outside of one's individual experience very little was known. Afterward, when the different stories were put together and the ground looked over, calm reflection made us believe that the second attack was no mistake. It was not until nearly two days after the fight that the treacherous capture of Lieutenant MAUS and the interpreter, CONCEPCION, removed all doubt.

The situation was such, however, that had we then certainly known that we were being intentionally attacked, there would have been little choice about our course. The Mexicans were evidently much superior in numbers—two to one it turned out. They occupied a line of hills from three to five hundred yards distant that commanded the ground between us and afforded them a very strong position. At this time we were so far down in Mexico that it afterward took three weeks marching to get us back to the border. The Mexicans were in their own country, and our only dependence was on the scouts, who were so hated, both as Apaches and also as American soldiers, that there would have been no difficulty in securing reinforcements against them unless some amicable arrangement was made. We were entirely without rations and almost without ammunition; to have tried to fight our way out of Mexico would have meant that the command would have had to scatter and make its way home as best it could. This would have made it necessary to abandon our wounded, and probably all the pack trains that were scattered through the mountains on their way to us. Had we not made peace there could have been little doubt that the Chiricahua scouts would have joined the hostiles, who were then in sight across the river looking on.

During the fight a hurried consultation was held between Lieutenant MAUS and myself, in which these points were touched upon. We did not feel sure of the meaning of the conduct of the Mexicans; we had not given up the hope that the hostiles would surrender after all, and we did not wish to abandon the attempt to bring them in. So much had been sacrificed that we felt it our duty to continue the effort, especially as there still remained a hope of success. These reasons have been given fully, because there has been some criticism on the conduct of the command in this affair among both army people and civilians, who seem to think that all we had to do was to attack the Mexicans in their position and avenge CRAWFORD'S death. Their judgment has been hasty and unjust. They have not put themselves in the place of officers suddenly called upon to face a situation unparalleled in the history of the army; in which there lay no alternative between the course adopted and ruin; and which

would have involved the betrayal of the trust reposed in those officers had they tried, with the knowledge they then possessed, to assume the role of avengers.

Our course determined upon, there still remained the task of conducting the defense, at the same time controlling the fire of the scouts and continuing the calls to the Mexicans to stop firing. The party that had advanced so near us was soon disposed of; but the main body kept up a heavy fire from the hills and several attempts were made to flank us, which were, however, frustrated by the scouts. We were strongly posted among the rocks, but the position was entirely open in rear, and would have been untenable had the Mexicans succeeded in getting a party on that side. The shots finally becoming less frequent, we could plainly hear their voices as they called to each other, and their failure to answer us began to be very suspicious. Finally they replied and, when the firing ceased, Lieutenant MAUS and HORN went out to meet a party half way. An understanding being reached, quiet was restored, and we looked after our wounded. Captain CRAWFORD's case was seen to be hopeless; his wonderful vitality alone prevented his instant death. On examination, one arm was found to be broken near the shoulder, the result of his fall from the rock. One scout was found to be badly wounded through both legs. Two others had slight wounds. HORN was suffering from an ugly flesh wound in the left arm. We had been very uneasy about the party with the mules, but they arrived soon after the close of the fight, bringing rations and other supplies. They had been on the way to us when the firing began, and were then close to the Mexican position. The packers and scouts refusing to proceed, they had taken refuge behind a hill and, fortunately, had not been discovered.

Parties of Mexicans came over to carry off their dead, four of whom lay in our camp, their major and a lieutenant being among them. It is not known how many more were killed. The scouts always claimed at least seven in all. Five men were known to be badly wounded, as Dr. DAVIS dressed their wounds; some of them he thought would probably die.

Looking over the ground and hearing the different stories, we saw that there was little cause to believe that the Mexicans thought we were hostile Indians when they shot CRAWFORD. The man who fired the fatal shot was just twenty-eight paces distant; the Captain had a brown beard and wore his uniform, so that he looked altogether unlike an Indian. The experiences of Lieutenant MAUS, Chiefs of Scouts HORN and HARRISON, and of Hospital Steward NEMERK, like-

wise confirmed us in our belief. But all lingering doubts were dispelled by the conduct of the Mexicans on the 12th, when they treacherously captured Lieutenant MAUS and CONCEPCION, and compelled them to ransom themselves with six mules. That plunder was their object in attacking us is certain. They saw only a few white men, and the fire of the scouts was so weak at first that they had no reason to believe us a large party.

Our assailants were not regular troops, but were a body raised in the State of Chihuahua to fight the Indians. They had been seventeen days on the road, and had with them no animals except a few burros. Their rations and blankets were carried on their persons. They were a hard-looking set: dressed in cotton clothing and wearing moccasins, some of them rawhide sandals, they had little appearance of being soldiers; but at the same time they seemed well suited to following Indians in a rough country. A temporary, and perhaps irresponsible organization, they would, if successful in killing us, have had little trouble in evading all responsibility for their acts. The locality of their crime would have made the detection of the perpetrators almost impossible. Their version, as published in official reports, shows that they would not have been wanting in excuses. They sturdily claimed that we were in league with the hostiles; that they had been following our trail for days, and that the mules (all marked U.S.) taken as ransom, had been stolen by the Indians from Mexicans. With regard to their following us, it is only necessary to say that their trail which we saw came directly from the east, while ours came from the west; they had never followed our trail at all, but had been guided to us by the light of our fires.

It has been said that the hostiles were spectators during our fight with the Mexicans. How they must have enjoyed it! As their enemies were engaged in deadly strife before their eyes, it must have seemed that Providence was looking out for them, and no doubt crafty old GERONIMO took advantage of the situation to work upon their superstitious feelings, and to encourage them to follow still further their bloody career. It must strike us, too, that it was a strange mischance that caused these two commands to meet at this particular time, and in a country perhaps never before traversed by similar parties. Different as they were, either might have done good work but for the presence of the other.

The experiences of the expedition after the fall of CRAWFORD were strange and interesting; but we will not attempt to tell of them, for the story is long and complicated. We cannot, however,

lose sight of it for a few days longer, though nothing except a brief and incomplete outline of event⁴ will be attempted. The camp was moved a few miles on January 13th, and no more was seen of the Mexicans. Negotiations with GERONIMO were reopened, which resulted in the surrender of part of his band, and the promise of the remainder to meet General CROOK on the border, which they did in March. For many reasons the command was obliged to return to the United States, and its march was continued till the supply camp at Lang's Ranch, N. M., on the boundary line, was reached on February 1st. Orders were given by General CROOK for a similar withdrawal of Major DAVIS's battalion from Mexico and, for a time, operations were suspended.

The transportation of our wounded was a serious trouble. Incessant rains not only increased the discomforts already existing, and caused much actual suffering on account of the lack of shelter and clothing, but it also made the rough country almost impassable. The litters, composed of canvas stretched between bundles of canes, had to be carried by hand; the canes were so pliable that the litters were clumsy affairs, requiring eight men to carry one of them. Then the moccasins went to pieces in the wet and left many of us barefoot in this stony region. In a few days, however, DALY's train met us and brought us more comforts. A new litter was then made for the Captain, and as pine poles were now available they were substituted for the canes, and one end of the litter fastened to a mule; on account of the rough trail the other end was still carried by hand. The badly wounded scout was rigged upon a mule and caused but little more trouble.

A week went by without any sign of consciousness or of suffering on the part of Captain CRAWFORD who, gradually growing weaker, on the 18th of January passed away so quietly that the end was not perceptible to those watching by his side. Four days later his body was deposited in the dreary little burying ground at Nacori; the hope that this was only a temporary resting place was soon realized by the action of General CROOK in sending a suitable party to bring his body back to the United States. He was finally buried at the home of his brother at Kearney, Nebraska, where a monument erected by his brother officers now marks his grave.

The killing of Captain CRAWFORD gave rise to much feeling against Mexico and some talk of war upon that country. The matter was taken up by the State Department, but was finally dropped without action on the part of our Government. The reasons for this course were doubtless good, but it is much to be regretted that they

have never been made public; for there is a belief that our country has allowed one of its best officers to be murdered while doing his duty, and has failed to take steps to punish his assassins.

The attack of the Mexicans not only caused the death of a valuable officer, but it also prolonged the resistance of the hostiles for eight months. There is little doubt that they would have surrendered in January but for this affair; it was September before they finally did so. In his report General CROOK says: "There is reason to believe that had he (CRAWFORD) lived, he would have received the unconditional surrender of GERONIMO's and NATCHEZ's bands;" and again: "He was thoroughly known to all the Indians, and had their confidence. It is believed that he was the only white man besides myself who could have induced the hostiles to surrender." When we reflect that after January probably more than a hundred people were killed by these Indians, and when we also consider the incalculable losses in property, both to the Government and to private parties, and remember that during all these months no one was safe in a region containing hundreds of square miles, we can realize that the importance of that little fight is not to be measured by the number of slain.

It would be well if all of us could keep in our minds the memory of this devoted and chivalrous soldier, whose whole life was one long sacrifice, and whose death was the direct result of his efforts to save others. Such characters are not common. Let us try to remember this one as our ideal of what a true man should be. Though we may never be called upon to face difficulties of the kind that confronted him, yet the elements of character that enabled him to overcome them and to win the love and respect of all who knew him, will tell in all walks of life; and though such men sometimes fail, yet the name they leave behind them is worth far more than the greatest success.

CAVALRY UPON THE FIELD OF BATTLE: BY LIEUTENANT-COLONEL PREJENTSOFF, OF THE GENERAL STAFF OF THE RUSSIAN ARMY.

TRANSLATED FROM THE RUSSIAN.
BY FIRST LIEUTENANT GEORGE W. READ, FIFTH CAVALRY.

IV. THE MODERN EPOCH.

OF late campaigns, the most instructive battles in regard to the question under discussion are those of Königgrätz, July 3, 1866, and Mars-la-Tour, August 16, 1870, in both of which the cavalry was concentrated in masses upon the field. An analysis of the cavalry operations in these battles, after our statement of the fundamental rules observed by such great commanders as FREDERICK THE GREAT and NAPOLEON, makes it possible to arrive at conclusions based upon facts.

CAVALRY IN THE CAMPAIGN OF 1866.

In the Austro-Prussian campaign of 1866, we do not observe such considerable masses of cavalry in the opposing armies as in the time of NAPOLEON I. The greater part of the Prussian cavalry was attached to the infantry divisions by separate regiments or brigades, while the main mass of the Austrian cavalry formed a number of independent divisions.

The campaign of 1866 opened with the invasion of Austrian territory by three Prussian armies; the Army of the Elbe and the First Army advanced from Saxony and Lusatia on the north and concentrated at Münchengrätz and Gitschin; the Second Army moved through mountain defiles from Silesia into Bohemia to Trautenau, Braunau and Nachod. Each army comprised several corps. Each corps was composed of two infantry divisions, with artillery and a battalion of chasseurs, pioneers and train; and to each infantry division was added a cavalry regiment of four squadrons. In the First Army, moreover, the Second Corps had a separate cavalry brigade with a battery (VON DER GOLTZ) in addition to the regi-

ments of divisional cavalry. A cavalry corps of two divisions (the first under General VON ALVENSLEBEN and the second under General HANN), comprising five brigades, formed the reserve cavalry (in all forty-one squadrons and five batteries). In the Second Army each corps, excepting the Fifth, had a cavalry reserve, as follows: to the Guard Corps was attached a guard cavalry brigade with a battery (VON BREDOW); to the Sixth, a regiment. The reserve cavalry of the Second Army consisted of a separate cavalry division (General HARTMANN), comprising three brigades: the first, cuirassiers; the second, light; and the third, landwehr; in all, twenty-four squadrons and two batteries.

The assignment of the cavalry in the organization of the Second Army conformed to its anticipated operations in the mountain defiles, in view of which it was attempted to make the corps more independent. In the Austrian army, to each corps consisting of four independent brigades (a brigade usually comprising two line or frontier regiments of three battalions each, a chasseur battalion, and a four-pounder battery), was added a cavalry regiment of six squadrons. The remainder of the cavalry formed five separate divisions: two light (the First, General EDELSHEIM, thirty squadrons, twenty-four guns; the Second, Prince THURN and TAXIS, twenty squadrons, sixteen guns); and three heavy, denominated reserve, (the First, Prince SCHLESWIG-HOLSTEIN, twenty-six squadrons, sixteen guns; the Second, General ZAITSEK, twenty-six squadrons, sixteen guns; the Third, General Count COTDENHOVE, twenty-seven squadrons, sixteen guns). To this must be added a division of Saxon cavalry (General VON FRITSCH) of twelve squadrons and six guns. Bearing in mind that in case of necessity the commander-in-chief of the Austrian army could add cavalry divisions, regiments and brigades to those corps which might need them, nothing can be said against such an organization. We see, indeed, that with the opening of the campaign, the First Light Cavalry Division accompanied the First Corps, designated to operate against Prince FREDERICK CHARLES.

In all the fights preceding the battle of Königgrätz, frequent skirmishes between small bodies of cavalry are noticed; but the participation in battle of more important bodies of cavalry is everywhere absent. At Münchengrätz and Gitschin, where Prince FREDERICK CHARLES had against him the corps of Clam-Gallas and the Saxons, in all about 60,000, the Prussian cavalry took a very limited part, failing even to pursue the enemy after the victory; nor does there seem to have been any effort on its part to establish firm connection with the Second Army.

Neither was the Austrian cavalry distinguished by a special spirit of enterprise; in the earlier collisions it experienced the efficiency of the small-arms fire of the enemy and, thereafter, sought to avoid encounters with the Prussian infantry.

One cannot fail to observe that the Prussian cavalry, although in small bodies, attacked energetically and with great wickedness in all the skirmishes in which it took part. At Nachod two Prussian dragoon squadrons, in view of the Sixth Austrian Corps, quickly formed platoon columns in each squadron, without dreaming of retreating, upon chancing within effective range of artillery fire; afterward they deployed rapidly and bravely attacked the columns of General RAMMING, in order to give time for the first Prussian division of STEINMETZ, approaching from the rear, to issue from the defiles and form in order of battle. The Prussian dragoons galloped upon the cuirassier brigade of Prince SOLMS marching at the head of the Austrians, broke through the first line, and being repulsed, formed again and attacked the enemy anew, thanks to which his advance was checked.

On another occasion, June 28th, at Skalitz, this same Austrian brigade attacked the rear of a force under General STEINMETZ, which was making a turning movement against the left flank of the Austrians. The Prussian infantry turned about and met the enemy's cavalry with the fire of the deployed troops. The brigade of Prince SOLMS was repulsed; taking advantage of the moment, a Prussian uhlan regiment attacked the reserve of the brigade but, in its turn, was forced to fall back. A guard brigade of heavy cavalry with artillery was sent by the Prince of Wurtemberg from the Fifth Corps at Braunau to the support of General STEINMETZ. Upon arriving, it formed on the right flank in order to menace the left flank of the Austrians. This resulted in the retreat of the Austrians, and in securing to the Prussians the defile in front through which the Sixth Prussian Corps and the cavalry of the Second Army immediately afterward passed.

We proceed to an examination of the use of the cavalry of the adversaries at the battle of Königgrätz, where it was concentrated in considerable masses.

The Austrian army occupied a position (see plan) behind the small brook Bistritz, with the troops formed in a broad semi-circle to the west of Königgrätz. The right flank occupied the village of Maslowed; the left, Nieder-Prim and Probus; the reserves were disposed at the villages Chlum, Rosberitz and Wrestar. The Saxon cavalry and the first light cavalry division of General EDELSHEIM

were upon the extreme left flank, and were charged with securing the flank and the lines of retreat to Königgrätz and Pardubitz, and also with resisting the debouching of the Prussians from the bridge at the village of Nechanitz. At the extremity of the right flank, between Sendrasitz and Lochenitz, to observe the crossings of the Trotina and the bridges across the Elbe, was placed the second light cavalry division of Prince THURN and Taxis. The three heavy cavalry divisions were placed behind the center at the following points: The first, Prince SCHLESWIG-HOLSTEIN, between Chlum and Swěti; the second, General ZAITSEK, in the rear line, to the left of the road Königgrätz, Gitschin; the third, Count COUDENHOVE, somewhat in advance of the second, behind the Tenth Corps (GABLENZ), which defended the heights of Langenhof; the third division was charged with the support of the Tenth Corps in case of need.

The little river Bistritz, from thirty to forty paces in width, covering the front of the Austrian position to the west, was a great obstacle for the offensive, as even in good weather it was difficult to ford, and in a rainy season was passable only by bridges. On the east, the field of battle was limited by the Elbe, entirely unfordable and having very few bridges. To the northeast, the river Trotina empties into the Elbe; its course is for the most part marshy and therefore it served to partially secure the right flank of the position. The streams Bistritz and Trotina, flowing for some distance parallel, are, in the northern part of the position, between the villages Benatek and Racitz, two and two-thirds miles apart; and this space afforded an easy approach to the right flank of the position. All the space between the Bistritz and the Elbe has a rolling character; in some places it is intersected by ravines, but there are a sufficient number of good roads and cover for troops. Commanding points are found on the line Hradeck-Probus-Lipa-Chlum-Maslowed and Horenówes, whence the ground slopes steeply to the west and north, while the slope to the Elbe is five and a quarter miles in extent. Nearly perpendicular to these crests are the small parallel ridges of Horenówes and Maslowed, whose steepest sides slope toward the northeast.

The villages with buildings of brick or clay, and the groves found at several places on the battle-field, surrounded by roads dug deep into the earth, together with a multitude of ditches, rendered the position quite cut up and not fully suited to cavalry operations. Fields covered with a dense growth of high corn quite concealed the difficulty of passing the obstacles of the locality which presented from afar the appearance of a smooth surface adapted for a cavalry attack.

In the center, the height of Chlum commanded by fifty feet all the country lying in its front and formed the tactical key of the position. The height of Horenowes covered the right flank on the northern side, and the heights of Hradeck and Probus presented solid points of support on the left flank of the Austrian position. While impeding the operations of the offensive against the front and left flank, the position at Königgrätz had convenient approaches on the right flank, the ground in front of which was entirely favorable for cavalry operations.

The action against the Austrians was begun by the First Army and the Army of the Elbe approaching the Bistritz at 7 o'clock on the morning of the 3d of July, deployed on the line from Néchanitz to Bénéatek. The Prussian center was charged with forcing the passage of the Bistritz at Sadowa and with the attack of the heights at Chlum. Here the Second Prussian Corps began the battle, the cavalry brigade of VON DER GOLTZ being placed upon the right bank of the Bistritz. The cavalry corps of Prince ALBERT was at first directed to the right flank in the direction of the village of Sucha but, at the first firing, it was brought up to the battle lines and placed on both sides of the road Königgrätz-Gitschin, near the village Dub, behind the center of the Prussian lines. At this time the divisional cavalry of the Second Prussian Army, marching for the most part in advance of its infantry, was directed from the north-west by the shortest roads to the right flank of the Austrian position. The cavalry division of HARTMANN, however, constituting the reserve cavalry of the Second Army, did not receive the order of its Commander-in-Chief in time; it had advanced at day-break in the direction of Górlitz, hence the new order arrived too late to change its movement.

Such were the positions of the cavalry of the adversaries when the Prussian King gave the order to make a decisive attack. Just as the action began, the cavalry brigade of VON DER GOLTZ was sent to the right flank to the Army of the Elbe, but was immediately afterward called back and placed behind its corps, which met a serious resistance from the enemy. About 10 o'clock in the morning, the division of ALVENSLEBEN was detached from the cavalry corps and moved to the rear of the Army of the Elbe, behind the reserves of which it passed the greater part of the day in complete inaction. Official sources attribute the sending of the division of ALVENSLEBEN to the right flank to the incorrect understanding of orders; but in consequence of this, the center was unnecessarily deprived of so considerable a body of cavalry at the most important moment.

The object of all the operations of the Prussians on the right flank against the Saxons, was to dispossess the latter of the center of the position, but the Saxon cavalry and the light cavalry division of EDELSHEIM, menacing in their turn the right flank of the Prussians, prevented the attack of the latter and thus made it possible for the Saxons to be strengthened upon the heights of Probus. It cannot be said that this Austrian cavalry showed any decisive activity; it maneuvered more with the object of a demonstration, threatening the enemy while taking care not to come near him on account of the efficient small-arms fire.

At midday the attack of the Army of the Elbe and of the First Prussian Army was stopped along almost the entire front, as the Austrians, being at this time of equal strength with their adversaries, showed a strong resistance at all points. In consequence of the expenditure of the reserves and of the engagement of almost all their troops except the cavalry, the situation of the Prussians was becoming more difficult and perilous. The arrival of the main body of the Second Prussian Army, and especially of the First Guard Division of HILLER and the Sixth Corps, relieved the danger of the First Army and Army of the Elbe, and made it possible to renew the battle. The regiments of divisional cavalry, moving in advance of the Second Prussian Army, took part in the fight immediately upon arriving on the battle-field and made a series of noteworthy attacks against both the infantry and cavalry of the enemy. A hussar regiment of the advance guard, approaching Racitz, dismounted in order to attack that village, which was occupied by Austrian infantry, but was repulsed by the troops of the Sixth Austrian Corps; a little further on, the Prussian uhlans and dragoons attacked unsuccessfully some Austrian battalions, which happened to be in disorder; another cavalry attack by three squadrons, north of Horenowes, initiated by General HILLER against a retreating Austrian battalion was also unsuccessful; the battalion formed squares and received the cavalry with volleys.

