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Line 30, page 261, for "morning" substitute "evening."

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WITH THE RESERVE BRIGADE—FROM WINCHESTER TO APPOMATTOX.

FOURTH AND CONCLUDING PAPER.

THE beginning of the year 1865 found the First and Third Divisions of the Cavalry Corps in camp, in the vicinity of Winchester; and the troops were directed to make their camps as comfortable as possible, with a view to their occupancy for a considerable period. The severity of the weather, however, permitted only a moderate degree of comfort. Tentage and fuel were both scarce, while the horses were entirely without shelter. Snow had fallen to the depth of several inches, and the mercury hovered in unpleasant proximity to the zero point for days in succession. The railroad had been completed to Stephenson's Depot, four miles from Winchester, and supplies were hauled from that point in wagons; thus providing a well stocked commissary for officers and men, and abundant forage for the horses; a condition of affluence which went far towards compensating for the adversities of the weather.

Rumors there were of other alleviations afforded by the social life of the town; the assurance of the continued protection of the Union troops bringing to the surface the loyal element which had been overwhelmed and crushed by the weight of secession sentiment. It was even whispered that the allegiance of some of the fair

C. C. C. Carr.
Bolila.

Confederates to the "sacred cause," had not been proof against the wiles of the "blind god," and that the "hated Yankees" had been found less black than they had been painted. But, alas! these pleasures were not for the line. Those fortunate fellows of the staff were on the ground and, as usual, had the inside track.

As the days wore away a restless feeling seemed to pervade the camps. All the talk and discussion about the camp-fires indicated an eagerness to be up and doing, to finish the work that still remained. It was not thought that the task was a light one, but there was an agreement of opinion that the spring campaigns would result in the more or less complete overthrow of the Confederacy and collapse of the rebellion; and so, when the order to march came, although unexpected, it was very welcome.

On the morning of the 27th of February we bade a cheerful good-bye to our camps, and leaving the tents standing, the long column was stretched out on the familiar Valley Pike, headed up the Valley. The desolate landscape, the blackened ruins of burnt buildings, the deserted houses, and fields shorn of their fences, together with the gloomy and lowering skies, presented anything but a cheerful picture; the inspiriting sense of movement and action was, however, superior to all depressing influences, and the way was cheered by the jokes and laughter of the "bold dragoons" as they rode along in happy freedom from all care.

A magnificent force of cavalry it was. Ten thousand gallant troopers, men of intelligence, free citizens of a free country, fighting for a cause which could but strengthen and confirm every courageous impulse. They had been educated, trained, and seasoned by years of most exacting service against an enemy whose courage and tenacity of purpose had won the admiration of the world. Free from all old-world theories and traditions, they had put to the test all means of offensive power given them, and had retained with confidence those which had proved effective. With a versatility of resource which can exist only with great intelligence, their efficiency had been demonstrated under all possible conditions of service. In numberless encounters they had shown themselves superior to the cavalry of the enemy; on the field of battle they had charged successfully with the saber against infantry lines; and, fighting dismounted, they had repeatedly repulsed and overthrown the best infantry of the Confederate armies. Their leaders had also been educated and trained in the hard school of experience; and, by the process of selection and the survival of the fittest, represented the best talent in their profession, which the nation afforded. Add

to this the knowledge that they were under the direction and guidance of their great commander, SHERIDAN, who had won their hearts by his just confidence in their strength, who had rescued them from a subordinate and humiliating position, and whose indomitable spirit had left its impress upon the heart of every trooper, and we can believe that this body possessed a force which could not fail to exert a most powerful influence in that contest of courage, endurance, and skill, which was to end the mighty struggle of four weary years.

The good people of Strasburg, Woodstock and the other Valley towns gave us no cordial greetings as we rode along, but we remembered their harsh experience of the previous summer and pardoned their dark looks.

Upon reaching the North Fork of the Shenandoah, on the 28th, an attempt was made to ford the stream, but after several men and horses had been carried down by the swift current of the swollen river, the pontoons were brought up, expeditiously laid, and the command crossed with but slight delay. The advance guard struck ROSSER the next day at Mount Crawford, but he was brushed aside with ease by the leading brigade, the rest of the command being scarcely aware of any obstruction.

On March 2d we reached Staunton, where it was learned that EARLY was at Waynesboro, ten miles away, and had declared his intention to fight there. The First Cavalry was at this time on duty at General SHERIDAN'S headquarters; but CUSTER'S division having been ordered on to Waynesboro to accept EARLY'S challenge for a fight, the First Cavalry through some misapprehension, followed in its wake and had the good fortune to share in the final overthrow of EARLY'S forces.

CUSTER went at his task with his accustomed impetuosity. His dispositions were made with hardly a moment's delay, the regiments being assigned to their positions as fast as they came up. The First Cavalry was ordered to support the Eighth New York, which was to charge, in column, down the road and through the town, when the general assault should take place. Soon the trumpets sounded the advance; the scattering shots of the skirmish line were followed by rattling volleys of musketry and some rapid discharges of artillery, and, as the dismounted line, with inspiriting yells and cheers, rushed to the assault, we broke into column at a gallop and went splashing down the road after the Eighth New York. The rain had been pouring down incessantly for several days, and the road-way was a sea of liquid mud, marked only by the fences on either side. We

were already well splashed, but as we dashed through this pasty mass, with heads down to save our eyes, we were pelted and plastered with the sacred soil beyond all recognition. Some unlucky troopers of the leading regiment who had been unhorsed, as they scrambled out of the way, were suggestive of nothing so much as unfortunate flies crawling from a pool of molasses. As we galloped through the town the firing had almost ceased, and we heard off to the right and rear, the victorious shouts of CUSTER's men. The completeness of this victory was only marred by the escape of EARLY and ROSSER, who wisely made prompt and effective use of their horse-flesh. The captures in this engagement were sixteen hundred prisoners, eleven pieces of artillery, seventeen battle-flags, and a large quantity of supplies and means of transportation. The prisoners were sent back to Winchester with an escort of fifteen hundred men, by which the command was depleted to that extent, it being impossible for them to rejoin.

The Confederates were, of course, outnumbered in this affair; but the position was a strong one and could not have been carried without severe loss had any serious effort been made to hold it. As it was, our losses were so trivial as hardly to be worth mentioning, while the moral effect of this first victory of the campaign was of great value. Waynesboro appeared almost deserted, and, headquarters having come up, we bivouacked in the streets of the town, making use of the vacant buildings for shelter from the still pouring rain.

We reached Charlottesville on the evening of the 3d, and were, it is believed, the first Yankee soldiers to visit that place. Being still attached to headquarters, we bivouacked in the town, and some of us, following the example of the staff, accepted the hospitality which was freely and cordially proffered by the people near our camp. An evening made delightful by music and song and the presence of fair women, who showed their good breeding by avoiding allusion to all unpleasant subjects, still lingers in memory. The comfort of that clean and seductive bed; the surprise of finding our cavalry boots relieved of their load of mud and neatly polished, by our chamber door; the exquisite breakfast-table, with its bright silver, delicate china, and snowy cloth and napkins, presided over by a lovely white-haired old lady, whose son (a surgeon in the Confederate army, on leave of absence) asked a reverent blessing on the food set before us. All these pleasant remembrances are never to be lost, but cherished in admiration for that nobility of character which could hold the claims of hospitality superior to all sectional hate and bitterness.

While we were enjoying the good things of Charlottesville, our comrades of the Reserve Brigade were having a hard time back with the wagons, which, with infinite toil, were being dragged through the red clay of the nearly bottomless Virginia roads. They finally came up on the 5th; and on the morning of the 6th, we bade our hospitable friends good-bye, with the hope that they might, thenceforth, be spared all harsher experiences of war. It could be seen that they felt that their cause was hopeless, although they professed unbounded faith in the ability of General LEE and the courage of their soldiers. The columns marched in the direction of Lynchburg; CUSTER's division along the railroad, giving proper attention to its destruction, while DEVIN followed the canal with the same object. On the 7th we reached Howardsville on the James river, and on the night of the 8th, an unsuccessful attempt was made to seize the bridge at Duguidsville before it should be destroyed by the enemy, by a forced march, the horrors of which are still vivid. The condition of the roads was indescribably bad; the rain fell in torrents, and the darkness of Egypt could not have exceeded the thick blackness which surrounded us. But we plunged along through the deep mud, encountering all sorts of obstacles, and keeping the road only with the greatest difficulty.

It was afterwards reported that during this night-march one of the divisions marched several times around an enclosed field before it was discovered that it was traveling in a circle; a circumstance which seemed so probable that nobody was inclined to doubt the truth of the report.

The unceasing rain and the difficulties of the march had told severely upon the horses, besides exercising a depressing influence upon the men; and there appeared to be a general feeling of relief and encouragement when, it having been found impossible to cross the James river, the column was headed towards the north and our armies.

The tow-path of the canal (which was a narrow causeway between the canal and the river) appearing somewhat firmer than the country roads, an attempt was made to use it for the march of the column and the trains; but it soon became frightfully cut up, and its narrowness was such that the stalling of one team stopped everything in rear. While we were strung out in considerable confusion along this narrow way, wagons and mules mired down in front preventing all progress, some scouting parties of the enemy were seen on the opposite bank of the river, and the thought that a battery of artillery might open on us from that secure position while we were

in this predicament, was not comforting. However, the battery did not make its appearance, and as soon as possible the tow-path was abandoned for the roads farther back from the river, which, if not less muddy, afforded more freedom of movement. The canal was effectually destroyed by cutting the causeway between it and the river at various points, and blowing up the viaducts.

While marching through this region, hitherto unvisited by the Union armies, many hundreds of negroes, men, women and children, had joined the column in search of "freedom's land." They were, for the most part, on foot, carrying their worldly possessions in bundles and packs. Their condition was one of almost absolute destitution, and yet, with that freedom from troublesome care which is the characteristic of their race, they were as cheerful and happy as they could have been had they possessed everything worth having in life. The energetic quartermaster of the expedition, Captain WILLIAM H. BROWN, of the Fifth Cavalry, by effecting some sort of an organization among these colored patriots, was enabled to make effective use of their services in helping along his mud-impeded train. At Columbia, which we reached on the 10th, we lay over a day to wait for them; and here, for the first time in many days, we enjoyed a few hours of sunshine.

On this expedition, as on others of like character, men and horses were subsisted by foraging liberally in the country passed through. The people, in many instances, deserted their homes upon the approach of the Union troops, and seldom complied when instructed to produce their supplies, so the troopers were of necessity compelled to help themselves. This, of course, led to some demoralization, but acts of malicious vandalism were almost unknown, the excesses of the men being generally confined to a liberal provision for their personal needs. Food, fuel and forage were considered public property wherever found, and at Columbia tobacco was added to this free list; the well filled warehouses which were located there supplying in great abundance the wants of the entire command.

On the 13th we marched to Goochland, and on the 15th reached Ashland, the Virginia Central Railroad having been in the meantime very thoroughly destroyed for many miles. General SHERIDAN'S ruse of a threatening advance towards Richmond enabled the command to cross the North Anna without molestation, at Mount Carmel Church, on the morning of the 16th, and to reach the White House on the Pamunkey, where abundant supplies awaited us, on the 18th of March.

The rain which had fallen almost incessantly during the progress

of this expedition had rendered it one of fearful hardships, which had severely tested the powers of endurance of the troopers, seasoned veterans though they were. Nearly one-third of the horses had been abandoned on the march or rendered totally unserviceable, while the worn and jaded condition of those which remained gave striking testimony to the severity of the work which they had been called upon to perform.

Although the command was thus seriously depleted and weakened, there was no discouragement or want of soldierly spirit, and it was felt that the results achieved fully compensated for all losses and sacrifices. The last remnant of EARLY'S army had been captured or dispersed, and the beautiful Valley of the Shenandoah, that highway of armies, finally and definitely relieved from the burdens and sufferings of war, which had so long been its portion; vast quantities of supplies and war material had been destroyed, and two of the enemy's important lines of supply rendered useless. It may also be believed that the moral effect produced by the unopposed march of this destroying column was no unimportant factor in the final result.

With the end of our march the tiresome rain also ceased to fall. The warm sun and kindly breezes of spring dried our soaked packs and mud-covered clothing and equipments. Rations and forage were distributed, horses shod, accouterments put in order, arrears of clerical work brought up, and everything put in readiness for the further work which all knew was before us.

On the 26th of March we marched to the James river, which we crossed on the pontoon bridge laid just below the Dutch Gap canal, all unconscious of the fact that we were passing in review before the great Commander-in-Chief, the wise, the patient, the kind and generous President who, in the inscrutable providence of God, was so soon to yield his life, a last supreme sacrifice to freedom's cause.

On the following day we went into camp at Hancock's Station, a stopping place on the little military railroad, laid on the surface of the ground almost without grading, from City Point to our lines in front of Petersburg. Here we were joined by the Second Division, under its new commander, General CROOK, and SHERIDAN'S cavalry corps was once more united. Here also the regiments received some recruits—men from hospitals and remount camps, and some officers who had been absent from various causes. The First Cavalry lost in this wise, with regret, its gallant commander, Captain EUGENE M. BAKER, (otherwise TIM BAKER), Captain RICHARD LORD rejoining from a protracted absence and assuming command by virtue of his rank. The regiment here also rejoined the Reserve Brigade, a

change which occasioned no regret, for however honorable duty at headquarters might be, there was abundant satisfaction in the knowledge that we should share in the work and in the honors to be won by that incomparable organization, whose history was that of the cavalry of the Army of the Potomac.

Its commander, gallant and genial ALFRED GIBBS, had just received his well earned promotion to the grade of brigadier-general, and the welcome given to the regiment upon its return made it seem like getting back home.

The Reserve Brigade was at this time composed as follows:

Brigadier General ALFRED GIBBS, commanding.
First United States Cavalry.
Fifth United States Cavalry.
Sixth United States Cavalry.
Second Massachusetts Cavalry.
Sixth Pennsylvania Cavalry.

All the regiments were greatly depleted, and the strength of the whole brigade must have been considerably less than one thousand men. The First Cavalry was on several occasions during the campaign detached for special duty, either at General SHERIDAN's headquarters, or under the immediate direction of the corps commander; but its service was substantially that of the brigade, as it is believed that it participated in every affair in which the brigade was engaged.

The exhilarating effects of the fine weather, and the pleasure and excitement of meeting old friends and comrades, had put everybody in the best of spirits. Then, too, we were once more within sound of the enemy's guns; and the conviction that important events were impending served to keep all minds active and alert, and ready to respond with promptness to any call for action.

Upon the order for the movement on the 29th of March, the rain, that faithful and untiring ally of the Confederacy, again began active operations, and came down as though the supply were inexhaustible. But mud and rain had no longer any terrors for the cavalry; a well-founded conviction existing that no conditions could be encountered more severely trying than those which it had already experienced. Nevertheless, as we got out into the country towards Ream's Station on the Weldon Railroad, we were reminded that Virginia mud has an infinite variety of character. The familiar red clay, which kneads up into a thick and pasty mass, and forms great ridges as the horses in sets of fours follow in each other's footsteps, had given place to a black and yielding sandy loam which, in the flooded fields, became almost a quicksand in which horse and rider were in danger of sinking out of sight. However, we plunged and floundered along, making fair progress, and towards evening came to the crossing of Rowanty Creek, where we found the bridge gone and the stream roaring along entirely out of its banks. Axes were gotten out, some men swam to the other side, and two trees on the opposite banks were felled so that their top branches were interlaced in the stream. These being fastened together and strengthened, quite a respectable bridge was made, over which the command passed without difficulty.

From this point we hurried on to Dinwiddie Court House, where the advance guard captured some of the enemy's pickets and drove the remainder in short order out of the town. The brigade pushed out a mile or two on the Five Forks road, and unsaddled, the First Cavalry, by virtue of its honorable place at the head of the roster, going on picket, with outposts well out in the direction of Five Forks. The rain which poured down all night helped to keep things quiet on the picket line, but a reconnaissance on the following morning developed the fact that FITZ HUGH LEE's troopers were on the alert in our front. We were, however, satisfied that they should remain while on their good behavior, and the forenoon passed with only an occasional shot exchanged as the patrols on either side became too enterprising.

Towards nine or ten o'clock heavy firing was heard off to our right, informing us that our infantry, which had been hugging the intrenchments in front of Petersburg during the weary months of winter, was at last on the move. Soon after noon an order for a movement came, and the brigade moved out on the Five Forks road, the Sixth Pennsylvania and the Second Massachusetts having the advance. The enemy's cavalry was soon developed in full strength, but the attack was pressed vigorously by the whole brigade, and the enemy was driven to the vicinity of Five Forks. The face of the country in this region is thickly covered with woods and thickets of brush, while the rains of spring had created such a boggy condition of the soil that mounted movements could be made only with the greatest difficulty. This affair of the brigade was a scramble through the mud and brush, against an enemy always concealed, who yielded without much resistance after delivering fire, the pistol being the principal weapon used on both sides. This reconnaissance having developed the fact that the enemy was in considerable force at Five Forks, the outposts were reëstablished on about the same lines, and things settled down again for the night.

On the morning of the 31st, the Second Brigade, Colonel FITZHUGH commanding, came out to ascertain the disposition of the force

in our front, and as the First Cavalry knew the ground it obligingly went along for company. Although we met but little resistance our progress was necessarily slow, and the skirmishers did not reach the Forks until the middle of the forenoon. By this time heavy firing was heard over in the direction of CROOK's division, which had the left of our line and we slowly withdrew towards Dinwiddie; the First Cavalry, as it reached its former position, being permitted to report back to the brigade which was found in the position which it had occupied during the previous day, at the forks of the road about a mile from Dinwiddie. The remainder of the division was engaged with the enemy; and the heavy firing which was unmistakably coming nearer every moment, indicated a severe conflict, in which our forces were, evidently, not prospering.

It may be explained here, that the enemy's cavalry, reënforced by two divisions of infantry, had marched in the morning from Five Forks to attack the left of our line which rested on Chamberlain Creek. The first attack of the enemy, which was made about ten A. M., on SMITH's brigade of CROOK's division, was repulsed; but a subsequent attack on DAVIES' brigade had been more successful, and the enemy's infantry in great strength, had broken through our lines, and having driven DAVIES' brigade back on to the two brigades of the First Division, was driving this portion of the corps, in some confusion, off in the direction of the Boydton Plank Road and the infantry lines of the Army of the Potomac.

The Reserve Brigade was directly in the track of these retreating troops, and had it kept its position, would doubtless, have spent such force as it possessed without effect, and would then have been involved and carried away in the general confusion and retreat. Fortunately the Commanding General was not one to yield easily to defeat, and his staff officer reached the brigade in time to withdraw it towards Dinwiddie; then, as the flank of the victorious Confederate line swept past, the brigade was hurriedly dismounted and, in double time, plunging and scrambling through the thick brush, was soon in the midst of the straggling riff-raff in rear of PICKETT's division of infantry. Not much persuasion was required to induce these non-combatant wearers of the gray to throw down their muskets and take their way back towards the Court House, a large number of prisoners being taken in this way with scarcely the firing of a shot.

Our advance through the thick woods and broken ground had been so hurried that the ranks were in considerable confusion, the men of the different regiments being to some extent intermingled,

but all pressing eagerly forward, intent upon the work before them. Suddenly we came upon the rear of a long infantry line lying down behind a barricade of rails—not firing, but apparently "taking it easy." They must have supposed that we belonged to their side, for they were totally indifferent to our presence, and it was not until our men were close upon them that they became aware of our character. A large portion of the nearest regiment was captured before the men were aroused to the necessity of resistance. The regiment, however, finally rallied around their colors and vigorously opening fire, soon made the brigade fully aware that it had, at last, attracted attention.

A low ridge covered with brush and scattered timber extended to the left some distance beyond the left flank of the line we had surprised, and following the directions of an officer of General SHERIDAN's staff (the only mounted officer in sight), an attempt was made by the troops composing the left of our line to occupy it. But, when within a few yards of the crest, voices and the sound of marching troops were heard. The command, "Halt!" repeated the length of a long line, was immediately followed by, "Commence firing!" The dispersed condition of the brigade rendered it impossible for it to keep its position in the face of the destructive fire which was now poured in at short range. For a time it was every one for himself, a general scramble taking place for the possession of the scattered trees, or anything else which promised a chance of protection from the deadly storm of lead which had overtaken us. The staff officer disappeared; and dodging through the brush and from tree to tree, the disordered lines were slowly forced back in the direction of the Court House.

IRWIN GREGG's brigade, of CROOK's division, had been brought over from Chamberlain Creek, and going in on the left of the Reserve Brigade had attacked almost simultaneously with it. The effect of this combined attack was to cause the enemy to abandon the pursuit of DEVIN and DAVIES, that he might devote his attention to his new assailant and the force still between him and the coveted position at Dinwiddie Court House.

Fortunately his first fierce assault upon the annoying foe in his rear was not followed up with vigor, he deeming it expedient to turn his attention to the force still threatening his flank over on Chamberlain Creek; and the heavy firing in that direction told us that there was yet plenty of fight left in CROOK's division. His third brigade, Colonel SMITH commanding, still kept its position on Chamberlain Creek, and its determined fighting at this juncture was of the greatest

value in affording some respite to our hardly-pressed lines, and delaying the final assault of the enemy.

Advantage was taken of the comparative quiet in our front to get the ranks into some sort of order. A movement in advance developed a heavy force of the enemy still in our front, and as the long afternoon approached its close we were ordered to fall back in the direction of Dinwiddie. As the tired and mud-bedraggled troopers emerged from the woods and trudged slowly across the open fields in front of the village, their hearts were gladdened by the sight of our artillery in position and a long line of blue uniforms behind a substantial barricade of rails. It was CUSTER'S division, which had been ordered hastily forward from the rear, where it had been engaged for the past two days in helping the wagons and artillery out of the mud. Looking back, the solid grey lines of the enemy's infantry could be seen advancing into the open ground, presenting such a tempting target that our eager artillerymen could not wait for their front to be cleared, but began pitching their shells over the heads of the retreating troopers.

On the enemy came, with lines well extended to the right and left, two divisions of infantry, the equals in efficiency of any to be found in the Confederate armies. As they came within closer range their opening fire was answered by a tempest of lead from the repeating carbines of CUSTER'S division, which, with the quick discharges of the artillery, made in the evening twilight a veritable line of fire. The fire of the enemy soon died away into scattering shots, then spluttered and went out like an expiring candle. The attack had failed, and night, the welcome friend of weary and hard pressed soldiers, soon claimed full possession and dropped her sable mantle over the field.

The contest of the day had been a severe one, and the cavalry had cause to be thankful that they had succeeded in retaining possession of the Court House, which, as the converging point of several roads, had much strategic value. The movements of the enemy during the whole day seemed to have been badly directed and wanting in purpose. If his object was the possession of Dinwiddie Court House, it may be believed that his best chance of success lay in a determined and persistent advance upon that point. He attempted, instead, a flank movement, the absurdity of which against a force possessing the activity of SHERIDAN'S cavalry, should have been apparent, and wasted his strength in a succession of ponderous attacks against fragments of the opposing force, until the day was consumed, and his opportunity lost.

The proximity of the hostile lines was not conducive to slumber, and daybreak found everything ready for a renewal of the contest. A movement in advance, however, resulted in the hasty withdrawal of that portion of the enemy's line which had retained its position, and the cavalry was soon in the saddle, again pressing forward over the familiar ground towards Five Forks.

At the cross-road near the old camp of the brigade, we found AYRES'S division of the Fifth Corps, which had marched nearly all night to the assistance of the cavalry. The soldierly and business-like appearance of these troops inspired confidence in their fighting qualities, and as we rode past, the men exchanged friendly greetings. A little farther on we came up with General GRIFFIN, with his division, and the impression gained ground that the force in our front was likely to have occasion to regret its boldness in venturing so far beyond the protecting care of the wise commander of the Army of Northern Virginia.

Meanwhile, the resistance to our advance was becoming more determined, and the brigade was deployed in skirmishing order, the First Cavalry on the left and connecting with CUSTER'S division. The most of the men were dismounted, but the led-horses and the mounted supports were kept well up to the skirmish line, and when opportunity was offered mounted rushes were made to dislodge the skirmishers of the enemy from their chosen positions. Our advance through the thick brush and boggy ground was necessarily slow, and at several points such resistance was encountered as to necessitate a concentration and strengthening of the skirmish line.

Finally, about noon, the First Cavalry found its progress checked by a particularly vicious nest of sharpshooters, snugly ensconced behind a line of fallen logs surrounded by thick brush, on the farther side of a cleared field. After considerable firing our men managed to occupy some out-buildings within about two hundred yards of the annoying position, when the parties amiably pegged away at each other with no very definite results on either side.

While this was going on an officer of CUSTER'S division galloped over from the left, with the information that CUSTER'S line was about to charge to clear his front, and good naturedly suggested that it would be a good opportunity for us to join in and "clean out" the force which was making so much trouble for us. The suggestion was a good one, but for charging we preferred to be mounted. So the horses were brought forward a few at a time, and the men being gradually withdrawn from the firing line, were mounted and formed in the shelter of the cluster of out-buildings. Everything being in

readiness, and sudden cheers to the left indicating a movement of CUSTER'S line, the squadron burst out from behind the sheltering buildings, and with cheers — trumpets sounding — rode straight for the barricades in its front. The attack was unexpected; the nerves of the hostile marksmen lost their steadiness, their fire was delivered in a straggling and ineffective manner, and before they could reload we were upon them.

The charge was well supported by the reserve squadron, and without check was continued up to the very face of the well constructed earth-works of the enemy's main position. Here his artillery and infantry opened fire, and further progress being impossible the regiment withdrew, gathering in as it fell back, every skirmisher of the enemy outside of his entrenchments, thus effectually clearing the front of the enemy's position on this portion of the field. The ground being at once occupied by our dismounted line, the hostile forces were for the remainder of the day closely confined to the shelter of their intrenchments.

As the First Cavalry was re-forming, General SHERIDAN with some of his staff rode by, and with a pleasant nod to the assembled knot of officers, showed his appreciation of the service performed by an expressive remark of *just three words* — words more to be valued because it was not the General's habit to lavish praise for duty performed, congratulatory orders being unknown at his headquarters. The regiment was further honored by being kept in reserve, mounted, for the final attack.

And now followed a weary time of waiting for the troops to get into position for the assault. As the long column of the Fifth Corps was seen disappearing into the woods off to our right and front, it was not difficult to guess the General's plan of battle, and his anxiety lest the enemy should discover the movement which was in progress for his destruction, was shared by every cavalryman in the line. It has been officially decided that there was no unnecessary delay in the movement of the Fifth Corps on the afternoon in question; but for the anxious cavalrymen who were forced to lie inactive before a vigilant and formidable enemy, watching the lengthening shadows which marked the fast waning day, the three hours seemed an eternity, and the delay unaccountable.

But finally, when everybody had settled down into an apathetic state of profound disgust, the welcome sound of the enemy's musketry is heard away over to our right and front; it increases in volume as it is answered by our advancing troops, and hearing the cheers of our dismounted comrades of the cavalry as they rush to the

assault, we dash forward and are soon in front of the formidable works, seeking a place over which it may be possible to force our horses. Twigs and leaves from the branches above are falling about our ears, cut by the thickly flying missiles, and now and again a horse and rider go down; but our dismounted men are over the intrenchment, and amidst the smoke and turmoil of the battle the colors of our brave infantrymen can be seen as they press on down the enemy's line crushing all resistance. After seeking in vain for a convenient opening, we at last make a rush and scramble over, every one for himself, and are soon in the midst of the captured guns, crowds of disarmed Confederates and the disordered ranks of our troops.

As we press forward in pursuit the rays of the setting sun fall athwart a war picture of surpassing interest, the outlines of which are still vivid. Broad fields stretch before us, on the farther side of which the disordered remnant of the enemy's forces are disappearing; some squadrons of his cavalry are coming into line in the distant open ground, as though resolved on some heroic act of devotion; our conquering forces, cavalry and infantry, are pressing forward on all sides; then the light fades, the bold squadrons wheel about and disappear, and pursuers and pursued are swallowed up in the twilight shades of evening.

Effective pursuit in the darkness of night, through an unknown region, is impossible, and the cavalry is entitled to a night's rest; so our faces are turned towards the battle-field, where we strip the saddles from the backs of our tired horses and seek such rest as may be possible in the midst of the confusion which surrounds us. Trumpet calls in every possible combination of notes; division calls, brigade calls, regimental calls; shouted inquiries for their regiments by lost footmen and horsemen, shouted information by officers zealous to find their missing men; shouted jests, rough but good natured, between the captured Johnnies and the jubilant Yanks; staff officers dashing about regardless of incipient camps, or tin cups of boiling coffee — all contributed to produce a complete pandemonium. At length the excitement wears itself out; camp-fires grow dim and expire; sleep comes to the tired soldier without much wooing, and quiet reigns, except at headquarters, where work for the morrow is being laid out, and at the hospitals, where the work of the day affords sorrowful occupation.

In this battle the Fifth Corps and SHERIDAN'S cavalry had been opposed to five brigades of ANDERSON'S corps and FITZ HUGH LEE'S cavalry, the whole force being commanded by General PICKETT. The victory for the Union troops could hardly have been more complete.

Although the numbers engaged were comparatively insignificant, it was the decisive battle of the war, insuring, as it did, the evacuation of Petersburg and Richmond, with the consequent surrender of the most powerful army of the Confederacy.

The troops were on the move promptly at daylight on April 2d, that memorable Sunday, so filled with direful fate for the Southern Confederacy. The fighting of the day at our end of the line fell chiefly to MILES' division of the Second Corps, which was sent to General SHERIDAN as soon as the news of the victory at Five Forks had been received. He found the enemy in considerable force at the junction of the Claiborne and White Oak roads, and attacking promptly, drove him off in the direction of Sutherland's Depot. The Fifth Corps struck the South Side Railroad at Ford's Station, where a long line of recently constructed works was found abandoned; the cavalry, crossing the railroad further to the east, pushed the retreating squadrons of the enemy, with an occasional sharp skirmish, in the direction of Namozine Creek.

During the day many stragglers from the routed divisions of PICKETT and JOHNSON, who had evidently lost faith in the Confederacy, were gathered in. Evening found us at Scott's Corners near the crossing of Namozine Creek, where FITZ LEE's cavalry, reënforced by infantry and artillery, and aided by the advancing shades of night, had decided to risk a halt.

Darkness covered everything, when the Reserve Brigade was dismounted and deployed in thick timber, on ground entirely unexplored and unknown. An advance was attempted, but the determined and destructive fire which was elicited, and the difficulties incident to the obscurity of the night, soon brought things to a standstill. The First Cavalry was then mounted and sent off to the right, through the woods, to demonstrate against the enemy's left. Moving quietly through the dense timber and underbrush, an open field was at last reached, and from out the darkness flashed two or three angry shots, indicating that our closer acquaintance was not desired. The leading squadron was noiselessly deployed, with pistols drawn, and in low and careful tones instructed, at a given signal, to dash across the field with a yell. The signal (a pistol-shot and the command "Charge") was given, and the squadron dashed forward. At least it started forward; but how many troopers reached the opposite side will never be known. The signal for the charge was also a signal for the enemy, and a blaze of light from the fire of a long line in our front followed by the rapid discharges of several pieces of artillery, convinced our men that they would not be able to carry the position, and they

immediately proceeded to rally to the rear under cover of the sheltering timber. The reserve squadron (the regiment at this time had but two) had kept its place in the woods at the edge of the open ground, and as it was found that the fire of the enemy was passing harmlessly above amidst the branches of the trees, it was thought prudent to keep it quietly in its place until the alarm of our excitable neighbors across the field should have subsided. They, however, kept up a great racket for half an hour or more, their shells and round-shot calling forth anathemas from the men of the other brigades in rear, who were disturbed in their efforts to make their coffee.

Things finally quieting down, camp was made, everybody being well satisfied to postpone the settlement of the dispute until daylight. This was one of those little affairs which are hardly mentioned in the reports, in which no glory is won, but which are constantly falling to the lot of the cavalry as a part of its legitimate work, and which add continually to the aggregate of its casualties. In this affair the First Cavalry lost its adjutant, Lieutenant A. S. CLARKE, severely wounded, and several men and horses.

We were in the saddle bright and early on the morning of the 3d, and found everything clear in our front. As the column moved out on the road the joyful news was passed along that LEE's army was in full retreat, and that Richmond was ours. The condition of the road also proclaimed, unmistakably, that we were close in the wake of a retreating army. Stragglers in butternut and grey uniforms in all stages of dilapidation were picked up in squads — the woods were literally full of them. The way was littered with broken down wagons, muskets, camp utensils, and discarded equipments of all sorts. Fires had been started in the brush by the road-side, and an abundance of artillery ammunition being scattered about, an occasional unexpected explosion added to the interest and excitement of the occasion. Three pieces of artillery were found concealed in the woods, some distance from the road, and further on we came across the caissons and limbers which had furnished the loose ammunition.

CUSTER's division had the advance, and the rattle of his carbines was soon heard as he drove before him FITZ LEE's skirmishers. The exhilarating news of the morning had rendered CUSTER's men impatient of any delay, and as the rear-guard of the retreating army became imprudently slow in its withdrawal, the gallop was taken and a brigade ridden down with the loss of its commander and many prisoners. Towards evening FITZ LEE's cavalry halted in a strong position at Deep Creek, where, with the assistance of some infantry, he hoped to repeat the performance of the previous evening. He

was, however, disappointed, as the rear divisions being hurried to the front, attacked promptly by the flank, carrying the ford and driving the hostile forces off in the direction of the Danville road. Darkness, however, prevented any effective pursuit in the unknown country, and the troops halted for the night.

Indications pointing to the concentration of LEE's retreating forces at Amelia Court House, the Fifth Corps was directed on Jettersville, on the Danville railroad, some eight miles south-west of the Court House; CROOK's division to the same place, first striking the railroad towards Burke's Junction; while General MERRITT with the other two divisions of the corps and MACKENZIE's division from the Army of the James, continued the pursuit towards Amelia Court House. General MERRITT made a bold dash for the enemy's trains near Tabernacle Church, but as they were protected by a strong force of infantry his success was only partial, the cavalry being forced to withdraw after a severe engagement.

The First Cavalry on this day (the 4th of April) accompanied General SHERIDAN, marching with the Fifth Corps until afternoon, when we trotted forward to Jettersville. Here we took possession of the station and telegraph office, and throwing out pickets prepared to dispute the further advance of the Confederate army, feeling confident, that with the General's assistance, we should be able to do so with success. Here we picked up a goodly number of stragglers in grey uniforms, who evidently thought the advance of their army was the safest place. We were soon joined by CROOK's division from the direction of Burke's Station, which arrived at an opportune moment to take a hand in repelling an attack of FITZ LEE's enterprising cavalry. The Fifth Corps arrived before night, and intrenchments having been thrown up, we felt quite secure in our position.

While we were resting at Jettersville on the night of the 4th, the divisions of DEVIN and CUSTER, with General MERRITT, were making an unpleasant night march from Tabernacle Church. They came up at an early hour on the following morning, and the First Cavalry was permitted to rejoin the brigade. The Second Corps arrived during the day and went into position on the left of the Fifth; DEVIN's and CUSTER's divisions of the cavalry going out to the left of the infantry.

During the forenoon DAVIES' brigade, of CROOK's division was sent on a reconnaissance to Fame's Cross Roads some six or seven miles north of Jettersville. Here he discovered the enemy's trains moving past our left flank and off in the direction of Deatonsville. His troopers went in with a yell, captured the larger part of the escort, and succeeded in burning about two hundred wagons, among which were General LEE's headquarter wagons, containing important papers. Having started his prisoners and captured mules back towards Jettersville, he soon found himself heavily engaged with a superior force of the enemy which had started out from Amelia Court House to head him off. CROOK went to his assistance with his two remaining brigades, and, as the sound of battle reached Jettersville, there seemed to be a prospect for a general engagement, in preparation for which, General MERRITT, with the divisions of DEVIN and CUSTER, was sent over to the right of the infantry to swing around on the flank and rear of the attacking force as it crowded CROOK back towards our lines. The enemy had, however, learned prudence, and let go in time to make good his retreat.

On the morning of the 6th, the Army of the Potomac was concentrated at Jettersville, the Sixth Corps having come up during the night. But General LEE had decided not to fight at Amelia Court House, and during the night had put his army in march for Rice's Station on the Lynchburg or South Side Railroad. CROOK, with his division, was off before daylight headed for Deatonsville, and having discovered the enemy's columns passing through that place made a gallant attempt, a little beyond, to reach his trains; but they were heavily guarded, and he was obliged to withdraw and look for a more vulnerable point. The Second Corps came up with the rear of the enemy at Flat Creek, and, after some delay in crossing that stream, pushed forward, skirmishing with his rear guard, towards Deatonsville. The Fifth Corps marched in pursuit on the right of the Second, and the Sixth on the left, the divisions of DEVIN and CUSTER following CROOK.

As we approached Sailor's Creek, beyond Deatonsville, the Confederate columns, with wagons and artillery, could be seen across the intervening valley and through openings in the timber, marching on higher ground on the opposite side of the stream. CROOK was making unsuccessful attempts to get at the trains, and orders were given for the two divisions in rear to pass on beyond CROOK, along the enemy's line of march, and seek a point of attack which might promise a chance of success. The First Division proceeded to follow these instructions; but what was our disgust on seeing CUSTER's division trot along the flank of our column, turn off to the right of CROOK, and dashing across the creek, without looking for a ford, charge into the midst of the enemy's trains and marching columns, almost before a formation could be made to receive its attack. Our disgust was completed when we were dismounted and marched in

double time to a position on the right of CROOK to cover the withdrawal of the Third Division with its captured flags and prisoners. However, we settled ourselves behind our rail barricades, across the road, and contented ourselves with the soldierly reflection that we had, at all events, obeyed orders.

Meanwhile, the noise of battle away off to our right and front has been steadily increasing, and we are informed that we have only to hold our position to insure the capture of a large portion of the Confederate army. This, indeed, appears to be a reasonable expectation, and there is no want of confidence that we shall be able to withstand any attempt to dislodge us.

That troublesome CUSTER, however, cannot be persuaded to keep quiet and wait to be attacked, but must needs go to yelling and charging again. Some of CROOK's men also get their horses, and a general advance being ordered, the whole corps goes forward, carrying everything in its front and completing the destruction of such portion of ANDERSON's corps as had escaped it at Five Forks. The cavalry now join hands with the Sixth Corps which has received the surrender of General EWELL with the largest part of his corps, after a contest which for severity and fierceness of fighting at close quarters has seldom been surpassed. The combined captures of the Sixth Corps and the cavalry in this battle amounted to some six or eight thousand prisoners (including six general officers), fourteen pieces of artillery, and a large number of wagons. During the day the Second Corps had attacked and driven before it GORDON's corps, on a road further to the right, capturing two thousand prisoners and four guns.

Night had fallen, but the cavalry had not quite completed its day's work. *The First Division, the Reserve Brigade leading, and* the First Cavalry in front, was ordered to advance on the road, just to stir things up a little and give a good-night parting shot. As we reached the crossing of a small creek about two miles out, our advance guard received a volley from the brush on the opposite bank, and an investigation by the leading squadron developed the fact that a strong force was in position on some high ground just beyond the creek. The regiment immediately took possession of a hill which commanded the creek crossing and went busily to work piling up rails for a hasty barricade, when a battery opened from the enemy's position a few hundred yards distant. So accurately had the hostile guns been pointed towards the face of this hill, that the first shell fired, struck and exploded in a pile of rails around which the men were at work, while several others fell close by. It was decided that this was not a good place to take position, and the men were withdrawn across a

deep ravine to our right, and a line was established across the road. Meanwhile the Confederate artillerymen, having cleared the face of the hill, began to distribute their favors very promiscuously amongst the troops of the division which were formed along the road and in the timber further to the rear. They quieted down, however, after a while, but another attempt to advance was sufficient to start them into renewed activity, and it became evident that it was advisable to accept the situation and wait for daylight. It transpired that the force in our front was MAHONE's division of LONGSTREET's corps, which not having been engaged during the day, was in good trim for a fight, and did not propose to be driven out of its camp after a hard day's tramp without remonstrance.

These night attacks were generally unsatisfactory in their results, the men not having much heart for fighting an enemy concealed by the darkness of night, in an unknown country; especially when, tired out with the hard work of the day, they felt that they were entitled to their coffee and a night's rest.

On the morning of the 7th, the cavalry again found itself foot loose, striking out for Prince Edward's Court House, on a shorter line to Appomattox Station than that of necessity followed by Lee's retreating army. CROOK's division was again detached on a reconnaissance to Farmville Station.

At Prince Edward's Court House, where we arrived about three P. M., we found MACKENZIE's division which had been sent forward to this place on a reconnaissance, the general line of march of the Army of the James being to the left of that of our other forces. After a short rest, the command pushed forward again on the road to Prospect Station, on the Lynchburg railroad a few miles west of Farmville, to which point MACKENZIE's division preceded us. It was after night when we unsaddled, presumably not far from the Station, although it was not visible. Our day's march of at least thirty miles had been through a country not previously reached by the Union arms, and was as peaceful and undisturbed as though no hostile force existed.

We were again in the saddle at daylight, CUSTER moving out in advance followed by DEVIN; CROOK, who had joined during the night, bringing up the rear. MACKENZIE had returned to his own army. Appomattox Court House is some four or five miles north and east of Appomattox Station, on the Cumberland Turnpike, which is the main thoroughfare to Richmond, and on which it was known that LEE's army was marching. General SHERIDAN had informed General GRANT by letter on the morning of the 8th, that he would march

with his command to Appomattox Court House, but learning through his scouts that four trains of cars loaded with supplies for LEE's army were at Appomattox Station awaiting its arrival, he first directed his march on that point, which was about twenty-five miles distant from our camp of the previous night.

The weather was fine, the roads pretty good, as Virginia roads go, and we jogged along very comfortably through a pleasant country which seemed to have felt none of the burdens of war. The freshly ploughed fields, surrounded by fences sound and whole, were in pleasing contrast to those desolate and war-worn portions of Virginia over which we had been accustomed to campaign.

Along in the afternoon CUSTER went ahead at a trot, and as we neared the station, towards evening, the sound of artillery intimated to us that he might be glad of some assistance. So urging our tired horses forward, we were soon crossing the railroad a few hundred yards east of the station, and as we came out into some open fields beyond, were hastily dismounted and sent forward into the timber, to take in flank and rear the force which had assailed CUSTER's troopers with so much noise and assurance. While we were groping through the woods in the darkness, which had now fallen, the artillery fire suddenly ceased; CUSTER, having discovered that the force opposing him was simply an escort to some wagons and reserve artillery, which had been pushed on in advance of LEE's army, settling the matter by charging with his usual impetuosity, capturing guns, trains, and escort. Meanwhile, the news which had passed around, that CUSTER's advance had surprised and captured a number of trains of cars loaded with supplies for the Confederates, was confirmed by ear splitting screeches from the captured locomotives, with which the "Wolverines" were amusing themselves on the railroad.

A line was now formed, and pushing the enemy's skirmishers before us, we soon reached the vicinity of the Court House. The three cavalry divisions passed the night on the skirmish line. Not a very comfortable or restful night; but every trooper knew that our line was squarely across the path of the retreating army, which was being vigorously pressed by the Army of the Potomac, and was prepared to keep his place at any sacrifice. The long night wore sleepily away, except that every one would be aroused to momentary vigilance by occasional sudden outbursts of carbine fire when enterprising scouts of the enemy would venture too close to our lines.

At last the grey dawn appears, and daylight creeps along; a dusky, misty morning, giving no promise of that glorious event which was, thenceforth, to make the day so memorable in the Nation's calendar. An ominous silence broods; not a shot is heard. There is an anxious waiting for the attack which we know must be expected, and for the infantry which we are sure is hastening forward to our assistance. The men are trying to make their coffee at little fires started in the rear of the line, when, suddenly, the noise of conflict is heard away over to the left, in CROOK's front. It surges along the line in our direction, and the troopers are settling themselves behind their slight barricades for the expected attack, the familiar "zip," "zip," of the flying bullets begins to be heard, when an order comes to fall back and mount. As we go to the rear to seek our horses we meet the advancing lines of the longed for infantry, our old friends of the Fifth Corps. The Army of the James is also close at hand, and although they have been marching almost continuously for the past forty-eight hours, and the men show their weariness in every movement, we know that they are conscious of the gravity of the situation and can be depended upon to hold the position against any possible assault of the Confederate army.

Again in the saddle, the cavalry stretches away in a long column to the right and front, and CUSTER's troopers, following headquarters, with its forest of captured battle-flags, go galloping past, eliciting growls and smothered imprecations from the men of the First Division, who feel that they are entitled to the advance in their turn. Away off to the left, across an expanse of open ground, can be seen a confused mass of wagons, guns, and troops, at sight of which our men begin to cheer, not doubting that they will soon be amongst them. But there is a sudden halt; the cheering up in front grows louder; a knot of horsemen can be seen off to the left, surrounding something which looks like a white flag, and the word is passed back from the front — LEE has surrendered. The fact that a flag of truce has been sent in, and that negotiations for the surrender of the Army of Northern Virginia are in progress is soon made known; and we realize that the long chase is ended, that the great rebellion has received its death blow, and that our work is finished.

The military lessons of our civil war appear to have had but slight significance for other nations. Some of the conditions under which the operations of our armies were conducted being dissimilar to those which prevail on the continent of Europe, it was, apparently, concluded that no useful lessons could be learned, and our four year's struggle was regarded with little more interest than might have been bestowed upon a war between savage tribes. The increased independence and efficiency of the cavalry arm, due to the improvement in fire-weapons, was displayed as an object lesson which should

not have been difficult of comprehension; and yet, because the methods employed by our cavalry were opposed to old-world traditions, it has been stigmatized as mounted infantry, and the fact that it repeatedly charged infantry lines, successfully, with the saber, *studiously ignored*.

It is doubtful whether history affords a better example of cavalry efficiency than that displayed by SHERIDAN'S cavalry in the twelve day's operations from March 29th to April 9th, 1865. By its determined fighting on the 31st of March, at Dinwiddie Court House, against vastly superior forces of cavalry and infantry combined, it thwarted the efforts of the Confederate forces to occupy that important strategic point, and prepared the way for the brilliant and decisive victory won by its incomparable leader at Five Forks on the following day. Refusing to be delayed by the rear guard of the retreating army, by vigorous marching it placed itself on the path of the enemy's retreat at Jettersville, on the 4th of April. Our generals having declined to force a general engagement at Amelia Court House, the cavalry, two days later, dashed into the retreating columns of the enemy at Sailor's Creek, delaying his march, insuring the capture of an important portion of his force, and, by forcing the beaten army off from the Danville railroad, destroying the possibility of its retreat in that direction. Finally, by persistent marching, when the powers of men and horses had been taxed to almost the last limit of endurance, the cavalry reached Appomattox Station on the evening of April 8th, capturing the supplies which had been sent to the relief of the exhausted army; then forcing the enemy's advance back to Appomattox Court House, it took position across his only remaining line of retreat, holding it with tenacity until the arrival of our infantry rendered surrender inevitable.

Nevertheless, if it may with justice be claimed that the grand result of these operations could not have been achieved without the cavalry and its impetuous leader, so it should be acknowledged that it was made possible only by the splendid fighting and marching qualities of our infantry and artillery, directed by the wisdom and intelligence of the great General-in-Chief.

MOSES HARRIS,
Captain, First Cavalry.

THE LATEST REGULATIONS FOR THE GOVERNMENT OF THE GERMAN CAVALRY IN SCREENING AND RECONNOITERING DUTIES, BY A GERMAN STAFF OFFICER.

IN TWO PARTS—PART TWO.

[Prepared expressly for the JOURNAL OF THE U. S. CAVALRY ASSOCIATION.]

THE following rules apply to encounters between the vanguard and the enemy, to observation of the enemy by parties and feelers of the advanced guard, and to attack and defence at such times.

As soon as the leading patrol discovers the enemy it seeks cover from sight, reports immediately, and watches him incessantly. The leader of the patrol informs his men by signs in order that they may join him in his observations. The leading patrol, as a rule, *never* fires, and never attacks the enemy, unless especially ordered to do so; which is never done if the vanguard can be otherwise informed of the enemy's approach.

In order to observe, the patrol takes a position behind rising ground, a bush, or a house, and if necessary to escape observation, all take off their helmets; even in peace maneuvers these points are strictly observed. The leader of the support upon the report of the enemy's being near goes to the front and leaves the vanguard in a concealed position on the high-road. The leading patrol strengthened by horsemen of the support, or of the reserve, continues observing the enemy, especially his flanks.

The leader of the support, as soon as he reaches the point, reconnoiters and decides upon any further action according to circumstances and his orders. If the chief object is to obtain information, the support remains concealed while the patrols continue reconnoitering. If the officer of the advanced guard has instructions to attack the enemy for the purpose of capturing prisoners, he quickly examines the ground to determine the best method of attacking the enemy in flank and, if possible, by surprise. If the ground is unfavorable for

an attack, the officer of the advanced guard tries to prepare on ambush for the advancing enemy; or, by retreating, to draw him beyond support of the troops in his immediate rear. The commander of the troops following must, in such a case, be informed in good time by the commander of the advance party of the strength of the enemy and his own plan, in order to make coöperation possible.

If the enemy has surprised the support, the officer of the advanced guard always tries, and without regard to the strength of the enemy, to forestall the hostile attack by attacking himself, so that the following detachments, being informed of the danger, may have time to draw up for battle. No special rules for immediate action upon suddenly meeting the enemy can be laid down, and every officer acts according to his own judgment; but in no case must he allow the enemy to secure the initiative. The maxim, that the cavalry must attack the enemy first, is generally observed.

The cavalry, both of the advanced guard and the rear guard, sometimes fights on foot, *for example:* to open defiles, or to gain certain places before the enemy gets there, and to hold such till the infantry arrives, or with the rear guard to delay the enemy, or to relieve cavalry retreating through defiles.

The commander of a support, or vanguard, if he finds it necessary to fight on foot, must consider that, with the small number of carbines which he can bring into action, he cannot carry on a long continuous fire, and that he must hazard all his strength, and a considerable amount of ammunition, in order to produce a decisive effect.

In a defensive position, the estimation of distances to prominent points, by riding to them, is of great importance. If such points are lacking, the ranges 400, 600 and 800 metres, are indicated by the appearance of objects which are visible to one's troops, but not to the enemy. If there are no convenient objects for this purpose, then distances must be otherwise estimated. For this purpose, the leader keeps two of his men who are specially expert in estimating distances, near him, in order that they may indicate the distances to different points, and keep an eye on the fighting ground.

Reconnoitering and watching, especially on the flanks, is continued by mounted patrols and, during the fight, on foot. If time is to be gained or advantage to be taken of the mobility of the troops, and a decisive engagement not to be entered upon, fire is opened at a great distance. Fire is always so regulated as to secure the greatest destructive effect. It must be concentrated on favorable points,

at favorable times. A concealed and safe position for the led-horses is important.

Safety from a surprise, and cover against fire are obligatory; the led-horses are placed on the flanks of the line of skirmishers, because if placed in rear of the line, even if sheltered by low hills, they are still more or less exposed to fire. If the ground does not afford protection, the horses must be taken farther to the rear. In an engagement with cavalry, a mounted reserve is desirable; its ammunition, and that of the horse-holders, is distributed among the skirmishers.

The reconnaissance of the ground by the officer of the advanced guard is quickly made, to avoid delaying the march of the columns following, and because he has no time for stopping long to reconnoiter minutely. A previous study of the map facilitates this reconnaissance, which is intended to discover the points of observation, and the accidents of the ground, which are important for the march and the engagement.

The commander of the vanguard surveys the ground in all directions during the march, collects his memoranda at a trot, and takes advantage of a short halt to write them down in a few legible lines, which he sends to the commander of the advanced guard. If the latter wishes special information about certain places and sections of the ground, he points this out specially to the commander of the vanguard, when giving him his orders; the latter makes a special report upon it. In every other case he sends back only such messages as are important to the troops following, in regard to their march, the commissariat, or a possible engagement.

Three chief points are carefully considered by the commander of the vanguard, *when judging of the ground: the march, the provisioning of the marching troops, and the tactical advantages* of the ground. To this belongs the reconnaissance of the main road, the state of bridges, dykes, fords, country roads, defiles and woods, and the discovery of any obstacles; also, a timely report on the latter, and on the means at hand to remove them, and the preliminary measures which he has already taken for this purpose.

Especial activity is necessary in pursuing a beaten enemy, the commander of whose rear guard takes all those measures which are adapted to disturb or delay the hostile columns, by artificial or natural obstacles. Bridges will be found destroyed, either partially or wholly, by burning them or breaking them down. Dykes will be found dug through, woods made impassable by felling trees, streets by barricades, fords by throwing harrows into them, ferries by removing or sinking vessels. For making repairs, removing such obstacles, etc.,

the advanced guard is generally provided with a detachment of pioneers. The commander of the leading patrols, however, must make timely reports on the presence and the nature of such obstacles.

The leader of the support tries to ascertain whether such obstacles can be avoided or removed, or whether it is necessary to repair the road. If villages or towns are near, he demands material and workmen from the authorities, who, when the detachment of pioneers arrives, are placed at the disposal of its commanding officer. This he also reports to the rear. As soon as all the necessary or possible arrangements are made, he tries with his troops to evade the obstacle, and to continue his march. With regard to the provisioning of the troops following, the commander of the vanguard gathers information or makes arrangements only in case of having received a special order to this effect together with his first instructions.