The Prussian Guards made an almost unimpeded advance against the right flank of the Austrian position. But upon reaching the village of Maslowed, the Prussian infantry was discovered by the Austrian first reserve cavalry division, which immediately moved in double columns by brigade to meet the enemy. The division of HILLER, observing the approach of the cavalry, instead of forming square, deployed and received it with a sustained fire; the Austrian squadrons turned back and retreated in disorder in the direction of Chlum and Swěti. Between 1 and 2 o'clock the Prussian cavalry

brigade of WICKMAN moved upon the line Lochenitz-Nedelitz against the second light cavalry division of TAXIS, which was at Trotina, with the object of cutting its line of retreat.

The brigade was formed in two lines, having in the first line a hussar regiment in deployed order; in the second, in echelon from the left flank, a dragoon regiment in line of platoon columns with full intervals. The first Prussian line advanced to the attack, without having ground scouts in front, on account of which the hussars fell quite unexpectedly into a gully, and were almost annihilated before the dragoons could support them. Thus the second light cavalry division of TAXIS arrested the progress of the Prussians but, fearing for the bridge across the Elbe, with the guarding of which it was charged, did not pursue them, and withdrew somewhat to the south.

From what has been stated it is seen that the bulk of the cavalry of the Second Prussian Army was used in small bodies, except the reserve cavalry division, which was at first too far away from the battle-field; upon joining its infantry, this division was placed between the corps and maintained connection, both between them and with the left flank of the First Army. In the course of the fight a crisis, disadvantageous to the Austrians, finally appeared, and Master of the Ordnance BENEDEK gave the order to retreat; the cavalry was charged with covering the army departing from the field.

Thus, it was only at the close of the battle that the cavalry was released from inactivity and allowed to show itself. When the retreat of the Austrians was observed by the Prussians, the cavalry of the First Army immediately received orders to advance, which, for want of fords across the Bistritz, could not be done with any great rapidity. The only part of the cavalry corps with the center was the second division, under HANN, which was directed sooner than the others to pursue the Austrians. The first cavalry division, under ALVENSLEBEN, sent by mistake to the Army of the Elbe, was, at this time, on the road from Lubno to Stresewitz. The third light cavalry of HANN's division, formed in line of squadron columns, stretched through Sadowa; upon its right flank was a dragoon, and upon its left a hussar regiment; behind it, at a distance of 1000 paces, followed another brigade (a hussar, a dragoon and an uhlan regiment) of the same division, which crossed the Bistritz at Sowelitz. The retreat of the Austrian infantry was covered upon the right flank by the second light cavalry division of Prince TAXIS, and upon the left by the first light cavalry division of Baron EDELSHEIM and the second Saxon cavalry brigade.

The first reserve cavalry division was at Wsestar, and the third reserve cavalry division was 2000 paces to the east of Stresewitz, when the enemy's army showed itself in separate masses, part south of Stresewitz and part upon the high-road between Lipa and Rosberitz. The Austrian reserve cavalry divisions immediately dashed upon them, and by their self-sacrifice delivered the army from the ruinous consequences which usually accompany the appearance of the enemy's cavalry at such a moment.

Having arrived at Stresewitz, the main body of the Second Prussian Cavalry Division, HANN, was drawn up as follows: In the first line, three squadrons of dragoons; in the second line, a regiment of uhlan, having three squadrons to the right and one squadron to the left of the dragoons, behind them, in echelon from the right flank, followed a dragoon regiment and two squadrons of hussars; the remaining two squadrons of the hussar regiment were upon the left flank of both the leading lines. The cavalry division of ALVENSLEBEN, with regiments far apart, moved also to Stresewitz by a ravine leading to the west of Probus; at the head moved the dragoons of the Guard, and after them, the uhlan regiment of the Guard.

The commander of the Austrian third reserve cavalry division, upon receiving the first news of the approach of the enemy's cavalry masses, ordered his division to attack. The division was formed in three lines, having a cuirassier regiment in the first and second and two cuirassier regiments in the third; the regiment in the second line was in echelon behind the right flank, and the regiments of the third line in echelon behind both flanks in regimental columns. The three squadrons of Prussian dragoons found in advance at first turned back, but afterward, being reinforced, renewed the attack, whereupon there ensued a stubborn cavalry fight, during which the Prussian infantry fired without distinction both upon their own troops and upon the enemy. At the same time, a little to the south, the Austrian uhlan attacked the Prussian dragoon regiment of the Guard, in which skirmish the regiments of ALVENSLEBEN's division took part. The fight was decided by the shock of a cuirassier regiment of the third line of the third reserve cavalry division of the Austrians. The Prussian cavalry turned back to the Bistritz, pursued by the Austrians.

Another cavalry engagement took place almost simultaneously with the foregoing between Langenhof and Wsestar. At Wsestar was the brigade of Prince SOLMS, having three regiments in line of columns, and to the right of it was posted the brigade of SCHINDLÖCKER in brigade columns (both brigades of the first reserve cavalry

division). When eleven squadrons of the second Prussian cavalry division were marching near the high-road in the direction of Wsestar, the brigade of SCHINDLÖCKER attacked them under the strongest flank fire from the Prussian batteries at Chlum. Riding through the intervals of its batteries, the brigade deployed to the north of the road fronting northwest, having a cuirassier regiment in each of its two lines. An Austrian hussar regiment of the First Corps had still earlier been moved along the road, and after deploying to the right, it dashed upon the flank of the Prussian cavalry at the moment when the brigade of SCHINDLÖCKER attacked in front. Both Prussian lines were broken through, and after a hand-to-hand fight were forced back to Langenhof.

Soon after this attack, a Prussian hussar regiment of the First Corps appeared upon the heights between Langenhof and the high-road; the brigade of SOLMS moved against it, having in the first line a cuirassier regiment in line of columns, and in the second line, in echelon, another cuirassier regiment. The Prussian hussars turned back without receiving the attack. The brigade of SOLMS was afterwards assembled upon the low ground to the west of Langenhof and stood for a quarter of an hour under a murderous fire; but the Prussian cavalry did not again show itself either here or at Stresewitz. Beginning at half-past four o'clock in the afternoon, all parts of the Austrian army were in full retreat to the Elbe, except the second and first light and the second reserve cavalry divisions, the two former on the right and left flanks and the latter in the center. The second reserve cavalry division of General ZAITSEK remained up to 3 o'clock at the point at first occupied, to the southwest of Briza, but between 3 and 4 o'clock, after the retreat of the Saxons and of the Eighth Corps, was stretched to Klacow.

Like the other Austrian cavalry divisions, the first light cavalry division of Baron EDLSHEIM was not inactive; it covered the retreat of the troops in the most energetic manner; thanks to it and to the second reserve cavalry division, the left wing of the Austrian army was delivered from a persistent pursuit. The cavalry suffered the following losses in the battle of Königgrätz:

AUSTRIAN.			
	Officers.	Men.	Horses.
Killed.....	14	303	1055
Wounded.....	47	301	235
Missing.....	3	311	850
Total.....	64	915	2140

PRUSSIAN.			
	Officers.	Men.	Horses.
Killed.....	6	64	402
Wounded.....	35	457	
Missing.....	...	5	
Total.....	41	506	402

From what has been stated, it is seen that the efforts of the Prussian cavalry to develop the success of its infantry upon the field of battle by attacks upon the retreating enemy, were paralyzed by the activity of the Austrian cavalry: although it must be observed that these efforts were not especially energetic and persistent, and that the Prussian cavalry posted at certain points did not attempt to exert itself at others, but on the contrary, took a waiting attitude entirely unsuited to the occasion. The retreat of the Austrian army across the passages of the Elbe and especially to Königgrätz itself, the gates of which fortress were not opened for a long time, eventually turned into a disorderly flight, and not to have taken advantage of this, not to have driven the enemy to the exhaustion of his strength, was a great error.

In general, in analyzing the use of the cavalry masses of the adversaries in the battle of Königgrätz, one cannot but see that the Commanders-in-Chief of the Prussians and Austrians did not know what to do with them during the action. It seemed as if the Prussian cavalry corps should have been designated for operations at the decisive moment of the battle, while we see quite the reverse: before the battle, while following at the tail of the army, it moved in a concentrated formation; but at the time when all the parts of the First Prussian Army entered upon a battle with an enemy of equal strength, and when the cooperation of the cavalry mass might become necessary at any moment, a whole division was detached from the Prussian cavalry corps and sent to the right flank well nigh off the battle-field.

About 1 o'clock the situation of the First Prussian Army was very serious, not to say critical: the Commander-in-Chief had almost decided to retreat; yet, meanwhile, the cavalry corps stood in complete inaction behind the center, and nobody seemed to think of using it against the left flank of the Austrians with the object of drawing the attention of the enemy to the flank opposite that upon which the Second Prussian Army was advancing.

Nor did the Prussian cavalry of the First Army cooperate with the parts of the Second Army when they were at first sustaining an unequal struggle with the considerable forces of the Austrian right flank.

The regiments and brigades of the Prussian divisional and corps cavalry took part at many points of the battle-field, although in a majority of cases with loss to themselves. The regiments and brigades of the Prussian cavalry did not act with the object of supporting a certain infantry body or a battery, or to assist its attack, but were only made use of in case of special confusion of the enemy or of the retreat of some of his troops, and then, without infantry or artillery support to secure their success.

In the operations of small bodies of cavalry, it is only by perfect harmony with the infantry that it is possible to expect fortunate results from a cavalry attack against the enemy's infantry, cavalry, or artillery. As to the Austrian cavalry on the day of Königgrätz, its energy was shown only at the end of the battle when it saved its retreating army. One cannot but think that this energy might have been shown to better advantage if the control of all the cavalry had been placed in the hands of a single chief. The ground most favorable for cavalry operations was that to the north of Horenowes; and if the entire mass of the Austrian cavalry, at the reception of the news of the approach of the Second Prussian Army from the north, had moved to meet that army, there is great probability that the Prussians would have lost the battle.



If it is admitted that on account of the absence of means of observation upon the right flank the information of the approach of the Second Prussian Army was received very late, and that the Austrian cavalry had then no time to check the advance of the enemy at the right flank of the position, why could not the operations of the cavalry upon the left flank have been developed against the Army of the Elbe? General Baron EDELSHEIM, with the first light cavalry division, according to the account from Prussian sources, opposed great resistance to the attack of the Prussian right, but not once did he force the Prussians who had crossed the Bistritz at Néchanitz to fear for their rear. Orders from higher authority, however, greatly hindered and limited the operations of this General.

The Austrian cavalry made such energetic and timely resistance to the Prussian cavalry and infantry during the retreat of its army, that its operations at that time are worthy of imitation.

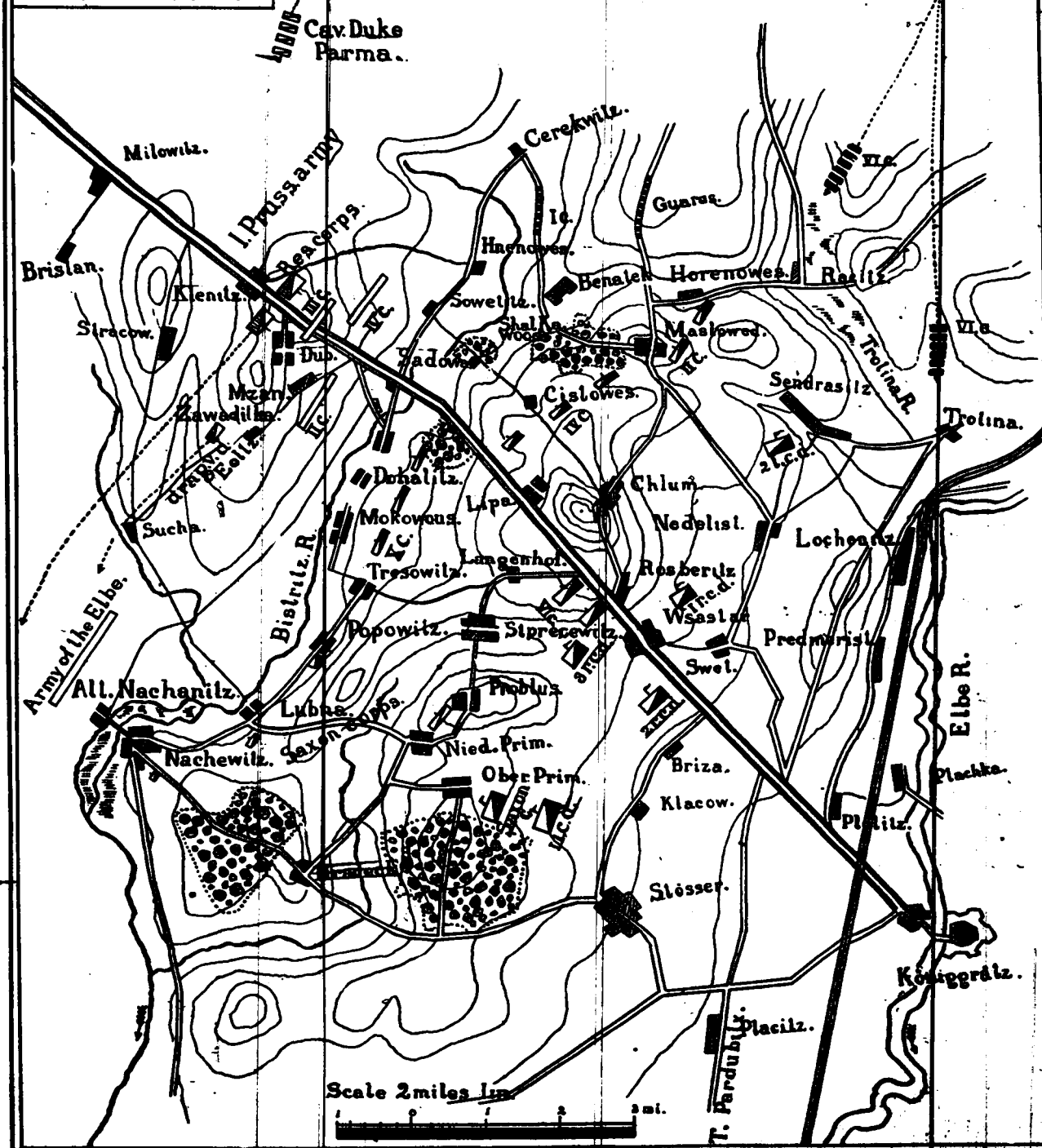
[To be Continued.]

Battle of Königgrätz.

July 3d., 1866.

Pruss. troops 
Austrian 

II. Pruss. army.



THE SABER.

BY FIRST LIEUTENANT E. P. ANDRUS, FIFTH U. S. CAVALRY.

WHEN fire-arms were first introduced into armies, it was predicted that the days for the use of cavalry upon the battle-field were ended; and, ever since that time, the question—"Will the saber in future be useless as a weapon?" has risen anew with each successive improvement in fire-arms or powder. And, each time, up to the present, it has been answered both affirmatively and negatively; affirmatively in theory on paper, negatively in practice on the battle-field. I have no doubt that the future answers, so far as the recent improvements are concerned, will, under competent leaders, be the same as in the past.

It is not the present intention to discuss the above question in all its bearings, but to present one side only—the negative, and to confine that to the action of cavalry against artillery and infantry.

Let us look back in history and see what has been accomplished with the saber when the charge has been well timed, well led, and pushed home. To FREDERICK THE GREAT must be given the credit of first appreciating the true value of the *arme blanche*, and his great leaders—SEIDLITZ and ZIETHEN—showed what great results could be attained by its proper use.

In CARLYLE'S "Frederick the Great" we read that, at Hohenfreidberg, a single Prussian regiment of ten squadrons made a saber charge upon the Austrian infantry and totally routed it, with tremendous loss. Again, at Rossbach, SEIDLITZ, with seven squadrons, after defeating the Austrian cavalry, turned on their infantry and, by saber charges, changed simple defeat into utter ruin, and with but comparatively little loss to himself.

At Zorndorf, the Russian cavalry was inside the square formed by its infantry. Two divisions of Prussian infantry, separated from each other by some distance, advanced to the attack of the square.

The Russian cavalry leader, seeing this separation, threw his cavalry on the first division and drove it back in disorder.

At Torgau, **FREDERICK**'s last great battle, the late afternoon found the combatants almost intermingled and success doubtful upon which standard to perch. The fighting had lasted since one o'clock and three desperate attacks made by **FREDERICK** had been repulsed. Just at dusk, **ZIETHEN** arrived upon the field with his cavalry. He carried the key to the Austrian position by a vigorous saber charge, and the victory rested with the Prussians.

Many other instances, illustrating the successful use of the saber against infantry, might be cited from these wars, but enough have been mentioned to show that it was so used in those days.

From **NAPOLEON**'s wars we will select but one instance. At Marengo, when the retreating French were almost panic stricken from the pursuit by all arms of the Austrians, **KELLERMAN**, with only eight hundred sabers, fell suddenly upon the flank of the victorious infantry and utterly routed it. Austerlitz, Eckmuhl, Aspern, and many other of **NAPOLEON**'s battles might be mentioned, but this one instance will suffice.

These were, it is true, the days of the smooth-bore muzzle-loader, but they were also the days of highly trained and most efficient infantry. **FREDERICK THE GREAT** taught his infantry to fire five volleys per minute. The caliber of the old prime locks then used was .69. I do not know the weight of the bullet, or rather ball used, but it must have been heavier than our present bullet; and the shock, upon being hit by one, was sufficient to drop a horse. Yet we read that the infantry of those days were repeatedly successfully charged with the saber, and broken with great loss, while the loss of the cavalry in many cases was but slight. The introduction of rifled fire-arms into the various armies caused a revival of the old theory regarding cavalry's uselessness upon the battle-field in the face of a new weapon; and its influence was so great that reductions were made in the cavalry branch of most European armies, Prussia being almost the only exception, and she increased the strength of both light and heavy cavalry.

Our own Civil War furnished the first extended test of this weapon. I will, however, mention but two battles of our war, where saber charges were successful against unbroken infantry armed with rifles.

The battle of the Opequon was fought and won on September 19, 1864. All day long the fight had raged and the Confederates

were finally driven to their last position in front of the village of Winchester. The long lines of opposing infantry were distant from each other not more than three hundred or four hundred yards, both taking and giving hard blows, with neither gaining any perceptible advantage.

On the left of the Confederate line was an open redoubt containing two guns which were seriously annoying the Union infantry. Its support consisted of **McCAUSLAND**'s brigade of cavalry posted on its right, between it and the infantry. On the right of and very close to the Union infantry were **LOWELL**'s regular brigade and **CUSTER**'s Michigan brigade of **MERRITT**'s cavalry division. Of the regular brigade there were present at this time one squadron of the First, two of the Second, and two of the Fifth U. S. Cavalry, numbering not to exceed three hundred sabers. This brigade was ordered to charge the battery; the distance, as stated, was not more than three or four hundred yards, the ground sloped gently upward toward the battery and its support, and was as open as a parade ground.

As soon as the brigade moved out to the charge, the battery and infantry opened fire upon them; but, regardless of this, they thundered down upon **McCAUSLAND**, swept him away, turned to their right, charged into the redoubt, took the guns and brought them back. As soon as the flank of the enemy's infantry became exposed, **CUSTER** charged it, supported by the regular brigade which re-formed in his rear as he charged, and rode it down for about three hundred yards, capturing many prisoners and forcing the Confederates to retreat up the valley.

The regular brigade was in column formation when ordered to charge, and deployed under fire of the battery and infantry.

Foreign military writers are now beginning to give the American cavalry credit for saber charges, and Lieutenant-Colonel **WILKINSON SHAW**, in his last edition, mentions this charge; but he quotes Colonel **FLETCHER**, who gives seven thousand as the number of sabers engaged in it. The Colonel makes the mistake of including in this number all of **SHERIDAN**'s cavalry, **AVERILL** and **WILSON**'s divisions with **MERRITT**'s, whereas the records show the charge to have been made by only two brigades of **MERRITT**'s division; the two together not exceeding fifteen hundred sabers.

The other instance I desire to mention is the cavalry charge, or more properly the cavalry charges, at Cedar Creek near the close of the day's fighting. It was also against seasoned, unshaken and, more than that, victorious infantry.

It is well known that, on October 19, 1864, at Cedar Creek, the Union army was badly worsted up to about midday, at which time SHERIDAN arrived upon the field and re-formed his lines, placing MERRITT's cavalry division on the left, and CUSTER's on the right. About 4 o'clock in the afternoon, SHERIDAN ordered a general advance to the attack. The two cavalry divisions, saber in hand, charged the cavalry opposite, scattered them, drove both flanks in upon the center, which was then broken by a magnificent infantry charge; and the Confederate host was driven in utter rout from the field; so badly used up in fact, as never again to give serious trouble in the valley.

More saber charges would probably have been made had our army commanders better understood the use of cavalry on the battle-field. The "Rebellion Records" show a smaller percentage of losses in cavalry when employed mounted than when employed dismounted.

We now come to the days of the breech-loading rifle. The fear of this weapon seemed to be so great in 1866 that the Austrians were intimidated, and did not attempt much with their fine cavalry against Prussian infantry. Neither time nor use had made them familiar with the true battle efficiency of this weapon.

But Italian infantry, still armed with muzzle-loaders, inspired no such fear. At Custoza, a brigade of cavalry, numbering not to exceed two thousand, charged with the saber two divisions of Italian infantry, drawn up in two lines of battalion squares, covering each other's intervals. It broke several of the squares, carried confusion even to the rear of the Italian army, and then rode back again between the remaining squares, receiving their fire as it passed. In spite of its losses, it re-formed out of range and, from that point, watched this infantry, whom it held in place simply by its presence. I do not know what was the loss of the brigade during its double exposure to fire, but it evidently was not sufficient to "wipe it from the face of the earth," as had been so confidently predicted would be the result if cavalry should have the temerity to charge unbroken and unshaken infantry. On the contrary, it remained sufficiently intact to hold in check, and to cause a practical loss, so far as this battle was concerned, of twenty thousand men to the Italians.

In the Franco-Prussian War of 1870-71, we find a few instances, but not so many as we should, of the proper use of cavalry on the battle-field. Had our Civil War been studied before 1870, as closely as it has been since that date, both France and Germany would have derived much greater benefit from their cavalry than they did. The

next war in Europe will undoubtedly furnish many instances of cavalry being used in accordance with principles deduced from its use in the War of 1861-65. There can be no questioning of the fact that the cavalry of 1864-5, both Northern and Southern, has been unexcelled in its efficiency and leaders, by any cavalry that the world has ever seen, for there was nothing it would not undertake.

Probably the most famous cavalry charge during the Franco-Prussian War, was that of BREDOW's brigade at Vionville. It was looked upon as a sort of forlorn hope, for the system of umpiring at maneuvers had fostered the idea that it was certain death and destruction for cavalry to attack unbroken infantry armed with the breech-loader; but something had to be done to check the advance of the victorious French and thus gain time to bring up fresh German troops.

As the circumstances of this charge are so well known, we will not again recount them; but will merely ask attention to its results and to the fact that those best qualified to judge are practically unanimous in the opinion that this episode demonstrates that intact and victorious infantry, armed with breech-loaders, can at times be successfully charged with the saber even by frontal attack.

Prince HOHENLOHE-INGELFINGEN tells us that on that same day another charge of similar nature was made. After BREDOW's charge had been made the Tenth German Corps came up; one-half of the Nineteenth Division advanced towards Mars-la-Tour. Its attack fell directly upon the front of the Fourth French Corps; within a short time the brigade was forced to retire with heavy loss. Annihilation was threatened, when the First Dragoons of the Guard charged the pursuing French, brought them to a standstill, and rode them through, giving the German infantry time to rally. Again the cavalry lost heavily, half the regiment falling; but this loss was the salvation of a brigade, to say nothing of what might have occurred had not the French been checked.

The latest improvements in fire-arms and powders are in the direction of a rifled arm of small caliber and flat trajectory, carrying a bullet of about two hundred and thirty grains, and of a smokeless and noiseless powder giving an initial velocity of about two thousand feet. The result of the combination is an arm of great accuracy and penetrating power, flatness of trajectory (increasing the dangerous zones), and of practically no smoke and but little noise at the instant of discharge.

Of course, attendant upon these improvements, comes the old familiar statement: as in the past, experience alone can decide with what degree of truth.

It is true that the infantry weapon has improved, but the accuracy, range, and rapidity of artillery fire has increased in even a greater ratio than has that of infantry fire; so that, in future, the effect of artillery fire upon distant masses of infantry will be greater than in the past.

The man behind the rifle has not kept pace in improvement, in courage, confidence and consequent steadiness, with his weapon: and the smokeless powder has opened to his vision that which the old black powder mercifully hid from his view—the destruction of life and limb. As there is necessarily a limit to every man's endurance, both physical and moral, so must there come a time during a battle, when the loss of life and the cries and groans of the wounded, united with his own bodily exertion and exposure, will unnerve the ordinary man and thus render him an easy prey to cavalry.

We have no reason to suppose that the cavalryman cannot be as well trained in the future as he ever was in the past; and, in the charge, he has his own impetuosity and that of his horse, the noise of the onward rush, the jangling of equipments, and that wild excitement that always accompanies a swift pace on horseback, to draw his mind from the dangers towards which he may be riding and the loss of comrades on either side of him; so that a well led charge is not apt to be more easily stopped now than formerly.

Breech-loaders have so placed infantry as to be always ready to fire; but on that account the supply of ammunition is more apt, than with old muzzle-loader, to run short. Again, the extended order of battle makes the line more susceptible of being thrown into confusion than formerly. When threatened with danger, men are naturally impelled to crowd together, and the more rapid the crowding the greater the confusion. When men stood so near each other as to almost feel each the other, they had more confidence and did not rush together, as will naturally take place now when threatened with sudden danger. Small bodies of cavalry can cause this sudden concentration, and then by rapidly withdrawing can give their own artillery and infantry a chance at these groups.

It is a question whether the advantage gained by rapidity of fire is not more than overcome by the decrease in the immediate effect of a hit by the smaller projectile. Experiments prove that it takes many hits by the small caliber projectile to disable an animal, while but one, or very few, of the old projectiles need hit to retire from

immediate use the individual struck. It is related that at Aldershot, where the new small-bore arm is used, a pig was struck seven times, receiving each hit with a dissatisfied grunt. The pig finally died, it is true, but not until its work, had it been a horse in a charge, would have been accomplished. The results of many carefully conducted experiments in musketry prove that the percentages of hits over unknown distances, generally accepted until very recently, are too great. In these experiments the men were perfectly cool and collected, firing at targets which were not firing back at them, and taking time to estimate the distances and adjust their sights. If, then, under these favorable circumstances, only small percentages could be obtained, what would be the results when the conditions were those of the battle-field?

The natural points for cavalry charges on infantry are the flanks, for they are its weakest points. There will be no battle-field so devoid of shelter or so level as to prevent bodies of cavalry, either small or large, from approaching under cover near to an enemy's flank and, once there, the opportunity for charging will present itself through some mishap to the enemy or chance of surprise; and the odds are greatly in favor of the success of the charge, if well timed, supported and pushed home.

While frontal charges on infantry cannot be advocated, as a rule, yet there are times when such charges will meet with success. They have succeeded in the past and, under favorable circumstances, should succeed again in the future. It is the business of the cavalry leader to watch for such chances and to take advantage of them quickly and decisively. The infantry, seemingly intact, may be so only in seeming. It may be of an inferior quality, or, through stress of battle, have become physically exhausted, or, through some tactical error, have become thrown into temporary confusion. Therefore, when circumstances seem to point to success, or when necessary to gain some tactical advantage, there should be no hesitation about making a frontal charge; only the effort can determine whether it will be crowned with success. In all cases, when a charge is to be made, ground scouts should be employed, in order to prevent a second Wörth.

The Germans are acknowledged to be profound military students and to keep pace, in their investigations, with the various improvements in fire-arms and machines of war, particularly as to the effects such improvements may have upon future wars. Judging from their writings, they evidently believe that cavalry's future usefulness will equal that of its past.

Colonel v. LÖBEK, of the General Staff, writes as follows: "Many writers have exaggerated the effect of the employment of small-bore rifles and smokeless powder upon the action of cavalry. All the experiences and improvements in fire-arms have done less harm to cavalry than the misapplication of its nature in training. A comparison of the Austrian, German and Russian cavalries points to the conclusion that all are unanimous regarding the point that cavalry attacks against unbroken infantry will still have good chances of success, if proper caution be displayed in making the attack."

Another one of their eminent writers says: "I have seen infantry which was quite played out. One squadron would then have been enough to have ridden down the remnants of an entire brigade; while a whole division could have practically decided the battle on that flank."

Still another distinguished officer is quoted as saying: "Personally, I have not seen many cavalry attacks; but those I have seen strengthen me in the belief that the action of cavalry on the battle-field can be crowned with success, if as the result of organization, training and good leaders, it feels that it can say: 'I will risk it. I can do it.'"

I will but briefly touch upon the action of cavalry against artillery on the battle-field. Many instances could be cited where batteries have been captured by saber charges, but I will simply quote from HAMLEY upon the subject, and cite one instance in support thereof. HAMLEY says:

"The practice of bringing great masses of artillery into position at an early stage of the attack must apparently cause large proportions of the line to be defended only, or chiefly, by artillery fire, during at least a portion of the action, because the guns will arrive before the main body of the infantry. The artillery of an army corps, if formed into one great battery, would occupy nearly a mile of front. There would be consequently a considerable part of this front inadequately, if not entirely, undefended by infantry fire, and in a great battle there would be many such spaces.

"On the opposite side the position, more deliberately occupied, would offer no such weak points, and if, as in many battle-fields, the ground between the hostile fronts be undulating without being intersected by farms, groves or hollow ways, there would seem to be no reason why masses of cavalry should not be assembled in anticipation, opposite the probable posts of the enemy's great batteries, and sufficiently near for a rapid attack upon them. Supposing the batteries directed on the opposing line, say fifteen hundred yards distant, the cavalry, already posted considerably in advance of their main line, might, in the heat and smoke and absorption of the en-

gagement, pass over the intervening space almost unperceived; in any case, to lay the guns accurately on the advancing horse at successive points of their final career would seem impossible; and even the time for many discharges would be wanting.

"Important opportunities then, which recent tactics will offer to cavalry, will be the attack upon masses of artillery. Especially will this be practicable when the corps artillery pushes into action on the flank of the advance guard pending the arrival of the main body, or when infantry are defeated and retiring covered by artillery fire."

The instance cited in support of this is quoted *verbatim* from HOZIER's "Seven Week's War;" it occurred at the battle of Tobitschau in 1866.

"BREDOW (the same who afterward made the celebrated charge at Vionville) under cover of some undulating ground, formed his regiment in echelon of squadrons for the attack of the guns.

"The first squadron he kept toward his right to cover the flank of his attack from any Austrian cavalry which might lie in that direction. The second and fourth squadrons he directed full against the front of the battery, and supported the second with the third as a reserve. The squadrons moved forward in perfect lines, slowly and steadily at first, seeming to glide over the field, gradually increasing the pace, regardless of the tremendous fire directed upon them, which emptied some saddles. When within a few hundred yards of the battery, they broke into a steady gallop, which increased in rapidity with every stride that brought the horses nearer to the Austrian line.

"All the time of their advance the gunners poured round after round into them, striving with desperate energy to sweep them away before they could gain the mouths of the cannon. Rapid flashes of flame breaking from the mouths of the guns accompanied the discharge of the shells, which were blurted forth with a nervous haste through the thick clouds of smoke that hung heavily before the muzzles. The flank squadrons, bending a little away from their comrades, made for either end of the line, in expectation of finding there some supporting cavalry. The two center ones went straight as an arrow against the guns themselves, and hurled themselves through the intervals between them upon the gunners. Then the firing ceased in a moment, and the smoke began to drift slowly away; but all noise was not hushed; shrieks from men cut down by the broad blades of the cuirassiers; cries for quarter; the rapid tramp of snorting and excited horses; the rattle of steel; shouts, cheers, and imprecations from the excited combatants, rose up to Heaven in a wild medley.

* * * * *

"Eighteen guns, seven wagons, one hundred and sixty-eight horses, with one hundred and seventy prisoners, fell into the hands of the Prussian force—a noble prize to be won by a single regiment. It lost but twelve men and eight horses."

We have thus shown that the saber in spite of the improvements in fire-arms in the past, has held its own, and we believe the same will be true in the future. The question, however, is not so much one of a particular weapon, as whether the mounted action of cavalry will obtain on the battle-fields of the future as it has upon those of the past. Germany, by increasing her cavalry force, has for herself most emphatically answered it in the affirmative. How will this country answer it?

CONVERSATIONS ON CAVALRY; BY PRINCE KRAFT ZU HOHENLOHE-INGELFINGEN.

TRANSLATED FROM THE GERMAN.
BY FIRST LIEUTENANT CARL REICHMANN NINTH INFANTRY.

THIRD CONVERSATION. (DECEMBER 6, 1885). — OF THE TRAINING OF THE OLDER SOLDIERS IN THE TIME OF FREDERICK THE GREAT.

H. In order not to prolong indefinitely my questions about the training of the cavalryman of the past century, I have brought with me those of the writings of General VON DER MARWITZ, which contain so many details of the service in those days.

S. I am perfectly willing to accept as a basis the service, as it was when that General entered it, i. e., in the last decade of the eighteenth century; I must repeat, however, that even then the cavalry was no longer in the zenith of its efficiency. The cavalry of FREDERICK THE GREAT reached its greatest perfection at the time of the beginning of the Seven Years War, and again about ten years after the Peace of Hubertsburg.

H. It is natural that the efficiency of cavalry should suffer, used up as it was by seven years of war. In 1753 there were probably left but few well trained privates of 1756, and probably no horses at all which, in 1756, had been well broken; it is also probable that a systematic and thorough training of men and horses was impracticable during the seven years, in which no part of Prussia remained untouched by the war. But why should the efficiency of cavalry have decreased after 1774, since the Great King was still living?

S. It is a constantly recurring fact that, as time passes, the rust of peace attacks armies, unless it is kept off by men whose first consideration is the requirements of war and who, holding the latter in fresh remembrance, take care that the rust be removed. SEIDLITZ was dead; ZIETHEN was very old; the King could not supervise everything in person, and probably had no longer the strength to do so.

Briefly, from all we read and know of the time from 1774 to 1786, it appears that our cavalry, in all its regiments, was no longer what it used to be.

H. All old people in all walks of life, say: "When I was young it was different." As Colonel of Hussars in the campaigns against France from 1792 to 1795, BLUCHER accomplished remarkable successes.

S. Yes, BLUCHER did; and many an individual regimental commander did also. But of the use of masses of cavalry the history of the campaigns on the Rhine says nothing. One would think that in these campaigns the first levies of the French Republic, without proper organization and discipline, should have been swept off the field like chaff before the wind, by the use, in masses, of FREDERICK's cavalry.

H. To return to MARWITZ; in his narrative of the time when he became a lieutenant, he says that he was constantly on his legs from 3:30 A. M. to 7 P. M., of which time he spent at least six hours on horseback, for the Estandarten Junkers (ensigns) were required to ride two horses, one in each squad. Hence there was riding by squad.

S. But he was still a recruit. The first instruction in riding had probably to be given by squads.

H. He joined for duty (January, 1790) shortly before the drill season, beginning in March. Then (on the same page) he writes: "Duty was light except during drill time. For there was daily but one small squad that rode or drilled dismounted. The Junker, while such, belonged to that squad for good."

S. There we already have a considerable difference between the service in MARWITZ's time and in that of the Great King. During that last decade there was but one small squad that daily rode or drilled dismounted; thus this small squad did not even ride every day. But FREDERICK II. stated, as I have already mentioned, that the day was lost on which the rider did not exercise his horse; and he had them exercised even on Sundays. Furthermore, it does not follow at all that the squad in question rode in the school of the squad in the riding square or hall. If you look you will find that in the appendix to his essay on the decline of the Prussian cavalry, MARWITZ only speaks of the drill of the squadron and of individual riding. He even complains that, for three weeks in the fall, there were but forty men per company present for drill and that there was no individual riding at all.

H. Let us stop at this appendix to MARWITZ's essay. According

to this there were one-half of the sixty-six *gens d'armes* of the company, *i. e.*, thirty-three on furlough. These furloughed men were called in from March 16th to May 23d, and were given individual riding for three weeks; after that there was company drill daily for three weeks; and, after the special review, only a sufficient number of the furloughed men were retained with the company to enable it to turn out with forty-eight *gens d'armes*. In the fall there was drill for three weeks with forty men, eight or ten furloughed men being called in. Thus he calculates that every furloughed man mounted his horse only twenty-seven times, the few who were detained in the service until the great review thirty-six times, and those again called in in the fall, forty-five times altogether. That, then, was all the cavalry work done by one-half of the men of this much renowned cavalry, which we are to take for our model! I think that one of our four year volunteers, who, during his last two years of service, mounts his horse five times per week, *i. e.*, 500 times in two years, can gain as much skill in riding as an old soldier of thirteen years' service of those days, who, after his first two recruit years, mounted his horse but forty-five times per year at the highest.

S. No exception can be taken to this calculation. I can only repeat that this was not the time when our cavalry had reached the climax of perfection. The system of furloughed men was the outcome of constantly increasing retrenchment and economy, beginning a long time after the three Silesian wars; and it became more and more extended because it was of pecuniary benefit to the chiefs who, under the law, were allowed to pocket the pay of the furloughed men. This system of furloughed men became gradually extended and, toward the end of the eighteenth century, it reached such dimensions as to greatly impair the efficiency of the cavalry, and the infantry too, as you read in HÖPFNER's "History of the War of 1806."

H. Do you think there were no furloughed men in SEIDLITZ's time?

S. There were some; but they were kept in practice and under control, as VARNHAGEN V. ENSE tells us.

H. The money for the furloughed men's pay went into the pockets of the captains?

S. In order to reimburse them for many expenses which were required of them, and of which we now have no idea; for up to the beginning of this century it was customary for the officers to be daily guests at their captain's tables.

H. Then there was also the system of "Freiwächter," of which

MARWITZ complains. The law provided ten of them per company. They took part mounted only when the whole regiment turned out.

S. This system must also have impaired the efficiency of the cavalry, for MARWITZ says that they were poorer riders than the furloughed men, which does not surprise me.

H. Lastly, MARWITZ calculates that, of the remaining twenty-three men, the recruits for two years, *i. e.*, sixteen men, are to be deducted, leaving seven men with whom there was a possibility of their being good riders at the end of their terms of service.

S. Here I must check up MARWITZ's calculation. He figured seventy-five horses and sixty-six *gens d'armes* per company. For whom were the remaining nine horses?

H. For the first sergeant and non-commissioned officers, of course.

S. There we have nine more excellent riders. I will subtract one more from the above mentioned seven men, assuming that a man in his fourth year of service, even when riding daily, was not counted among the good riders. But the other six *gens d'armes* must have had much practice in riding. They were soldiers by trade, remained in the service until invalided, and assuming for the eight recruits to the sixty-six men an average term of service of sixteen years (counting in former losses); then, of the seven *gens d'armes* remaining constantly in the service, one must have been in the sixteenth, fourteenth, twelfth, tenth, eighth, sixth and fourth year of service each. The six oldest ones must have been good riders, for the poor riders were probably gotten rid of as "Freiwächter" or furloughed men. We may therefore say that at the end of the past century there were still probably fifteen good riders (exclusive of officers) in the troop, or thirty in the squadron.

H. But that is not of decisive importance.

S. It is; for you must consider that these fifteen or thirty riders respectively, who were then called good riders, were much farther advanced in the art of riding than the best riders we now have among the non-commissioned officers and privates of a squadron. Thus the squadron had thirty men who were excellent riders, and could be entrusted with the breaking of remounts. The steadiest, lightest and most intelligent ones could be selected for the youngest remounts, and there still remained enough picked riders to ride the older remounts, rebreak spoiled horses and break some horses to school riding.

H. Did that make better campaign riders of the great mass of horsemen?

S. Certainly; for the recruit mounted a horse better and more correctly broken to campaign riding than is often the case now. He thus received from the beginning a proper touch on horseback; he acquired a correct seat on a horse of correct paces. If a recruit receives his first instruction on a mistrained horse, the bad habits of the latter give him a faulty seat and hand, which are incorrigible and in consequence of which, when he is entrusted with breaking horses, he teaches them bad habits unconsciously and involuntarily. But when the recruit receives his riding lessons on a correctly going campaign horse, he will learn more riding in the first two years than another in four years who learns riding on a horse of faulty paces. But the principal point is, he will never spoil a horse; because he has, from the outset, that feeling one ought to have on a good horse.

H. This is obvious, for it is an old, well known cavalry rule that the recruit horse breaks the recruit just as much as the remount rider breaks the remount.