If the main body of the advanced guard is to halt at a certain point, he takes the necessary preparatory steps to collect provisions at this point. For this purpose, he engages the authorities of the nearest villages or towns, makes the preliminary arrangements, and leaves behind a subaltern officer with a few men to watch the execution of his orders. The commander of the advanced guard must soon receive a report on the provisions found and the arrangements made. This report must *always* contain information about wells and suitable places to water the animals.

Only in rare cases has the commander of the vanguard to report on the tactical importance of certain places or sections of the ground, because this belongs to the province of the general staff officer of the advanced guard. He may, however, come into this position also. If he hits upon the enemy, and reconnoiters his position, he must describe briefly the strength of the position or the feasibility of attacking it. This order may also require a search for a suitable bivouac near the high-road, and a report thereon to the commander. Even in times of peace, the acquisition of the necessary knowledge and a proper judgment of such circumstances are deemed indispensably necessary. This is a very broad subject and cannot be treated briefly. The duties of the *reconnoitering service* require a knowledge of roads, streets, railways, water, bridges, fords, dykes, woods, hills and inhabited places. With regard to reconnaissance by the leading patrol and the support, the following rules apply:

With regard to villages, the measures for passing them safely depend on the proximity of the enemy. If there are no signs of a hostile occupation, the leading patrols ride through and round the village, whilst the following support does not stop. At places which

have a post and telegraph office, the leading patrols first examine the officials, and seize letters and telegrams. The leader of the support examines the officials, opens the letters and sends those which are of military importance to the commander of the advanced guard, giving, if required, receipts. Besides those officials, he examines the authorities and clergymen.

If the village is supposed to be occupied by the enemy, the approach is executed as secretly as possible. The commander of the leading patrol orders his horsemen to steal slowly up to the side of the village to espy the strength and dispositions of the enemy. If the enemy occupies the village, a supporting troop will usually be observed not far beyond the further exit; this point deserves attention. Woods, gorges or hills often give cover to an approach on the flanks. A reconnaissance on the flank gives a better insight into the enemy's strength and position. If villages are large, flanking patrols support the leading patrol, which is, if necessary, strengthened by the support.

If the enemy occupies the village, or is supposed to occupy it, the support stops under cover. If the village is not occupied the support trots through it; if the enemy is near, the village is passed by a detour. The leader of the support determines whether a horseman shall be left behind to keep up connection with the troops following. During the examination of authorities, etc., etc., the support stops on this side, whilst the point watches on the other side of the village.

For the reconnoitering of woods and forests by the leading patrol and the support, the following is the rule: Small woods are passed by single horsemen of the leading patrol on the high-road and by-roads, whilst others ride around them. The commander of the leading patrol reaches the other side of the wood by the shortest road. If the woods are larger, the leader of the support details flankers to move between the leading patrol and the flanking patrols. Upon reaching the opposite side of the wood, the patrols halt and carefully observe the ground in front before again advancing. Large forests are scouted to the right and left of the high-road only for a few hundred paces.

With regard to the passing and reconnoitering of defiles, the same means are employed as in the case of villages. If the enemy is supposed to be near, the support stops at a suitable place, whilst the leading and flank patrols reconnoiter to discover whether the defile is occupied by the enemy. If a defile is not supposed to be occupied by the enemy, it is passed by the point and the flank patrols at a rapid gait to reach places of observation which lie in front, as quickly as possible. The support follows at a trot.

With regard to the instructions, formation and command of the rear guard, the following is, in general, the rule:

The orders of the rear guard are to protect and to veil the retreat of the main body. It is made proportionately strong and independent by attaching to it troops of all arms; the proportion of the different arms to one another depends on the ground, the formation of the rear guard, and on the proximity and behavior of the enemy. If the enemy pursues only at a distance, and if the rear guard is not obliged to take up a fighting formation, it is divided into a main body and secondary or smaller parts similar to those of the advanced guard.

The cavalry of the rear guard, to which horse artillery is generally attached, veils the retreat, and keeps in touch with the enemy by patrols. If the enemy presses on vigorously, the rear guard halts in advantageous positions or brings a heavy artillery fire to bear on the heads of his columns, forcing him to deploy or to make detours, in either case losing time. If necessary, an obstinate resistance is made. The cavalry is on the flanks and prevents their being turned.

The distance of the rear guard from the main body is greater than is the case with the advanced guard, because a delay in the march of the main body may happen. The rear guard must neither allow itself to be driven upon the main body nor to be cut off. It must halt at the right time, and retreat at the right time. It must not fight step by step, as in this case it might be held fast in front and outflanked. It retreats from one section of the ground to another, offering resistance, as a rule, only in favorable positions.

When passing through defiles, over bridges, dykes, and over marshy ground, etc., the reserves of the rear guard form, if possible, in a good position on a considerable front covering the mouth of the defile, so that the other troops may march away unmolested under their protection. The latter occupy then the opposite skirt of the defile to relieve the reserves. Through woods artillery and cavalry retreat first, whilst the infantry occupy the edges of the woods; afterward the infantry retreat, also. Villages which cavalry and artillery cannot pass by a detour are passed in the same manner, after which they are, if necessary, set on fire.

In order to properly conduct the difficult operations of the rear guard, great ability and coolness on the part of its commander, tenacity and discipline on that of the troops, proper use of the features of the ground, and a concentration of all the forces at hand are absolutely necessary.

Similarly to the advanced guard, a part of the cavalry forms a rear subdivision, and covers with patrols the march of the rear guard.

The task of the commander of the rear subdivision is to keep in view the movements of the enemy, especially flanking movements intended to cut off the rear guard from the main body, and to report them to the commander of the rear guard. He must also try to delay the march of the enemy as much as possible, and to hinder him from forcing the main body to fight at a disadvantage. He must also try to discover the object of the enemy's movements. He therefore causes bridges to be broken down, roads and fords to be made impassable, streets to be blocked, etc., for which purpose he collects the requisite workmen, or details soldiers to perform the work.

Sometimes an unexpected attack, especially from a good ambush, is advantageous; it obliges the enemy to deploy his forces, and thereby gives time to the main body of the rear guard to continue its movements, to leave a position, or to pass a defile. After the attack the connection with the main body is quickly taken up again, in order not to be outflanked by the enemy.

The leader of the rear subdivision does not permit stragglers or sick soldiers to remain behind. For the latter, if necessary, horses and carts are requisitioned. If this cannot be done, they are handed over to the local authorities to be taken care of, their names and regiments being stated. The rear guard further does not permit material available for military purposes to fall into the hands of the enemy, but brings it away, after procuring means of transportation from the nearest villages or towns, or destroys it.

The leader of the rear subdivision keeps up connection with the main body of the rear guard, and follows its route by exactly the same road. If the main body of the rear guard halts, it faces about, taking up a position as much concealed as possible, whence the approach of the enemy may be observed and successful opposition offered to him if he presses on.

The commander of the rear subdivision should be provided with the same articles as the commander of the vanguard. He receives similar orders and his duties are very similar to those of the commander of the vanguard. The same rules apply to them both.

As to the subdivisions and arrangements of the rear subdivision, the following are the rules:

The rear subdivision protects itself by flanking patrols and by a rear patrol. If the enemy presses it, at least a platoon remains in the immediate neighborhood of the enemy. The duty of the flanking patrols must be executed with great care because they are to discover any flanking movements of the enemy, whose intention in the

pursuit may be to fall upon the flanks of the opponent with outflanking columns.

The formation of the rear guard is similar to that of the advanced guard. Its different subdivisions face about and send their patrols at speed to the various points of observation. The distances to which they are sent are determined by the same considerations which govern in similar cases with the advanced guard, regard being chiefly paid to mutual support by the various subdivisions.

It is of special importance to observe the pursuing enemy. This is carried on by flanking patrols, and if the enemy does not press on, by the rear patrol, whose horsemen remain behind at places which offer a good view, as long as possible, and only trot after the rear subdivision if the connection with it becomes endangered, in which case they hurry to the next point of view.

The delaying of the enemy's march is effected chiefly by judiciously taking advantage of the ground and by preparing obstacles. Bridges are broken down by loosening their stringers and beams, which are brought away after the last troops have passed them; narrow streets and roads are barricaded by loaded carts, one wheel of each being removed. Fords are made impassable by harrows, plows, scythes, etc. Boats are brought to the near bank and sunk there.

For an active defense, it is best to choose defiles which the enemy cannot turn unnoticed. Wide detours by the enemy cause him to lose as much time as a fight in the defile. If the enemy make a detour the forces in the defile must be withdrawn in time.

Previous to the passage of a defile, if the enemy presses on vigorously, the rear guard will have a critical time of it. The rear troop must often make a short halt, and, if the hostile patrols approach, it must attack them, to procure the necessary time for the other bodies to pass the defile. Should the enemy be repulsed, the rear subdivision quickly passes the defile and reassembles beyond it, behind those troops which are intended to relieve it. As soon as the defile is passed, it is used to delay the enemy by obstacles within range.

The cavalry of the rear guard will, in such cases, often dismount and commence firing. If the rear guard leaves the defile, it begins a vigorous attack upon the emerging enemy, and, if possible, drives him back into the defile, using all favorable positions, and, if possible, preparing ambuscades. It is important that the rear guard should withdraw before the enemy in time.

With regard to troops covering the flank during the march, the following are the rules:

They must protect the flanks from attacks, prevent reconnoitering by the enemy and keep up the connection between columns which march on parallel roads.

There are three methods of covering the flank: By flanking patrols, which are dispatched from the support on parallel roads to protect the flanks of the column; by flanking troops, which are from one-half to two squadrons strong and are dispatched by the support for the same purpose as the flanking patrols; and by flanking detachments, which are dispatched by the main body on parallel roads to protect the flanks of the main body.

The duties and the methods of the flanking patrols have already been mentioned above, when speaking of the advanced guard.

The flanking troops and the flanking detachments act independently, and must provide for their own safety. They protect themselves in front and rear by patrols, on the flanks by flanking patrols, and take care to keep up their connection with the main column. It depends on circumstances, whether the troops protecting the flank move as rapidly as the advanced guard or the main body, or whether they allow the main body to march past them, remaining in a suitable position, in order to follow it up afterwards. The flanking patrols move rapidly from one point of observation to another, remaining at each point only long enough to reconnoiter. Flanking detachments, which are designed to keep up connection between two columns marching on parallel roads, send their flanking patrols out far enough to be in touch with one another.

For the conduct of those troops which protect columns during a halt, the following is the rule:

When the marching column halts, the protecting troops perform the outpost duty. Leading and other patrols and rear guards seek good points of observation.

The divisions, in close order, take up a covering position, and connect with one another. The commander of the support, or of the rear guard, if necessary, distributes posts in front, in rear, and on the flanks. If he is already in touch with the enemy, or if the ground in front can be partly observed, patrols are dispatched, which keep him still more in touch with the enemy, or reconnoiter the ground in front.

If those protecting troops are to be replaced at the end of a march by others, detailed for outpost duty, they inform the latter of all that is known of the enemy, and do not leave their places until duly relieved.

From all that has been said about the maxims and rules of the

screening duty and reconnoitering service of the German cavalry, it is evident that they form a well organized system, the perfection of the functions of which can only be obtained by frequent and intelligently conducted maneuvers in peace. But whether the high claims which are theoretically made for the German cavalry, on the basis of long and acknowledged practical success, will be satisfied to an ideal degree in war, and whether this measure, under the effect of continual hardships and other events in war will not be considerably diminished, we would leave an open question. In any case if the German cavalry, like any other, tries to reach the ideal of performance in this department in peace, it will approach it most nearly in war.

It may also be mentioned that all kinds of German cavalry, uhlans, dragoons, light cavalry, hussars, carbineers, and cuirassiers, without exception, are used for protecting the march and for scouting.

But, that the lance, which will probably be used by all those troops, when riding through woods, alleys, bushes, etc., and which can be seen from afar, will prove suitable for this kind of service we are inclined to deny; and would state the view of several Prussian generals, that the lance indeed makes a single horseman specially fit for attack, but renders him a clumsy rider in performing any other service.

THE NINTH UNITED STATES CAVALRY IN THE SIOUX CAMPAIGN OF 1890.

ON November 19th, 1890, three troops ("F," "I" and "K") of the Ninth Cavalry left Fort Robinson, Nebraska, and on the following day reached Pine Ridge Agency, South Dakota, where they were joined on the 26th by Troop "D" of the same regiment, and the whole was organized into the Battalion of the Ninth Cavalry, commanded by Major GUY V. HENRY, Ninth Cavalry.

Our duties in camp at the Agency were more like those in garrison than those of a life in the field against an active foe, although our time was taken up in preparing our battalion for any duty that it might be called on to perform.

The first important step was the organization of our pack train, the nucleus of which came from Fort McKinney, Wyoming, under charge of REEMER, the chief packer at that post. Details of five men from each troop were made at once, and, although there were (owing to the scarcity of mules) only five pack mules to each troop, the men were drilled daily, often after dark, in order to familiarize the packers with their duties. Our packers had reached such a state of proficiency that when, about the 10th of December, we were given five more mules to each troop, we found ourselves equipped with a sufficient number of packs to carry eight days rations for the command.

Our wheeled transportation was in an excellent condition, and there was plenty of it, each troop having three six-mule wagons.

In the meantime our commanding officer did not let the troopers be idle, nor was he satisfied with a perfunctory horse exercise. There were daily drills of the battalion, interesting to both men and officers, as they did not confine themselves to the narrow limits of "Close Column," "On First Troop, Right in Front," but were adapted to the principles of the art of attack as taught in our military schools at West Point and Fort Leavenworth, and the best of schools, that of actual warfare; particular attention being paid to rapid deployments. The gaits were rapid, and the commands were generally given by a

preconcerted system of blasts on a whistle; the necessity of the latter being daily shown, owing to the high winds and accompanying noises of the drill ground. Drills were always in overcoats and full armament, and held daily, Saturdays and Sundays excepted, in rain, sunshine, warm or cold weather. This was our daily life in camp at the Agency until December 24th, 1890, when, without a moment's notice, we were ordered to proceed to the White River.

A telegram was received at the Agency about 1 P. M. December 24th, from General MILES, saying: "I regret exceedingly that 'BIG FOOT' has eluded SUMNER and is making south in light order and will probably join those in the Bad Lands. * * * If a command were to move quickly from Pine Ridge a little northeast and thence down Porcupine (Wounded Knee), or in that vicinity, it might possibly intercept him."

Colonel HENRY's battalion was ordered on this duty. At 2 P. M. the order was received in camp, and at 3:30 P. M. the battalion was ready and awaiting further instructions from General BROOKE.

We were joined by a detachment of Light Battery "E," First Artillery, consisting of a detachment of ten men, two Hotchkiss guns and packs, under Lieutenant HAYDEN, First Artillery, who remained with us throughout the campaign.

We left the Agency about 2:30 P. M., and traveled with our pack train until about 6:30 P. M., when we reached "White Cow Creek," and there took supper and fed the animals; forage having been brought that far by MOORE's Fort Russell pack-train. After a halt of about one hour and a half or two hours, we again took the road and marched until we reached the White River, about 2 A. M. Then, after a short halt, we pushed on to Cottonwood Creek where we found no water, but nevertheless bivouacked there until daylight. This had been our objective point, but as we found neither wood nor water there, our destination was changed. The next morning we changed our camp to Harney (Iron) Springs, and awaited the arrival of our wagon-train and further developments. We had traveled fifty-six miles in all, or fifty before we bivouacked, about 3:30 A. M., the morning after leaving the Agency. We moved constantly at a trot and walk, and the results were favorable to both man and beast, as there was not a sore backed or lame horse in the battalion.

Our duty for the next week was confined to daily scouting. On Sunday, December 28th, in compliance with instructions from General BROOKE, we moved our camp to White River, forty-four miles below the Agency. That same day orders were received to examine the "table" (SHORT BULL's camp); so, on the morning of December 29th, about 9:30, Colonel HENRY with his battalion and the detachment of two Hotchkiss guns left camp on White River and explored the so-called impregnable fortress of the Indians in the Bad Lands. One troop scouted Porcupine Creek and returned, covering a distance of twenty-one miles each way or forty-two miles altogether. Camp was reached about 4 o'clock, when the usual duties of the camp were resumed.

News had reached us that Major WHITSIDE, Seventh Cavalry, had corralled BIG FOOT, and that the campaign would probably be brought to an early close. We had finished supper and had been sitting around talking, and had just dispersed to seek our "downy couches" when our adjutant suddenly announced: "BIG FOOT has attempted to break away; they have had a fight and WALLACE has been killed, and GARLINGTON and HAWTHORNE been wounded;" and then gave us orders to break camp at once. This was about 8:30 P. M. Our camp was struck, the wagons loaded, and the command was en route to the Agency at 9:30. We were in a hurry, and our gait was a rapid trot. We made three halts and reached the Agency just as reveille was sounding, 5:30 A. M.

One troop ("D") had been left behind with the wagon-train, which had dropped back about an hour and a half behind us. On arriving at the Agency we went to our old camp ground and had waited about two hours for our wagons when a courier reached us, bringing the news that our train had been attacked and was then parked about two miles from our camp.

"Boots and saddles" was immediately sounded, and we were off to the relief of our wagons. The affair amounted to the exchange of a few shots with the Indians and the loss of one poor trooper, who was shot, in the first volley, by an Indian dressed in the uniform of a cavalry soldier, with the yellow lining of his overcoat boldly displayed over his back. We proceeded to camp, and had hardly unsaddled, when we were again ordered out with the Seventh Cavalry to the Mission which was reported to be in flames. Colonel HENRY obtained permission for us to remain behind and allow the horses time for their morning feed.

About noon a courier from Colonel FORSYTH arrived in our camp saying that they (the Seventh Cavalry) were hard pressed, and to come at once. "Boots and saddles" was again sounded, and the battalion proceeded to the Mission as rapidly as our weary horses could travel. On arriving a short distance below the Mission we met the Seventh, and with the deployment of our troops, and under cover of the Hotchkiss guns, the troops of the Seventh were withdrawn,

and we all returned to our camps together. The distance traveled on this occasion was about twelve miles.

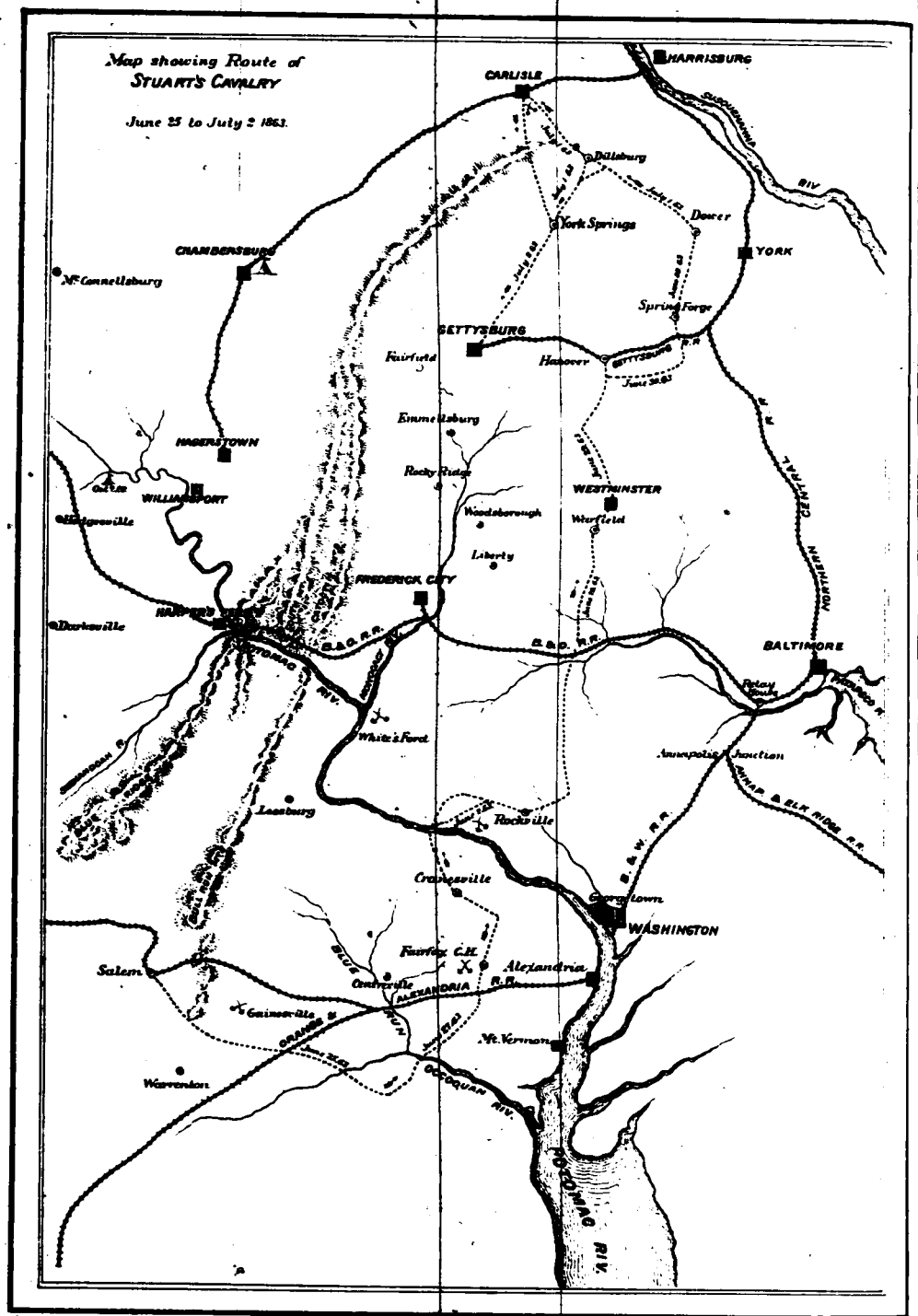
This much for the marching of our battalion; between 9:30 A. M. on the 29th, and 4 P. M. on the 30th of December, we had marched one hundred and two miles, this in thirty and a half hours, including the several hours rest that we had taken at the Agency, and two skirmishes with the Indians. Our gait had been almost constantly the trot.

The advantage of this gait is that the men are kept awake, and lounging in the saddle is impossible. The horses had an unusually heavy load, consisting of blanket-lined horse covers, and two hundred and twenty rounds of carbine and twenty-four rounds of revolver ammunition, weighing about twenty-five pounds, besides the usual pack.

In the battalion there was not a sore backed horse, and the only case of lameness that came to my notice was that of my own horse, which I had had shod for the first time only a week before.

Our casualties among the horses were two: one dropped dead on our return from the Mission, and another two days later, from exhaustion.

ALEX. W. PERRY,
Lieutenant, Ninth Cavalry.



Calvert Lith. Co. Detroit Mich.

ADDRESS OF GENERAL JAMES H. KIDD, AT THE DEDICATION OF MICHIGAN MONUMENTS UPON THE BATTLE FIELD OF GETTYSBURG, JUNE 12, 1889.

THE duty of writing a sketch of "The Operations of the Michigan Cavalry Brigade in the Gettysburg Campaign," is one which the writer would fain have shirked, had the summons come from a source which he felt at liberty to disobey. It would seem, indeed, that the work had already been done, and well done, so that it will be difficult to add to it anything of positive and permanent value.

It is now nearly five years since the dedication of yonder granite shaft,* erected through the liberality of a number of survivors of those who fought here twenty-six years ago, and intended to mark the exact spot where the fierce hand-to-hand saber contest between the hardy Wolverines and the flower of Southern cavaliers took place. On that occasion a distinguished son of the Keystone State,† himself a trooper of GREGG's command, delivered a finished and exhaustive oration upon "The Cavalry Fight on the Right Flank at Gettysburg." It was admirably done, evidently a labor of love, and characterized by a spirit of fairness, a moderation, and a judicial tone highly commendable. To peruse its glowing periods is to visit again these scenes. To the writer it is more. It brings back with full force, as if it were but yesterday, the events of that bright July day in 1863, when GREGG and CUSTER crossed swords with STUART, HAMPTON and FITZHUGH LEE; when the fate of this nation hung suspended by a thread on the plains and heights of Gettysburg. He is once more seated on his horse, in front of his squadron of the Sixth Michigan Cavalry, to the left of PENNINGTON's battery, watching the tumult that is going on below. He hears the rumble and roar, as the earth quakes under the terrible artillery duel on Cemetery Hill; the sputter of the carbines as ALGER's dismounted skirmishers drive back the

* Erected by the survivors of GREGG's (Second) cavalry division and of CUSTER's (Michigan) brigade.

† Colonel BROOKE-RAWLE, of Philadelphia.

Confederate line; the roar of PENNINGTON'S guns; the yells of the troopers as they charge and countercharge. The entire plan is spread out like a picture, and he can see it all again.

A debt of gratitude is hereby acknowledged to Colonel BROOKE-RAWLE. But, with all due deference to the brilliant orator, it must be said that he speaks with an almost too evident partiality for Pennsylvania and the Second Cavalry Division. His encomiums upon Michigan are perfunctory, and not from the heart. Bright and imperishable chaplets of laurel were gathered here, and our friend would loyally place them upon the brow of his own ideal hero, and not upon that of "LANCELOT or another."

But there were honors enough to go around, and General GREGG and his command, with their brilliant record, can well afford to render unto CUSTER and his Michigan Brigade that which is their due. Twice, during the war, the Michigan Cavalry Brigade came opportunely to the relief of the Second Division—once at Gettsyburg, again at Hawes' Shop, May 28, 1864. The mind does not dare consider what might have been the result on either of these occasions had CUSTER been eliminated as a factor in the contest. If the order which took him to the Hanover Pike on July 3, 1863, was, as KILPATRICK intimates in his report, "a mistake," it was a most fortunate blunder. This, Colonel RAWLE would doubtless be one of the first to admit.

There are some controverted questions concerning the battle which took place on this ground. There are certain differences which, surrounded by the mists of doubt and distance, it is hard to reconcile. The official reports, many of them, are meagre, some misleading. The Michigan regiments seem to have been peculiarly unfortunate in this regard. I was unable to find in the War Records office in Washington the official report, written in 1863, of a single one of their commanding officers, covering the operations of the Gettysburg campaign. The maps received from the United States Engineers' office were sent to me with a caution that they must not be regarded as official, since the positions occupied by the different commands have not all, as yet, been definitely determined.

I shall, in the following pages, hew to the line as closely as possible, and endeavor to be as accurate as the accessible data and my ability will permit.