S. Now just think what a help it would be for a squadron to have thirty such fine riders.

H. You mean to say that the squadron does not now possess thirty good riders?

S. It may possess thirty or more riders, which now may be called good riders, but none of whom would then have been counted among those seven mentioned by MARWITZ. If, in addition, we consider that in the best times of cavalry, in 1756 and 1774, there were neither "Freiwächter" nor furloughed men in such numbers, you must concede that a squadron possessed not thirty, but perhaps one hundred, well trained riders, of whom one-half, having special aptitude, might be called excellent riders.

H. When I consider this and assume that in the time of the Great King there were perhaps still fewer recruits, because the men remained in the service longer than in MARWITZ's time, then it follows of course that the squadron, leaving out sixteen remounts and perhaps two recruits, was always completely trained, winter and summer, and ready for the field at any time. But now the question comes: "What did the finished part of the squadron do throughout the year?" for the troops must have had an awfully dull time, when nothing was left to be done in the way of training.

S. SEIDLITZ never allowed time to hang heavily on the hands of his cavalry. A squadron, of say 100 horses, with its training complete, had plenty of exercises to practice the whole year round. Let us suppose there was a drill season of two months in the spring, and a practice season of two months in the summer and fall for drill

of larger bodies and maneuvers; there remained eight months which, in your opinion, were not utilized. But those eight months could be used to good purpose to practice things for which we have no time now, but which must be practiced thoroughly if cavalry is to serve its purpose fully.

H. What are those things?

S. Individual instruction, use of arms, marches before the enemy, riding under difficulties (obstacles, heavy ground, ice), rallying, passage of defiles and deployment upon emerging from the defiles, passage of fords, swimming. During all these exercises, that part of the troop not belonging to the remounts or recruits, drilled at least once a week in the school of the squadron in order to remain in a constant state of efficiency.

H. You have already informed me fully of the value placed upon individual riding by FREDERICK THE GREAT; but, as to the use of arms, I am inclined to believe that it was not in a higher state of perfection in those days than now.

S. Do you think there are now many regiments that possess sufficient proficiency in the use of the saber and lance?

H. I have observed but few regiments in detail; of the two regiments belonging to the division under my command, the one was as proficient in the use of the saber and the other in that of the lance, as could be expected.

S. Correct! as proficient as could be expected—considering how little time is devoted to it now. And, besides, these two regiments are perhaps shining exceptions. In many of the other regiments there are few of the older soldiers able to make a vigorous cut from the horse while in motion, or to touch with the lance a certain point. Under SEIDLITZ this was not sufficient; there the individual combat of man against man, of cavalryman against infantryman armed with the bayonet was practiced assiduously, and all the older soldiers possessed great skill in it.

H. Instead of this, much time is now devoted to instruction in the use of fire-arms; how well do our hussars now shoot with the carbine, while formerly there was a saying: "Whoever is hit by a cavalryman's pistol must believe in predestination."

S. This saying originated in the Wars of Liberation and those subsequent to them. SEIDLITZ laid great stress upon skill in pistol-firing, and had his men fire at the target from a gallop, and "even load at full speed and fire with deliberate aim" (VARNHAGEN VON ENSE). You may imagine how much time was required before the men acquired anything like proficiency.

H. The effect of cavalry fire is much more intense now than 100 years ago, because of the improvement in fire-arms. But leaving out the quality of fire-arms, the men were better shots then in comparison; they practiced more, especially the firing from horseback. But you were speaking of warlike marches. I should think they are sufficiently practiced during drill and maneuvers.

S. Not at all; for when the troops turn out for drill and maneuvers, they cannot make their marches as long as is desirable, because they must save their strength for drill and maneuver. In your letters on cavalry, you have pointed out yourself how important it is for a cavalry division to be able to make forced marches of fifty kilometers per day. You have pointed out that it requires practice to observe all those details which tend to save the strength of man and horse, when such great demands are made on them. Do you believe that, with six such forced marches of a whole division as proposed by you, you would accomplish anything but the ruin of a large number of horses, unless each squadron had had practice in making such long marches and sparing the horses as much as possible at the same time?

H. You are right there.

S. But the trooper must also learn how to march in different seasons of the year. With snow and ice on the ground, other things have to be observed than at the time of the fall maneuvers; and all this requires practice and experience, it cannot be learned from books, or looked up in a compendium at the moment of action.

H. Referring to what you further said of riding on difficult ground and rallying, I think we have plenty of time to practice it during drill.

S. Not at all; it must not be omitted during drill whenever there is an opportunity. But riding over all and any kind of ground should be practiced more than is possible under our present conditions of service. In those seasons of the year when we can march over the fields without doing damage, all riders are now confined to the ring. Under SEIDLITZ, they were dashing over snow covered fields; there the rider convinced himself of the possibility of passing over any kind of ground; there the horse learned how to act, if only the rider did not fret it with the rein, and kept a steady and firm seat. All ground of such character throws troops into disorder; but when each individual rider has learned to get over such ground the troop can learn how to rally quickly from the apparent disorder and be ready for a closed charge.

H. Did not many horses hurt themselves and become ruined

during these numerous exercises under SEIDLITZ on any kind of ground?

S. Much fewer than are now ruined by the awkwardness of horse and rider, when the troop for once gets into that kind of ground, unless previously taught how to act there, learning the easy things first. I remind you of what you told me yourself of the paper chases of infantry officers.

H. You mentioned the passage of defiles and the deployment upon debouching from the same. That, it seems, is merely a matter of drill. When the squadron has learned how to form front into line from column of threes, it knows how to deploy from a defile.

S. There, like many others, you are in error. From column of twos or threes the troop can only begin to form front into line in the manner prescribed in the drill regulations, when the rear of the column has left the defile and has room to march to the right or left oblique without disorder. But the troop must be able to begin the deployment from the defile as soon as the head of the column emerges from the same. If this is practiced on various and uneven ground, the troop can be formed for the charge quicker by the depth of the whole column. Such deployments from defiles are closely connected with quick rallying after passing over difficult ground, which loosens the order. For a mass of cavalry, formed in several lines and advancing on a broad front, meets with various ground. Here a squadron has to break into column to pass a bridge over an impassable ditch; there another has to give up the close formation on account of marshy ground or other difficult terrain, or it must pass in seeming disorder through wooded or bushy country; another comes upon a village and has to use the village street. Immediately beyond is the enemy; if the mass knows how to rally quickly, or to form line rapidly from the defile, it will be ready to charge without loss of time. If any time is required, however, the enemy has the advantage, awaiting as he does the cavalry just beyond the difficult ground. At the Striegauer Wasser, the Austro-Saxon cavalry stood ready at charging distance waiting for the Prussian cavalry, and thought it utterly impossible that the latter should be able to make a close charge immediately after passing that ground. But the Prussian cavalry had been practiced in such work; it quickly assumed a closed formation, surprised and defeated the enemy.

H. The first extra number of the *Militär-Wochenblatt* of this year (1885), contains a similar incident from the battle of Chotusitz. The difficult terrain consists of several ditches with marshy and overgrown banks (loosening of the closed order); on the right flank

a creek with few passages (breaking into column and forming line), and on the left is the marshy Doubrava. "The first line succeeds in passing the difficult ground, rallies quickly, breaks through both lines of the opposing Austrian cavalry, charges their reserves, throws the 3000 Croats and two infantry regiments of the second line into disorder."

S. But the second line?

H. The second line did not succeed in passing the same terrain; it had to pass through the village of Chotusitz and was met beyond by cuirassiers and hussars. In spite of its bravery the second line was defeated, "because the remaining seven squadrons had not been able to follow."

S. It would seem that this second line was not as well practiced in passing difficult ground and forming line after passing a defile as the regiments composing the first line.

H. That is possible, unless the soft ground was so much dug up by the first line that the second line stuck fast in it. Such things happen. The King, in a letter to Prince DESSAU, writes: "The action of part of our cavalry was very brave and heroic." He does not seem, however, to have been entirely satisfied with the "quick sounding of the assembly" and the "quick rallying." At least, he issued the regulations for the cavalry and the dragoons a month later while in camp at Kuttendorf; and he had a squadron of the regiment "gens d'armes" turn out repeatedly in the same camp and commanded it in person, to show "how squadrons were to drill in changes of direction at a gallop, how to disperse, and how to rally quickly upon the trumpet signal. All generals, field officers and squadron commanders were required to be present at these exercises."

S. The King reaped the fruits of these exercises three years later at Hohensriedberg. To be able to do this, however, requires that all the men be practiced in it frequently. It also follows from the result of these regulations, which bore such fruit within three years, that it does not require a term of service of ten or twenty years to teach the men so long as they are practiced constantly and industriously. SEIDLITZ's movements at Rossbach and Zorndorf would also have been impossible if the cavalry had been thrown into disorder by every obstacle of the terrain.

H. There were fewer obstacles then than there are now. The increased cultivation of the ground has changed many a wide plain into cut-up ground.

S. That is one of the favorite sayings of modern times, by which, on the one hand, it is attempted to show that less or no cav-

alry at all is needed now; and which, on the other hand, is used as an excuse when the cavalry is no longer as efficient as it was 100 years ago. I admit that increased cultivation has rendered much of the terrain more difficult; but that should only be one more reason why the passage of such ground should be practiced. Nor were there entirely smooth plains 140 years ago everywhere that cavalry had to charge.

H. Under the orders of the Great King, cavalry had invariably to send forward some scouts, even officers, to examine and report upon the ground in front as to its practicability.

S. In general, yes; in special, it was frequently impossible. If you follow the routes taken by SEIDLITZ at Rossbach and Zorndorf, when and where he came into line and charged, you will agree with me that he could not have waited for reports to come in of every ditch, etc.; in that case he would surely have been too late. On the other hand, if he had not been sure that his cavalry could preserve or at least quickly regain the close formation and readiness to charge, in spite of all difficulties unexpectedly presented by the ground, he would not have ventured such movements with such large bodies, because he would have considered them foolhardy.

H. Was he not foolhardy and very lucky?

S. Not at all. He knew very well what he could risk, and when and where. He refused to obey the King's order at Zorndorf, when the latter ordered the charge too soon; and answered, when threatened with beheading, that "after the battle his head would be at the King's disposal, but that while the battle lasted he meant to use it himself in the King's interest."

H. Lastly, you mentioned the passage of fords as a special practice. I do not see why this should require special practice. A ford is a place in the river where the water is so shallow that it can be crossed by wagons or horses without swimming. There is no special art about it that has to be practiced. The only difficulty which might present itself would be a dislike to enter the water on the part of the horses; but there are many horses which like to go into the water, and do so fearlessly. Put them at the head to lead, and the others will follow, like one sheep another.

S. That is a wrong opinion, shared by the cavalry to a great extent. When the water is only a few inches deep and not rapid, it can be done that way, but then the ford is not worth mentioning. It is different when the water is so deep that it reaches to the horse's belly or higher, and when the river has some current. If a large body of cavalry rides through it in the dense marching column, it

forms a kind of dam from one bank to the other, above which the water will be checked, while below it flows off and its depth decreases. This causes a constantly increasing pressure of water, which pushes the horses down stream. Now, if every rider follows the man in front of him, this drifting down stream increases constantly; for if the first file drifts down one foot, the second file drifts two feet; the twentieth, twenty feet. The column soon forms a line concave toward the current, the water being checked most where the current is swiftest. Finally the pressure of water becomes so great that the horses are no longer able to resist it, and the higher the water rises the more it lifts the horses, so that their weight is insufficient to insure a good foothold. The column is suddenly torn asunder by the force of the water; the horses in the middle of the current are carried down stream, where the river is not fordable, and are in danger of being helplessly drowned.

H. Then the men must so ride through the ford that the road they follow in the water forms an arc convex to the direction of the current?

S. That is easier said than done; for, in the first place, it is a question whether the line followed by the ford and its width admit of making such a convex arc; and, in the second place, when the men cover in file, the current will soon make a straight line of the convex arc in the manner just indicated, and finally a concave arc, if the body of troops is large (division) and the crossing takes much time. It is necessary that this body of cavalry ride through the ford by platoons, leaving distances between the platoons to allow the water to flow off that it may not be checked. Each platoon should also have a guide knowing the ford. This can be accomplished if the leader of each platoon observes the direction in which the head of the platoon in front of him is led, that he may take the same direction and follow the rear of the column. But then, and especially if the current is strong, it becomes necessary that the platoon ride through the ford, not in the prescribed marching order, but in the "pulk,"* each horse's head being held above the rump of the next horse up stream. All the horses must also be held with their heads somewhat obliquely to the current, like the bow of a ferry boat. But it is absolutely necessary that no horse or rider be afraid of the water. They must be familiar with it, in order not to make fatal mistakes from fear of the water or from thoughtlessness. A horse unfamiliar with the water seeks with its front feet for some object on which to gain a foothold. Thus it happens that it tries to

*A Cossack formation.

place its front feet on the croup of the horse in front, pulling it down and making mischief. It is also to be observed, that every man riding for the first time through water, is inclined to look down into the water. Where there are eddies or whirlpools, it causes a turning sensation and consequent faulty guidance of the horse. The riders must practice looking steadily at the point on the farther bank, which they mean to reach. The rider must incline his body against the stream, so that if he becomes separated from his horse, he may get into the water above the horse, as otherwise he would be in danger. It is also very necessary that the rider preserve the regulation seat and thus give the horse the accustomed hold. He who is afraid of wet feet and pulls up his legs, loses all control over his horse at the moment of danger.

H. I see; the troops must previously be well and thoroughly instructed.

S. Instruction alone accomplishes nothing. Practice alone gives safety. Instruction must precede practice, which must progress from the easier to the more difficult. The horses must go into water willingly and confidently. This is necessary, in order that a ford may not prove an insurmountable obstacle to an individual patrol. To cross the ford with a large body however, it is necessary that all horses know how to swim under the rider, and that the riders have learned to act so that, when the depth of the water increases and the horses have to swim at the deepest places, they may not lose their heads.

H. Did the cavalry of SEIDLITZ practice fording frequently?

S. In his "Life of Seidlitz," VARNHAGEN VON ENSE tells us how fording was made the subject of frequent and special practice. They even drilled in the river Ohle, i. e., forming line and breaking into column of threes. I believe, however, that the more frequent practice of fording was also due to the then circumstances. For in those days there were many more fords than now, when the communications are in so much better condition and bridges have been built everywhere. Fords were then crossed every day. The cavalry of those days could also swim, hence it must have had practice. The history of the Seven Year's War furnishes many examples of large bodies of cavalry crossing rivers by swimming.

H. I shall have to ask you many more questions about swimming, when we come to the training of the horse. For the present, I beg to state that I am not much impressed with the details of the service in the last century so far as the part taken by cavalry officers in

time of peace is concerned. I can only speak of what MARWITZ says. We have already mentioned how rarely the older soldiers mounted their horses. The recruits rode every day. But how many were there of them? Twelve per squadron, or sixteen at the highest. It is certain that an officer was not always present. What did the officers do in those days?

S. There is no question that cavalry officers of the last century had nothing whatever to do with the interior service. That was a matter between the captain, the first sergeant and the non-commissioned officers. The hard work of the lieutenant of the present cavalry, who in time of peace is busy from morning till night, was unknown then. In time of peace the officer was much more occupied with formalities and pleasure than now. Nor were his services necessary, for there were few recruits, many good riders and experienced non-commissioned officers. The officer's activity was limited to formalities, squadron drill mounted and dismounted, breaking his own horses, and bodily exercise. This was practicable in view of the long term of service and the uninterrupted state of complete training of the troops, which on this account reached such a high state of efficiency.

H. At a distance everything looks much rosier; and what is separated from us by centuries appears to us more perfect than the present, because we do not see its weak points nor get a close view of its worst features. Did you read what MARWITZ adds to the appendix of his essay on the decline of the Prussian cavalry?

S. You mean the amusing story told by V. AHLING of FREDERICK THE GREAT's criticism of the "Yellows," the cuirassier regiment "Prince of Prussia"? Certainly. What do you infer from it?

H. That they also cooked with water in those days, and that the cavalry was not so perfect on all points, as FREDERICK's cavalry appears to us now in the light of glory shed over it by history.

S. But how harshly the King criticizes a poorly trained regiment! "Slovenly, no accuracy, no order. The scoundrels sit their horses like tailors. You will have to do with me." Thus the King speaks to officers! He speaks to them of "lazy bones," "shame," "being cashiered," and says: "I shall have my thumb on you; these things must change or the devil will take you." It also appears from his speech, that the pay of the furloughed men went into the captain's pocket, which fact we mentioned above, for the King says: "The captains only think of making money," and then describes in detail how all the men are furloughed. Do you believe

that the King would have criticized the regiment so harshly, unless other regiments had come up to his requirements? It also appears from the same speech how much he demanded from his cavalry officers. "Your service is such," he says, "that I must demand more of a lieutenant of cavalry than from a major of infantry." Nothing shows better than this severe lecture what a high standard the whole of the King's cavalry must have reached.

H. The horses, too, and their training?

S. Of that, another time.

THE "TROT" AS A CAVALRY GAIT.

BY CAPTAIN S. L. WOODWARD, Tenth CAVALRY.

THE trot is proscribed in the last drill regulations as an habitual gait, and virtually as *the* habitual gait; and it is now used to the almost entire exclusion of every other. We trot from the stables to the drill ground, and trot through the drill.

Comparatively few horses are natural trotters, and fewer are easy trotters under the saddle. Often a colt in the pasture will be seen to strike a trot and keep it for a few moments and it would be declared by its owner, or other enthusiast, to be a "natural trotter"; but almost invariably it will kick up its heels and go off in its natural gait—a gallop. Perhaps in the fine breeding of trotting horses, there may be colts bred as natural trotters; but they are raised for driving purposes, and nobody ever thought of training a horse to make great time as a trotter under the saddle. All fast riding horses are runners; and the run is a kind of gallop. However, this paper is not intended to be a dissertation on "thoroughbred horses."

It has always been conceded that the most valuable gait for a saddle horse, for comfortable riding and for long and hard marching, is a walk. It is also a well known fact that a horse which trots naturally, or has been trained from infancy to trot, is rarely, if ever, a good walker. The present scheme seems to be to teach every horse to trot; and as this is the "habitual gait" proscribed, either the rider is at fault or the horse must be condemned as unfit for cavalry service. When a horse is trained to habitually trot, his walk and gallop are very much impaired. No one with a fine carriage roadster will permit him to be used under the saddle; and no one with a fine saddle horse will permit him to be put in harness. I am aware that good horses are often used both ways, and are intelligent enough to adapt themselves to the altered circumstances. It does not change the

rule that a fine harness horse is only a trotter, and a fine saddle horse a walker or galloper. Imagine taking a fine trotting horse out of harness, equipping him with a saddle, curb bridle, and 150 or 200 pounds of "avoldupois," and putting him at hurdles and ditches. Nobody ever saw an Indian or frontiersman ride at a trot, and they are the model riders of this country.

The United States never saw, and in our time will not see, more efficient cavalry than that which was in service during the last two years of the late Rebellion. I was identified, from February 1, 1862, to September 19, 1865, with that portion of it which served in the States bordering on the Mississippi River and its tributaries, and I speak more particularly of that portion. It was my good fortune during the period I have named, to act as a staff officer of cavalry for commands ranging in strength from a brigade of 1700, to a corps of 32,000. The men composing these commands were generally from the Western States, and raised, virtually, on horseback. The horses, like the men, were trained for the saddle. The "trot" as a gait cut no figure; it was seldom that a trotting horse was seen, until late in the war, when two or three regiments came from the East, composed generally of very amateur horsemen, and commanded to a large extent by imported officers; these attempted to make their regiments trot. I shall never cease to be amused at the reply of one of these troopers to his colonel, who ordered him in language more forcible than elegant to "trot"; he said: "My God, Colonel, I cannot trot; my horse is a pacer." These regiments presented a novel appearance to the natural-born horsemen from the Western and Southern States, and they were by these derisively called "saddle spankers." I felt thankful that I was not considered a "saddle spanker"; but alas! we have all come to it now.

The trot is an unnatural gait for most horses, especially under the saddle with from 150 to 250 pounds on his back. It destroys his efficiency for walking or cantering, and the motion, a pounding one, is hard alike on men and horses. A canter, or lope as it is called in the West and South, is more natural, horses are more easily trained in it, it is more exhilarating and less fatiguing to the rider, and simply requires a little acceleration to make it a "gallop" or "charge."

In this connection I desire to say that more attention should be paid to the walk; however, I do not wish to be understood as advocating drilling at a walk. I believe that maneuvers on drill should be at rapid gaits, the canter or gallop. But for marches and campaigns the walk is the only gait, if the commanding officer expects to "get

there" in good shape. I am aware that it has been advanced by some officers that cavalry on a march should alternately walk, trot and gallop; I believe if the campaign were an extended one, remounts would have to be close on our heels or we would walk and lead our horses, or leave the animals and abandon the equipments. In 1863 a command to which I belonged marched 800 miles in sixteen days, and the command proper never moved out of a walk except on one occasion, when it went at a lope to the relief of a battalion which had preceded the main body by several hours, and was suspected to be in trouble. Of course detachments made rapid dashes into towns and in pursuit of a visible enemy, but never at a trot.