The Michigan Brigade was the outgrowth of the reörganization of the Federal cavalry that followed LEE'S invasion of the north and HOOKER'S consequent movement into Maryland. It consisted, originally, of three regiments—the Fifth, Sixth and Seventh. They were

all organized in 1862, and, at the time which we are considering, were, in the language of another, "fresh from pastures green."* The commanding officer was Brigadier General J. T. COPELAND, a Michigan man, promoted from the colonelcy of the Fifth. The battalion commanders were, respectively, Colonels RUSSELL A. ALGER, GEORGE GRAY and WILLIAM D. MANN. The first had seen service in the Second Michigan as captain and major, under Colonels GORDON GRANGER and P. H. SHERIDAN; the last in the First Michigan, under BRODHEAD and TOWN. Colonel GRAY was appointed from civil life, and was having his first experience of "war's rude alarums."

At two o'clock on Thursday morning, June 25, 1863, the brigade, with its division, under STAHEL, left its camp in Fairfax county, Virginia, where it had been maintaining a cordon of videttes around the Department of Washington, and the head of column turned toward Edwards' Ferry, on the Potomac river, the Sixth Michigan acting as rear guard. The march was slow, the roads being blocked with wagons, artillery, ambulances, and the other usual impediments of a column of troops in active service. It was long after dark when the rear guard reached the ford. The night was cloudy and there was no moon. The river was nearly, if not quite, a mile wide, the water deep and the current strong. The only guide to the proper course was to follow those in advance; but as horse succeeded horse, they were gradually borne farther and farther down the stream, away from the ford into deeper water. By the time the Sixth reached the river the water was nearly to the tops of the saddles. Marching thus through the inky darkness, guided mostly by the sound of splashing hoofs in front, there was imminent danger of being swept away, and few, except the most reckless, drew a long breath until the distance had been traversed and our steeds were straining up the steep and slippery bank upon the opposite side.

But, safely across the river, the column did not halt for rest or food, but pushed on into Maryland. To add to the discomfort, a drizzling rain set in. The guide lost his way, and it was two o'clock in the morning when the rear guard halted for a brief bivouac in a piece of woods, near Poolesville. Wet, weary, hungry, and chilled to the marrow, as they were, it was enough to dispirit the bravest men. But there was no murmuring, and, at daylight, the march was resumed. That day (26th) we passed the First Army Corps, commanded by the lamented REYNOLDS, and reached the village of Frederick as the sun was setting. The clouds had cleared away, and a more enchanting vision never met human eye than that which

*Colonel BROOKE-RAWLE'S oration.

appeared before us as we debouched from the narrow defile up which the road from lower Maryland ran, on the commanding heights that overlooked the valley. The town was in the center of a most charming and fertile country, and around it thousands of acres of golden grain were waving and nodding in the sunlight. The rain of the early morning had left in the atmosphere a mellow haze of vapor which reflected the sun's rays in tints that softly blended with the summer colorings of the landscape. An exclamation of surprise ran along the column as each succeeding trooper came in sight of this picture of nature's own painting. But, more pleasing still, were the evidences of loyalty which greeted us on every hand as we entered the village. The stars and stripes floated above many buildings, while from porch and window, from old and young, came manifestations of welcome. The men received us with cheers, the women with smiles and waving of handkerchiefs. That night we were permitted to go into camp and enjoy a good rest, in the midst of plenty and among friends.

On Saturday morning (27th), much refreshed, with horses well fed and groomed, and haversacks replenished, the Fifth and Sixth moved on to Emmittsburg, the Seventh having gone through the Catoctin valley by another road.

On Sunday (28th), the Fifth and Sixth, the former leading, moved by way of the Emmittsburg pike to Gettysburg. Thus it was that General R. A. ALGER had the honor of leading the first Union troops into the place that was so soon to give its name to one of the great historic and decisive battles of the ages.* It was a gala day. The people were out in force, and in their Sunday attire to welcome the troopers in blue. The church bells rang out a joyous peal, and dense masses of beaming faces filled the streets as the narrow column of fours threaded its way through their midst. Lines of men stood on either side with pails of water or apple butter; others held immense platters of bread. Ladies took the slices, covered them with apple butter, and passed a "sandwich" to each soldier as he passed. At intervals of a few feet were bevies of women and girls, who handed up bouquets and wreaths of flowers. By the time the center of the town was reached, every man had a bunch of flowers in his hand, or a wreath around his neck. Some even had their horses decorated, and the one who did not get a share was a very modest trooper indeed. The people were overjoyed, and received us with an enthusiasm and hospitality born of full hearts.

Turning to the right, the command went into camp a little outside the town, in a field where the horses were up to their knees in clover, and it made the poor famished animals fairly laugh. That night a squadron was sent out about two miles to picket on each diverging road. It was my duty, with a squadron, to guard the Cashtown pike, and a very vivid remembrance is yet retained of the "vigil long" of that July night, during which I did not once leave the saddle, dividing the time between the reserve post and the line of videttes. No enemy appeared, however, and, on Monday (29th) the Michigan regiments returned to Emmittsburg, the First Cavalry Division coming up to take their place in Gettysburg. In this way it came to pass that heroic JOHN BUFORD, instead of the Fifth and Sixth Michigan, had the honor of meeting the Confederate advance on July 1st.

*BUFORD's (First) Division did not arrive until the next day, (29th).

At Emmittsburg it was learned that many changes had occurred. Among them, KILPATRICK succeeded STAHEL, and CUSTER was in place of COPELAND. The Michigan Brigade had been strengthened by adding the First Michigan Cavalry, a veteran regiment that had seen much service in the Shenandoah valley under BANKS, and in the second Bull Run campaign with POPE. It was organized in 1861, and went out under Colonel T. F. BRODHEAD, a veteran of the Mexican war, who was brevetted for gallant conduct at Contreras and Churubusco, while serving as lieutenant in the Fifteenth United States Infantry. He was mortally wounded August 30, 1861, at Bull Run. His successor was C. H. TOWN, who, at the time of which we are speaking, was colonel of the regiment. He also was severely wounded in the same desperate charge wherein BRODHEAD lost his life. There had also been added to the brigade, Light Battery "M," Second United States Artillery, consisting of six rifled pieces, and commanded by Lieutenant A. C. M. PENNINGTON.

The Third Division was now ordered to concentrate in the vicinity of Littlestown, to head off STUART, who, having made a detour around the rear of the Army of the Potomac, crossed the river below Edwards' Ferry on Sunday night, June 28th, and with three brigades under HAMPTON, FITZHUGH LEE and CHAMBLISS, and a train of captured wagons, was moving northward, looking for the Army of Northern Virginia, between which and him was MEADE's entire army. On Monday night he was in camp between Union Mills and Westminster, on the Emmittsburg and Baltimore pike, about equi-distant from Emmittsburg and Gettysburg. KILPATRICK at Littlestown was directly across STUART's path, the direction of the latter's march indicating that he, too, was making for Littlestown, which place is on a direct line from Union Mills to Gettysburg.

On the morning of June 30th, KILPATRICK's command, which had been scouting through the entire country east and southeast of Gettysburg, in search of STUART's raiding column, was badly scattered. A part of it, including the First and Seventh Michigan and PENNINGTON's battery, was at Abbottstown, a few miles north of Hanover; FARNSWORTH's brigade at Littlestown, seven miles southwest of Hanover. The Fifth and Sixth Michigan, after an all night's march, also arrived at Littlestown at daylight. The early morning hours were consumed in scouring the country in all directions, and information soon came in to the effect that STUART was headed for Hanover. Thither FARNSWORTH, with the First Brigade, went, leaving Littlestown about 9 or 10 A. M. The portion of the command that was in the vicinity of Abbottstown was also ordered to Hanover. The Fifth and Sixth Michigan were left for a time at Littlestown; Troop "A" of the Sixth, under Captain THOMPSON, going on a reconnaissance toward Westminster, and Colonel ALGER with the Fifth on a separate road in a similar direction.

The Sixth remained in the town until a citizen came running in, about noon, reporting a large force about five miles out toward Hanover. This was FITZHUGH LEE's brigade, and, to understand the situation, it will he necessary, briefly, to describe how STUART was marching. When he turned off the Baltimore pike, some seven miles southeast of Littlestown, he had ten miles, due north, to travel, before reaching Hanover. From Littlestown to Hanover is seven miles, the road running northeasterly, making the third side of a right-angled triangle. STUART thus had the longer distance to go, and KILPATRICK had no difficulty in reaching Hanover first. STUART marched with CHAMBLISS leading, HAMPTON in rear, the trains sandwiched between the two brigades, and FITZHUGH LEE well out on the left flank to protect them.

FARNSWORTH marched through Hanover, followed by the pack trains of the two regiments that had been left in Littlestown. The head of STUART's column arrived just in time to strike the rear of FARNSWORTH, which was thrown into confusion by a charge of the leading Confederate regiment. The pack trains were cut off and captured. FARNSWORTH, however, dashing back from the head of the column, faced the Fifth New York Cavalry to the rear, and by a counter charge, repulsed the North Carolinians, and put a stop to STUART's further progress for that day.

In the meantime, when the citizen came in with the news of FITZHUGH LEE's appearance, "To horse" was sounded, and Colonel GRAY led the Sixth Michigan on the Hanover road towards the point

indicated. Several citizens, with shot guns in their hands, were seen going on foot on the flank of the column trying to keep pace with the cavalry, and apparently eager to participate in the expected battle. When within a mile of Hanover, the regiment turned off into a wheat field, and, mounting a crest beyond, came upon FITZHUGH LEE's brigade, with a section of artillery in position, which opened upon the head of the regiment (then moving in column of fours), with shell, wounding several men and horses. Lieutenant POTTER, of Company "C," had his horse shot under him. Colonel GRAY, seeing that the force in front of him was preparing to charge, and aware that one raw regiment would be no match for a brigade of veteran troops, made a detour to the left, and sought by a rapid movement to unite with the command in Hanover; Major WEBER, with one squadron, being entrusted with the important duty of holding the enemy in check while the other companies effected their retreat. Right gallantly was this duty performed. Three charges upon the little band were as often repulsed by the heroic WEBER, and, with such determination did he hold to the work, that he was cut off and did not succeed in rejoining the regiment until about 3 o'clock next morning.

Colonel ALGER, with the Fifth and Company "A" of the Sixth, also had a smart encounter with the same force, holding his own against much superior numbers, by the use of the Spencer repeating carbines, with which his regiment was armed.

Soon after noon, the entire division united in the village of Hanover, and a vigorous skirmishing was kept up until dark with STUART's men, who had retired to a commanding position on the hills south of the town.

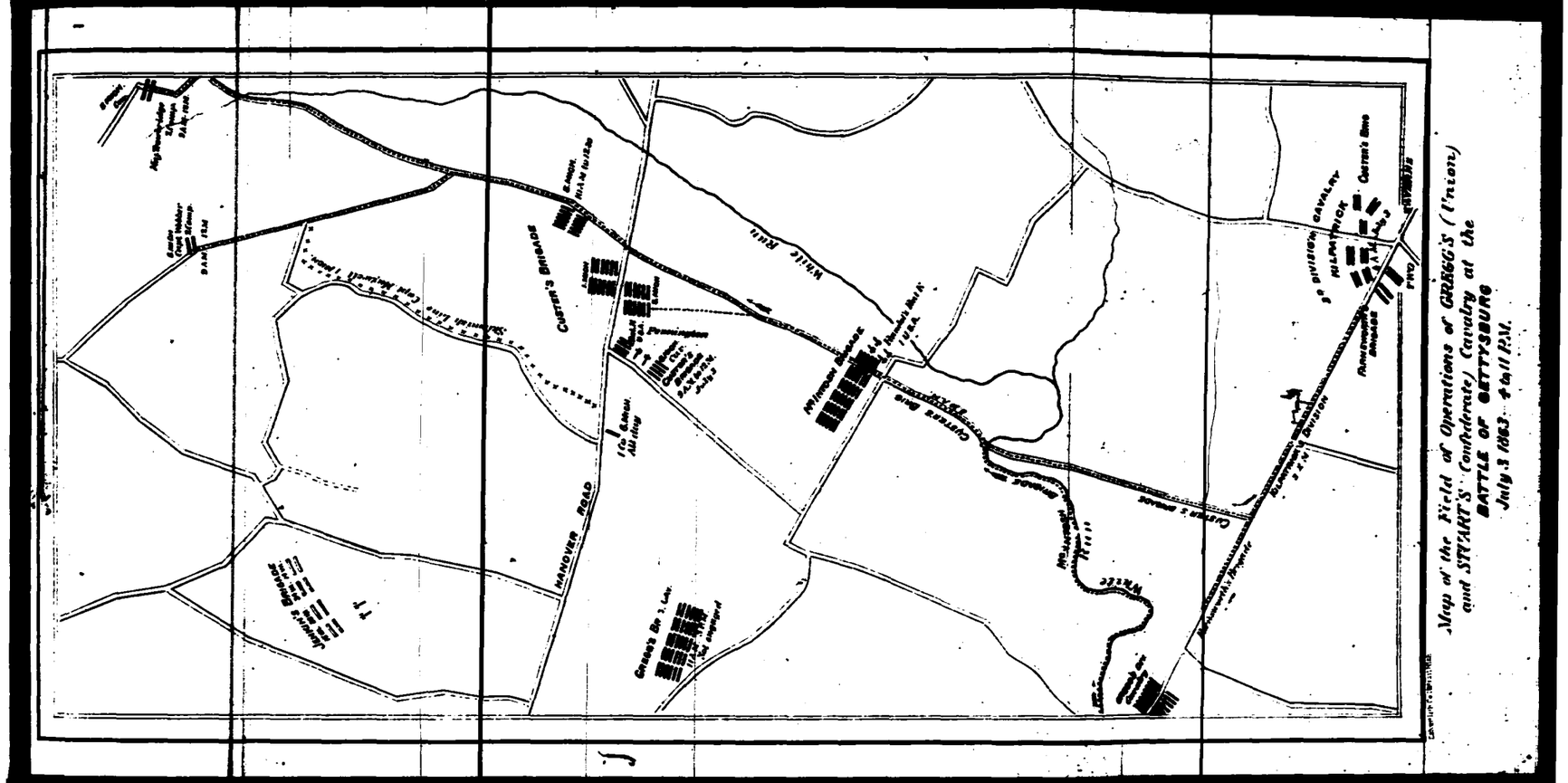
It was here that the Michigan Brigade first saw CUSTER, when he appeared mounted on his horse, riding close up to the line of skirmishers, who had been dismounted to fight on foot, giving orders in a tone that was resolute and, to us, reassuring.

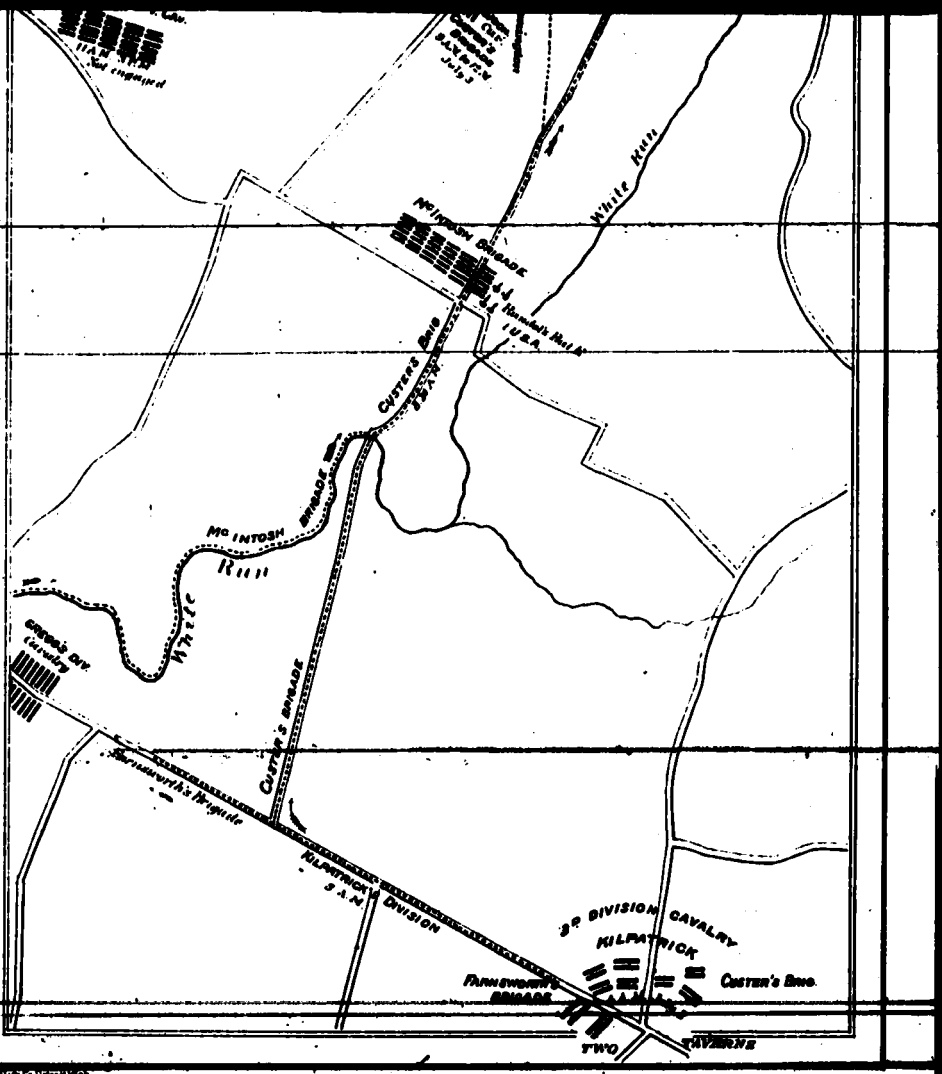
Under his skillful hands the four regiments were soon welded together as a coherent unit, acting so like one man that the history of one is apt to be the history of the other, and it is often difficult to draw the line where the credit that is due to one leaves off and that which should be given to another begins.

The result of the day at Hanover was that STUART was driven still farther away from a junction with LEE. He was obliged to turn to the east, making a wide detour by way of Jefferson and Dover; KILPATRICK meanwhile maintaining his threatening attitude on the inside of the circle which the redoubtable Confederate was traversing, forcing the latter to swing clear around to the north as far as Carlisle,

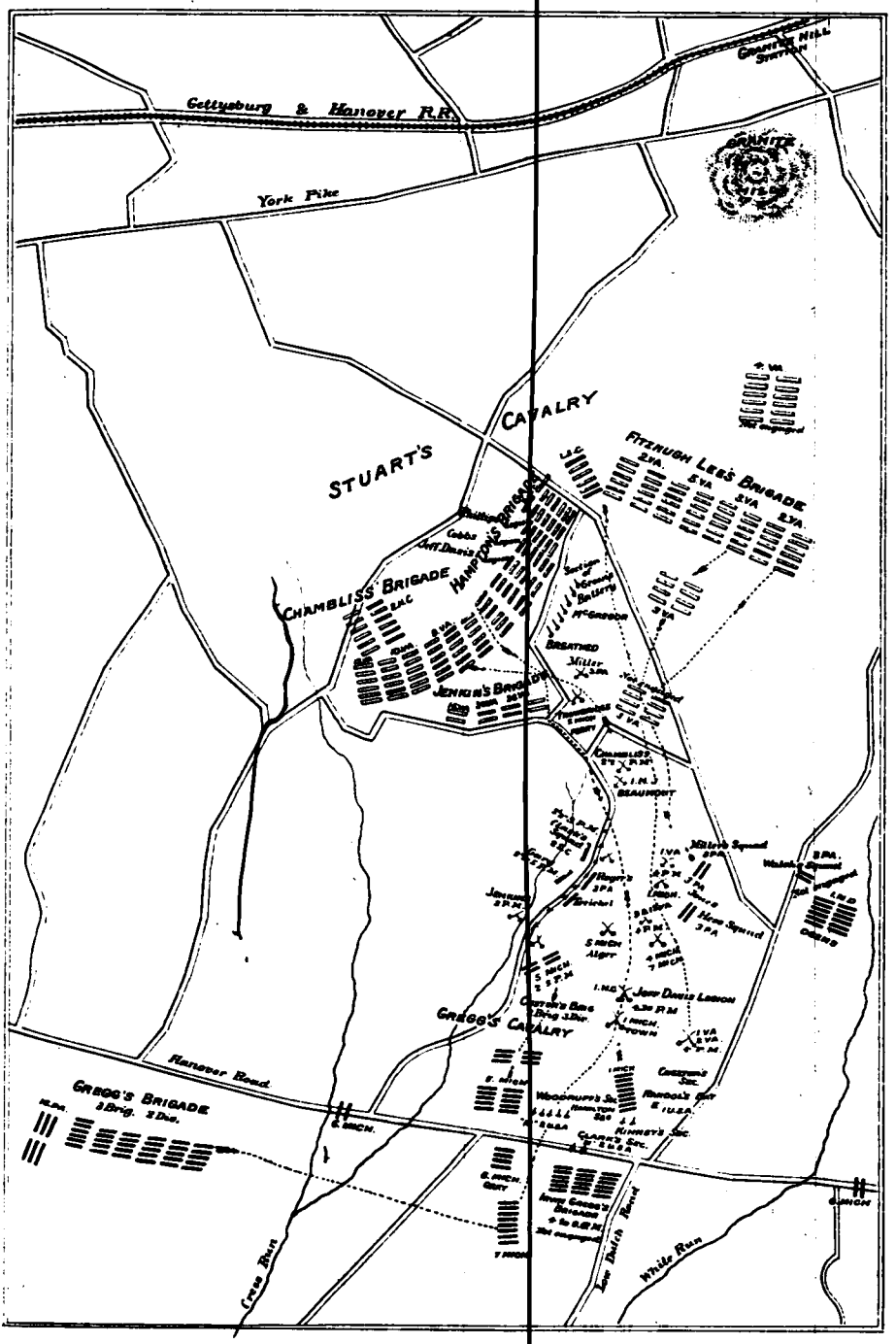
where he received his first reliable information as to the whereabouts of LEE. It was the evening of July 2d when he finally reached the main army. The battle had been then going on for two days, and the issue was still in doubt. During that day (2d) both STUART and KILPATRICK were hastening to rejoin their respective armies, it having been decided that the great battle would be fought out around Gettysburg. GREGG's division had been guarding the right flank of MEADE's army on the ground where we now stand, but at nightfall it was withdrawn to a position on the Baltimore turnpike near the reserve artillery.

KILPATRICK reached the inside of the Union lines in the vicinity of Gettysburg late in the afternoon, at about the same hour that HAMPTON, with STUART's leading brigade, arrived in Hunterstown, a few miles northeast of Gettysburg. It was about 5 o'clock in the afternoon when the Third Division, moving in column of fours, was halted temporarily, awaiting orders to go in, and listening to the artillery firing close in front, when a staff officer of some infantry commander rode rapidly along the flank of the column, crying out as he went, "LITTLE MAC is in command, and we are whipping them." It was a futile attempt to evoke enthusiasm and conjure victory with the magic of MCCLELLAN's name. There was scarcely a faint attempt to cheer. There was no longer any potency in a name. Soon thereafter, receiving orders to move out on the road to Abbottstown, KILPATRICK started in that direction, CUSTER's brigade leading, with the Sixth Michigan in advance. When nearing the village of Hunterstown, on a road flanked by fences, the advance encountered a heavy force of Confederate cavalry in position. A mounted line was formed across the road, while there were dismounted skirmishers behind the fences on either side. The leading squadron of the Sixth, led by Captain H. E. THOMPSON, boldly charged down the road, and at the same time two squadrons were dismounted and deployed on the ridge to the right, PENNINGTON's battery going into position in their rear. The mounted charge was a most gallant one, but THOMPSON, encountering an overwhelmingly superior force in front, and exposed to a galling fire on both flanks, as he charged past the Confederates behind the fences, was driven back, but not before he himself had been severely wounded, while his first lieutenant, S. H. BALLARD, had his horse shot under him and was left behind, a prisoner. As THOMPSON's squadron was retiring, the enemy attempted a charge in pursuit, but the dismounted men on the right of the road kept up such a fusilade with their Spencer carbines, aided by the rapid discharges from PENNINGTON's battery, that he was driven back in great confusion.





Map of the Field of Operations of GREGG'S (Union) and STUART'S (Confederate) Cavalry at the
BATTLE OF GETTYSBURG
July 3 1863 – 4 to 11 P.M.



Map of the Field of Operations of Gregg's (Union) and Stewarts (Confederate) Cavalry at the BATTLE OF GETTYSBURG July 3 1863 2 to 5 P.M.

General KILPATRICK, speaking of this engagement in his official report, says:

"I was attacked by STUART, HAMPTON and FITZHUGH LEE near Hunterstown. After a spirited affair of nearly two hours, the enemy was driven from this point with great loss. The Second Brigade fought most handsomely. It lost, in killed, wounded and missing, thirty-two. The conduct of the Sixth Michigan Cavalry and PENNINGTON's battery is deserving of the highest praise."

On the other hand, General HAMPTON states that he received information of KILPATRICK's advance upon Hunterstown, and was directed by STUART to return and meet it. "After some skirmishing, the enemy attempted a charge, which was met in front by the COBB Legion, and on either flank by the PHILLIPS Legion and the Second South Carolina Cavalry."

This position was held until 11 o'clock that night, when KILPATRICK received orders to move to Two Taverns, on the Baltimore pike, about five miles southeast of Gettysburg, and some three miles due south from this place. It was 3 o'clock in the morning (KILPATRICK says daylight) when CUSTER's brigade went into bivouac at Two Taverns.

One of the most singular, not to say amusing, things in Colonel BROOKE-RAWLE's oration, is the statement that CUSTER, "after his fight with the Confederate cavalry at Hunterstown, *spent the night of July 2d* in bivouac with the rest of the Third Division at Two Taverns." Having had the honor to command the three companies of the Sixth Michigan Cavalry that were dismounted to the right of the road at Hunterstown, I remember distinctly that they were kept on that line until near midnight, when the division moved away; and I also remember well the weary night march, which lasted until the first streaks of dawn had begun to appear in the east. It was then, and not till then, that CUSTER's men were permitted to stretch their limbs upon the ground and snatch a brief rest, preparatory to the work of the coming day. The manner in which the Sixth Michigan Cavalry "spent the night" is pretty indelibly photographed upon the memory of every survivor who served with it in the Gettysburg campaign; and never were the experiences of a single night less calculated to prepare soldiers for the tremendous duties of the succeeding day, than were those which the Michigan Brigade underwent on the night of July 2, 1863. From the time when the Fifth and Sixth regiments left Emmittsburg on the afternoon of June 29th, they had hardly been given a moment for rest, and had been in motion by night as well as by day. It may be surmised, therefore, that CUSTER's men

were not "fresh," if they were from "pastures green,"* when, early on the morning of July 3d, they came upon this now historic ground, ready and willing to do their part in the great conflict that was impending.

The Second Division, which held this position on July 2d, as has been seen, was withdrawn in the evening to the Baltimore pike, "to be available for whatever duty they might be called upon to perform on the morrow." On the morning of the 3d, GREGG was ordered to resume his position of the day before, but states in his report that the First and Third Brigades (McINTOSH and IRVIN GREGG) were posted on the right of the infantry about three-fourths of a mile nearer the Baltimore and Gettysburg pike, because he learned that the Second Brigade (CUSTER'S) of the Third Division was occupying his position of the day before.

General KILPATRICK in his report says:

"At 11 P.M. (July 2d) received orders to move (from Hunterstown) to Two Taverns, which point we reached at daylight. At 8 A.M. (July 3d) received orders from headquarters Cavalry Corps to move to the left of our line and attack the enemy's right and rear *with my whole command*, and the reserve brigade. By some mistake General CUSTER'S brigade was ordered to report to General GREGG, and he (CUSTER) did not join me during the day."

General CUSTER, in his report, gives the following, which is without doubt the true explanation of the "mistake." He says:

"At an early hour on the morning of the 3d, I received an order through a staff officer of the brigadier general commanding the division (KILPATRICK) to move at once with my command and follow the First Brigade (FARNSWORTH) on the road leading from Two Taverns to Gettysburg. Agreebly to the above instructions my column was formed and moved out on the road designated, when a staff officer of Brigadier General GREGG, commanding the Second Division, ordered me to take my command and place it in position on the pike leading from York† (Hanover) to Gettysburg, which position formed the extreme right of our line of battle on that day."

Thus it is made plain that there was no "mistake" about it. It was GREGG'S prescience. He foresaw the risk of attempting to guard the right flank with only the two decimated brigades of his own division. With him, to see was to act. He took the responsibility of intercepting KILPATRICK'S rear and largest brigade, turning it off the Baltimore pike to the right, instead of allowing it to go to the left as it had been ordered to do, and thus, doubtless, a serious disaster was averted. It makes us tremble to think of what might have been, of what inevitably must have happened had GREGG, with only the two little brigades of McINTOSH and IRVIN GREGG and RANDOL'S battery, tried to cope single-handed with the four brigades and three batteries, comprising the very flower of the Confederate cavalry and artillery, which those brave knights—STUART, HAMPTON and FITZHUGH LEE—were marshaling in person on Cress's ridge. If CUSTER'S presence on this field was opportune, and, as has often been said, providential, it is to General D. McM. GREGG to whom, under Providence, the credit for bringing him here is due. GREGG was a great and a modest soldier; let us pause a moment before we enter upon a description of the coming battle, to pay to him the tribute of our admiration. In the light of all the official reports, put together link by link, so as to make one connected chain of evidence, we can see that the engagement which took place here almost twenty-six years ago, was, from first to last, a well planned battle, in which the different commands were maneuvered and placed with the same sagacity displayed by a skillful chess player in moving the pieces upon a chess board; in which every detail was the fruit of the brain of one man, who, from the time when he turned CUSTER to the northward until he sent the First Michigan thundering against the brigades of HAMPTON and FITZHUGH LEE, made not a single false move; who was distinguished not less for his intuitive foresight than for his quick perceptions at critical moments.

That man was General DAVID McM. GREGG.

This conclusion has been reached by a mind not—certainly not—predisposed in that direction, after a careful recent study and review of all the information within reach bearing upon that eventful day. If the Michigan Brigade won honors here that will not perish, it was to GREGG that it owed the opportunity, and his guiding hand it was that made its blows effective. We shall see how, later in the day, he again boldly took responsibility at a critical moment and held CUSTER to his work on the right, even after the latter had been ordered by higher authority than he (GREGG), to rejoin KILPATRICK, and after CUSTER had begun the movement.

Now, having admitted, and, I think, demonstrated, how GREGG did the planning, let us briefly show how CUSTER and his brigade, for the greater part, at least, did the fighting.

Following the example of my predecessor in this field, I propose to halt and let CUSTER tell his own story up to a certain point, when the narrative will be resumed:

"Upon arriving at the point designated, I immediately placed my command in position, facing towards Gettysburg. At the same time

*Colonel BROOKE-RAWLE, referring to CUSTER'S brigade, employs this language.
†CUSTER in his report mistakes the York for the Hanover road.

I caused reconnaissances to be made on my front, right and rear, but failed to discover any considerable force of the enemy. Everything remained quiet until 10 A. M. when the enemy appeared on my right flank and opened upon me with a battery of six guns. Leaving two guns and a regiment to hold my first position and cover the road leading to Gettysburg, I shifted the remaining portion of my command, forming a new line of battle, at right angles to my former position. The enemy had obtained correct range of my new position, and was pouring solid shot and shell into my command with great accuracy. Placing two sections of Battery "M," Second Regular Artillery, in position, I ordered them to silence the enemy's battery, which order, notwithstanding the superiority of the enemy's position, was done in a very short space of time. My line, as it then existed, was shaped like the letter L. The shorter branch, formed of one section of Battery "M" (CLARK'S), supported by four squadrons of the Sixth Michigan Cavalry, faced towards Gettysburg, covering the pike; the long branch, composed of the two remaining sections of Battery "M," supported by a portion of the Sixth Michigan Cavalry on the left, and the First Michigan Cavalry on the right—with the Seventh Michigan Cavalry still further to the right and in advance—was held in readiness to repel any attack on the Oxford (Low Dutch) road. The Fifth Michigan was dismounted and ordered to take position in front of center and left. The First Michigan was held in column of squadrons to observe the movements of the enemy. I ordered fifty men to be sent one mile and a half on the Oxford* (Low Dutch) road, and a detachment of equal size on the York (Hanover) road, both detachments being under command of the gallant Major WEBER, who, from time to time, kept me so well informed of the movements of the enemy, that I was enabled to make my dispositions with complete success."

General CUSTER says further, that, at twelve o'clock, he received an order directing him, on being relieved by a brigade of the Second Division, to move to the left and form a junction with KILPATRICK; that on the arrival of Colonel MCINTOSH'S brigade he prepared to execute the order; but, to quote his own language: "Before I had left my position, Brigadier General GREGG, commanding the Second Division, arrived with his entire command. Learning the true condition of affairs and rightly conjecturing that the enemy was making his dispositions for vigorously attacking our position, Brigadier General GREGG ordered me to remain in the position I then occupied."

I have given so much space to these quotations because they cover a controverted point. It has been claimed, and General GREGG seems to countenance that view, that CUSTER was withdrawn, and that MCINTOSH, who was put in his place, opened the fight, after which GREGG brought CUSTER back to reinforce MCINTOSH. So far

*General CUSTER in his report erroneously speaks of the Hanover as the "York" road, and the Low Dutch as the "Oxford."

from this being true, it is just the reverse of the truth. CUSTER did not leave his position. The battle opened before the proposed change had taken place, and MCINTOSH was hurried in on the right of CUSTER. The fact is, the latter was reluctant to leave his post—knew he ought not to leave it. He had already been attacked by a fire from the artillery in position beyond the RUMMEL buildings. Major WEBER, who was out on the cross road leading northwest from the Low Dutch road, had observed the movement of STUART'S column, headed by CHAMBLISS and JENKINS, past the STALLSMITH farm to the wooded crest behind RUMMEL'S, and had reported it to CUSTER. CUSTER did indeed begin the movement. A portion of the Sixth Michigan, and possibly of the Seventh, had been withdrawn, when he met GREGG coming on the field and explained to him the situation—that the enemy was "all around," and preparing to "push things." GREGG told him to remain where he was, and that portion of the brigade which was moving away halted, countermarched, and reoccupied its former position. The Fifth Michigan had not been withdrawn from the skirmish line, and PENNINGTON'S guns had never ceased to thunder their responses to the Confederate challenge.

Colonel BROOKE-RAWLE unwittingly endorses this view of the case; for, after having said in one part of his oration that "as soon as CUSTER, with his brigade, had moved off for the purpose of joining KILPATRICK near Round Top," he, later, goes on to say that "the Confederate battery now opened fire, and PENNINGTON, who was *still in position* near the SPANGLER house, replied with promptness." It is absurd to suppose that CUSTER, "with his brigade," could be on the way to join KILPATRICK, while PENNINGTON was "still in position," replying to the Confederate artillery. Battery "M" was as much a part of the Second Brigade, Third Division, as was the Sixth Michigan Cavalry, and CUSTER could not have been marching away, leaving PENNINGTON "still in position." No one claims that he was ordered to go with his cavalry only. General GREGG does not so state. There is then no room for any other conclusion than that CUSTER was to go, with his entire command, including the artillery. PENNINGTON did not go—Colonel RAWLE says he did not. No more did Colonel ALGER or Colonel TOWN. The Sixth and Seventh moved a few rods away, but immediately returned before their position had been occupied by other troops. MCINTOSH was not in position on the right when the battle opened; for, according to the same authority still, after PENNINGTON'S reply to the Confederate battery, MCINTOSH had to send back for RANDOL'S guns, which were not yet up. By Colonel RAWLE'S account, PENNINGTON was playing a queer part

—holding his position at the SPANGLER house without orders and without support, while his own brigade was marching away to Round Top. CUSTER, too, must be assumed to have overlooked the fact that he had a battery in his command, and to have gone off, leaving PENNINGTON to decide for himself whether to remain and fight it out, or to limber to the rear in his own good time, and catch up with the cavalry by galloping across country, when the necessity for so doing should have been determined by his own sweet will.*

CUSTER says that the enemy opened upon him with a battery of six guns at 10 A. M. STUART, on the contrary, claims to have left Gettysburg about noon. It is difficult to reconcile these two statements. A good deal of latitude may be given to the word "about," but it is probable that the one puts the hour too early, while the other does not give it early enough; for it is impossible that CUSTER could have been attacked until after the arrival of some portion of STUART'S command in the neighborhood of the battle-field.

As stated before, the official reports are often meagre, if not misleading, and must be reinforced by the memoranda and recollections of participants before the exact truth will be known.

Major CHARLES E. STORER, who commanded a squadron of the Sixth Michigan, was sent out to the left and front of CUSTER'S position soon after the brigade arrived upon the ground. He remained there several hours and was recalled about noon—he is positive it was later than 12 M.—to take position with the companies on the left of the battery. He states that the first shot was not fired till sometime after his recall, and he is sure it was not earlier than 2 o'clock.†

When STUART left Gettysburg, as he says, about noon, he took with him CHAMBLISS' and JENKINS' brigades of cavalry and GRIFFIN'S battery. HAMPTON and FITZHUGH LEE were to follow; also, BREATHED'S and MCGREGOR'S batteries, as soon as the latter had replenished their ammunition chests. STUART moved two and a half miles out on the York turnpike, when he turned to the right by a country road that runs southeasterly past the STALLSMITH farm. (This road intersects the Low Dutch road, about three-fourths of a mile from where the latter crosses the Hanover pike.) Turning off from this road to the right, STUART posted the brigades of JENKINS and CHAMBLISS, and

*Since the delivery of this address I have received a letter from General D. MCM. GREGG in which, after mentioning that he has read it, he says: "There is no conflict between your recollection and mine as to the events of that day."—J. H. K.

†Since writing the above a possible solution of this difficulty has come to my mind. It is this: That General CUSTER originally wrote "1 o'clock" and that in copying his report the "1" and the "o" were mistaken for "10" and o'clock added.

GRIFFIN'S battery, on the commanding Cress' ridge, beyond RUMMEL'S, and more than a mile from the position occupied by CUSTER. This movement was noticed by Major WEBER, who, with his detachment of the Sixth Michigan Cavalry, was stationed in the woods northeast of RUMMEL'S, where he could look out upon the open country beyond, and he promptly reported the fact to CUSTER.

The first shot that was fired came from near the edge of the woods beyond RUMMEL'S. According to Major MCCLELLAN, who was Assistant Adjutant General on STUART'S staff, this was from a section of GRIFFIN'S battery, and was aimed at random by STUART himself, he not knowing whether there was anything in his front or not. Several shots were fired in this way.

Major MCCLELLAN is doubtless right in this, that these shots were fired as feelers; but it is to me inconceivable that STUART should have been totally unaware of the presence of any Federal force in his immediate front; that he should not have known that there was stationed on the opposite ridge a brigade of cavalry and a battery. GREGG had been there the day before, and STUART must at least have suspected, if he did not know, that he would find him there again. It is probable that he fired the shots in the hope of drawing out and developing the force that he knew was there, to ascertain how formidable it might be and how great the obstacle in the way of his further progress towards the rear of the union lines.

The information he sought was promptly furnished.

It was then that CUSTER put PENNINGTON'S battery in position; and the three sections of rifled cannon opened with a fire so rapid and accurate that GRIFFIN was speedily silenced and compelled to leave the field.

Then there was a lull. I cannot say how long it lasted, but during its continuance General GREGG arrived and took command in person. About this time, also, it is safe to say, that HAMPTON and FITZHUGH LEE came up and took position on the left of CHAMBLISS and JENKINS. The Confederate line then extended clear across the Federal front, and was screened by the two patches of woods between RUMMEL'S and the STALLSMITH farm.

A battalion of the Sixth Michigan Cavalry, of which mine was the leading squadron, was placed in support and on the left of PENNINGTON'S battery. This formed, at first, the short line of the L referred to in CUSTER'S report; but it was subsequently moved farther to the right and faced in the same general direction as the rest of the line, where it remained until the battle ended. Its duty there was to repel any attempt that might be made to capture the battery.

The ground upon which these squadrons were stationed overlooked the plain, and the slightest demonstration in open ground from either side was immediately discernible. From this vantage ground it was possible to see every phase of the magnificent contest that followed. It was like a spectacle, arranged for us to see. We were in the position of spectators at joust or tournament, where the knights, advancing from their respective sides, charge full tilt upon each other in the middle of the field.

The lull of which I have spoken was like the calm that precedes the storm. The troopers were dismounted, standing "in place rest" in front of their horses, when suddenly there burst upon the air the sound of that terrific cannonading that preceded PICKETT's charge. The earth quaked. The tremendous volume of sound volleyed and rolled across the intervening hills like reverberating thunder in a storm.

It was then between 1 and 2 P. M. (Major STORRS says after 2). It was not long thereafter when General CUSTER directed Colonel ALGER to advance and engage the enemy. The Fifth Michigan, its flanks protected by a portion of the Sixth Michigan on the left, by McINTOSH's brigade on the right, moved briskly forward under its gallant and zealous commander towards the wooded screen, behind which the enemy was known to be concealed. In this movement the right of regiment was swung well forward, the left somewhat "refused," so that Colonel ALGER's line was very nearly at right angles with the left of STUART's position. As the Fifth Michigan advanced from field to field and fence to fence, a line of gray came out from behind the RUMMEL buildings and the woods beyond.

A stubborn and spirited contest ensued. The opposing batteries filled the air with shot and shricking shell. Amazing marksmanship was shown by PENNINGTON's battery, and such accurate artillery firing was never seen on any other field. ALGER's men, with their eight-shotted carbines, forced their adversaries slowly but surely back, the gray line fighting well, and superior in numbers, but unable to withstand the storm of bullets. It made a final stand behind the strong line of fences in front of RUMMEL's and a few hundred yards out from the foot of the slope whereon STUART's reserves were posted.

While the fight was raging on the plain, WEBER, with his outpost, was driven in. His two companies were added to the four already stationed on the left of PENNINGTON's battery. WEBER, who had been promoted to Major but a few days before, was ordered by Colonel GRAY to assume command of the battalion. As he took his place in front of the leading squadron he said: "I have seen thousands of

rebels over yonder," pointing to the front; "The country over there is full of them." He had observed all of STUART's movements, and it was he who gave CUSTER the first important information as to what the enemy was doing; which information was transmitted to GREGG, and possibly had a determining influence in keeping CUSTER on the field.

WEBER was a born soldier. Although but twenty-two years of age, he had seen much service. A private in the Third Michigan infantry in 1861, he was next battalion adjutant of the Second Michigan Cavalry, served on the staff of General ELLIOTT in the southwest, and came home with ALGER to take a troop in the Sixth Cavalry in 1862. The valuable service performed by him at Gettysburg was fitly recognized by CUSTER in his official report. He was killed ten days later at Falling Waters, while leading his squadron of the Sixth Michigan in a charge which was described by KILPATRICK as the "most gallant ever made." Anticipating a spirited fight, he was eager to have a part in it. "BOB," he said to me a few days before, while marching through Maryland, "I want a chance to make one saber charge." He thought the time had come. His eye flashed and his face flushed as he watched the progress of the fight, fretting and chafing to be held in reserve while the bugle was summoning others to the charge.

But the Fifth Michigan, holding the most advanced position, suffered greatly, HAMPTON having reinforced the Confederate line, Major N. H. FERRY being among the killed. Repeating rifles are not only effective but wasteful weapons as well, and at last, Colonel ALGER, finding that his ammunition had given out, felt compelled to retire his regiment and seek his horses. Seeing this, the enemy's line sprang forward with a yell. The union line was seen to yield. The puffs of smoke from the muzzles of their guns had almost ceased. It was plain that they were out of ammunition and, for that reason, unable to maintain the contest longer. On from field to field, the line of gray followed in exultant pursuit. BREATHED and McGREGOR opened with redoubled violence. Shells dropped and exploded among the skirmishers, while thicker and faster they fell around the position of the reserves on the ridge. PENNINGTON replied with astonishing effect, for every shot hit the mark, and the opposing artillerists were unable to silence a single Union gun. But still they came, until it seemed that nothing could stop their victorious career. "Men, be ready," said WEBER; "we will have to charge that line." But the course of the pursuit took it towards the right, in the direction of RANDOL's battery, where CHESTER was serving out canister with the

same liberal hand displayed by PENNINGTON's lieutenants, CLARK, WOODRUFF and HAMILTON.

Just then a column of mounted men was seen advancing from our right and rear, squadron succeeding squadron, until an entire regiment came into view, with sabers gleaming and colors gaily fluttering in the breeze. It was the Seventh Michigan, commanded by Colonel MANN. GREGG, seeing the necessity for prompt action, had ordered it to charge. As it moved forward and cleared the battery, CUSTER drew his saber, placing himself in front, and shouted, "Come on, you Wolverines!" The Seventh dashed into an open field and rode straight at the dismounted line, which, staggered by the appearance of this new foe, broke to the rear and ran for its reserves. CUSTER led the charge half way across the plain, then turned to the left; but the gallant regiment swept on under its own leaders, riding down and capturing many prisoners.

There was no check to the charge. The squadrons kept on in good form. Every man yelled at the top of his voice until the regiment had gone, probably, 1,000 yards straight toward the Confederate batteries, when, by some error of the guide of the leading squadron, the head of column was deflected to the left, making a quarter turn, and the regiment was hurled headlong against a post and rail fence that ran obliquely in front of the RUMMEL barn. This proved for the moment an impassable barrier. The squadrons coming up successively at a charge, rushed pell mell upon each other and were thrown into a state of indescribable confusion; though the rear companies, without order or orders, formed left and right front into line along the fence and pluckily began firing across it into the faces of the Confederates, who, when they saw the impetuous onset of the Seventh thus abruptly checked, rallied and began to collect in swarms upon the opposite side. Some of the officers leaped from their saddles and called upon the men to assist in making an opening. Among these were Colonel GEORGE G. BRIGGS, then adjutant, and Captain H. N. MOORE. The task was a difficult and hazardous one, the posts and rails being so firmly united that it could be accomplished only by lifting the posts, which were deeply set, and removing several lengths at once. This was finally done, however, though the regiment was exposed, not only to a fire from the force in front, but to a flanking fire from a strong skirmish line along a fence to the right and running nearly at right-angles with the one through which it was trying to pass.

While this was going on, BRIGG's horse was shot and he found himself on foot, with three Confederate prisoners on his hands. With

these he started to the rear, having no remount. Before he could reach a place of safety the rush of charging squadrons from either side had intercepted his retreat. In the mêlée that followed, two of his men ran away; the other undertook the duty of escorting his captor back to the Confederate lines. The experiment cost him his life, but the plucky adjutant, although he did not run away, lived to fight again on many another day.

In the meantime, through the passageway thus effected, the regiment moved forward, the center squadron leading, and resumed the charge. The Confederates once more fell back before it. The charge was continued across a plowed field to the front and right, up to and past RUMMEL's, to a point within 200 or 300 yards of the Confederate battery. There another fence was encountered, the last one in the way of reaching the battery, the guns of which were pouring canister into the charging column as fast as they could fire. Two men, Privates POWERS and INGLEDE, of Captain MOORE's company, leaped this fence and passed several rods beyond. POWERS came back without a scratch, but INGELEDE was severely wounded. These two men were certainly within 200 yards of the enemy's cannon.

But seeing that the enemy to the right had thrown down the fences, and were forming a column for a charge, the companies of the Seventh fell back through the opening in the fence. Captain MOORE, in whose company sixteen horses had been killed, retired slowly, endeavoring to cover the retreat of his dismounted men, but, taking the wrong direction, came to the fence one hundred yards above the opening, just as the enemy's charging column struck him. Glancing over his shoulder, he caught the gleam of a saber thrust from the arm of a sturdy Confederate. He ducked to avoid the blow, but received the point on the back of his head. At the same time a pistol ball crashed through his charger's brain and the horse went down, MOORE's leg under him. An instant later MOORE avenged his steed with the last shot in his revolver, and the Confederate fell dead at his side. Some dismounted men of the Thirteenth Virginia Cavalry took MOORE prisoner and escorted him back to the rear of their battery, from which position, during the excitement that followed, he made his escape.

But now ALGER, who, when his ammunition gave out, hastened to his horses, had succeeded in mounting one battalion, commanded by Major L. S. TROWBRIDGE; and when the Ninth and Thirteenth Virginia struck the flank of the Seventh Michigan, he ordered that officer to charge and meet this new danger. TROWBRIDGE and his men dashed forward with a cheer, and the enemy in their turn were

put to flight. Past the Rummel buildings, through the fields, almost to the fence where MOORE had halted, TROWBRIDGE kept on; but he, too, was obliged to retire before the destructive fire of the Confederate cannon, which did not cease to belch forth destruction upon every detachment of the Union cavalry that approached near enough to threaten them. The Major's horse was killed, but his orderly was close at hand with another and he escaped. When his battalion was retiring, it also was assailed in flank by a mounted charge of the First Virginia Cavalry, which was met and driven back by the other battalion of the Fifth Michigan, led by Colonel ALGER.

Then, as it seemed, the two belligerent forces paused to get their second breath. Up to that time the battle had raged with varying fortune. Victory, that appeared about to perch first on one banner and then on the other, held aloof, as if disdaining to favor either. The odds, indeed, had been rather with the Confederates than against them, for STUART managed to outnumber his adversary at every critical point, though GREGG forced the fighting, putting STUART on his defense and checkmating his plan to fight an offensive battle. But the wily Confederate had kept his two choicest brigades in reserve for the supreme moment, intending then to throw them into the contest and sweep the field with one grand, resistless charge.

All felt that the time for this effort had come, when a body of mounted men began to emerge from the woods and form column to the left as they debouched in the open field. Squadron after squadron, regiment after regiment, orderly as if on parade, came into view, and successively took their places.

Then PENNINGTON opened with all his guns. Six rifled pieces, as fast as they could fire, rained shot and shell into that fated column. The effect was deadly. Great gaps were torn in that mass of mounted men, but the rents were quickly closed. Men and horses were shot away, but others took their places. Then they were ready. Confederate chroniclers tell us there were two brigades—eight regiments, under their own favorite leaders. In the van floated a stand of colors. It was the battle-flag of WADE HAMPTON, who, with FITZHUGH LEE, was leading the assaulting column. In superb form, with sabers glistening, they advanced. The men on foot gave way to let them pass. It was an inspiring and imposing spectacle, that brought a murmur of admiration from the spectators on the opposite ridge. PENNINGTON double-shotted his guns with canister, and the head of the column staggered under each murderous discharge. But still it advanced, led on by an imperturable spirit that no storm of war could cow.

Meantime ALGER, with his Fifth, had drawn aside a little to the left, making ready to spring. MCINTOSH'S squadrons were in the edge of the opposite woods. The Seventh was sullenly retiring, with faces to the foe. On and on, nearer and nearer, came the assaulting column, charging straight for RANDOL'S battery. The storm of canister caused them to waver a little, but that was all. A few moments would bring them among the guns of CHESTER, who, like PENNINGTON'S lieutenants, was still firing with frightful regularity as fast as he could load. Then GREGG rode over to the First Michigan and directed TOWN to charge. CUSTER dashed up with similar instructions, and, as TOWN ordered sabers to be drawn, placed himself by his side, in front of the leading squadron.

With ranks well closed, with guidons flying and bugles sounding, the grand old regiment of veterans, led by TOWN and CUSTER, moved forward to meet that host, outnumbering it three to one; first at a trot, then the command to charge rang out, and, with gleaming saber and flashing pistol, TOWN and his heroes were hurled right into the teeth of HAMPTON and FITZHUGH LEE. ALGER, who with the Fifth had been waiting for the right moment, charged in on the right flank of the column as it passed, as some of MCINTOSH'S squadrons did on its left. One company of the Seventh, under Lieutenant DAN LITTLEFIELD, also joined in the charge.

Then it was steel to steel and Greek met Greek. For minutes—and for minutes that seemed like years—the gray column stood and staggered before the blow; then yielded and fled. ALGER and MCINTOSH had pierced its flanks, but TOWN'S impetuous charge in front went through it like a wedge, splitting it in twain and scattering the Confederate horsemen in disorderly rout back to the woods whence they came.

During this last melee the brazen lips of the cannon were dumb. It was a fierce hand to hand encounter between the Michigan men and the flower of the Southern cavaliers, led by their favorite commanders, in which the latter were worsted.

STUART retreated to his stronghold, leaving the Union forces in possession of the field.

The rally sounded, the lines were reformed, the wounded cared for, and everything made ready for a renewal of the conflict. But the charge of the First Michigan ended the cavalry fighting on the right at Gettysburg. Military critics have pronounced it the finest charge made during the war.

It was a famous fight and a bloody one. CUSTER'S brigade lost one officer and twenty-eight men killed, eleven officers and 112 men

wounded, sixty-seven men missing; total loss, 219. GREGG's division lost one man killed, seven officers and nineteen men wounded, eight men missing; total, thirty-five. In other words, while GREGG's division, two brigades, lost thirty-five, CUSTER's single brigade suffered a loss of 219. These figures apply only to the fight on July 3d.*

I find from the official records that the brigade during the three days, July 1st, 2d and 3d, lost one officer and thirteen men killed, thirteen officers and 134 men wounded, seventy-eight men missing; total, 257. It is difficult, however, to get the full figures, for regimental commanders did not make their reports on the same basis. The above compilation gives the Sixth Michigan only one man missing—a manifest absurdity, unless "missing" is construed to mean those, only, who could be accounted for in no other way. This rule, evidently, all did not follow. Had the Sixth Michigan been given its proper credit for "missing in action," the total loss would be still greater than it appears from the figures given.