There are not, in the troop which I command, a dozen horses which would be considered easy trotting horses by any officer in this post. Officers, if they have to ride at a trot, will select their mounts with that view; the soldiers ride what is assigned to them. I believe cerebral disease has been caused by men being compelled to ride hard trotting horses. This idea has not only arisen in my own mind, but has been advanced by others. It is not original with me.

I believe that carefully trained horses can be brought to walk four and one-half miles per hour. I am aware that four miles is the normal gait; but I have owned several which made five miles on a measured road, about feeding time, when their noses were pointed toward the stable. The canter covers about six miles per hour; a slow trot is supposed to be about that, but I have been compelled to ride at a trot in a column, where the gait was not more than five miles per hour. It was pronounced so by others who were participants and onlookers. A well trained walking horse could have done nearly as well with more ease to himself and the rider. For the gratification of the populace who are spectators on parades, etc., I believe that the canter or gallop would be more satisfactory than the trot.

An officer who marches his command ten miles at a trot and goes immediately into action, will be half whipped when he gets there. I consider it as bad as marching infantry five miles at double time and going into action. The worst whipped command I ever saw had been served that way by an inconsiderate and inefficient commander. Much of the drill might be by marching the troops eight or ten miles at a time over the ordinary roads, the slow-walking horses being coupled with the faster ones. Many of the former could thus soon be trained to be good walkers, and the men would acquire a graceful, easy seat, which they cannot by eternally pounding around at a trot on the drill ground.

These are simply a crude compilation of ideas on the subject which have forced themselves upon me since I came to this Post, where the "trot" is the prevailing gait. I have been guided by my experiences of nearly thirty years' service in the cavalry, and while I am open to conviction and in favor of progress, I would prefer to put myself on record as of the opinion that a trotting horse, as such, is not an efficient cavalry horse.

DISCUSSION.

Captain S. M. SWIGERT, Second Cavalry.

I do not agree with the essay just read, for I think the trot is preëminently the cavalry gait when properly used, but like everything else it can be abused, and horses are broken down by it as well as any other gait. The trot is one of the natural gaits of a horse, yet, for a proper use of it, cavalry horses should be carefully trained to it, as uniformity and steadiness of motion is what is most required.

Some fast time has been made by trotters under the saddle: Great Eastern, one mile, 2:15½; Tacony, two miles, 5:02; Dutchman, three miles, 7:32½; Dutchman, four miles, 10:51; Whalebone, six miles, 18:52; Steel Grey, ten miles, 27:56½; Chancellor, thirty-two miles, 1 hour 58 min.; Rattler, thirty-four miles, (154 lbs.), 2 hours 18:56; Black Jake, fifty miles, (175 lbs.), 3 hours 57 min.; Halliday, one hundred and ten miles, (196 lbs.) in less than eighteen hours.

For the last three years I have used the trot with my troop almost constantly, and I think both men and horses are better for it; have not had one sore back; the speed at all gaits is much more uniform. The trot should only be used upon suitable roads and under proper conditions, and I think it is a welcome change from the walk during a march to both men and horses; and, during a forced march, it seems a necessity. It is now used by the armies of Europe, and is prescribed in the drill regulations. One of our best cavalry officers, General MERRITT, recommends the trot, for ten or more minutes, twice, or oftener, during each hour of the march, and says: "Even the gallop for from seven to ten minutes will not be injurious in a well conducted command."

The following is given as the method of a march of thirty-two miles in the German army for a division of cavalry:

About 2 miles at a walk, half an hour.
 " 2.33 " " trot, quarter of an hour.
 " 2 " " walk, half an hour.
 " 4.5 " " trot, half an hour.
 " 2 " " walk, half an hour.
 " 2.33 " " trot, quarter of an hour.
 " 2 " " walk, half an hour.

17 miles in three and-a-half hours, with half an hour for short halts.

Ground halt for two or three hours.

About 2 miles at a walk, half an hour.
 " 2.33 " " trot, quarter of an hour.
 " 2 " " walk, half an hour.
 " 2.33 " " trot, quarter of an hour.
 " 2 " " walk, half an hour.
 " 2.33 " " trot, quarter of an hour.
 " 2 " " walk, half an hour.

15 miles in three and-a-quarter hours, with half an hour for short halts.

Captain W. D. BEACH, Third Cavalry.

Probably no officer present has had the field service with cavalry that Major WOODWARD has had and, for that reason, his opinions are entitled to very great weight. The trot, judging from our new drill regulations, seems to be the coming gait and, for one, I am heartily in favor of it. Used sparingly, in connection with the walk, I believe a command can be made to cover more ground with less fatigue and injury to the horses than by the walk alone.

The old and only gait for marches, the walk, as many of us know from experience, varied from two and three-quarters to four miles an hour, depending upon how rapidly the commanding officer's horse moved. Cooks were called at 3 A. M., and the command left camp "as soon thereafter as practicable," plodding along all day, barring the customary halts, and reaching camp toward sunset after a march of perhaps twenty-five miles.

For over two months last winter while on the lower Rio Grande, in command of a troop in the field, I habitually used the walk alternating with the trot, with excellent results. One day we covered forty-six measured miles, and the next thirty-six; while on several occasions the march was over thirty-five. Good stretches of level road only were used for the trot, which was at the rate of seven miles an hour; but, except in case of necessity, it was never used in

the first hour of the march. Including the usual halts, it was found that the entire march was at the rate of five miles an hour, which I should think could be accomplished almost as well by a much larger command.

I do not think that any large proportion of the cavalry horses in our service can be made to walk five miles an hour under any circumstances. Objections to the gallop that appeal very forcibly are that horses require much greater distances in column, usually fret and pull on the reins, while many hard-mouthed animals will take the charging gait if allowed to do so. This last tendency could doubtless be eradicated, and I will say that the squadron at this post, which is the best gaited I have ever seen, moves very smoothly at the gallop.

Captain C. W. TAYLOR, Ninth Cavalry.

I cannot agree with Major WOODWARD that the trot is not a cavalry gait; neither do I agree with others who may claim that it is the only gait for cavalry on the march. I am a believer in the three gaits: the walk, the trot and the gallop, and as a result of considerable experience in marching in different climates, I am convinced that the march is rendered much easier to man and horse by a judicious combination of the three.

I believe the trot is the natural gait for the majority of horses. Turn a horse loose, and up to a certain degree of speed he is more apt to trot than he is to walk or gallop. This gait is more easily taught than any other. It is a difficult matter to train a horse to walk four miles an hour when he has been born with a walk of three; while on the contrary, it is not very hard to train him to trot eight miles and gallop twelve per hour. My observation teaches me that it is a rare sight to see an Indian or cow pony moving at a walk, their ordinary gait being the trot and, when that is too slow, then the gallop.

For purposes of drill and instruction of troopers, the trot is the best gait, for the reason that a man taught to ride well at that gait will, without additional instruction, ride well at any other. Horses should be trained to take any of the three at command. I know of horses that, when moving at rapid gaits, will of their own volition (undoubtedly to rest themselves), change from a gallop to a trot, and *vice versa*.

At faster gaits than a walk men cannot lounge nor sleep in their saddles, and I observe as a result that sore backs are greatly dimin-

ished in number. Another point in favor of quick marches, and as a prevention against sore backs, is that the long-continued sweating of the back under saddle and occupant is relieved by getting early into camp and allowing the fresh air to come in contact therewith.

I believe that had Major WOODWARD been able to carefully observe the entire column on its remarkable march, to which he refers, that he would have noticed many horses trotting when the command was supposed to be at a gallop, and very many of them doing the same thing when they were presumed to walk.

Possibly the horse himself is the only absolute authority to which to appeal for a settlement of this question, but I am inclined to think that his answer, could he speak, would be much of the same tenor as that named in the fable of the Arab horse which, when asked by its rider whether it preferred to gallop up or down hill, replied, "Damn them both." I believe that the walk for a perpetual gait on the march is both a horse and man killer; they will both die of *ennui* if of nothing else.

First Lieutenant E. P. ANDRUS, Fifth Cavalry.

It has been my good fortune to have done most of my marching under General MERRITT, or others who learned the art of marching cavalry from that great master of it—PHILIP ST. GEORGE COOKE.

The longest march I ever made under General MERRITT was from the junction of the two branches of Stinking Water in Wyoming to Cheyenne, a distance of about 430 miles. With the exception of the last ninety miles, the command consisted of twelve troops of cavalry with their wagons. When the country permitted it, we marched each day at a walk, trot, and dismounted, the walk of course predominating. Our stock was always in good condition, and neither horses nor men appeared tired upon reaching camp.

I have marched under other commanding officers, who believed cavalry would be ruined by moving out of a slow walk; the result being that everybody, horses and men, were tired upon reaching camp; and, during the march it seemed that we never would get there. When horses trot the men cannot lounge in their saddles; and, by alternating the walk and trot, fewer sore backs are made than by the walk alone; while camp being made so much sooner, the horses have an opportunity of grazing.

Lieutenant GEORGE M. SANDS, Sixth Cavalry.

My experience has been very much the same as that of Captain BRACH and others, who have already commented on this subject. The active campaigns in the Southwest with notable cavalry officers, the ordinary scouting and hunting expeditions and the work on the drill ground, have led me to believe thoroughly in the "trot" as the gait for rapid marches and for drill maneuvers. Where the camping places are known in advance, the day's march should be made in time to allow of grazing, feeding and grooming, and rest for the horse as well as for the rider.

Experience has taught me that, with practice, the cavalryman will soon learn to place his saddle and adjust his seat at a point on the horse's back where the minimum amount of jarring is communicated to the rider. This once attained, the so-called rough trotter has no further terrors for him. I believe that the packs can be made tight and compact enough to avoid the multiplied jarring of the smaller articles, by the training and discipline of the drill ground, and no opportunity should be passed over which would lead to the desired state of excellence in "saddle packing."

Having been thrown with mounted Indians on several occasions, I fail to recall any instance wherein the "gallop" was the favorite gait for long distances. I am convinced that the gait predominating was a fox, or shambling trot. For marching, I advocate the trot, used in connection with the walk, so as to make the rate of traveling from six to eight miles an hour; for the drill ground, the trot, after the preliminary instructions. The gallop, with the cavalry burden, will rapidly wear out any animal.

Lieutenant W. S. SCOTT, First Cavalry.

It seems rather remarkable that we should be tonight discussing the gaits of an animal which has, for more than 3500 years, been domesticated and so universally used and intimately associated with man. It would seem that experience, as well as experiment, would have taught us long ago which were his best gaits for endurance, particularly for military purposes.

About the most authentic history of the horse of the earlier periods is to be found in the Bible, the first books of which are replete with information concerning him, so much so, that we can fix within a few years the date when he became domesticated, which seems to have been in Egypt, about 1740 B. C. Shortly after this time, he

became extensively used in warfare; nor has there been a period since when he has not figured more or less conspicuously in war.

First, he was used to draw chariots; and it is recorded that SESOSTRIS went to battle with 27,000 chariots drawn by horses. As time went on, man learned that the horse could bear a burden, and he thus became a cavalry horse. We are taught to regard the ancient war horse generally as an animal, however, that continually cavorted around on his hind feet, so there is little to be learned from the illustrations of the noble beast of that period as regards his capacity to trot.

Speaking of his being able to bear a burden reminds me that the analysis of the gaits should be taken into consideration. It would seem that the walk would be the gait most to his taste when he has a load on his back; since he never has all his feet off the ground at once, he would raise very many fewer foot-pounds in a day's march than in the trot or gallop, where every leap clears him of the ground and makes him actually lift his load a certain height. Since the trot is a gait of two diagonal beats, I believe there is less displacement of the center of gravity from the center of motion than at any other gait; and it is to make the two coincide that we aim to accomplish in placing the burden on the back.

But for the lifting of the load above spoken of, I should say the trot is the natural gait, and I do believe it is in harness. Nature seldom makes a mess of matters, and when we consider the swiftness, the grace and endurance of this gait, it would seem that nature had designed it. I consider the gallop too fatiguing on the march, except for short distances at long intervals. I believe it much better to walk and trot alternately during the day's march, arrive in camp early, remove the weight from the horse's back and allow him to graze, than to keep him plodding all day under a dead weight. Where time has been a principle factor, the trot and walk alternating has certainly proven very satisfactory, notably in cases of one cavalry command going to the relief of another, such as the relief of THORNBURG's command in 1879; the marches of the Ninth Cavalry in Dakota in 1890-91, as described by Lieutenant PERRY in the CAVALRY JOURNAL.

My own experience with small detachments on the frontier in pursuit of deserters has proven to my own satisfaction that the combined gaits are most satisfactory. The subalterns of the command to which I belonged had quite an extensive experience in the winter of 1890-91 on patrol duty in Dakota; they were all convinced that the combined gaits were most satisfactory.

Authorities differ as to the endurance of the horse under different gaits. Major DWYER says that a horse can be trained to travel with less fatigue at the trot than at any other gait. Captain DORST in the *Military Service Journal* says, that "We know that under the conditions of active field service horses will last longer marching at a steady walk, day after day, than when walking and trotting alternately."

All in all, I do not agree with Major WOODWARD, though he writes from extensive experience—a teacher far more to be respected than information obtained from books.

Lieutenant O. B. MEYER, Second Cavalry.

Judging from my limited experience, I should class the trot next to the walk in importance as a cavalry gait. I believe that its importance is steadily increasing with the changes in the use of cavalry in modern warfare. Cavalry is liable to be called into the field at any season of the year. The trot, I believe, is the only gait that will keep up the circulation in both man and horse while riding in very cold weather. In the winter of 1890, while serving in the field in Dakota, I found that by alternating the walk and trot I was best able to keep from being benumbed by the cold, dismounting and leading at times to prevent the feet from freezing. In using the word "trot" I mean the uniform gait of the trained horse, and not the haphazard gait taken up by an untrained horse. I see no reason why the cavalry horses, at those of our large posts where there are riding balls, trained in the hall during the winter months, cannot be taken onto the drill ground as soon as the ground hardens in the spring, there placed in charge of an officer who understands his business and be made to move at all gaits as uniformly as trained infantry, particular attention being paid to the walk and trot.

* * * * *

I believe that for riding over long distances the extremes between the walk and gallop are too great; they have a tendency to nag a horse. Of course if we are going to mount our troopers on Indian ponies or the cow horses of the plains, then the walk and gallop are the proper gaits, but I think that under these circumstances we had better change the name of our mounted men and call them scouts.

Captain S. L. WOODWARD, Tenth Cavalry.

I have heard with interest the criticisms upon my essay, and am gratified that there is so little adverse to the especial point I have made. While great favor is given the trot, all appear to consider the walk as a campaign gait essentially necessary; and I beg that critics will not lose sight of the fact that I advocate more attention to the training of horses for this most important gait.

If men are so much in need of sleep that it is necessary to pound them over the road at a trot, it would be better to camp and take needful rest. I am aware of the fact that a slow walking horse is about the most tiresome brute in the world to ride, unless it is a hard trotter; but a good, springy, four-mile-an-hour walk is doubtless the easiest for long marches. A horse that cannot be trained to make nearly or quite four miles per hour is unsuitable for cavalry service. Proper supervision of a column by officers and non-commissioned officers will serve to prevent dozing or lounging in the saddle. A good rider can doze in his saddle without detriment to the horse. However, I do not advocate permitting this.

I believe the horses of SESOSTRIS' war chariots have always been represented as marching at a gallop. I do not believe, however, that they moved off a walk when changing station and marching over peaceable roads. The remarks of Lieutenant SCOTT as to the proper gait for a horse under pack (which is the normal condition of the American cavalry horse on the march) I entirely agree with.

The Tenth Cavalry as a regiment—thirty-eight officers and about 700 men—marched, in 1885, from Texas to Arizona. The dust was fearful, so that, although good intervals were maintained by squadrons and troops, men and horses were almost blinded and suffocated. I venture the assertion, that there was not an officer in that column who would not have considered it a most outlandish performance to have moved that command at a faster gait than a walk. Certainly Colonel WADE, who commanded the regiment from Fort Davis, Texas, to Bowie Station, Arizona, and Lieutenant Colonel McLELLAN, who commanded one squadron from there to Fort Verde, Arizona, did not consider it proper to do so; and these two officers have probably had as much cavalry experience as any now in active service.

I have marched thousands of miles, over good roads and bad, through dust and mud, over barren, desolate plains and mountain trails, under Generals GRIERSON and DAVIDSON, Colonels WADE, CARPENTER, McLELLAN, and other well-known officers of from thirty to forty-five years' experience in active cavalry service, and I have yet to see troops moved, except in a great emergency, at a faster gait

than a walk. Dust or mud and rough roads or trails, will generally be the condition in this country in the movements of large or small bodies of cavalry; and the more attention officers give to the training of their horses to this gait the more efficient they will be.

One of the criticisms states that the "cooks were awakened at 3 A. M., and the command plodded along all day, reaching camp toward sunset, after a march of perhaps twenty-five miles." This was a case of gross mismanagement. I have been the victim of such myself; but it is no argument in favor of a trot. I have habitually left camp comfortably at 7 o'clock after grazing the animals from one to two hours, and made twenty-five miles before 2 o'clock. I do not think the troop of horses which I now command could do it as they have been trained principally in the trot, and scarcely know how to walk.

I believe it will be conceded that the squadron at this post, when moving at a canter or gallop, does so nearly as uniformly as at a trot, although they have not had one-fourth the practice at the former gait that they have had at the latter. Most animals can, in my opinion, be trained to do so much easier than to trot.

The following is clipped from a newspaper:

"Fogg says that there is only one objection, so far as he is concerned, to riding a trotting horse. The horse's back is always coming up when the rider is going down, and going down when the rider is coming up."

THE ACTION AND MINOR TACTICAL USE OF CAVALRY IN THE LIGHT OF THE WAR OF 1870-71.

BY SECOND LIEUTENANT R. G. PAXTON, TENTH CAVALRY.

CAVALRY action may be divided into three general classes, viz: (1) Shock action—delivered by a mounted line or echelon of lines; (2) Detached action—comprising all extended order formation and independent action; (3) Dismounted fire action.

Thus the cavalry leader has three different methods of accomplishing his object, of delivering his blow; while each has its own particular field or combination of circumstances wherein it is supreme.

The development of dismounted fire action is comparatively recent; there was but slight preparation for it in the German and French cavalry of 1870, and it was contrary to their universally accepted ideas of cavalry action. Nevertheless, we are told that all German officers who had experience in screening and reconnoitering duty—that province of cavalry which they grasped so completely and executed so thoroughly—have declared in favor of arming the trooper with a long-range carbine, and teaching him to use it on foot. And had the French displayed a corresponding curiosity concerning their enemies' movements, and confided their investigations to a cavalry armed and instructed as was our own in 1864, we can but believe that the German operations in screening and reconnoitering might have been attended by very different results.

Cavalry, capable of executing an effective dismounted fire, can be scattered broadcast, as it were, to a distance of many miles to the front and flanks of an army, without running the humiliating risk of being stopped by a handful of well posted infantry.

It is indeed to our own war that we must turn for all positive lessons in dismounted fire action; but that mode of action is so peculiarly suited to American ideas, so easily grasped by the Ameri-

can soldier, that we can well afford to turn to a foreign war for lessons in an employment of cavalry, in which we have much to learn.

At the same time, I do not wish to underrate the lessons taught us by our own war in every mode of cavalry action; for I do not believe that the history of the world can offer a better illustration of the triple use of cavalry than that presented by the battle of Gettysburg:—BURNED reconnoitering to the front and keeping touch with the enemy; then seizing the critical position, and holding it by dismounted fire action until the advance of the army; and, lastly, GARDE's mounted action on the right of the line of battle.

But we must never for a moment forget that dismounted action is exceptional, to be adopted only at considerable sacrifice of effective force, and only under peculiar conditions which render such a sacrifice desirable. Consequently it is not in the results to be produced by dismounted fire action that we are to find the *raison d'être* of cavalry.

But what results are we to expect from shock action? Take first a peace experiment. In a report of the German field maneuvers of 1879, we find as follows: "A regiment of lancers (400 strong), took advantage of cover afforded by the ground to charge in flank four battalions of infantry (4000). The surprise was so complete that the cavalry arrived within 200 yards of the enemy's flank in full charge before it was perceived, and was upon the infantry before any effective fire could be delivered." As a result of this charge Count VON MOLTKE decided that three battalions were placed *hors de combat*.

Thus, it was decided by a most eminent strategist—one who had conducted two great wars to a most successful termination—that 400 mounted men had practically destroyed a body of 3000 infantry, whereas, if they had attempted to use dismounted action they could not have been expected to overthrow more than a company of 250 men.