The operations of the Michigan Cavalry Brigade in the Gettysburg campaign, properly began at Gettysburg June 28th, and ended at Falling Waters July 14th, or perhaps a little later, when the pursuit of LEE beyond the river ceased. Any sketch that does not cover that entire period, will fall short of doing justice to CUSTER and his command. But, to pursue the subject further at this time, would be to violate the proprieties and abuse the patience of my hearers, if, indeed, I have not done so already. I would like to go on and speak of the pursuit on July 4th; of the midnight battle in the mountains at Monterey; of the fight at Boonesborough, and the bloody affairs at Hagerstown, Williamsport and Falling Waters; to tell the story of the death of WEBER and JEWETT, of ROYCE, BOLZA, ELLIOTT, McELHENNY and SNYDER, and all the noble men who fell with them during those last few eventful days. But this must be done, if at all, on some future occasion. Suffice it to say that during the period named the brigade lost thirty officers killed and wounded, whose names are here given.

KILLED.

First Michigan—Captain W. R. ELLIOTT, Captain C. J. SNYDER, Lieutenant J. S. McELHENNY—3.

Fifth Michigan—Major N. H. FERRY—1.

Sixth Michigan—Major P. A. WEBER, Captain D. G. ROYCE, Lieutenant C. E. BOLZA, Adjutant A. C. JEWETT—4.

*Colonel BROOKE-RAWLE gives an exaggerated estimate of the losses for which there is no verification in the official records. The above figures are taken from the volume of the Rebellion Records, published since this paper was written, an advanced copy of which was kindly furnished me by Colonel H. M. LAZELLE and Major GEO. B. DAVIS, of the War Records Office.—J. H. K.

WOUNDED.

First Michigan—Captain D. W. CLEMMER, Lieutenant E. F. BICKER, Captain A. W. DUGGAN, Captain H. E. HASCALL, Captain W. M. HEAZLETT, Captain G. R. MAXWELL, Lieutenant R. N. VANATTER—7.

Fifth Michigan—Colonel R. A. ALGER, Lieutenant Colonel E. GOULD, Lieutenant T. J. DEAN, Lieutenant G. N. DUTCHER—4.

Sixth Michigan—Lieutenant G. W. CRAWFORD, Captain H. E. THOMPSON, Captain J. H. KIDD, Lieutenant E. POTTER, Lieutenant S. SHIPMAN—5.

Seventh Michigan—Lieutenant J. G. BURNEY, Lieutenant J. L. CARPENTER, Lieutenant E. GRAY, Lieutenant C. GRIFFITH, Captain ALEX. WALKER—5.

It has not been possible for me to obtain a list of the men killed and wounded for that particular period. The record, however, shows that the four regiments during their entire time of service, lost twenty-three officers and 328 men killed; eight officers and 111 men died of wounds; nine officers and 991 men died of disease; a grand total of 1,470 men, who gave up their lives during those four awful years. This does not include those who have died since the war from the effects of wounds and sickness, imprisonment and privations incurred while in the line of duty.

Colonel Fox's history of the casualties in the war shows that there were 260 cavalry regiments in the Union service during the War of the Rebellion. Of all these, the First Michigan lost the largest number of men killed in action, with one exception—the First Maine. In percentage of killed, in proportion to the number of men engaged, the Fifth and Sixth Michigan rank all the rest, not excepting the two first named; and it must be remembered that the Fifth and Sixth went out in 1862, and did their first fighting in the campaign which we have now been considering. They also stood third and fourth respectively, in the number of killed, being ranked in that respect by the First Maine and First Michigan alone.

Comrades: This is a record to be proud of. No man will ever blush to own that he was one of CUSTER's Michigan troopers. Their record is written in history, where it will have a permanent as well as an honorable place. As we stand here to-day, within the shadow of the beautiful monument erected to commemorate the courage and patriotism of the men whose fortitude helped to save the Union right, let us renew our fealty to the cause for which they fought, and resolve that in the years that are left to us we will be loyal to ourselves, true to the manhood that was here put to the proof—true as were those noble dead who gave their lives for the Union.

MOUNTAIN CANNON.

CONSIDERATIONS AFFECTING CONSTRUCTION.

THE name "mountain cannon" does not indicate with sufficient accuracy the purpose for which these useful weapons are designed. They might with equal propriety be called "frontier cannon" or better still "cavalry cannon." Their chief place is with the advance guard—with the cavalry—at the head of the column; therefore cavalrymen ought not to be ignorant of the principles governing their construction and use. It is impossible to provide for all the exigencies of service by rules, or by tabulated calculations previously deduced. The study of principles, which are alike applicable to all guns and all cases, will prove the best guide for the intelligent officer at the moment of action.

Theory alone is unfruitful; practice without theory is blind; but both unite to produce the desired ends by the simplest and most direct means.

In mountain fighting, which includes Indian warfare, the cannon is but the means, whereby a certain amount of destructive energy is hurled into the immediate vicinity of an enemy who is detained only by the nature of the ground, who constructs no earthworks and makes no stand for longer than a few minutes during the action. The useful energy is not that of impact, as in larger cannon, but that which is contained in the explosive shell. Were the destructive effects of impact alone intended, we have all that can be desired in the efficient small arms and machine guns of the service, and the transportation of cannon would be useless and inconvenient. Hence it is the energy of the projectile itself that we must use, and its effective distribution which we must seek by all means to secure. This distribution can be improved by—

1. Increasing the mass of the projectile.
2. Increasing the strength of the bursting charge.
3. So shaping and proportioning the interior of the shell that the energy of the bursting charge, will send it into as great a number of dangerous fragments as its size will permit.

Owing to the mobility of the enemy, the useful effect of these guns not infrequently depends upon the result of a single shot. The method of correcting the range by trial shots cannot be followed. To increase the chances of hitting, therefore, and to reduce to a minimum errors in calculating the range, the trajectory must be as flat as possible, and to accomplish this, the initial velocity must be high.

To preserve the flatness throughout long ranges the form of the projectile must be considered. Its length must be great in proportion to its diameter, (three and one-half to four calibres); the cavity containing the bursting charge must be as small in cross-section as the size of the charge will admit; and the charge must be disposed symmetrically with respect to the axis of the projectile.

The attainment of sufficiently high velocity (not below 1,700 feet per second) affects the form and weight of the gun and the kind of powder used. The weight of the gun is limited by the consideration of portability. Within this limit it should be as great as possible. The carrying capacity of pack animals does not ordinarily exceed 300 pounds; taking from this the weight of the pack-saddle and fastenings, which will be near seventy-five pounds, we have a maximum limit of weight for the gun of 225 pounds. The carriage will weigh more than this, but as it can be taken apart in at least three separate pieces for transportation, the limit of weight is fixed by that of the gun alone. The entire weight should be as great as possible, to secure strength and resist recoil. As the gun is habitually fired in the open and upon level ground, the recoil need not be especially considered. With a total weight of 500 pounds for the gun and carriage, three and five-tenths pounds for the projectile, and an initial velocity of 1,700 f. s., the initial velocity of recoil will not exceed 148 feet per second.

The figure of the piece, is limited, in regard to length which must not be so great as to interfere with facility of transportation. A certain counter-preponderance is also necessary to give steadiness to the piece in aiming while using the elevating screw. Within the limit the length should be great as possible to permit the burning of the necessary charge of large grained powder, since in producing a given initial velocity, a short piece must be subjected to a greater strain than a long one. The limits of weight and length being fixed, conditions of powder, pressure and resultant strain will determine the figure of the piece, it being necessary to so proportion the different sections that each will take up and resist, with safety, its proportional part of the strain exerted in producing the maximum initial velocity.

The tougher and stronger the material, the more capable of re-

sisting the strains produced, the greater can be the charge used in a gun of given figure, and the higher the initial velocity attained. Whitworth steel, compressed in a fluid state, is the strongest metal suitable for the purpose yet introduced.

CONDITIONS OF ACCURACY.

Since the number of shots that can be fired is frequently limited to a few, it is necessary that each should be delivered at a proper point. Therefore a high degree of accuracy is necessary, and to secure this several favorable conditions must combine.

The trajectory must be flat to increase the dangerous space, and thus overcome errors in the estimation of distance.

Rapid rotation must be communicated to the projectile. To accomplish this the twist of the rifling must be rapid and yet of such form as to reduce to a minimum the tangential strain upon the band which surrounds the projectile. This must be of copper or mild steel to resist this strain and prevent stripping. The axis of the projectile will thus be held tangent to the trajectory and the air resistance diminished.

The sights must be rigid and carefully constructed. The correction for drift should be included in the calculation of the rear sight, which should combine open and peep sights, so that either could be used to suit the eye of the gunner, yet the graduations of each should be distinct and separate to avoid mistaking one for the other. The base of the sight should possess some accurate means of leveling whereby the bar may be placed and rigidly held in a vertical position, notwithstanding inequalities of the ground. The sight should be easily detachable, and kept when not in use in the leather pouch by the gunner. Upon the socket into which it fits upon the gun, should be constructed a permanent open rear sight for firing point blank on quickly going into action, or for use when the detachable rear sight is lost or not at hand. This sight and the front sight, being permanently attached to the gun, must be strong and heavy to resist deformation by accidents. The correction for wind can be applied by a tangent screw in the base of the sight. Greater accuracy would be secured by placing the front sight near the muzzle of the piece, but in this position it is difficult of construction and in great danger of injury, therefore the right rim base is considered the position which effects the most satisfactory compromise.

Owing to the lightness of the gun, the arm is likely to become deranged at the moment of discharge, by the pull exerted on the friction primer. The direction of the pull should therefore be horizontal and at right angles to the axis of the bore, the position of the piece being stable, with respect to that line.

BREECH MECHANISM.

The prismatic bolt, operated by a lever at the side as in the Hotchkiss system, has been found to possess the requisites of simplicity, strength, certainty and ease of operation in such a degree as to be particularly adapted for light cannon. To secure rapidity in coming into action the gun should be drawn by a horse or mule in the column in which it is to act. A single animal and pair of shafts is sufficient, being more easily and rapidly managed than two animals with the pole. The shaft is attached to the end of the trail, and the horse led in the column at the side of a mounted man, consuming no more space laterally than were he led without the gun. The ammunition is carried on pack animals at the rear of the column. Thus the gun is ready for action at a moment's notice, a consideration not unfrequently of the highest importance.

To resist the shock of passing over obstructions in the road, the trail must be proportioned to resist heavy transverse strain. This will be at its maximum at the point of attachment of the shafts. At this point the inertia of the trail and shafts comes into play with a violence, proportional to the vertical distance from the obstruction, and to the velocity of travel.

A principle of high importance is *interchangeability of parts*. A sight, washer or screw which will fit one gun should fit any to which it is applied. Thus broken or damaged parts can be quickly replaced and guns too far damaged to be kept useful themselves, can supply parts to repair those still in service. Each part should be constructed to perform but a single function, and all should be united to effect in the simplest manner the object of the gun—the transformation of the latent energy of the powder into the energy of motion of the projectile.

Concerning the projectile it must be constructed to produce destructive effect at as great distance from the point of explosion as possible. A hollow case made of steel, or strong cast iron of cylinder-ogival pattern enclosing, between itself and the bursting charge, a number of prismatic sections of cast iron arranged symmetrically with respect to the axis, and so shaped as to divide into a definite number of fragments under the pressure of the bursting charge, is a pattern possessing many excellent features. The diameter should be at least two inches, as within this limit the mass and power of the

projectile are so low as to produce little more than a moral effect, and not the real and substantial damage necessary to alarm a fierce or fanatical enemy. That sanguinary effect which makes a gun-shell truly valuable, should be made as great as possible.

The two-pounder Hotchkiss cannon now furnished, is too light a weapon for use with the cavalry. It possesses many of the desirable features named above, which have been found essential in mountain cannon, but is defective in quite as many. It was designed to fill the following requirments of mountain service, and is therefore more strictly an infantry gun:

1. To constitute a system so light that any single part may be transported over all profiles of country either by draught, by packing on animals, or by portage by two men. That is to render the gun accessible to all positions capable of infantry occupation.

2. To reduce the weight of the projectiles in order to permit the transport of a comparatively large amount of ammunition with a minimum of personnel and animals.

3. To compensate for the reduction in mass of projectile by an increase in the initial velocity, and of the density in proportion to its cross-section, in order to insure an effectual power at all fighting ranges.

4. To so simplify the mechanism, exercise and care of the piece that its service may be confided to infantry detachments or volunteer parties organized for mountain warfare, without requiring the aid of technical troops or long instruction.

By increasing the caliber to two inches and the weight of the projectile to three and five-tenths or four pounds, and by correcting the defects found to exist in the two-pounder gun, the cavalry might be placed in possession of a weapon which would be invaluable to it in any action in which it might be fortunate enough to engage.

ALVIN H. SYDENHAM,
Second Lieutenant, Eighth Cavalry.

NEW DRILL REGULATIONS FOR CAVALRY, U. S. ARMY.

ESCORTS OF HONOR.

1097. Escorts of honor are detailed for the purpose of receiving and escorting persons of high rank, civil or military. The troops for this purpose are selected for their soldierly appearance and superior discipline.

The escort forms in line opposite the place where the personage presents himself, the band on the flank of the escort towards which it will march. On the appearance of the personage, he is received with the honors due to his rank. The escort is formed into column of troops, platoons, or fours, and takes up the march, the personage and his staff or retinue taking position in rear of the column. On leaving the escort, line is formed, and the same honors are paid as before.

When the position of the escort is at a considerable distance from the point where the person is to be received, as, for instance, where a court-yard or wharf intervenes, a double line of sentinels is posted from that point to the escort, facing inward; the sentinels successively salute as he passes, and are then relieved and join the escort.

An officer is appointed to attend him, to bear such communications as he may have to make to the commander of the escort.

FUNERAL ESCORT.

1098. The composition and strength of the escort are prescribed in Pars. 474, 475, and 476, A. R. 1889.

The escort is mounted or dismounted at the discretion of the commanding officer.

Dismounted.

1099. The escort is formed opposite the tent or quarters of the deceased; the band on that flank of the escort toward which it is to march.

Upon the appearance of the coffin, the commander commands: 1. *Carry*, 2. ARMS, 3. *Present*, 4. ARMS; the band plays appropriate

music; arms are then carried, after which the coffin is taken to the flank of the escort opposite, *i. e.*, away from, the band.

The escort is next formed into column of troops, platoons or fours. If the escort be small, it may be marched in line. The procession is formed in the following order: 1. *Music;* 2. *Escort;* 3. *Clergy;* 4. *Coffin and pall-bearers;* 5. *Mourners;* 6. *Members of the former command of the deceased;* 7. *Other officers and enlisted men;* 8. *Distinguished persons;* 9. *Delegations;* 10. *Societies;* 11. *Civilians.* Officers and enlisted men (Nos. 6 and 7), are with side arms, in the order of rank, seniors in front.

At the funeral of a mounted officer or enlisted man, his horse, in mourning caparison, follows the hearse.

The procession being formed, the commander of the escort puts it in march, arms at the right shoulder.

If a commissioned officer, the coffin is borne by six non-commissioned officers; if a non-commissioned officer or private, by six privates.

At the funeral of a general officer, the commander of the escort, in forming column, gives the appropriate commands for the cavalry, light artillery and infantry, which form in column, in the order named, from front to rear. The trumpeters sound the march or flourishes according to the rank of the deceased, whenever arms are presented, after which the band plays appropriate music. When marching to the cemetery, the trumpeters of the artillery and cavalry and field music of the infantry may alternate, in playing, with the band.

Should the entrance to the cemetery prevent the hearse from accompanying the escort till the latter halts at the grave, the column is halted at the entrance long enough to take the coffin from the hearse, when the column is again put in march. The cavalry and artillery, when unable to enter the enclosure, form line facing the column and salute the remains as they pass.

When necessary to escort the remains from the quarters of the deceased to a church, before the funeral service, arms are presented upon receiving the remains at the quarters, and also as they are borne into the church.

The commander of the escort, previous to the funeral, gives the clergyman and pall-bearers all needful directions.

Mounted.

1100. The funeral ceremonies are conducted according to the principles prescribed when dismounted, except that while mounted the saber is drawn and honors are rendered by presenting saber.

When the cavalry are to fire the salute over the grave, it is dismounted, as prescribed to fight on foot, assembled and marched to the grave, where the ceremonies are completed as prescribed when dismounted.

CAVALRY HORSES.

1101. Cavalry officers should make themselves thoroughly acquainted with the natural history and physiology of the horse, and with the effects of different methods of treatment, changes of diet, etc., upon his system and powers of endurance.

They should have a familiar knowledge of the symptoms and methods of treatment of the diseases that are common to horses, what to do in emergencies, and a good knowledge of the effects of the medicines supplied to the troop.

It is the duty of the commanding officer to have his officers instructed in the foregoing requirements. To this end he prescribes such recitations and practical instruction as may be necessary.

1102. Horses when received at the regiment, are assigned to troops according to color, under direction of the commanding officer. They are branded on the near hip with the letter of the troop, the number of the regiment on the same horizontal line; as, D. 7.

Captains make permanent assignment of horses to men. After a horse has been so assigned, his rider will not exchange him or allow him to be used by any other person, without permission of the captain.

Troop commanders, the adjutant and the regimental quartermaster will keep a descriptive book of the animals under their charge, showing the name, sex, age, size, color, marks, brands, and special peculiarities of each; how and when acquired; how long each has been in the service, and his fitness therefor; the particular use to which he is applied and the name of his rider. The date and cause of the death or transfer of every animal will also be recorded.

1103. Taking the useful effects of a man's daily labor as unity, a horse can carry a load on a horizontal plane of from 4.8 to 6.1.

A horse carrying a soldier and his equipments, say two hundred and twenty-five pounds, travels twenty-five miles in a day of eight hours, including ordinary resting stops. A pack animal can carry two hundred to two hundred and forty pounds for the same distance.

Ice of from 4.5 to 6.5 inches thick will bear cavalry marching in column of troopers or twos.

Treatment and Care of Horses.

1104. Horses require gentle treatment. Docile but bold horses are apt to retaliate upon those who abuse them, while persistent kindness often reclaims vicious animals.

A horse must never be kicked or struck upon or near the head with the hand, reins or any instrument whatever.

At least two hours exercise daily is necessary to the health and good condition of horses; they should be marched a few miles when cold weather, muddy ground, etc., prevent drill.

Horses' legs will be often hand-rubbed, particularly after severe exercise, as this removes enlargements and relieves or prevents stiffness.

In mild weather, the sheath will be washed occasionally with warm water and castile soap, and then greased; in cold weather, when necessary, the sheath should be greased.

Horses used freely in snow and slush must not be placed in a warm stable with littered stalls.

Greatest care will be taken in the fitting of the saddles; sore backs are generally occasioned by neglect, and the men must never be allowed to lounge or sit unevenly in their saddles.

Sick Horses.

1105. In the absence of a veterinary surgeon, the horses on sick report are under charge of the stable sergeant, who reports daily to the captain for instructions as to their treatment.

In treating sick horses, it is to be observed that very little medicine is ordinarily required, and that unnecessary doses do a great deal of harm.

If a horse sustain an injury, neglect his feed, refuse to drink, or give any evidence of illness, it will at once be reported.

No horse on sick report will be taken from the stable or picket line for exercise or work, without permission from proper authority.

If there be at any time a suspicious discharge from one or both nostrils of an animal, it must be immediately reported.

To prevent contagion, an animal that shows any symptoms of contagious disease should be isolated at once.

VETERINARY MEDICINES.

Internally Administered.

1106. Medicines that act on the stomach and intestines or their contents:

Cathartics; agents that cause purgation: Aloes, calomel, epsom salts, common salt, sulphur, croton, linseed and castor oils, injections and mashes.

Anthelmintics; agents that destroy or expel worms: Nearly all the cathartics, tartarated antimony and sulphide of iron.

Nauseants; agents that induce nausea: Aloes and white hellebore.

Antacids; agents that counteract acidity: Soap and the carbonates of lime, magnesia, soda and potash.

Alteratives; agents that bring about a healthy state of the system: Aloes, calomel, cod-liver oil, sulphur, nitrate of potash.

Cardiacs; agents that invigorate the system by stimulating the stomach: Cayenne pepper, ginger, gentian, caraway seeds.

Demulcents; agents that lubricate or sheathe surfaces: Glycerine, gum arabic, linseed and starch.

Antidotes; agents that counteract the effects of poisons: Depending upon the kind of poison.

Medicines that act upon the brain, nerves and nerve centers:

Excitants; agents that stimulate the brain, nerves and nerve centers and thus increase their energy: Alcohol, ammonia, arnica, strychnia.

Narcotics; agents that are excitants, but whose action is followed by depression of energy: Camphor, henbane, belladonna, opium.

Sedatives; agents that depress nervous power or lower circulation: Digitalis, hydrocyanic acid, tartarated antimony and chloroform.

Antispasmodics; agents that prevent or allay cramps: Alcohol, ethers, oil of turpentine, opium.

Medicines that act upon glands or glandular structures:

Stimulants; agents that act upon the glands generally: Calomel, oxide of mercury, iodine and its compounds.

Diuretics; agents that increase the secretion of urine: Copaiva, nitrate of potash, turpentine, rosin.

Parturients; agents that cause contraction of the womb: Ergot of rye.

Lithontriptics; agents that dissolve calculi: Hydrochloric acid, the fixed alkalies.

Diaphoretics; agents that cause prespiration: Colchicum, tartar emetic, acetate of ammonia, spirits of nitrous ether.

Medicines that act upon the muscular fiber:

Tonics; agents that act gradually and permanently improve digestion and nutrition: Gentian, the sulphates of iron, copper and zinc, cascarilla bark, chamomile flowers.

Astringents; agents that cause contraction of muscular fiber: Alum, catechu, oak bark, tannic acid.

Externally Administered.

1107. Medicines that act upon the skin and external parts by direct application:

Refrigerants; agents that diminish morbid heat of a part: Salt and cold water, solutions of acetate and sub-acetate of lead.

Discutients; agents that dispel enlargements: Compounds of iodine, soap liniment, camphor.

Rubefacients; agents that cause heat or redness of skin without blistering: Liniments of ammonia, tar and turpentine, vinegar.

Vesicants; agents that produce blisters: Cantharides, tartar emetic, croton oil, hot water.

Caustics; agents that decompose the parts to which applied: Carbolic, nitric, sulphuric and hydrochloric acids; chlorides of antimony and zinc, corrosive-sublimate, nitrate of silver, sulphate of copper, hot iron.

Pyogenics; agents that induce suppuration of wounds: Liniment and ointment of turpentine, black hellebore.

Deterjents; agents that cleanse wounds and skin, and excite them to healthy action: Acetate of copper, creosote, liniment of sulphate of copper, ointment of chloride of ammonia and nitrate of mercury, sulphur and some of its compounds.

Astringents; agents that diminish discharge from wounds: Alum, sulphate of zinc, acetate of lead.

Antiseptics; agents that destroy putrid condition of wounds: Carbolic acid, salicylic acid, iodoform, charcoal, chloride of zinc, nitrate of potash, permanganate of potash, yeast.

Traumatics; agents that excite healing in wounds: Aloes, myrrh, collodion, oil of tar, resin, solutions of sulphate of copper and zinc.

Emollients; agents that soften and relax parts: Fomentations, lard, olive oil, palm oil, poultices.

General Directions for Shoeing Horses.

1108. In preparing the horse's foot for the shoe, no cutting whatever with the knife is permitted except when necessary to fit the toe clip. In removing surplus growth of that part of the foot which is the *seat of the shoe*, use the cutting pincers and rasp. *Opening the heels* or making a cut into the angle of the wall at the heel must not be allowed. *Flat footed horses* should be treated as the necessity of each case may require. In *forging the shoe to fit the foot*, be careful that the shoe is fitted to and follows the circumference of the foot clear around to the heels; the heels of the shoe should not be extended back straight and outside of the walls at the heel of the horse's foot, as is frequently done. Care must be used that the shoe be not too small and the outer surface of the wall then rasped down to make the foot suit the shoe. The hot shoe must never be applied to the horse's foot under any circumstances. Make the upper or foot surface of the shoe perfectly flat, so as to give a level bearing. A shoe with a concave ground surface should be used.

In garrison, at the discretion of the colonel or commanding officer, the horses may be left unshod. Shoes will be fitted and kept ready to be put on the horses.

Hygiene of Stables.

1109. Foul air and dampness cause many of the diseases of the horse, hence the importance and economy of spacious, clean, dry and well ventilated stables. Ceilings should be twelve to fifteen feet high, with large ventilators through the roof, and a window or side aperture in each stall, which should be placed well above the horse's eyes. If possible, the buildings should have no upper story or loft.

Double stalls should not be less than four feet six inches by nine feet to each horse, and not less than 1200 cubic feet should be allowed to each horse in the stable.

In stables with a loft, ventilation from the top is always insufficient, and there must be side openings well above the horses, so that the draught will pass over their heads. These openings must never be closed, except on the windward side, to keep out the rain or snow.

If the stable is partitioned off into single stalls, each stall should be at least five feet in width to permit the horse to lie down without difficulty.

A picket line is established in the immediate vicinity of each troop stable, the horses being tied to a manila or wire rope, or chain passed through the picket posts. There should be shallow trenches behind the horses to carry off rain, the ground on which they stand having just slope enough to let water run into the trenches, or there may be a single drain in the center along the line of the posts. Constant attention must be given to keeping the ground about the picket line in good order.

General Rules for Stable Management.

1110. The following general rules are recommended:

The stable sergeant has immediate charge of the police and sanitary condition of the stable, picket line, etc., and is the custodian of the forage and stable property generally.

The stable is to be kept thoroughly policed, free from smells, and, except portions of stalls that horses can reach, should be well lime-

washed. There must be no accumulation of manure or foul litter inside, nor near the doors or windows without. The feed boxes are washed from time to time, and kept clean. The ground about the picket line is swept daily, and all dung, etc., carried to the manure heap.

Except at night, when the horses are bedded down, no manure or urine is to remain in the stalls; the stable police remove it as it accumulates.

If practicable, all woodwork within reach of the horses, and not protected with sheet iron or other metal, should be painted with thin coal tar to prevent its being gnawed. The same precaution may be followed with regard to troughs, picket posts and picket line. It should be thoroughly dried before putting horses near it.

Smoking in stables, or in their immediate vicinity, is prohibited.

One or more lamps will be hung in each stable to burn during the night.

The horses are stalled according to their positions in the squads; their places at the picket line will be in accordance with the same rule.

Over each horse's stall is placed the name of the horse under that of his rider.

Clay is the best for earthen floors. Gravel or sandy earth is not suitable.

The sloping of the floors of stalls from the manger to the heel post is injurious and uncomfortable for the animal, making him stand in an unnatural position, with the fore legs higher than the hind ones. When the earthen floors are level, the horse will paw a hollow for his fore feet unless he can elevate his hind-quarters by backing out of the stall.

Whenever horses go out of the stable, the windows of their stalls are to be kept open, unless necessary to exclude rain or snow, or when cold draughts effect the animals in contiguous or opposite stalls.

Stable doors are never closed in the daytime, except to keep out wet, or to exclude cold winds that blow on the horses. If the doors be in a single piece, bars are put across the doorway; if divided into upper and lower halves, it will usually be sufficient to open the upper part. At night the entrance to the stables should be secured in such manner as will prevent the escape of animals.

When circumstances permit, horses should be turned loose in a paddock during the daytime, or herded under charge of a guard. When neither is practicable they should, except in very cold, windy weather, or in very hot weather where there is no shade, stand most of the day at the picket line, as they have better air and are less confined, while the stables become drier and more healthful.

In ordinary climates, cavalry stables must be kept as cool as possible. If the horses do not stand directly in the draught, the colder the stable the less will they suffer if called suddenly to take the field. For the same reason, horses should never be blanketed in the stable, except during very cold weather.

PACKING.

Pack Trains.

1111. Active, short-coupled, short-legged, "blocky" mules, weighing from 800 to 1000 pounds, are considered the best for pack animals.

Under favorable conditions each animal can carry a load of about thirty per cent. of his own weight; the load should not be much in excess of 200 pounds, when long or hard marches are to be made.

With fifty packs there should be twelve packers.

Each troop should have four mess boxes, seven-eighth inch lumber, dovetailed 11 x 18 x 26 inches, and when packed in pack cover, without lids.

In camp or garrison, logs of wood twenty-six inches long and sacks of corn, double-sacked and lashed, to avoid breaking sacks, having the weight it is intended the mules should carry, are kept on hand for drill purposes.

Each pack should be provided with two coils of three-eighth inch rope, eighteen to twenty-eight feet long, for lashing side-packs.

The pack saddle consists of the *saddle proper;* two *pads; crupper; corona; manta* or *pack cover;* two pieces of canvas, each 34 x 22 inches, stitched together on the long edges; *halter* and *strap; canvas cincha*, ten inches wide; *sling rope*, one-half inch, best hand laid manilla whale-line, twenty to thirty-two feet long; and *leather cincha*, with *lash rope*, five-eighth inch whale-line, forty-two feet long. There should be one *blind* for every five packs.

The size of rope is given by the measurement of its diameter.

A "full-rigged" saddle has *sling straps* and *cargo cincha;* the sling and lash ropes are then dispensed with.

While saddling, loading or readjusting the packs, the animals should be blinded. The mules should be trained to stand perfectly quiet while the blind is on; they should never be led or forced to move without first removing the blind.

To Fit the Saddle.

1112. The pack saddle is fitted to the animal in a manner similar to that of the riding saddle; it is so constructed that it can be placed one and one-half inches farther forward than the riding saddle.

If the pads are not square, draw the screws, unlace the pads from the skirts, then square and fit them to the animal by placing the canvas cincha immediately around the animal's girth, the front edge touching the breast bone (cartileges of true ribs), the middle of the cincha being exactly in the middle of the lower edges of the pads; then screw the pads to the saddle bars, keeping the cincha in place till the adjustment is made; then remove the cincha and relace the pads.

Adjust the canvas cincha so as to be long enough to go nearly around the girth of the mule, over to the saddle.

Adjust the crupper, by lengthening or shortening the lace strings that attach it to the saddle, taking care not to make it too tight.

To Saddle.

1113. Place the corona on the mule's back, about two to two and one-half inches in front of where the pommel end of the saddle is to rest; place the folded saddle blanket over the corona; take the saddle by both yokes and place it squarely in position, a little in rear of its proper place; place the crupper under the dock and gently move the saddle forward to position; pass the ring end of the canvas cincha over the saddle from left to right and under the belly; pass the latigo through the ring and tighten the cincha. When cinched, the ring end of the cincha should be above the lower edge of the near pad.

Cargoes.

1114. The rations should be carefully put up in one hundred pound packs lashed solidly and carried on the best pack mules; each pack is plainly marked with its contents and weight.

Salt, sugar, coffee and beans are double-sacked and lashed in one hundred pound packages. Bacon, in one hundred pound package, is packed in from five to eight pounds of clean straw or hay, double sacked and lashed firmly.

The yeast powder cases should be opened and hay or straw stuffed closely around the boxes to prevent shaking, and, with other articles, lashed into one hundred pound packages.

Each cargo is in two side-packs of about one hundred to one hundred and twenty-five pounds each, and should match in size, shape and weight, as nearly as practicable, each side-pack having as nearly as may be, the following proportions: Width, one-half more than the thickness, length nearly one-half more than width; e. g., 12x18x25 inches.

All the salt, sugar, coffee and beans should not be placed in one cargo. Ammunition should be in cargoes.

Pads or cushions of hay 26x44 inches may be placed under the cincha to keep long and rough packs from the animal's hips and shoulders.

To Load Cargo.

1115. The packers should work by threes, designated Nos. 1, 2, and 3.

No. 1 is on the near side, No. 2 on the off side of the mule; when No. 3 works with No. 1, he is nearest the croup; when with No. 2, he is opposite the mule's shoulders.

The mule is placed near to and with its left side next to the cargo by No. 2, who then puts on the blind.

No. 1 on the near side, passes the center of the sling rope over the saddle to the off side, far enough to allow the rope to pass over the off side-pack and come back within his reach, the parts over the rope separated by six to twelve inches. Nos. 2 and 3 take the off side-pack, place it well up on the saddle; No. 2 grasps the loop of the sling rope with his right hand, brings the rope up against the pack and lets the loop drop over his right shoulder, in readiness to pass it over the pack; No. 2 holds the pack in place. No. 3 passes to the near side and with No. 1 takes the near side-pack and places it, flat side to the mule, well up on the saddle, lapping the upper edges well over the upper edge of the off side-pack. No. 1, with his back to the mule's shoulder, takes the end of the front part of the sling rope, passes it underneath and outward through the loop, and pulls it down with the right hand; he now grasps the near end of the sling rope with the left hand, passes it through the loop from the outside, then ties the ends together in a square bow-knot, the packs high up.

No. 1 calls out: *Settle;* No. 1 and No. 2 each grasps his side of the cargo by the lower corners, lifts upward and outward, settling the upper edges well together and balancing the load. If the packs are tied too high they are easily lowered, but if tied too low they must be lifted and placed as in the first trial.

While Nos. 1 and 2 are tying and placing the cargo, No. 3 takes the lash rope, throws the free end to the rear end of the mule, convenient to No. 2, and places the cincha end in front of No. 1. No. 1 grasps the rope with the right hand, three feet from the cincha, and passes the hook end of the cincha under the mule to No. 2, who takes the hook (H, Fig. 1,) in the left hand; No. 1 with the left hand, grasps the rope three feet above the right, raises the rope and lays it between the side-packs from rear to front (P P), pulling it to the front, until a long enough loop (A) is formed to pass over the cargo and fasten in the cincha hook (H, Fig. 1). The right hand, back down, holds

the cincha end of the rope, the loop (A) falling outward over the right forearm; the left hand, back up, holding the other part of the rope between the loop and the middle of the packs; No. 1 now throws the loop (A, Fig. 1) over the pack, then lets the part in the left hand drop on the mule's neck, thus forming another loop (A, Fig. 2); No. 2 passes the rope through the hook, pulls the cincha end of the rope till the hook is drawn up so that, when tightened, the hook shall be near the lower edge of the off pad; No. 1 now grasps the rope at G, Fig. 3, and tucks a loop, from rear to front, under the part A A, Fig. 3, over the center of the near side-pack (G, Fig. 4); No. 2 passes the free end of the rope under the part E E, (Fig. 4) and throws it over on the near side of the mule's neck; No. 1 draws the tucked loop forward and forces the rope under the corners and lower edge of the near pad and hauls it taut from above the rear corner; No. 2 grasps the rope at I (Fig. 4), with the left hand, and at K (Fig. 4), with the right, passes the rope under the corners and lower edge of off pad (K, L, Fig. 5), and hauls taut at the front corner, No. 1 taking in the slack at the free end of the rope.

The lash rope is now ready for final tightening.

No. 2 removes the blind, leads the mule forward a few steps, No. 1, in rear, at the same time looking to see if the packs are properly adjusted. The mule is again blinded.

The object of the final tightening is to lash the load firmly to the saddle; pulling all the parts of the lash rope taut, and taking up the slack, commencing at the cincha, and continuing the process from part to part, until the slack is taken up at the free end of the lash-rope.

While No. 2 is pulling the parts taut, No. 1 takes up the slack or steadies the cargo, and vice versa; the pulling is done in such manner as not to shake the cargo out of position.

No. 2 grasps the lash-rope above where it leaves the hook and below the edge of the pad, right hand below left, places the left knee against rear corner of pad; No. 1 grasps with the right hand the same part of the rope where it comes over the pack on the near side, and with the left hand at G Fig. 5, places his right shoulder against the pack to steady it; he then says: *Pull.* No. 2 tightens by steady pulls and, without letting the rope slip back through the hook, gives the slack to No. 1, who takes it up by steady pulls. When No. 2 thinks the cincha is sufficiently drawn, he says: *Enough.* No. 1 holds solid with the right hand, slips the left down to where the rope passes over the front edge of pad, and holds solid; the right hand then grasps the continuation of the rope at rear corner of pad and pulls

taut; then with both hands, placing his right knee against rear corner of pad pulls the rope well home, No. 2 taking up the slack by grasping the rope (I, Fig. 5) where it comes over the rear end of off side-pack, with both hands. No. 1 steps to the front and steadies the pack; No. 2 then pulls taut the parts on his side, taking up the slack; this draws the part of the lash-rope A A, Fig. 5, well back at the middle of the pack; he then with the left hand at the rear corner of pad (K) pulls taut, and holds solid, while with right hand at front corner of pad (I), he takes up slack; he then with both hands at, and placing his knee against the front corner of the pad, pulls well taut, No. 1 taking up the slack on his side and then pulls solid, drawing the part (E E, Fig 6) of the rope coming out from the hook well forward at the middle of the pack, then carries the free end under the corners and end of pad, draws taut and ties the end fast by a half hitch near cincha end of lash-rope. If the rope should be long enough to reach over the load, after passing under the corners, it is passed over and made fast on the off side by tying around both parts of the lash-rope above the hook, and drawing them well together.

1116. To tighten the lash-rope on the load it is necessary to take up and pass the slack as in the final tightening.

To slacken the rope on the load it is necessary to begin to slacken from the free end and carry the slack by reversing the process of tightening.

When the pack-cover is used it is placed over the cargo before putting on the lash-rope.

When the side packs are of unequal bulk or weight, the larger or heavier should be placed on the near side; it should then lap over the off side-pack until the packs balance.

Top packs, i. e., small packages placed in the middle between the side packs, should be avoided.

When the sling-rope is half hitched into the saddle-yokes, the load is made more secure, but there is great danger of injury to the mule's back.

On the *full-rigged* saddle the canvas cincha is attached to the saddle by the "spider;" the side-packs are laid on the saddle as before, held by the sling-straps and secured by the *cargo cincha*. The lash and sling-rope are then dispensed with; but use of the sling and lash ropes gives greater security to the cargo and greater comfort to the mule.

To Unload Cargo.

1117. Only two men, Nos. 1 and 2 are necessary; they work as when loading.

The mule is placed with head toward the center or where the cargoes are piled. No. 1 puts on the blind; No. 2 unfastens the free end of the lash-rope; then Nos. 1 and 2 slacken the rope; No. 2 with the left hand removes the part under the end and corners of the pads on the off-side, and unhooks the cincha with the right hand; No. 1 removes the part under the end and corners of the pad on the near side, gathers the parts of the rope together on his side with both hands, coiling it, and lays the rope on the ground where he intends to place the cargo, the cincha and free end exposed on the side opposite where the rigging is to be placed. No. 1 unties the sling-rope, casts it loose, takes his side-pack and places it on the lash-rope across the line of cargo; No. 2, at the same time, takes his side-pack and lays it on top of near side-pack and then, holding the sling-rope at the center loop, doubles it and places it on top of load, loop exposed, for convenience when required.

The second load is placed end to end with the first and on the side next to where the rigging is to be placed; the end of lash rope is coiled and placed on top of the last sling rope, and is used for tying the mule when reloading.

The saddle cinchas should be slackened and the mules allowed to cool before removing the saddles.

To Unsaddle.

1118. Unfasten the latigo and throw the end across the top of saddle; fold the cincha with latigo inside and place across top of saddle; push the saddle back, remove crupper from under dock, double it forward, with crupper above cincha on top of saddle, and remove saddle; the saddles are placed in line resting on the ends of pads.

TRUMPET CALLS, ETC.

Warning Calls.

1119. *First call, guard mounting, full dress, overcoats, drill, stable, water* and *boots and saddles;* they precede the *assembly* by such interval as may be prescribed by the commanding officer.

1120. *Mess, church* and *fatigue*, classed as *service calls*, may also be used as warning calls.

First call is the first signal for formation for roll call on foot.

Guard mounting is the first signal for guard mounting.

Boots and saddles is the signal for mounted formations; for mounted guard mounting or mounted drills, it immediately follows the signal *guard mounting* or *drill.*

The trumpeters assemble at *first call, guard mounting,* and *boots and saddles.*

When full dress or overcoats are to be worn, the *full dress* or *overcoat* call immediately follows *first call, guard mounting* or *boots and saddles.*

Formation Calls.

Assembly; the signal for the troops or details to form on their troop parade grounds.

Adjutant's call: the signal for the troops to assemble on the camp or garrison parade ground; it follows the assembly, at such interval as may be prescribed by the commanding officer.

Alarm Calls.

Fire call; the signal for the men to fall in without arms to extinguish fire.

To arms: the signal for the men to fall in under arms, dismounted, on their troop parade grounds as quickly as possible.

To horse; the signal for the men to proceed under arms to their horses, saddle, mount and assemble at a designated place as quickly as possible.

Service Calls.

Taps, mess, sick, church, recall, issue, officers, captains, first sergeants, fatigue, school and the *general.*

The general is the signal for striking tents and loading wagons, preparatory to marching.

Reveille and *tattoo* precede the assembly for roll call; the *retreat* follows the *assembly*, the interval being only that required for formation and roll call, except when there is parade.

Assembly, reveille, retreat, adjutant's call, to the standard, the *flourishes* and the *marches* are sounded by all the trumpeters united; the other calls, as a rule, are sounded by the trumpeter of the guard or orderly trumpeter; he may also sound the assembly when the trumpeters are not united.

The morning gun is fired at the first note of *reveille;* or, if marches are played before reveille, it is fired at the commencement of the first march.

The evening gun is fired at the last note of *retreat.*

The drill signals include both the preparatory commands and the commands of execution; the last note is the command of execution.

When a command is given by trumpet, the chiefs of sub-divisions give the proper commands orally.

The memorizing of these signals will be facilitated by observing that all movements to the right are on the ascending chord, that the corresponding movements to the left are corresponding signals on the descending chord; and that changes of gait are all upon the same note.

It will be observed that *Captain's* (or troop commander's) call is the first two bars of *officer's call* with the *attention* added. The signals *platoon right turn, platoon left turn, troop right turn* and *troop left turn* correspond to the signals *platoon right, platoon left, troop right* and *troop left*, but have the signal *forward, march* added instead of the signal *march*.

Fours right and *by the right flank* are the same; at this signal, troopers deployed as skirmishers or foragers, move individually by the right flank; organizations or sub-divisions in close order wheel by fours to the right.

The same applies to the signal *fours left* and *by the left* flank.

To the rear corresponds to *faced to the rear*, but has the signal *forward, march*, instead of the signal *march*.

PROFESSIONAL NOTES.

THE BRITISH CAVALRY AT ALDERSHOT, SEPT., 1890.

The following extracts from letters by British officers, published in the London *Times* of January 14 and 27, 1891, will furnish material for profitable thought and comparison in connection with the succeeding letter in regard to the actual field experience, in a rough and broken country, of the Ninth Cavalry during the Sioux campaign of December, 1890, and January, 1891. There may be many reasons for the crippling of the British cavalry through the medium of sore backs, but until after the stuffing has been knocked out of the panels of the saddles in use, it is hardly necessary to inquire further into the cause of the trouble, as it is evident that the principal one will continue to perform its destructive work:

"There are probably several causes for this discreditable state of things, but the principal one is that while the stirrups have been shortened the old hussar saddle which was constructed for the 'balance seat' has been retained."

* * * * * * * *

"Regimental officers are crammed with theory at classes to enable them to pass examinations, but are wanting in practical work, and their minds are too often more absorbed by their amusements. Hunting, steeple-chasing and polo are very good things in their way, but they are overdone. Large studs of hunters, steeple-chasers and polo ponies should be discouraged, and 'cornets,' as the late General WARDLAW used to say, should be encouraged to hunt their chargers and not aspire to be 'whips' of a pack of hounds advertised by the regiment, thus making regimental work second to sport."

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"Now, the question of how to saddle a cavalry horse so as to enable him to carry his rider, his kit and his weapons, on long and frequent marches, and to maneuver rapidly before the enemy, without being saddle-galled, has been a matter of thought and consideration for centuries, yet, according to your reporter, we appear to be no nearer a solution of the question than we were in the days of CROMWELL.

"My opinion is that the saddler is yet to be born who can make a saddle that will carry a trooper with two stone dead weight in ad-

dition, and also a carbine dangling on one side of it, and yet never gall the horse. And I am therefore further of the opinion that the only solution of the question lies in transferring every pound of dead weight to a luggage horse, and making the trooper mount on a twelve-pound hunting saddle, unencumbered by so much as a shoe pocket, and with his carbine slung on his back. Racing men know that a single pound of dead weight makes the difference between winning and losing a race. May not a stone of dead weight in our cavalry horses make the difference between winning and losing a campaign?"

* * * * * * * *

"To meet the action demanded of cavalry in the present day of far-reaching weapons, I hold that the men must be mounted on twelve-pound saddles, with absolutely nothing attached to them. Carbines must be carried by the men themselves (if they must have carbines), and every sergeant's party of nine must have its pack horse in rear carrying the necessaries the men now carry themselves, and able to follow the squadron or its sections over whatever mountains, streams or plains it may have passed during the day."

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To the Editor of the Times: TUESDAY, January 27, 1891.

SIR:—We soldiers who are now serving have awaited with earnest expectancy a reply, more or less authoritative, to the drastic criticisms of your military correspondent during the recent cavalry maneuvers, and to the three able articles which have more recently appeared in your columns upon the efficiency of the cavalry.

The personality of your military correspondent is well known to most of us, and well deserved as are many of his criticisms, it is unjust any longer to allow the public to accept the inference of his strictures, and thus lay the blame upon those now officering the cavalry.

Your correspondent has told the public the symptoms of the disease from which our cavalry is suffering—he has not, however, correctly diagnosed that disease, nor has he proposed a remedy.

At Aldershot recently an opportunity of an exceptional kind was given to the leading medical advisers in the persons of Major-General Sir BAKER RUSSELL and Major-General KEITH FRASER, to state fully the real disease and its cure. The opportunity has apparently been lost, and the public are still in the dark as to what is required to place our cavalry in the proper position of efficiency and precedence which it should hold relatively to the other branches of the army.

Your correspondents, from "Sabreur" of September 7th last, to "Troop Horse," of the 12th inst., have signally failed to deal with the real causes of our ailments, and have expended their arguments either upon such side issues as the weak establishments of regiments, the inferiority of our saddlery, and the superiority of the French and German cavalries, or upon totally erroneous causes, such as the theoretical training of our officers, and the failings of the short-service system.

As a commanding officer who has had exceptional opportunities of judging of our disease in peace and war—a disease of long standing—I venture to diagnose the case, and to ascribe the existing condition to the following evils:

1. The deficiency of able and experienced officers.
2. The absence of a sound system of organization.

As regards 1, it is certain that however necessary it is that your infantry officer should be well educated and physically capable, it is still more important that your cavalry officer should have more than average intellectual powers, and that he should possess in a high degree those natural military qualities which are best evidenced by prowess in the cricket field and by a foremost place in a run with hounds. The responsibility devolving upon a subordinate infantry officer is small indeed compared to the individual responsibility vested in a troop leader, or in an officer commanding a patrol on service. The safety of an army may at any moment depend upon the ready knowledge and practical ability of a young cavalry officer, while the lives of his men are at all times in his hands. Yet it is a fact that the cavalry are forced to take as officers young gentlemen who are educationally rejected for the infantry. To such of your readers as are skeptical I would point to the list of successful candidates at the recent examination, where it will be seen that more than half of those who have qualified for cavalry are many places below the lowest of the successful infantry competitors.

It is, alas, notorious that there is a lack of keenness among subordinate officers of the cavalry generally, and it is exceptional to find officers who look upon the service as a profession, and study it accordingly. The large majority look upon soldiering as a means of amusing themselves, of passing a few years of their life in the full and unrestricted enjoyment of all those amusements which make existence attractive to young Englishmen—viz., in hunting, racing, fishing and shooting.

It comes, then, that those who eventually, either from circumstances or inclination, remain on to become field officers or commanding officers, lack for the most part that professional knowledge and professional enthusiasm without which all professions must be and are lifeless.

It is not in the power of any human being to compensate in middle age for the idleness of youth: and the profession of arms, of the mounted branch in particular, is no exception.

As regards 2, I cannot do better than quote—and I do not shrink from doing so—the speech of a distinguished infantry officer at the discussion which followed Major JAMES's lecture, recently delivered at Aldershot, upon "The Development of Modern Cavalry Action." This officer is reported by the *Broad Arrow* to have spoken as follows:

"The whole fabric (mounted infantry) which we have reared during the last ten years depends upon the following four great principles, which we consider, from experience in the field, to be the foundation-stones of efficiency for mounted troops in war: (1) The

company or squadron system; viz., that the administrative shall be also the tactical unit and that it shall be independent; (2) the squad system—that the company shall be permanently divided into four squads, each under an officer, and shall work together always as such; (3) permanent sections of men and horses—that the same men and horses shall be together in barracks or at the bivouac who work together at drill or fight side by side on the field of battle. This we consider to be the first principle for insuring fire discipline, or that mutual reliance upon one another which begets steadiness in moments of danger; (4) the absence of the adjutant and riding master system—we consider that the officer who leads must be he who instructs, whether it be in drill, in riding, or in discipline."

Sir BAKER RUSSELL, following this speaker, said that he fully endorsed all his ideas. General KEITH FRASER, if he has been correctly reported, went further, and stated that it was for this very organization that the whole cavalry service had been striving during the last twenty-six years. The lecturer himself, in a letter to the *Broad Arrow* of the 17th, accepts in the most complete manner the organization advocated.

I may say further that all cavalry officers now serving, of thought and experience, accept the four principles which this infantry officer laid down with such emphasis and precision in the words quoted, and it is to the establishment of this system that we must look for the real efficiency of the cavalry.

I have now dealt with the causes of the disease, and I will proceed to advise the remedy.

As regards 1, it is first of all essential to induce the best officers to enter the cavalry service, and to do so it will be necessary to bring the expenses of serving within the means of the great majority of those young gentlemen who officer the army.

This can be done by the following means: (*a*) That government should give to each young officer upon joining two remounts, suitable as first and second chargers; (*b*) that each officer should receive £25 per annum, or, if he so elect, a remount free every two years; (*c*) that regimental drags should be abolished; (*d*) that inter-regimental polo should be discontinued (as is about to be done in India); (*e*) that rigid economy in the mess should be enforced; and (*f*) that a suitable working dress, devoid of gold lace, should be instituted, and the present amount of ridiculous and expensive uniform be curtailed.

Upon such a system the existing plan of admitting as cavalry officers those young gentlemen who have more money and less brains than their comrades in the infantry could be at once abolished. Unsuitable cavalry officers could, moreover, be transferred to infantry, and suitable infantry officers could in like manner be transferred to cavalry.

This method would soon give to the cavalry a class of professional officers of a very high order.

As regards 2, the remedy is in the hands of the authorities to enforce, and the sooner the squadron system is introduced the better will all genuine cavalry officers be pleased.

A debt of gratitude is due to your military correspondent for bringing the cavalry cause before the public.

Is it too much to hope that through the powerful advocacy of *The Times* we may not only see the reforms which have been indicated carried out, but that we may further see the following all important changes similarly effected, viz: (1) the concentration of cavalry regiments in quarters where it is possible to carry out the elementary squadron and regimental training efficiently; (2) the annual concentration of cavalry regiments in brigades and divisions at places where their further instructions can be effectively conducted?

I have the *honor* to remain, Sir, your obedient servant,

A COMMANDING OFFICER.

REMARKS ON PRINCE HOHENLOHE'S SIXTEENTH LETTER ON CAVALRY.

In glancing over the valuable sixteenth letter, as translated by Colonel HUGHES, and published in the Journal of the United States Cavalry Association of December, 1890, it has occurred to me while sitting in my tent, waiting for the mail, to put down a few points in a random way of what came under my eye, during the Sioux episode, and which may be of value to others. This is brought to my mind by the following extract from the above referred to letter, viz.: "If the horses are not permitted to lose the high state of training in which they are at the end of June, by want of exercise during the month of July. For this reason the horses should be *violently exercised* once or twice a week *in addition to* their ordinary drill work." When I joined the command of the Ninth Cavalry at Pine Ridge, November, 1890, I made up my mind, that if any work was to be required of the cavalry, it would be hard, requiring rapid movements, and that men, horses and pack mules must be hardened, not only for work but to endure all kinds of weather. Drills were had daily; nothing interfered; dust, wind and cold were ignored; so much so, that I am told some officers appealed to the camp surgeon to see if he would not recommend, on hygienic grounds, some diminution of them. Our drills covered some twelve miles at a walk, trot and gallop, the middle gait being that used most generally. The "charge" was made two or three times, but after having killed one horse, and injured several men, I was afraid to keep it up, for fear I should evoke the wrath of the "powers that be." At any rate our drill was violent, and the horses became tough as knots, and our pack mules and men equally so.

December 24th, we made a fifty mile march, the packs keeping up with us, and the horses and men coming in fresh at the end of it. To obtain water and wood for breakfast Christmas day, we rode nine miles. Our gait was the walk and trot, making six miles an hour on the average. From 8 A. M. December 29th, to 4 P. M. December 30th, we covered 102 miles, marching about twenty-four hours out of the thirty-two, leaving for rest but six hours between 4 P. M. and 10 P. M.