As to the circumstances under which the cavalry charge should not be delivered, we have numerous examples on both sides, the most notable being the charges of MICHEL's brigade at Wörth, and of BONNEMAIN's division later on in the same battle. These charges were both frontal, against unshaken infantry and artillery, over a clear field of fire, both frontal and flank, some 1500 yards in extent; over ground that consisted of hop fields and vineyards, intersected by ditches, and sodden from recent heavy rains. Its mounted reserve was retained in either case. Even under such fatally adverse circumstances (and who can imagine worse?) the heavy loss incurred was

not without compensation. The three hours' time gained by the first were no mean consideration, for at the close of the battle the few remaining hours of daylight were very precious to the victors.

The charge of the French Imperial Guard at Vionville was almost without result, but was delivered from a distance of 2500 paces, against unshaken infantry supported by artillery, not surprised, and protected in front by obstacles that seem to have been unforeseen by the charging cavalry. The charges of the French cavalry on the field of Floing at Sedan, tell the same story.

We come now to the most brilliant performance of cavalry on the battle-field during that war—the well known charge of BREDA's brigade. This too was a sacrifice charge to gain time for the arrival of reinforcements; but the conditions were more favorable, the ground was flat and suitable for cavalry.

The German Third Army Corps had been engaged for four hours against three-fold numbers closing BAZAINE's line of retreat upon Verdun. About 1 o'clock it was seriously threatened by an advance of the French Sixth Corps. BREDA's brigade of six squadrons was ordered to break the front of this corps and, advancing in column, he deployed practically into one line echeloned slightly forward on the left. Charging forward he broke through the front line, the line of supports and the batteries, and sweeping on, was attacking the masses of troops and mitrailleuse batteries in rear, when, with his horses blown and his formation broken by the charge, he was attacked on both flanks by greatly superior numbers of French cavalry. The recall was sounded and the squadrons forced their way back through the lines that they had ridden over in their advance.

Of course the loss was very heavy, but the advance of the French Sixth Corps was completely paralyzed, and ample time was given for the approach of the German reinforcements.

During the advance over 1500 yards, until the first line of infantry was penetrated, it is estimated on the evidence of eye-witnesses, that not more than fifty horses fell—a trifling loss when compared with the end accomplished. The number of infantry whose fire action was brought to bear on the cavalry during the charge was not less than 8000, yet this body together with its supporting artillery was reduced to a state of complete inaction for the remainder of the day.

Now, such brilliant results having been achieved in the first part of the charge, let us consider how the subsequent disasters might have been avoided. Suppose a second line, similar to the first, had

followed some 500 yards in rear, completing the demoralization of the batteries and lines of infantry, penetrated by the first line but still able to do very material execution, as the remnants of BREWSTER's squadrons found to their cost when they fought their way back over ground that had just been swept by their gallant charge. Then let reserves follow on either flank, held well in hand and the strength of their horses carefully preserved, to reap the fruits of a victory or to cover the withdrawal of the first lines. BREWSTER might have retired in a very different manner had he had a reserve wherewith to oppose the charge of FORTON's fresh squadrons.

The Prussians were quick enough to grasp the fact that infantry must advance in a succession of lines; might they not have applied the same principles to cavalry with even greater advantage? And might not the first line have been extended in deference to the increased power of the breech-loader, reserving the wall-like shock for the second or some succeeding line that could be brought up comparatively intact?

These principles have, I believe, been adopted to some extent in drill regulations, but as they were not applied on either side during the War of 1870, we must make due allowance in making our deductions. We shall not hereafter expect the charge of great masses of cavalry to decide the battle, as at Eckmühl, Borodino and Waterloo. We shall not expect 5000 horsemen, led by a SEIDLITZ, and aided only by a few rounds from some field-guns, to break and rout an entire army over 50,000 strong, as at Rossbach; but we shall still expect brilliant results to be obtained on the battlefield by the timely charge of a brigade, a regiment, or even a squadron.

We have now to consider the independent action of cavalry, comprising generally the screening, reconnoitering and outpost duties of that arm. If we form our conclusions from the results obtained in the War of 1870, we must admit that this is by far the most important duty that cavalry will have to perform. We find that the German armies, throughout their advance, were covered by a screen of cavalry distributed in bodies radiating from the front and flanks, and diminishing in size as the distance from the main column increased; thus the outer bodies were small patrols, often of not more than three or four men each, whose duties were to come into contact with the enemy, ascertain his position and numbers, hang on to him and continue to observe his every movement, make careful reconnaissance of the ground, and keep the army informed of the result

of all of these observations by frequent reports sent through the bodies in their rear.

For these outer patrols, alert, intelligent and well-instructed men were selected, and they very rarely failed in their object. If they met with opposition, they fell back upon supporting bodies in rear until sufficient strength was acquired to drive the enemy in; if unopposed, they pushed out several marches to the front, and if suddenly attacked, one or more of them almost invariably succeeded in getting back to make report.

Where the object of this duty was mainly reconnaissance as distinguished from screening, and necessitated operations at a great distance from supporting forces, the Germans evinced their appreciation of its importance by the frequent use that they made of officers' patrols. Considerable independence was allowed these officers; they knew what was wanted, and according to the Prussian spirit of centralized decentralization, they were informed of the end to be accomplished and left to work out the detailed method for themselves. Numerous instances might be cited of valuable service rendered by these officers' patrols; cases in which individual officers rode over eighty miles in a single day to bring in important information. The great value of such information to the German armies, and the manifold difficulties attending its acquisition, lead us to believe that Captain MAUDE knew whereof he spoke when he said: "There is no more royal road to distinction than the ability to write a concise and accurate report."

Nor was the German cavalry content with merely keeping up the contact with the front or rear of an enemy. When McMAHON retreated from Wörth, his pursuer's cavalry enveloped his flanks and moved abreast of the heads of his columns. McMAHON's cavalry attempted no detached operations. Thus we see the explanation of what would at first seem inexplicable to the military student.

How was it that such a body of regular troops, under a practiced commander, after a defeat that was by no means overwhelming, should have been "unable to pause or exert any influence for good in the theater of war until an incessant retreat for nine days had carried them 200 miles from the scene of their defeat?" McMAHON moved as one blind, his troops kept in a continual state of demoralization by the constant appearance of the enemy on his front, flanks and rear, while his pursuers advanced with that assurance and precision which can be acquired only from an exact knowledge of the enemy's movements and dispositions. McMAHON's communication with the other French forces in the theater was completely severed;

and he lost the opportunity of forming, with perfect ease, that junction with BAZAINE, which he attempted later in his flank march on Sedan, with such small prospect of success and such disastrous results.

Another incident of this pursuit gives an idea of the far reaching effects of such cavalry operations. Two regiments on McMAHON's flank entered Nancy; near this point they destroyed a railway junction and thereby prevented the French Sixth Corps from receiving its reserve artillery, ammunition and engineers. Shortly afterward we find the French Sixth Corps, a part of BAZAINE's army, defending St. Privat against the German attack, and its want of artillery, ammunition and engineers, contributing largely to the defeat of the French in that battle.

But great as were the indirect results of the destruction of French communications by the Prussian cavalry, it is well known that Americans have not to go abroad for the study of cavalry raiding.

Throughout the advance upon Paris the German armies were covered by swarms of cavalry. The French cavalry was generally retained in their columns. The German armies advanced with perfect unity of action and mutual support, and met with unprecedented success in every engagement. The French moved blindly and without concert and met with nothing but defeat. While this may have been partly due to German numerical superiority and better preparation, the false and aimless movements on the one hand, and the prompt and concerted action on the other, prove conclusively that the information gained by the cavalry played no secondary part.

The detached operations of cavalry can be conducted only by troopers previously and thoroughly instructed in individual action. The open and widely diversified country surrounding many of our frontier posts affords every possible advantage for such instruction. The junior officers and non-commissioned officers should be thoroughly and practically trained in field reconnaissance, military sketching, and writing brief and intelligible, but at the same time comprehensive reports. Every individual soldier should have his faculty of observation, and of correctly reporting the results thereof, fully developed by actual practice.

Until this is done, the fact that we are the best marksmen, and possibly the best riders in the world, will be of but little avail.

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METHODS OF CARRYING THE CARBINE MOUNTED.

BY FIRST LIEUTENANT WILLIAM H. SMITH, TENTH U. S. CAVALRY.

AS a new carbine, which will be lighter and shorter and better in every way than the one we now have, is one of the possibilities of the near future, a few remarks on the way it is carried in different cavalries may not be out of place.

The English carry the carbine in a long boot, which is attached to and hangs straight down from the right side of the cantle. The advantages of this method are, that the carbine hangs entirely in rear of the man's leg so that it does not interfere with his seat or the management of his horse. The barrel and lock mechanism are protected from the mud, so that it would never be necessary to dig the mud out of the muzzle and from the front sight before the carbine could be used, as so often happens with our present method of carrying it.

The disadvantages are, that the whole weight of the carbine is borne by one part of the saddle and, when any gait faster than a walk is taken up, there is a constant pounding or succession of blows on one part of the horse's back, which has a strong tendency to make a sore. This, by the way, may have something to do with the constant complaint of sore backs, of which we hear so much from the English service. In addition to the above disadvantage, should the trooper become unintentionally separated from his horse, as by a fall, or other accident, the horse would carry off the carbine, leaving the trooper practically defenseless.

The Germans carry the carbine in a short boot, which is swung from the right side of the pommel in such a way that the muzzle points to the front and downwards and the stock extends back over the right thigh. This seems about as awkward a method of carrying the carbine as could well be devised, and has only one advantage as

far as the writer could see—that of not interfering with the movement of the trooper's leg in managing his horse.

The French carry the carbine slung across the trooper's back by a strap very similar to the one on our infantry rifle. This, from a theoretical point of view, seems to be the best method of carrying the carbine. It combines all the advantages—that of being always present with the trooper without tying him to his horse when mounted, as our method does; the weight of the carbine is transmitted to the horse through the cushion of the man; it does not interfere in the slightest with the trooper's seat or the use of his legs; it is entirely out of the way in mounting and dismounting; it can be readily unsung and made ready for use; none of the parts are liable to injury by rubbing or being bent out of shape, and it is to a certain extent a protection from saber-cuts from the rear.

The only question is, whether or not the discomfort of the trooper is sufficiently great to counterbalance these advantages. The writer, during the summer of 1891, spent some three weeks visiting different French garrisons, and he asked probably a score or more of French troopers and quite a number of officers, if much discomfort was felt in carrying the carbine across the back, and they invariably answered, "No, not after a little practice." They stated that, when a recruit first began carrying his carbine at mounted drills, it made him a little sore for probably a week or ten days, but that he never noticed it afterward. And it must be remembered that the French drill much more, and at more rapid gaits, than is customary in our service.

The Russians also carry the carbine in this way. The following is an extract from Captain F. V. GREEN's "Russian Campaign in Turkey": "The muskets and carbines carried by mounted troops are all protected by a leather case, and are always worn slung over the shoulder from left to right, the muzzle up and projecting above the left shoulder, the butt behind the right thigh. This method of carrying the gun was adopted after competitive trials between it and the manner of hanging from a sling, muzzle down, in use in our service."

Our present method of carrying the carbine has all the disadvantages, and none of the advantages possessed by the other methods mentioned. The carbine is very much in the way mounting and dismounting. It ties the man to the horse, rendering it almost impossible for a man to save himself by jumping off, in case his horse falls. The writer has knowledge of several men who were seriously hurt by having their carbine-sling attached to the carbine, when mounted

as contemplated by our Regulations. The weight of the carbine is all borne on one part of the saddle; it cramps the use of the trooper's right leg, deranging his seat and preventing him from using that leg, except to a very limited extent, in managing his horse; the rear sight is always getting bent and worn. The writer has several times seen from ten to twenty rear sights in a troop rendered unserviceable by a few months' mounted drill.

In muddy weather, the muzzle gets clogged up with mud so that it is sometimes necessary to occupy several minutes in cleaning it out before the carbine can be fired. The writer remembers to have examined the carbines of a troop of cavalry which had made a march of about twenty miles over a muddy road, and fully one-third of them were so clogged with mud about the muzzle that no accurate aim could have been taken on account of the front sights being entirely hidden; nor could the carbines have been fired without danger of rendering them unserviceable, on account of the muzzle being filled up with mud. In fact, our method of carrying the carbine seems akin to our regulation bit, in that it has nothing whatever to recommend it. And it seems inexplicable that a board of experienced cavalry officers could have recommended either.

As to the other method of carrying the carbine, sometimes used in our service, viz; the "cow-boy" method, under the left leg, it has all the disadvantages mentioned under the head of the English method, besides deranging the seat and interfering with the use of the leg.

FOURTH OF JULY EXERCISES.

BY FIRST LIEUTENANT M. F. STEELE, EIGHTH CAVALRY.

ARE the exercises now customary at our military posts in commemoration of Independence Day what they ought to be? This is a question worthy of some consideration. The first point to settle is, what are the exercises for? The answer is, for the pleasure and amusement of the garrison, mainly the enlisted men. But not them alone; every person of the garrison ought to take an interest in them, either as spectator or participant. Actors play best to a full house, and a house full of sympathy and enthusiasm. So these sports, to be entirely successful, must entertain all, must have applause from the ladies, shouts of joy from the children—the gallery as it were—and cheers of encouragement and rivalry from officers and men.

The partisan excitement of these, however, must be kept within bounds and not allowed to reach bellicose proportions. Such a state with officers usually effervesces in the form of words and froth; not always so with the men. Most of us have known the Fourth of July tug-of-war between two troops, and the barrel of beer thereafter, to be followed by war in reality, and its aftermath, the guard-house. This is not a fitting sequel to the celebration of our most cherished holiday. There ought to be nothing in a soldier's recollection of the Fourth of July, which could make him wish it had not been.

But tugs-of-war and base ball and foot races and many other of the usual Fourth of July games are manly and well enough, if there were not at hand something better and more suited to the occasion and the participants. But are there not other sports in which soldiers could engage, more to their own craft and equally entertaining to them? Base ball professionals don't celebrate their holidays by playing soldier; why should we borrow their trade for our holiday contests? Cannot we find athletic exercises within our own calling just as pleasure-giving and more to our profit than any we can borrow from others?

The National Guard sets us the example with their competitive drills. Why not take up their trail in this and outstrip them, as we have done in the shooting matches they taught us at Creedmoor?

If any one doubts that interest is taken in their competitions, he needs only to see a successful company return to its home town, to have all his doubts cast before the winds. The evening the Fencibles of Washington got back from their successful contest at Omaha, the whole city appeared to have turned out to greet them, and to have gone crazy with welcome. Their triumphant march down Pennsylvania Avenue, under a skyful of torches, and behind an array of brooms held aloft, suggestive of their "clean sweep," was one of the grandest and noisiest spectacles one could witness. The shouts and yells of delight and pride that rose from the thousands of throats along their way could not have been louder or more sincere if the Fencibles had come back from the conquest of a nation. The crowd that turned out to see the "grizzled veterans of the sixties" march over the same course a few weeks later, was larger, because the Grand Army brought 300,000 strangers to the city with them; but its enthusiasm was that of a Quaker meeting beside that of a Methodist revival.

"But we don't want any fours-right-and-left competitive drills for our holiday sports. Wherein would be the holiday? We can get enough of this healthful exercise to keep our bodies in sound, active condition, with our regular drills daily, "Saturdays and Sundays excepted." But with a drill book as full of varied and interesting athletic exercises as ours is, no cavalry garrison must needs go far out of the way of their own subject, to find entertaining sports for the Fourth of July or any other day.

Is it not a pity that the news correspondents at our military posts should be subjected to the humiliation of sending to their papers such Fourth of July "stuff" as we read, or rather don't read, in our army papers now-a-days? Two of these, anent the last Fourth, may be quoted for the purpose of the point. Thus the first: "The glorious Fourth was celebrated in fine style here by races, games, etc., lasting from 7:30 A. M. until 9 P. M. I enclose a list of the sports with names of prize winners. The base ball game and tug-of-war attracted the most attention, but the high-kicking, potato and wheelbarrow races, made lots of fun." With an energy that wore from half-past seven in the morning to nine o'clock in the evening, what excellent timber there was in this garrison for military athletic sports! And it speaks well for the good taste and manly spirit, that the tug-of-war and the game of ball were most appreciated.

The other letter runs as follows: "After the National salute, a

parade of the infantry and a show drill by the cavalry, and the usual athletic sports and exercises of the men—foot races, potato races, wheelbarrow, sack and three-legged races.*

Of the lists here, the foot race is the only contest having any relation to the military profession; and the further it is kept apart from it the better. The fleetest of foot is not always the first to reach the enemy's line, and men do not need to be trained in getting away from the fight in a hurry. Slow feet can bear a strong heart forward faster than swift legs a faint one; but the latter may be a temptation to quit the field with undue haste.

The wheelbarrow, with its comrades, the pick and the shovel, has played a considerable part in the garrison life of our soldiers; but already we see hopeful signs of its giving way to the saber and carbine.

For lack of knowledge, I can have nothing to say of the potato race, which figured at both posts, or the three-legged race. I have never seen either, and look in vain for explanation of them in the handbooks of sports, in which polo and golf and other athletic games are described. Sack races have, since the days of slavery, been a favorite amusement among the negroes at the South. Our correspondents said nothing of the greased pole or the greased pig, but these cannot have been left out of the programs. Doubtless they were included in the "etc." It is to be presumed that there was no convenient pond for the tub race, and no available goose for the "gander pull." But surely the Quartermaster could have entered stock for the slow mule race.

Now, instead of all or any of these, which afford only fun, and this of not the highest order, can we not have a program of sports for our favorite holiday that will give amusement and entertainment, and at the same time encourage soldiers in the attainment of skill in their own chosen trade? And even more. Can we not make of the day a lesson in patriotism? Might we not include some feature that would suggest, in terms plain enough to be understood by the newest Norwegian recruit, why this day is specially selected to lay aside all duties "except the necessary guard and fatigue?" I would not propose a spread-eagle speech, but it might be well enough to open the day as the cadets do at the Military Academy, by reading the Declaration of Independence; * then let the military sports follow.

* Asked five enlisted men the question: "Why is the 4th of July celebrated as a National holiday?" Not one of them was able to answer the question. One of these five men was a recruit; another was a trumpeter, an American, in his second enlistment; another was a German, in his second enlistment; another was an Irishman, in his seventeenth year of service; and the fifth was a colored trooper. I would also say that these five men represented the patriotic ignorance of four of our cavalry regiments.

When it comes to mentioning exercises that would be suitable for the program, the only difficulty is to select. The cavalry drill regulations are full of them.

One of the favorite sports among the young folk in some sections of our country, is the "tournament," a harmless relic of the old jousts, in which our nowadays knights tilt at gay-trimmed rings, instead of at one another. For months before the day of the tournament, the young men are practicing for the contest; and, as one rides along the country roads, it is no unusual thing to see beside the farm fence a line of little wooden scaffolds with rings dangling from them, and a well ridden track along under them. Each man that enters the contest rides for his sweetheart, and the winner crowns his queen. Prizes are awarded, too, one of which is always to the best horseman. Why can we not have something of this kind for the enlisted men, only substituting the saber, decked with ribbons if they please, for the gilded and decorated lance used in the tournament of the civilian?

Instead of the tug-of-war, which does well enough for sailors and foot-soldiers, let us have wrestling on horse-back. In this, one troop might be put, man to man, against another.

Instead of sparring matches, let us have fencing with wooden sabers, mounted.

Give a prize to the man who has the best trained horse, taking into account all things that go to make up the training of a perfect cavalry horse—the horse that is thoroughly obedient to his rider's will; that is steady in ranks; that can be ridden out of the rank and away without a neigh or a show of opposition; that will take the cavalry paces and at the prescribed speed at the will of his rider; that will stand pistol fire without so much as the twitch of an ear; that will try any hurdle or ditch his rider puts him at; that fears nothing so long as his master is on his back; and (since it is part of the training given in the drill-book, and is something easily taught a horse) that will lie down at the command of his master, whether he be on his back or on the ground.

Let a prize go to the best horseman, each contestant to ride his own horse; and another to the best rough-rider, if a bucking bronco is at hand to practice upon. Still another prize might be given to the man most expert in the horse-back gymnastics prescribed in the drill-book, and another to the one most dexterous in the saber exercise, etc., etc.

Horse-racing is sometimes a feature of Fourth of July programs at cavalry posts. Is this not a bad practice both for troopers and

troop horses? Is a horse really ever fit for the ranks after he has once run on the track? We are taught that all our training and drill is mainly to prepare for the charge, and that this is the true test of cavalry. Is not the race-horse very liable to bolt as soon as the charge begins? He has been trained to outrun his fellows, and he will do his best to prove his education.

And as to the men. Horse-racing in a troop, especially where the troop officers take extreme interest in it, encourages among the men a spirit of gambling, which every one will admit is hurtful to discipline. Without considering it from a moral point of view, what is the practical effect of gambling in a troop? In a garrison? Does it not rob the innocent many of their small pay to fill the pockets of a few sharpers, professional black-legs, perhaps, who have enlisted for the sole purpose of plucking their comrades? It leaves debts at the Exchange and with the laundress and the barber and the troop shoemaker, and often leads to desperation and desertion.

THE U. S. CAVALRY REMOUNT.

BY GERALD E. GRIFFIN, D. V. S., VETERINARIAN, FIFTH U. S. CAVALRY.

IT is a fact, well recognized by those most immediately interested in the matter, viz: cavalry regimental, squadron and troop commanders, that the cavalry remounts furnished the U. S. Service are, with each succeeding year, becoming more inferior in every essential attribute that goes to make up a cavalry horse. By this it is meant that those animals are more leggy, more narrow-chested, more flat or slab-sided, more goose-rumped, and more slim-barreled, without any of the corresponding compensations.

But these, although serious defects in themselves, are reduced to comparative insignificance by the marked tendency of the animals in question to exhibit a poor conformation of the legs and feet, although one of the prime essentials of a cavalry horse is that he possess a sound and well proportioned locomotory apparatus. Another point of degeneracy, often noticed and remarked upon by troop commanders, is that the standard of intelligence in relation to remounts is on the decrease; and although the head of the animal appears to increase in size, the volume of the cerebrum seems not to present any such appearance; and although they may remain with the troop for two or more years, they still continue stupid and dull, even when the climatic influences are in their favor.

The horses now furnished for remounts are more subject to side-bone, ringbone, splints and spavins than formerly; this can be, without error, attributed to weakness of bone and defective conformation. The backs are longer, and very often present an inclined plane, which is a vile defect in a saddle animal. The long gander neck, to which is attached a large head with long, sluggish ears, is seen more frequently, and the vacant looking physiognomy and unexpressive eye are considered almost as a part of the cavalry remount. So much has this impressed itself upon cavalrymen gener-

ally that when an animal arrives that shows marks of intelligence, he is immediately put down as being vicious, or defective in some prominent quality, and as having been sold into the cavalry service for that reason.

Nearly all the horses furnished are hard to keep in fair condition; they possess poor staying qualities and are easily fatigued. The greater number are too large, for it has been demonstrated again and again in European armies, as well as in our own, that the more compact the cavalry animal is, the more labor he can perform; and everything else being equal—the weight of rider and equipment remaining the same—the smaller horse will outlast and do more work than the heavier animal in the field; while in the garrison his vitality is greater, he is easier kept, and the mortality and liability to disease reduced almost one-half.

There is, however, one point in favor of the animal now furnished, his color is continually improving; this is especially the case with the bays.

In striking contrast to the degeneracy of the cavalry horse is the continued excellence of the mules purchased for military purposes; this contrast is probably due to the steady demand for mules for draft purposes alone.

Why cannot the service purchase as good a grade of cavalry horse for the same sum now as it did ten years ago? The principal reason is that the tendency on the part of the small farmer, from whom the supply of remounts is largely obtained, is to breed for "roadsters," as the price paid for this class of horse is greater than that paid for "streeters" or tram car horses, which after all is about the kind of animal furnished the U. S. cavalry service. It must be admitted, however, that the demand for saddle horses is on the increase all over the country since equestrian exercise has become so popular; but the saddle animal desired for this class of trade, is, in every respect, superior to the miserable looking cavalry remount; and those who produce for this market would never think of raising saddle horses for the cavalry service at the present price paid by the Government.

Why are the defects in the remounts now furnished so numerous? Because in his effort to breed up to trotters or "roadsters" from poor dams and cheap sires, the small farmer who breeds horses as he would plant a crop of corn, loses sight of the eternal fitness of things and sacrifices everything to leg and "reach;" and when we have added on to this length of leg, the big head of the trotting strain, the flat foot inherited from some lymphatic dam, the bone

out of proportion, and the long, half developed neck, part trotter, part chunk, is it to be wondered at that the majority of the present supply of remounts offend the eye and sensibilities of the true cavalryman? It has been remarked that the color is improving; this is due to the solid colors of the mongrel trotting sires who inherit them from *their* standard sires and bequeath them to their progeny.

Cannot the farmer raise a good saddle horse and sell it to the Government for \$150.00? Let us see. A farmer has a good mare; the question with him is, will he breed to a local trotting stallion, paying from \$25.00 to \$100.00 for the privilege, and raise a good roadster which may develop into a "Keno F. Lora" or "Nancy Hanks," and possibly sell for from \$250.00 to \$500.00? Or will he breed to a saddle stallion (which by the way are scarce), paying in the neighborhood of \$40.00 for the service, keep the offspring for at least five years and sell to the United States for \$150.00? In the farmer's place, the writer would breed to the trotting strain every time and run chances on receiving a large price for the product, especially when it is remembered that the horse cannot be sold to the Government until five years old; and then, if he uses him for driving or hauling in the interim, he impairs his saddle qualities considerably.

Within the past few years the writer has frequently read articles in military journals referring to the gaiting of cavalry horses, their saddling, biting, etc., and has noticed two or three schemes suggested therein for improving the quality of cavalry remounts. One of the latter, which, by the way, is the best, going so far as to propose the establishment of a Government horse-breeding farm.

As to the gaiting of the horse now furnished, it is a waste of time and patience except in a few cases; for one might as well endeavor to give a saddle gait to a cow as to give it to the great majority of the present remounts. What, it is asked, can one do in this direction with a mongrel, stupid, bull-headed, thick-skulled brute, who only possesses intelligence enough to know when he is hungry; and who, after years of drilling and training, even in the hands of a competent rider and fair trainer, will make a right or left turn or wheel in obedience to the bridle as awkwardly as if he were a dismayed lugger in a heavy seaway, except to "pound him along" as the service expression has it, until he "plays out;" then condemn him and have him replaced by his full brother or some near relation. You cannot saddle him properly, as his back is generally built for a dump cart harness; and it matters not whether your theory is to place your saddle over his kidneys and girth him around the abdomen or use a fore and aft girth and place the saddle on his withers, the position

will change fifty times a day on the march, and sore back be the result.

With the real saddle animal, raised for this purpose, the saddle will set exactly where it belongs and under all ordinary circumstances remain there, even though the girth should slacken; and something might be done as to biting, but not with the present instrument of torture. The present bit has, however, a redeeming quality for which it has never been given credit so far as is known: the curb strap slot is referred to, it being furnished with cutting edges that can in a few days bite through the strap with ordinary use, thus preventing the rider from fracturing the animal's lower jaw while, at the same time, it gives the horse a chance to run away and thus square accounts with his rider for having pulled too hard on the reins.

The Government breeding-farm idea is a good one and is deserving of serious attention; but until this idea has passed through the circumlocution office, which may be in twenty years from now, the only means at hand for improving on the present quality of cavalry horses is to increase the price paid by the Government to two hundred dollars each, and purchase the animals from the producer. This can be done by the service as well as by contractors or by express companies and other large horse-using concerns. It should be done by a board of officers detailed from the regiment for which the remounts are intended, and the board should be held financially responsible for all defective animals furnished. The board should be named by the regimental commander, and composed of those officers who can tell the difference between a horse and a "plug." The age should be from five to six years, and as the horse is only fully developed at this age, no animal should be taken below this standard. Greys and roans should not be purchased, except a few of the former for bands; greys are too conspicuous in the field, while it is difficult to collect a troop of uniform color in roans. In the present state of the cavalry service, the writer cannot see why mares could not be used to advantage as well as geldings, mares being more tractable, more easily managed and more intelligent.

It may be objected that two hundred dollars each is too high a price to pay for remounts; but when the class of animal is taken into consideration, the length of time he will be serviceable and his perfect adaptation to the service demanded of him, it will be admitted that the number of animals condemned annually will be reduced at least one-half; consequently, the number to be purchased will be reduced to a corresponding extent, and the liability to disease will

be greatly reduced because the horse will be more competent to perform the work required of him.

There are very few cavalry officers in the service today who would voluntarily use the regulation bit on their own private mounts, but they are forced to use it on the troop horse. This plainly shows that the regulation article is not looked upon favorably by those who are in a position to observe its practical workings. A stout, nickel-plated Daniel's bit, with three sizes of sliding bars, and with a nickel-plated curb chain, should be adopted and used upon all cavalry horses; it is as effective as the bit now furnished, and is more humane. Aluminium bits might be used instead of nickel-plated iron or steel.

The veterinarians in the service, who may read this article, will probably be surprised that any interest outside of a sick animal should be manifested by one of their colleagues in the army. The writer will admit that the present pay and prospects are indeed a poor inducement to excite interest in one of our number on subjects military, outside of our immediate duties. But the class of horses furnished for remounts is degenerating so fast, while the class of recruits now enlisted (since regimental recruiting has become the fashion), is so vastly improved that he (the writer) has been forced out of his accustomed rut in an endeavor to have the remount keep pace with the advancement in intelligence of the product of the new system of recruiting and, while out of it, to place the cavalry horse question and a few kindred subjects in what he believes to be their true light.

PROFESSIONAL NOTES.

REMARKS ON THE GERMAN CAVALRY.

I hope that the author of "The Tactical Use of Mounted Troops," Vol. V., No. 18, JOURNAL of the Association, will excuse me for taking exception to some of his statements and conclusions concerning the German cavalry.

The Germans may not be the best horsemen in the world; I do not think that their best riders by any means equal ours; but I have seen some riding, much of it in fact, among our own officers and men, which for poorness cannot be equaled in any of the many German regiments that I have seen. What the German lacks by nature he most certainly succeeds in making up for by thorough, conscientious, systematic hard work. The German recruit is not put on badly broken horses with clumsy, worthless bits, and then put through the saber exercise before he has any idea of how to control his horse. Nor is the average intelligence of the non-commissioned officers and men of the German cavalry to be compared so easily with that of our own men. Let me dwell on the word average; the non-commissioned officers of the German cavalry are all old soldiers who have reenlisted for the purpose of being promoted, and they are masters of their trade as it is taught them. The captain is responsible for these men, and he can little afford to present inefficient men at the many inspections, and sanction them as his ideal of perfect soldiers.

In the brigade with which I served in Düsseldorf, all the privates were volunteers coming a year or two ahead of time in order to get in the cavalry. They were young, athletic men, most of them sons of well-to-do parents, nearly all receiving liberal allowances of money from home, all having exceptionally good private uniforms which they were allowed to wear when off duty, even to lighter, better made sabers. This does not include the "one year volunteers," young men of the best classes of society, including noblemen, who, on passing the necessary examination, serve but one year. During this year they receive the successive non-commissioned grades and, finally, return to the cavalry or train as reserve officers; the course of

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instruction that this class receives, the maps made by them, and their military theses might well be used as models at West Point itself.

To return to practical instruction. The oldest and best horses are selected for the recruits after the maneuvers, and they keep up about two hours hard drill each day from October till April*, when they are presented for inspection. One of the troop officers has charge of them permanently and, under him, the senior non-commissioned officers instruct permanent squads, each emulating the other. They ride first on blankets, then with saddles and stirrups, finally on saddles without stirrups; briefly, the result is that, at the inspections, these men go through the school of the trooper perfectly with both lance and saber. One feat is to go at a run through the long jumping chute, over four bars and hurdles, two embankments onto which the horse jumps, then over an artificial hill with hurdles half way up and half way down, two ditches and a hurdle with ditch. All this without stirrups, the reins loose on the horse's neck and the lance held horizontally over the head with both arms extended. Every man must do this, no exception.

After this comes the work at the headposts; straw heads, about six inches in diameter, on posts with sliding weights to draw the displaced head back into position, serve as targets, the heads being at about the height of the trooper's chest. Leaving out the theory on the subject, I can testify that very few of these heads are missed; and from personal experience I did not find the lance by any means such an inaccurate weapon. The targets on the ground are straw heads pinned to a two-foot rope and uniforms stuffed with hay; they are not missed any oftener than the heads on the posts and, when they are missed, no catastrophe occurs due to the manner in which the thrust is made: the lance vertical, point down, hand about height of the trooper's head, back of hand to rear; the lance is simply dropped down with slight effort; it revolves on the wrist as an axis, whirls into place, being caught under the arm, horizontal, point to the front, and the trooper reverses his hand. I have never seen a lancer unhorsed while practicing at heads. However, all this discussion about the lance can, in my humble opinion, have very little practical use for us.

During my tour of service with the German cavalry, I heard arguments for and against the lance in combat; cases even cited by the score, until I became thoroughly confused on the subject. Fencing with the lance convinced me that, if I met a lancer and we both had all the room we wanted, I would shoot at him from a good distance and leave him all my room. As everyone is allowed to give his theory, mine is, that two unsupported thin lines (single rank) charging, all other things being equal, one with lance and one with saber, the casualties resulting from the first shock with the lance would cause the sabers to flee, and in the flight they would suffer

* A West Point cadet gets ten rides per month, ten months per year; in three years about 300 rides. A German recruit gets two hours per day, six days a week; in twenty-six weeks 156 rides.

extremely unless they had very fleet horses. Now, double and triple these lines, so that two or three shocks would occur in rapid succession, bringing on a real hand-to-hand fight, and suppose the sabers to be short for quickness, blades thick, sharp, almost straight, and well pointed, with handles fashioned for the human hand (see the new Prussian cavalry saber), and in good, active, plucky hands. I believe the lancers would leave the field and leave a good many of themselves on it.

The question then comes, "Will the saber cavalry have time to form its two or three lines?" We must imagine a quick, decisive movement, with long columns stretched out under cover from artillery fire, that must be suddenly got into shape, to make this compact, overwhelming, sweeping charge, the rear lines being close enough to prevent the first shock of the lancers from hurling their first line back upon them. I must say that such a problem presents more difficulty to me than to the friend of General DRAGOMIROFF, who, with virgin parade sword, tightly wedged in its scabbard, and probably hanging on the study wall, bores everyone with theories on fencing.

The lance is out of the question with us Americans; our country is not made for it. I experimented once with some troopers going through a forest, and that settled my views on the lance. I have exercised with it on a cold, wet day, and that prejudiced me against it. I have seen troops of lancers dismount to fight on foot, and that did not come up to the American ideal of this not unimportant function. I believe that, going on in our way, mounting our men as we do, training them (or rather not training them) as we do, and getting some of the specimens that we do, it would not pay us to make any charges against European cavalry, except as a matter of interest for the latter. On the contrary, give us real American riders, a good bit and half decent horses, a systematic method for training the individual man and horse, inexorable, unflinching daily drill, if only one hour a day, and we will soon show better results.

We must have drill every day, even if each post must build a house to drill in. Our friends in Quebec don't stop drilling, and they have a hard climate up on that plateau. It does not take a grand structure with iron arches to suffice for a riding hall. The regiments that I saw last winter in Düsseldorf had little halls, thirty yards by sixty; some of the old dilapidated sheds of the other regiments were not even that size. Into these rough shops go awkward, nervous remounts and raw recruits in the autumn; from them, in the spring, come cool, sharp-stepping, flexible chargers and soldiers, upon whom the world looks as the equal, if not the best of any on the continent. Excepting the horses ridden by recruits, the others get but one hour's exercise in the day.

I will not enter into the detail of the practical method in which the winter training is conducted. Suffice it to say that, as a result, every horse in the ninety-three regiments steps the same number of yards in the same time at the various gaits. Let a brigade from

Pomerania be put in division with one in Alsace, and it is like setting together two blades of the same scissors. There is utility in this that needs no further discussion among practical Americans. But to come home again. We seem to have the best saddle in the world, and we made it ourselves. No other approaches it. Why can we not have the best saber? We believe in the saber: our cavalry does; and it will make others believe in it, the chance occurring. Ours is not a good saber; it has a bad handle, a bad grip, bad guard and bad steel in the blade, which is not shaped well. A great many people in our supply departments do not believe in the saber as a weapon; but it strikes me that the average carpenter, or other skilled mechanic does not depend on the storekeeper for the perfection of his tools; then why should we be compelled to depend on any judgment but our own? We expect to use these weapons, and it would seem that our opinions should have some weight.

POWHATAN H. CLARKE,
First Lieutenant, Tenth Cavalry.

GRAPHIC COMPARISON OF THE ACTION OF THE SHOE-MAKER AND DWYER BITS.

In the accompanying figure, AB represents a wooden bar, to which rubber bands are attached at O , D and D' by means of small screws; and strings at E and E' by means of tacks. Distances: DO is one and three-quarters inches; OE is three and one-half inches; OD' is two inches; OE' is five and one-half inches. Thus arranged, the bar is placed on a wooden board and opposite O , at a distance of one and three quarters inches a nail, G is driven on one side; and on the other a nail, C , at a distance from O equal to distance DG . Put the bands DG and OC over the nails G and C taut, yet so they exert little or no pull. Take hold of the string EF . We now have a bar, DE , of the same dimensions, and similarly acted on, as a bit constructed on the Dwyer principle, properly placed. Pull on the string FE until E moves to E_1 , four inches from E . DE takes the position D_1E_1 ; O moves to O_1 , a distance of $\frac{11}{16}$ inches; D moves to D_1 , a distance of $\frac{11}{16}$ inches.

We assume that the distance passed over by a point represents the force transmitted to that point; therefore, the force transmitted to O , as compared to the force transmitted to D , is as 22 is to 10; that is, with the Dwyer bit a pull on the reins equal to the pull we applied to E would produce an effect on the bars of a horse's mouth, that, compared to the effect on the chin-groove, would be as 22 is to 10, or the effect on the bars would be two and one-fifth times the effect on the chin-groove, which is as it should be.

Detach the band DG and put on the one D_1G ; put the band OC out to OC_1 ; let go the string EF and take hold of the one E_1F_1 . We now have a bar D_1E_1 of the same dimensions, and similarly acted on, as the Shoemaker bit when properly placed. Pull until E

moves four inches; O moves to O' , a distance of $\frac{3}{4}$ inches; D' moves to D , a distance of $\frac{1}{4}$ inches. Therefore, the pull given applied to reins of the Shoemaker bit would transmit a force to the bars of the horse's mouth, that, compared to the force transmitted to the chin-groove, would be as 22 is to 26, or the force exerted on the chin-groove is $1\frac{1}{4}$ times the force exerted on the bars. Consequently, the horse attempts to avoid the curb-strap and pokes out his nose; while with the Dwyer bit, he attempts to avoid the mouth-piece and lowers his nose.

S. D. ROCKENBACH.

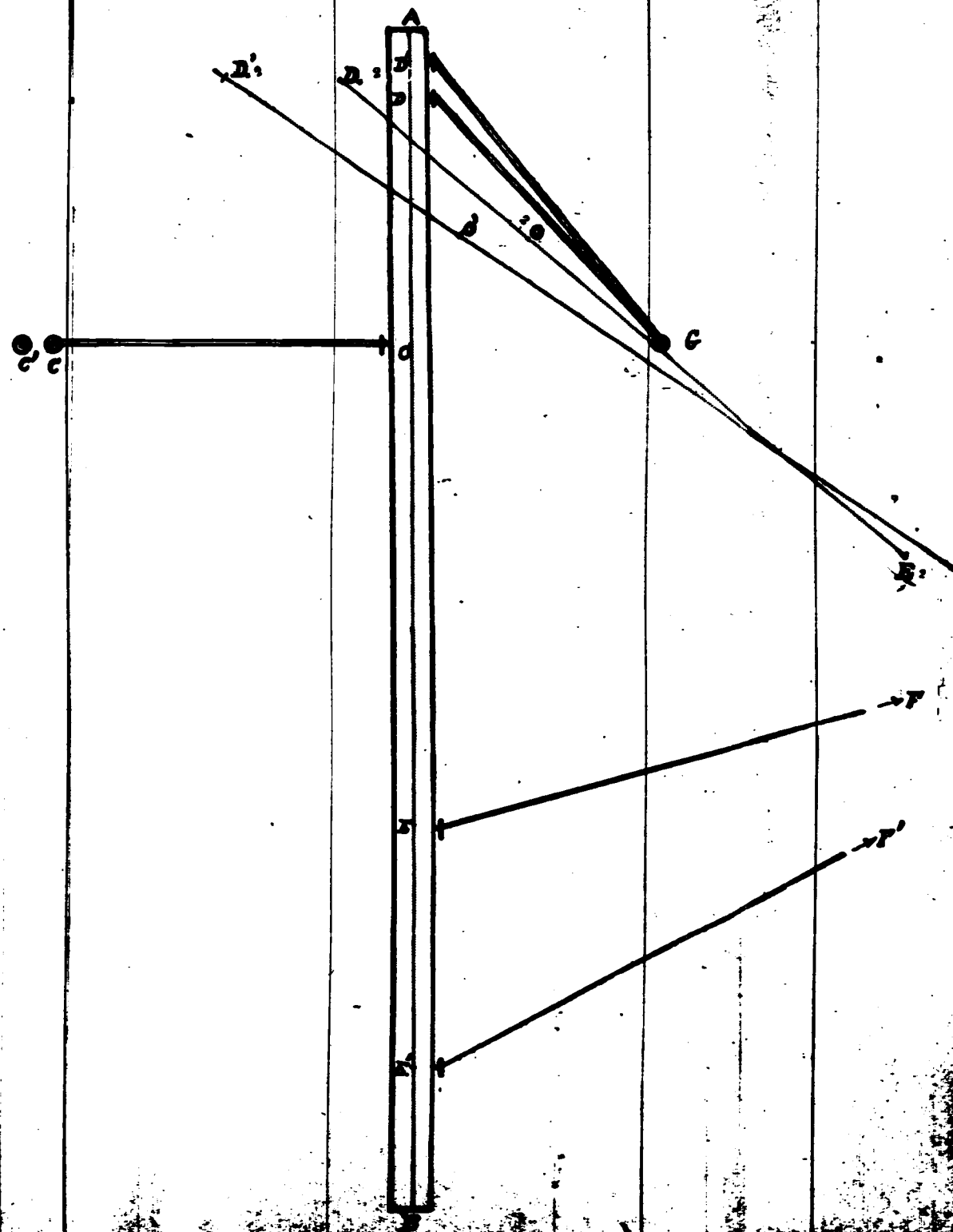
Second Lieutenant, Tenth Cavalry.

A LIGHTER HORSE-SHOE.

Horse-shoeing has long been considered a necessary evil, and all our studies should be directed toward its application in a manner that can effect the least possible harm. Nature has provided a horny case for the foot, which is adequate so long as the animal treads upon soft verdure, which at the same time affords him nutriment; as soon as art, however, removes him from his native fields to hard and gravelly roads, this defense is no longer sufficient protection; therefore it becomes necessary to guard even the hoof. This we do by nailing upon it a rim or half-circle of iron, which we denominate a *shoe*. The essential difference between the natural defense and the one art has invented, is that the former, while it is sufficient for ordinary protection, is yielding and elastic, while the iron shoe puts a total stop to all that play of the horny case with which nature has endowed it.

Shoeing is an almost unavoidable consequence of the horse's domestication, and we are at times driven to the conclusion that an artificial protection of some kind for the horse's foot is very frequently one of the penalties which civilization exacts. There is, however, a large and important class of horses to which shoes are not an absolute necessity, namely, our agricultural horses. The nature of their work, the slow pace at which it is performed, and the character of the ground over which they toil, all unite to render artificial protection for their feet, save under exceptional circumstances uncalled for. Among army horses which are called upon to do a great amount of traveling and load-carrying on mountainous and rocky roads, the horn composing the hoof undergoes an amount of wear greater than nature can compensate; and should the feet be left unprotected for any length of time, the living sensitive structures within would become exposed and irritated by contact with the ground, give rise to pain, lameness, and inability to work. To guard against this serious result, several shoes have been devised, some of which showed good results, others proved worthless.

In recent times the "Goodenough" shoe has had wonderful qualities claimed for it. It differs but little from the ordinary hunting shoe; it has several projections cut on the outer margin of its



lower surface, which may prevent slipping so long as they last, but in a short time they are worn away, and then it has nothing to recommend it beyond the ordinary hunting shoe. This shoe is made by machinery and, like other machine-made shoes, is, from the material of which it is manufactured proving either too soft or too hard, likely to wear too rapidly or to prove brittle.

To apply a shoe in such a manner as to allow the frog to receive a due amount of pressure, has always been the aim of those who have made the horse's foot an object of careful study. To this end I desire to draw the attention of those interested in the welfare of our best friend, the horse, to a method of shoeing which is, according to my idea, physiologically correct, and which I should like to see adopted throughout the army.

Knowing that the horse's foot is admirably constructed to perform certain definite functions, and that the hoof under ordinary conditions, is designed to act as the medium through which the most important of these are carried out, but that its circumference is liable to be broken away and worn when rudely exposed, we have only to substitute for a certain portion of this perishable horn an equivalent portion of more durable metal, and the hoof is secured from damage by wear, while its natural functions remain unimpaired.

With the method of shoeing that I advocate, the hoof would be left in a natural condition, so far as frog, sole, and wall are concerned; and I would imbed a narrow rim of steel, no thicker than the wall around the lower circumference of the foot, that exposed to wear, like the iron heel of a man's boot.

I will now briefly describe the way in which the work should be done. The sole and frog as well as the bars are left unpared, the crust or wall is beveled off at the edge by the rasp and by means of a knife with a movable guide; a groove is made along this beveled edge to receive the shoe; this groove is made a little more shallow than the thickness of the sole, and slightly narrower than the wall, not extending beyond the white line separating the sole from the wall. Into this groove is fitted the shoe; this is a narrow, but deep band of steel, narrower at the top than at the bottom, and forged in such a manner that its front surface follows the slope of the foot. It is perforated by six oval nail holes of small size, and could be provided with a clip at the toe; its upper inner edge is rounded by the file, to prevent it pressing too much against the angle of the sole, and the branches are narrow and beveled off toward the ground. The nails should be very small and have a conical head and neck, and be of the best quality. It is best to fit the shoe in a hot state, as it must have a level bed and follow exactly the outline of the wall. After it has been fitted it is advisable to remove, with a small drawing knife, a little of the horn from the angle of the groove in the hoof to correspond with the rounded inner edge of the shoe; this insures a proper amount of space between the latter and the soft horn at the margin of the pedal bone. In strong hoofs the shoe can be buried almost entirely in the groove, but in those which have

flat or convex soles, with low heels, it would not be safe to imbed it too deeply.

The application of the hot shoe in fitting should not extend beyond a very few seconds; it should then be tempered and nailed on in the ordinary manner. The nails should be placed wide apart at the toe and rather close at the heel; every nail must be driven in sound horn, otherwise the shoe, being so narrow, may get a branch bent out, and nothing more is needed than to lay the clenches down evenly on the wall; no rasping is required. When the shoe is attached to the foot, it is readily perceived that a portion of the sole and bars, and the whole of the frog meet the ground as in the unshod state. This shoe being thicker than wide it possesses a certain elasticity, and adapts itself to the successive movements of dilatation and contraction of the horny box, however limited they may be.

The great advantages of this method of shoeing consist in its simplicity, when farriers have been made to understand it; its placing the hoof in a natural condition, so far as its ground-face is concerned; the small number and size of the nails required to retain it; the lightness of the shoe and the security it gives to the horse in motion. Experiments made at my station with this shoe have up to date proved satisfactory.

In conclusion, I should like to remark that in our army the subject of farriery is often looked upon much as it is in civil life—as a matter that concerns the farrier only, and tradition and routine extensively prevail. In saying this, however, I do not intend for a moment to insinuate that the army veterinary surgeons are averse to giving their attention to a most important, though it may appear a minor, part of their duty. On the contrary, many of them do so and with advantage to the service; but there is not the same encouragement offered either to veterinary surgeons or farriers in this respect as there is in European armies. In the French army, for instance, there are schools and professors of farriery, the most notable of these being at the Cavalry School of Saumur. In these the farriers are regularly trained to a uniform and approved system before being posted to different regiments, and direct encouragement is given to these men by the institution of competitions, in which the most successful are rewarded by medals and gifts of money. It is scarcely necessary to say that in this country nothing of the kind is attempted. The Government does nothing to improve or encourage veterinary science in the least; hence the enormous losses it has sustained for so many years. With the exception of, on very rare occasions, the distribution of a prize or two at some local agricultural show to farriers, who imagine that paring and rasping, and a fantastically wrought piece of iron, constitute the acme of shoeing, the subject is thought unworthy of notice.

The remedy for this, of course, should be, in the first place, the opening of schools. A profound knowledge of the anatomy and physiology of the horse's foot is not absolutely necessary to the farrier; but a general acquaintance should be required; and practical

management in health and disease, and the principles and practice of horse-shoeing, should be thoroughly inculcated. It would be most advantageous if, when this course is adopted, farriers could be prevailed upon to attend; and if, after due examination as to their competency to practice their art in a rational manner, they were to receive certificates of proficiency, these certificates carrying with them advantages similar to those that the diploma of surgery confers upon the surgeon.

M. A. PICHE,
Veterinary Surgeon, First Cavalry.

BOOK NOTICES AND EXCHANGES.

I MARRIED A SOLDIER. By Lydia Spencer Lane.

The foregoing is the title of a most entertaining narrative of the personal experiences of the writer. Those who endured the hardships of the early days of the "Old Army" will, no doubt, read it with great interest, as being a history which, with slight alterations of time and place, might be their own. Those who have not done so can, from this small volume, acquire an excellent idea of army life and surroundings in those troublous times that tried the souls, and the bodies also, of all concerned.

The author is the wife of a gallant officer, now retired, who served his country from the British line to the "Halls of the Montezumas," and her excellent opportunities for observation evidently were not neglected.

Everyone, without regard to vocation, can read this book with pleasure, and some can do so with profit. That very small class of our readers who are not quite satisfied with existing conditions, may do both.

W. A. S.

THE FIRST MAINE BUGLE.

This is the title of a very readable magazine published by the survivors of the First Maine Cavalry, one of those splendid regiments whose practice has since been reduced to precept, and is today taught on both sides of the Atlantic.

The object of the magazine is to publish the proceedings of the annual reunions of the regiment, matters of historic value to the same, and items of personal interest to the members. It is also the official organ of the "Cavalry Society of the United States," and publishes its proceedings.

Its articles are all contributed by members of cavalry regiments which participated in the War of the Rebellion. While most of them refer more or less to the "late unpleasantness," yet this is not by any means exclusively the case; and they all seem to be pervaded by that tone of candor and moderation which is usually noticeable in the writings of those who fought when there was fighting to be

done, and are under no necessity of displaying their prowess in time of peace.

All its articles are well written and interesting and some of them are handsomely illustrated. We note especially "The Bugler," a poem by our old friend, Mr. Henry T. Bartlett.

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MILITAER-WOCHENBLATT.

No. 71: The New Drill Regulations for Field Artillery. Target Ranges at Paris, France. Insignia for and Classification of Gunners—Switzerland. No. 72: Testing and Examination of Iron and Steel, and Their Use for Military Purposes. No. 73: Drilling the Battalion in Conformity to the Drill Regulations for Infantry. The Marine Corps at the Autumn Maneuvers. Testing and Examination of Iron and Steel, and Their Use for Military Purposes (continued). No. 74: Changes in the Regulations for the Reserve—Switzerland. March of a Cavalry Regiment. Testing and Examination of Iron and Steel, and Their Use for Military Purposes (conclusion). No. 75: The Cadet Corps During the Reigns of the Emperors William I, Frederick III and William II. No. 76: Armor Plate Trials in the United States. The English Battle Ship "Thunderer." The Cavalry Horse in North America. No. 78: Battle at Mont Mesley, November 30, 1870. No. 79: Letters of General Field Marshal, Count Helmuth von Moltke. Battle at Mont Mesley, November 30, 1870 (continued). No. 80: Maneuvers of the Fourteenth Army Corps. Volunteer Service in the Colonial Forces—France. Promotion of the Officers of the Reserve—Italy. Battle at Mont Mesley, November 30, 1870 (conclusion). No. 83: Training and Equipment of the Reserve—France. Use of the Bayonet in the Russian Army. No. 85: Military Sketch from the Theatre of War at Atjeh. Disappearing Armor Turret. No. 86: Transfer of the Staff of the Nineteenth Cavalry Brigade. The Art of Riding and Its Importance to the Army. No. 88: French Societies for the Training of Nurses for Time of War. Cavalry Officers of the Territorial Reserve—Italy. The Russian Fleet. No. 89: Target Practice with Different Small Arms in the Fourteenth Army Corps. Review of the Latest Technical and Military Inventions and Discoveries. Purchase of Forage for Cavalry Horses. Maneuvers with Ball Cartridges at Waschaw. No. 90: Target Practice with Different Small Arms in the Fourteenth Army Corps. Review of the Latest Technical and Military Discoveries and Inventions (conclusion). No. 91: Equipment and Training of the Reserve—Switzerland. Military Society at Berlin. Brief Sketch of Lieutenant-General Müller. No. 93: Von Moltke's Tactical Examples. Military Academies—Italy. Fortification of Saint Maurice—Switzerland. No. 94: The Wars of the Future and Public Opinion. Von Moltke's Military Works. New Overcoat for Infantry—Austria. No. 95: Military Exhibit at the Geographical Exhibition—Moscow. Riding School for Officers at Rome. The Wars of the Future and Public Opinion (continued). No. 96: Practical and Theoretical Instruction of Non-commissioned Officers and Men as Railroad Engineers and

Firemen—Italy. The Wars of the Future and Public Opinion (continued). Some Suggestions Regarding the Drill Regulations for Infantry. Why Germany Must Increase Her Fighting Strength. No. 98: The Field Piece of the Future. No. 99: Volunteer Service in France. Age of Staff Officers and Captains in the French Army. No. 100: Railroad and Wagon Trains in the Next War. France's Views on the Military Situation of Germany. Kriegsspiel. Distribution of Bible Texts in the German Army and Marine Corps. Marine Artillery Regiment in France. No. 101: Railroad and Wagon Trains in the Next War (conclusion). Result of the Recent Examination for Promotion of Captains.

REVUE DU CERCLE MILITAIRE.

No. 36: The Technical Troops of Austria-Hungary. First Combats of the Army of the Rhine (continued). The Swiss Army in 1891 (completed). Passage of Rivers, by Cavalry, on Improvised Bridges. The Two Years' Service in Germany. No. 37: The Dandean Gun, Caliber 6.5 Millimetres. Russian Naval Maneuvers of 1892. Technical Troops of Austria-Hungary (completed). Maneuvers of Cuxhaven. Calling Out Troops in Belgium. The New Law for Recruiting in Spain. The New Ration in Italy. Militia of the Seventh Italian Army Corps. No. 39: The Chinese Army of the Green Standard. The Divisions of Reserve in the Maneuvers of 1892. The Military Casino of Vienna. The Smokeless Powders of Troisdorf and Wetzlar. Reorganization of the Spanish Army. Swiss Artillery of Position on the Summit of Gerschen. No. 40: The Chinese Army of the Green Standard (continued). The Divisions of Reserve in the Maneuvers of 1892 (continued). The Military Casino of Vienna (completed). Official Interpreters in Germany. No. 41: The Minister of War and the Landwehr in Austria-Hungary. The First Combats of the Army of the Rhine (continued). New Regulations for Italian Infantry. Composition of the Belgian Field Army. No. 42: The Divisions of Reserve in the Maneuvers of 1892. The Minister of War and the Landwehr in Austria-Hungary. The Austro-Hungarian War Budget for 1893. Changes in the Uniform of Italian Officers. No. 43: First Combats of the Army of the Rhine (continued). The Minister of War and the Landwehr in Austria-Hungary (continued). The Powder Factory of Santa Barbara in Spain. Preparatory Course at the Italian War College. Military Schools in Russia. No. 44: Letter of an English Officer on our Grand Maneuvers. The Proposed Military Law in Germany. The National Target Competition in Italy. No. 45: Impressions of the Maneuvers. Italian Mobilization. The War Budget of Holland for 1893 and the Position of Amsterdam. Projects of General Pelloux. Organization of Kurd Cavalry Regiments in Turkey. No. 46: The Chinese Army of the Green Standard (continued). Letters of an English Officer on Our Grand Maneuvers. Reorganization of Technical Troops in Austria-Hungary.

THE UNITED SERVICE. Hamersly & Co. 1892.

October: Methods of Marching, by H. R. Brinkerhoff, Captain Fifteenth Infantry. Some Yarns Spun by an Officer of the Old Navy, by D. B. Conrad, M. D. Europe in 1890-91 (continued), by S. B. Holabird, Brigadier-General, U. S. A. (retired). The Coming Revolution in Strategy and Tactics, by H. Elsdale. Lo—With an Attachment, by Albert Tracy, Brevet Colonel, U. S. A. November: Wanted—A Definite Policy, by C. H. Rockwell, Commander, U. S. N. Europe in 1890-91 (continued), by S. B. Holabird, Brigadier-General, U. S. A. (retired). The Last Great Roman, by Sir Herbert Maxwell. Torpedoes and Submarine Mines, by Frank L. Winn, Lieutenant, U. S. A. December: A Plea for Seamanship, by Charles H. Rockwell, Commander, U. S. N. A Cavalry Raid, by Albert G. Brackett, Colonel, U. S. A. (retired). Where Did Columbus First Land in 1492? by Henry A. Blake. The Platoon Secret Detachment on the River Araks. The Guardian of Fort D'Albert, by Caroline Frances Little. Europe in 1890-91 (continued).

THE FIRST MAINE BUGLE.

No. 9: Twentieth Annual Reunion. After Appomattox (No. IV)—Fort Darling, by Major Henry C. Hall. Bowdoin Boys in Labrador, by Jonathan P. Cilley, Jr. The Bugler, by Henry T. Bartlett. The Country For Which You Fought (illustrated), by Edward P. Tobey. Beguiled by Chance, by a Comrade of the Regiment. Sketch of Our Regiment (illustrated), by George L. Kilmer. A Night With Mosby, by C. W. Wiles. One of Our Boys in the Sixth Massachusetts, by W. H. Luce. No. 10: The Country For Which You Fought (continued), by Edward P. Tobey. A Review—Poem, by Chaplain Frederic Denison. After Appomattox (No. V)—The Cow Case, by Major Henry C. Hall. Jim—Poem. Bowdoin Boys in Labrador (continued), by Jonathan P. Cilley, Jr. Number Four—Poem, by C. C. Hassler. Up the Shenandoah Valley and On to Appomattox, by General J. P. Cilley. A Skirmish at Little Auburn, Va., by C. W. Wiles.

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

September: Magazine Rifles; Their Latest Developments and Effects, by Captain Walter H. James, R. E. F. R. G. S. Saddles, by Colonel Crichton, Hampshire Yeomanry. Color Blindness, by R. B. Carter, Esq. Torpedo-Net Defenses. The Military Situation in Upper Egypt. Cavalry Swimming. October: Colonel von Löbell's Annual Reports Upon the Changes and Progress in Military Matters During 1891. The French Naval Maneuvers. The Field Gun of the Future. November: The Lagos Expeditionary Force, 1892. German Divisional Cavalry. The Russian Navy. A Long Distance Ride. The Distance Ride from Berlin to Vienna. Experimental Aluminium Horse-Shoes.

THE PENNSYLVANIA MAGAZINE OF HISTORY AND BIOGRAPHY. October, 1892.

The Ancestry and Earlier Life of George Washington. Owen Biddle. Genealogical Gleanings Contributory to a History of the Family of Penn. Christopher Ludwig, Baker-General in the Army of the United States During the Revolutionary War. A Brief Account of the Swedish Mission From its Commencement Until Its Cessation. Extracts From the Orderly-Book of Captain John Nice, Thirteenth Pennsylvania Line.

JOURNAL OF THE MILITARY SERVICE INSTITUTION. November.

Guns and Forts, by Colonel King. Queries on the Cavalry Equipment, by Lieutenant Cole. Artillery Service in the Rebellion, by General Tidball. Water Supply in Desert Campaigns, by Lieutenant Beckurts. Skobelev's Last Campaign, by Captain Clark. Recruiting Experiences, by Lieutenant Hawthorne. Our New Infantry Drill Regulations, by Lieutenant Crane.

PROCEEDINGS OF THE ROYAL ARTILLERY INSTITUTION.

No. 11: Fire Discipline; Its Necessity in a Battery of Horse or Field Artillery, and the Best Means of Securing It. Skill-at-Arms. Mountain Artillery Progress. Achievements of Field Artillery. No. 12: The United States Military Academy at West Point. Troop "I," R. H. Artillery, at Fuentes d'Onore. No. 13: Mounting Hydro-Pneumatic Disappearing Guns.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA. August.

On Repairing and Constructing War Railways. The Most Effective Use That Can be Made of Signaling on a Modern Battle-Field. The Combined Tactics of Infantry and Artillery. The Revised Scheme for a Government Mule Farm in the Hills. The Penetration and Effects of Magazine Rifles.

THE NORTHWESTERN GUARDSMAN. Monthly. Portland, Oregon. October, 1892.

Report on Camp Murray. The Homestead Campaign. Commissary in the Field. Oregon National Guard. National Guard of Washington. Militia Appreciated. Well Deserved Criticism.

PROCEEDINGS OF THE UNITED STATES NAVAL INSTITUTE. No. 63.

First Aids to the Injured, and Transportation of the Wounded. Six Lectures Delivered to the Naval Cadets of the First Class, During the Winter of 1892, by Henry G. Beyer, M. D., Ph. D., M. R. C. S.

IOWA HISTORICAL RECORD. October, 1892. No. 4.

Governor James W. Grimes. The Talley War. Recollections of Indian Life on Old Man's Creek in 1840.

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Electricity and the Art of War. Recoil of Heavy Guns and Its Control. Demolition of Concrete Gun Platforms. Time Fuse With Shrapnel Fire.

THE WESTERN SOLDIER. Monthly. San Francisco. September, October and November, 1892.

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