December 29th, and two hours between 10 A. M. and noon, December 30th. Our gait was the same as above. *There was not a sore-backed horse*, but one horse dropped dead after our return from the Mission, or at the end of the march. December 31st we rested, and on January 1st we were again on the march, the horses in good condition. Men and horses were tired on the 30th, and at the picket line the horses were glad to lie down. Had not these hardening drills, requiring violent and constant exercise been had, these marches could never have been made without loss of horses, and producing exhausted men. This violent exercise is equally necessary for the men. They, as well as the horses, have to be hardened. A lounging, tired man in the saddle makes a tired horse, and as General MERRITT once said in writing of a march, "Better put such men in a wagon, etc."

When we commenced our trotting drills, one officer had to be excused at first, but he gradually got hardened and made our other marches as well as the youngest. Some of our cavalry officers are afraid horses will be injured by rapid gaits; *never*, when such are employed with judgment, and the horse like the athlete, is gradually trained to accomplish the required results. His power and endurance, when properly trained, are limited only by that of his rider, who should also be in the best of physical condition and training. We often have troops starting out on campaigns in bad condition as to hardness, and it would be a good rule to have once or twice a week, a march of twenty miles, at the walk and trot. This would bring better results than a month of dress parades. This hardening process conducted by means of practice marches, should be required of infantry as well.

Now a word for pack mules. Their drill and the management of their cargoes, etc., are entirely neglected. A complete pack train is a necessary adjunct to an efficient cavalry force. Mules should be kept with each troop, and regular drills and marches required. No cavalry can pursue Indians with wagons, hence the successful troops are those with the best pack trains, not raised at the moment, but the result of careful drill and marching for months.

Now as to horse-shoeing. In the winter marching, those without shoes could go any place without slipping or balling. Those with shoes strained themselves, balled, and slipped, the latter even with calkins—a most dangerous kind of shoeing for horses at the picket line. The order for shoeing should not be ironclad. Some discretion should be left to the officer in command.

I might go on referring to the Buffington sight, its want of adaptability for rough service, the weakness of parts of the HOTCHKISS gun, manner of carrying it, etc., but I would be touching on grounds non-cavalry, so I will forbear, hoping my hastily written lines may take root, and be of benefit.

GUY V. HENRY,
Major Ninth Cavalry, Brevet-Colonel U. S. Army.

AN EASILY CONSTRUCTED CANVAS BOAT.

In the December JOURNAL is an article on the "Crossing of the Bystritza River." In discussing the article Colonel SANFORD describes a serviceable raft by which he ferried the impedimenta of his command across the Malheur River in 1873. I would like to show how, with the same material that was at the command of Colonel SANFORD, a very serviceable *boat* could have been made.

In the summer of 1880 I was camped with my troop on the banks of the Uncompahgre River in Colorado; the river was high, we were cut off from the infantry camp on the other side, and I set to work to make a boat by which I might cross. Plenty of young cottonwood trees were growing about, and there was also a thicket of willows. For canvas I had a wagon sheet which I had formerly used as a tent.

We commenced by tracing on the ground the outline of a boat eleven feet long and four feet wide, sharp at both ends; at each end a strut stake was driven; along each side seven stakes were driven opposite to each other. I then cut a number of limber cottonwood poles and branches; two of the largest were lashed firmly to the stakes at the bow and stern, and were then bent over and lashed together in the middle forming the keel. Smaller poles were lashed to the stakes driven along the sides, and then each pair was bent over and lashed together, and also lashed to the keel, passing below the keel. These formed the ribs of the boat. The gunwale was formed by branches which were bound to each rib and to the ends of the keel, the gunwale passing along the side of the boat just above the tops of the stakes.

Thus the framework of a boat lying bottom up had been constructed. To strengthen it willows were cut which were woven in and out among the ribs and keel. The lashings that held the boat to the stakes were cut; the basket work boat was found to be remarkably stiff except that the ends of the keel and of the principal ribs were inclined to spring outwards. This was effectually remedied by tying them down to the center of the keel by lariat ropes. The protruding ends of the keel and ribs were then sawed off and the basket boat covered with canvas.

This boat, eleven feet long and four feet wide, weighed about eighty pounds. With six men on board it drew but three or four inches of water and had but little tendency to upset. It was built by four men in from two to three hours. It was easily managed and leaked but little.

JAMES PARKER,
Captain, Fourth Cavalry.

MEMORANDUM OF THE VIEWS OF THE DIVISION COMMANDER IN REGARD TO OPERATIONS IN THE FIELD AGAINST HOSTILES.

EXTRACT.

The cavalry (depended upon to do the principal work in pursuit and encounter) should be armed with carbines and revolvers, but not sabers; at least fifty rounds of ammunition should be available at all times; three six-mule wagons per troop; ten pack animals and two riding animals with all supplies, including medical supplies, necessary ambulances, etc.

Pack trains, when moving with wagons, should only carry about one hundred pounds of grain, or what grain the animals require to keep them in full strength and their backs in proper condition to enable them to be in perfect order for forced marches over broken country that cannot be traveled with wagons.

In addition to the above allowance of transportation, pack transportation can be improvised by using Indian scouts with their pack animals, or hire pack transportation if available.

The troops should be supplied with sufficient heavy clothing for the region; Sibley tents when moving with wagons, shelter tents when moving with packs. Fur clothing can be provided, or canvas-covered clothing; also canvas-covered blankets for animals.

As many light steel Hotchkiss guns, with one hundred rounds of ammunition per gun, as possible, or as may be required, should accompany the cavalry.

The infantry can be used in guarding trains, protecting supplies, and, if necessary, in such a way as to give as much protection as possible to settlers and settlements requiring their protection.

Complete and accurate maps, signal appliances, etc., should be provided each command.

Indians scouts can be used as auxiliaries, scouts, trailers, orderlies, messengers, detailed to assist trains, detailed in Quartermaster's Department as assistant packers for the pack train, and in any way that they can be made useful.

HEADQUARTERS DIVISION OF THE MISSOURI,
ASST. ADJT. GENERAL'S OFFICE,
CHICAGO, ILL., November 24, 1890.

BOOK NOTICES AND EXCHANGES.

FIELD SERVICE OF THE SQUADRON. Vienna, 1891. Price, 60 kr.

The following translation of the introduction and list of subjects will show the scope of the work:

INTRODUCTION.

The drill regulations for the Royal and Imperial Cavalry require that every means be taken to arouse a proper spirit among the cavalry in the course of instruction, and defines the ideas desired as those of uprightness, love of the horse, courage, self-reliance and resolution.

This last quality has, whenever highly developed, led cavalry into great successes, which are never obtained when this incentive is lacking. The cavalryman, whether of high or low degree, must be animated by the desire for action; he must bear in his breast an invincible impulse to action; inactivity must be hateful to him, and should awaken in him the fear that he may be neglecting the opportunity for glorious feats.

But circumstances or military subordination may compel him to inactivity; in such case he can at least ponder and weigh in his mind such contingencies as may one day afford him the desired opportunity for action; he must be accustomed to be in a state of continuous and tireless mental activity.

Only the cavalryman who is animated with this spirit of industry can perform what is desired of him, while on the other hand, if only too easily forced from one embarrassment to another and deprived of the power of unfettered decision, not even heroic courage will suffice to ward off his impending fate.

This tireless mental industry, this spirit of enterprise and progress is to be awakened and strengthened; and instruction in field service gives the best opportunity for it. But field service must be taught with indomitable industry and must be a labor of love, if monotony and a precise and uniform manner of performing it are not to seriously compromise all good results.

Success will not be infallibly attained by a great number of successive exercises or by the accomplishment of a set programme, but by the kind of exercises and the manner of performing them.

To arouse interest in the subject, to promote instruction in what may be styled its intellectual part, industry, skill and vast patience will be requisite; but as soon as it becomes a question of certain

forms, regulation definitions or traditional customs, in short, when the formal side becomes prominent, then will energy, earnestness and consistency be still more necessary, for nothing is learned by playing at these things; they must be drilled into the men.

Instruction in field service is, and will always be, a difficult task, in whatever way it may be regarded, and he who would set about it in a rational way must become familiar with all its details, bury himself in them, and pursue the subject with energy and industry. And it must be granted that, in this duty, no one can replace the squadron commander, whose time is already absorbed by a multiplicity of duties. He must arouse in all his subordinates a recognition of the high importance of instruction in the details of field service, especially among the officers, so as to increase their interest in it and to break down the idea that a good rider and horse trainer is necessarily a good cavalryman, as such a man may indeed know how to sharpen the weapon, but not to use it. Means and end are not the same.

LIST OF SUBJECTS.

1. Principles, programme of instruction.
2. Instruction of the men.
3. Instruction of young non-commissioned officers.
4. Instruction of old non-commissioned officers.
   (*a*). Reconnoitering.
   (*b*). Patrolling.
5. Field exercises of the squadron.
   (*a*). Practice in tactical problems of ground.
   (*b*). Reconnoitering and patrolling.
   (*c*). Marching.

DUFFIÉ AND THE MONUMENT TO HIS MEMORY. By George N. Bliss, late Captain Company "C," First Rhode Island Cavalry. Providence. 1890.

A loyal and apparently well deserved tribute, to the memory of a gallant and justly distinguished cavalry officer who merited and received the esteem of the officers and soldiers of one of the best volunteer cavalry regiments, the First Rhode Island, of which Duffié was made the Colonel July 8, 1862, organized during our great war.

By many persons, General Duffié, because he was a foreigner, has been unjustly classed with a certain kind of foreign military adventurers who secured commissions in our volunteer service, only to bring disgrace and discredit upon the uniforms they were permitted to wear.

That he was a soldier of experience and high standing before he came to the United States will be clearly shown by the following extracts from the story of his career in Europe and Africa: He was one of the two hundred and twenty admitted, out of the eleven thousand candidates examined for admission to St. Cyr, from which he graduated, and at once went into service as a lieutenant of the French army, in Algiers; and later in Senegal, in Africa, where he was wounded in action. "He went to the Crimea and was in action in

the battle of the Alma, Inkerman, Balaklava, Chernaya, Gangel and Sevastopol; was several times wounded, and was promoted first lieutenant Fifth Hussar regiment. At the close of the Russian war in 1856, he returned to France and served with his regiment until the war with Austria again called him into action and a severe wound compelled him to leave the field for the hospital; but not until he had borne his part in the battles of Palestro, Magenta and Solferino. During his service in Africa and Europe, Duffié received eight wounds and four decorations: the Cross of the Legion of Honor from his own country; the Sardinian Cross from the King of Sardinia, who decorated him with his own hand as he lay wounded; the Turkish Cross from the Sultan; and the English Cross from Victoria."

Upon the recommendation of General Hooker, Duffié was made a brigadier-general of volunteers, June 23, 1863, as a reward for his valuable services in the campaign of that year.

Of Duffié's battles with the peculiarities of the English language, and his unsuccessful attempts to master them so as to always make his wishes and orders comprehended and obeyed, some very striking examples are given in this little book, which is well worthy of perusal by any one interested in cavalry literature. *H. H. B. Com.*

BARTLETT'S MILITARY MUSICALE.

The JOURNAL is in receipt of a communication from Mr. H. T. Bartlett, Chief Bugler at General Sheridan's headquarters during the war, containing an account of several entertainments given in the east, introducing bugle calls in connection with recitations by elocutionists. A poem of six stanzas, entitled "Taps," was recited by an elocutionist, and at different places in the recitation, portions of "Taps" were sounded by the bugler, Mr. Bartlett, who was concealed from the audience. By an artistic timing of the different bars of the bugle call to appropriate places in the poem, a very beautiful effect is produced. To give the effect of distance to the call a "mute" is used in the bugle. This sounding of the call, combined with the eloquent delivery of a finished elocutionist, must have furnished an artistic and enjoyable number in the concert at which it was given.

Another number at the same concert was the account (read by an elocutionist) of the "Cavalryman's Day," from reveille until the close of a successful "charge." At appropriate places in the reading the corresponding calls were sounded on the bugle by Mr. Bartlett, followed in their proper order, by "stables," "boots and saddles," "to horse," "forward," and "water call," and at the supposed near approach to the enemy, the "trot," "gallop," and "charge" were sounded. The description, with the accompanying calls, must have been very realistic. An adaptation of the "Salute to the Color" was also enclosed by Mr. Bartlett, as rendered by him at a presentation of colors to U. S. Grant Post, No. 327, Department of New York, G. A. R. The thanks of the Association are due to Mr. Bartlett for his kind remembrance of his cavalry comrades, and for the clear and concise description of the way these interesting features in a musical entertainment should be arranged in order to be successful. H.

MICHIGAN AT GETTYSBURG: AN ACCOUNT OF THE PROCEEDINGS INCIDENT TO THE DEDICATION OF MONUMENTS TO MICHIGAN SOLDIERS UPON THE BATTLE-FIELD OF GETTYSBURG. By General Luther S. Trowbridge and Colonel Fred. E. Farnsworth.

A beautiful memorial volume dedicated to the Michigan troops, cavalry, artillery and infantry, whose records in the war were equalled by few and excelled by none. Under the auspices of the State and with the substantial assistance of twenty thousand dollars appropriated by the legislature, the different places occupied by Michigan troops on the battle-field of Gettysburg have been marked by appropriate monuments, which will always, in future years, attract the attention of visitors to the scene of one of the greatest struggles recorded in the annals of the human race. The volume, compiled under the supervision of General L. S. Trowbridge and Colonel F. E. Farnsworth, contains a great deal of interesting matter in connection with the dedication of the monuments, and well executed portraits of many of the Michigan officers, who have, apparently, preserved their good looks and military bearing in spite of advancing years, together with very artistic illustrations of the various monuments erected upon the battle-field.

The governors who in war supported their troops to the fullest extent of their official power and social influence, and in peace enthusiastically forwarded every worthy project for commemorating the valor and patriotism of the Michigan volunteers, have received the recognition they have so well deserved. G. G. G. Gov.

THE SOLDIER'S FIRST AID HAND-BOOK. By William D. Dietz, Captain and Assistant Surgeon, U. S. Army. New York. John Wiley & Sons, 1891. Price, $2.10.

This timely volume of ninety-three pages, treats of the first aid that should be given in case of accident—a kind of "what to do until the doctor comes;" and consists, in the main, of a series of lectures delivered to the members of the Hospital Corps and Company Bearers. It is divided into three parts; the human body; first aid on the battle field, and conduct of the bearers in ordinary accidents and emergencies. Technicalities have been avoided; and, if the aids herein described were known and followed, they would be the means of relieving much suffering and of saving many lives. This is just the kind of knowledge that should be possessed by all connected with the army, as many of us may be called upon to act in similar emergencies in the absence of the surgeon.

The directions for controlling hemorrhage on the field are simple and complete, and if carried out might be the means of preventing much loss of life. The instructions for the bearers on reaching a wounded comrade, and the manner of carrying him from the field, are given in such plain language that they can be easily understood by all. The value of the book is increased by a very full index.

S.

OUTPOSTS, ADVANCE AND REAR GUARDS, AND RECONNAISSANCE.

In the compilation of this little pamphlet of thirty-eight pages, under the direction of the Regimental Commander of the Fifth Cavalry, for use in instructing the non-commissioned officers of that regiment, in the duties indicated by its title, a great benefit has been conferred upon the service. It is based upon the well known works of Shaw, Clery, Trench, Baden Powell and Hale, and furnishes, in a very compact and convenient form, a manual for instruction in the important duties of minor tactics, and reconnaissance of country. The method of arrangement adopted is that of questions and answers, in the selection of which, very good judgment is apparent, as the book, while not overloaded with unimportant matter, includes everything essential to the proper comprehension of the subjects treated, so far as they come within the scope of the duties of the non-commissioned officers. It is provided with seven excellent plates, which materially increase its value. G. G. G. Gov.

THE PRESENT UNIFORMS OF THE ROUMANIAN ARMY. By Moritz Ruhl. Leipzig. Price, 2 marks, 50 pf.

Under the above title has been received, through the courtesy of Colonel A. L. Bresler, Superintendent Ohio Military Academy, Portsmouth, Ohio, a very handsome publication, containing, in addition to a statement of the organization of the army, beautifully executed lithographic plates in colors and gold, of every article of dress, insignia of rank, decoration, etc., used in the Roumanian army of to-day. All the details and specifications are so clearly shown that the articles could be easily made from them by any one engaged in the supplying of military goods to the army.

Mr. Ruhl, the publisher of the present work, will soon issue one of a similar character in regard to the United States army, which will doubtless prove to be an interesting addition to the book collections of our army officers. G. G. G. Gov.

PRACTICAL GUIDE FOR THE CONSTRUCTION OF FIELD INTRENCHMENTS. Translated by direction of Colonel E. F. Townsend, Twelfth Infantry, Commandant of the U. S. Infantry and Cavalry School. By Lieutenant R. H. Wilson, Eighth Infantry. 1891.

A pamphlet of eleven pages illustrated by five blue prints, deemed to possess sufficient novelty and value to justify its adoption for use as a text book in the United States Infantry and Cavalry School at Fort Leavenworth, Kansas. The name of the translator is a sufficient guarantee for the faithfulness, accuracy and clearness with which the translation has been made. Even a casual reading will show that the work could not possibly have been committed to better hands. G. G. G. Gov.

KANSAS HISTORICAL COLLECTION. Volume IV. 1888–1890.

A clearly printed and substantially bound volume of eight hundred and nineteen pages, and forms one of a series published by the Kansas State Historical Society, which is charged by the State

with the "duty of forming a library of historical and other materials for the use of the people." In the volume before us may be found many official reports made by army officers in reference to affairs as they existed in what is now known as Kansas, during the decidedly exciting and unpleasant complications of 1856.

MILITAER WOCHENBLATT. Series of 1891.

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REVUE DU CERCLE MILITAIRE. Series of 1891.

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JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

No. 153: Drill and Training of Volunteer Infantry. Infantry Training. Sanitation of Barracks. Notes on the Defense of a Modern

Fortress. Cavalry Equipment. Organization and Distribution. Naval Warfare, 1860–1889, and Some of its Lessons. A System of Signaling Between Men of War and Merchant Vessels. Enlistment of the Militia for Foreign Service. Draught of Military Carriages. The Training of the German Cavalry Contrasted with that of the English. No. 154: The Transport of the Sick and Wounded in Time of War. The Employment of Large Masses of Cavalry, of Movable Fortifications, and of Smokeless Powder, as Illustrated by the German Autumn Maneuvers of 1889. The Transport of Troops by Rail Within the United Kingdom. The Defense of India and Its Imperial Aspect. Gruson Experiments with Smokeless Powder. The Armed Strength of Russia. No. 155: The Entry and Training of Naval Officers. Cruiser-War and Coast Defense. Considerations on the Employment of Torpedo Boats. Tactics and Vertical Fire. No. 156: Steel as Applied to Armor Plates. Tactical Deductions from the Practice of the Swiss Field Artillery in 1890. Red Indian Warfare. No. 157: On the Present System of Enlistment and Pay of Our Soldiers and its Bearing on Recruiting. On Army Cooking and Messing. The Self-fitting Austrian Military Saddle.

REVIEW OF REVIEWS.

January, 1891: Can Cancer be Cured? My Schools and Schoolmasters. The Need for a Democratic Aristocracy. Is the French Republic Going to Last? Yes. The Truth About Dr. Koch and His Poison. Ballistics and Non-Conformists. The Age of Discontent. The Pigmies of the African Forest. February 1891: Aristotle on the Constitution of Athens. How to Federate the British Empire. Private Morals and Public Life. Tobacco as a Conscience Killer. The Coming Billionaire. Are Women Worse Than Men? The People's Palace in London. The Passing of the Redskins. March 1891: Progress of the World. Character Sketch—Charles Bradlaugh. The Future of Canada. The Jews and their Enemies. Ghosts; What are They? The Reunion of Christendom. The Communists of America. The New People of the New World. The Song of the Battle-Field. The Shadow on the Throne.

THE UNITED SERVICE. Hamersly & Co., Philadelphia, Pa. January, February and March, 1891.

How We Elected the Mayor of Oglethorpe. Wellington. Some Changes Effected in the French Army by the Revolution of 1789. The Harriet Lane. History of the Mormon Rebellion, 1856–1857. John Nelson's Reformation. Modern Armor. Pulaski and Charleston. Moltke. Under the Southern Cross. History of the Mormon Rebellion, 1856–1857, (continued). Perry, the King's Secretary. Knots and Miles. Chronicles of Carter Barracks. The Influences of Small Caliber Magazine Rifles and Smokeless Powder on Tactics. A Double Winner. Moltke. History of the United States Marine Corps. History of the Mormon Rebellion, 1856–1857. John Nelson's Reformation. Under the Southern Cross. The Evacuation of New Madrid by the Federals.

PROCEEDINGS OF THE UNITED STATES NAVAL INSTITUTE.

Vol. XVI, No. 5, 1890: Introduction. The Annapolis Armor Test. Report of the Board on the Competitive Trial of Armor Plates, with Thirty-two Full Page Plates from Photographs, Illustrating Targets and Effect of Projectiles upon them. Vol. XVII, No. 1, 1891: Prize Essay for 1891. The Enlistment, Training and Organization of Crews for Our New Ships. Note on Experimental Ammunition Cart, Constructed for the Ordnance Department. Seacci's Ballistic Equations on the Angle of Elevation, in Order that the Trajectory in Air Shall Pass Through a Given Point. Target Practice, with Discussion. Electrical Counter and Shaft Revolution and Direction Indicator. Appendix, Vol. XVI, 1891, Containing List of Members, Constitution and By-Laws, Etc.

OUTING. January, February and March, 1891.

How England Trains Her Redcoats. The St. Bernard Dog. Cycling in Mid Atlantic. Fish Spearing on the Otonabec. The Sports of an Irish Fair. Winter in North Carolina. The Pink Sun. Across the Great Divide. *Outing* has added to its ever widening range of interesting articles, "Military Exercises" as bearing on physical development. In some of the recent issues we have had the "Southern Cavalry Tilts," "The Soldier as a Marksman" and "The Soldier Cyclists." *Outing* for March tells "How England Trains Her Redcoats," a paper as indispensable to the National Guardsman as his book on tactics. The article is richly illustrated by special *Outing* artists sent to England, and by the well known English master of pencil and brush, Seymour.

PENNSYLVANIA MAGAZINE OF HISTORY AND BIOGRAPHY, No. 1, Vol. XV. April, 1891.

The Life and Times of John Dickinson, 1732–1808. Exchange of Major-General Charles Lee, from MSS. of Elias Boudinot. Unpublished Letters of Benjamin Franklin. Itinerary of General Washington from June 15, 1775 to December 23, 1783. The University of Pennsylvania in its Relations to the State of Pennsylvania. Extracts from the Journal of William Jennison, jr., Lieutenant of Marines in the Continental Navy. Pennsylvania Weather Records, 1644–1835.

JOURNAL OF THE MILITARY SERVICE INSTITUTION. No. 49. March, 1891.

Our Experience in Artillery Administration. The Power of the Senate. Musketry. Military Gymnastics. On the Increase of the Number of Cadets. The "Oath of Enlistment" in Germany. The Funeral Ceremonies of Washington. Reprints and Translations. Military Notes. Historical Sketches of the United States Army: The Eleventh Infantry.

PROCEEDINGS OF THE ROYAL ARTILLERY INSTITUTION. January and February, 1891.

Relation of the Battle of Dettingen. Changes in the Royal Artillery. The Origin of our Present Drill Book. Lecture upon Experiences at Okehampton in 1890. Homing Pigeons. Ranging a Battery. Development of the Bracket System.

THE IOWA HISTORICAL REVIEW. January, 1891.

Colonel William Patterson. Bushwhacking in Missouri. Judge Miller's Appointment to the Supreme Court. The Spirit Lake Expedition of 1857. Governor Kirkwood's First Meeting with President Lincoln. Letters of a War Governor.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA. No. 84.

Army Organization. The Military Training of Junior Regimental Officers. Targets and Marking. Regulations for the Self-entrenchment of Infantry. The New German Repeating Rifle.

UNITED SERVICE INSTITUTION OF NEW SOUTH WALES. 1890. Vol. II.

The Defense of a Protected Harbor. Harbor Defense by Guard Boats. Round About Apia. The Australian Soldier.

SPIRIT OF THE SOUTH. Weekly. New Orleans, La.

THE INVENTIVE AGE. Weekly. Washington, D. C.

HUDSON'S ARMY AND NAVY LIST. March, 1891.

PRINTER'S INK. Weekly. New York.

LETTER FROM AN ARMY OFFICER.

FORT LEAVENWORTH, KAN., February 17, 1891.

National Typewriter Company, 719 Arch Street, Philadelphia, Pa.:

GENTLEMEN:—The National Typewriter, which was sent by you on the 14th inst., arrived in good order this afternoon and is giving perfect satisfaction. I am delighted with the long space key, and I think it a great improvement. I think the "National" ought to sell well in the army, as it is very compact and easily transported, two things that are greatly desired in the army, where transportation is limited. Again, it is not so high priced ($60.00) that it absorbs a whole month's pay. Again thanking you for your promptness, I remain,

A. G. HAMMOND,
First Lieutenant, Eighth Cavalry.

In Memoriam.

Captain George D. Wallace,

7th Cavalry,

KILLED IN ACTION WITH HOSTILE SIOUX INDIANS,
AT WOUNDED KNEE, SOUTH DAKOTA,

DECEMBER 29, 1890.

First Lieutenant Edward W. Casey,

22nd Infantry,

COMMANDING CHEYENNE INDIAN SCOUTS,

KILLED WHILE ON RECONNAISSANCE DUTY, ON WHITE CLAY CREEK,
SOUTH DAKOTA, BY A BRULÉ SIOUX INDIAN,

JANUARY 7, 1891.

First Lieutenant James D. Mann,

7th Cavalry,

DIED JANUARY 15, 1891, OF WOUNDS RECEIVED IN ACTION AT
DREXEL MISSION, SOUTH DAKOTA,

DECEMBER 30, 1890.

JOURNAL

OF THE

UNITED STATES CAVALRY ASSOCIATION.

VOL. IV. JUNE, 1891. NO. 13.

THE CAVALRY AT CHANCELLORSVILLE, MAY, 1863.

AT a dinner of the Sons of the Revolution given at New York the past winter, JAMES E. TUCKER who, in 1863, was color bearer of the Second Virginia Cavalry, a regiment in FITZHUGH LEE's brigade, and Colonel FLOYD CLARKSON, who had been a major in the Sixth New York Cavalry, had the pleasure of meeting one another. On the 30th of April, 1863, the latter regiment was surrounded by General LEE's brigade, but, though outnumbered by a force treble his own, the gallant Lieutenant-Colonel MCVICAR, who was in command of the Sixth New York, ordered a charge with sabers, and the greater number of those with him reached the main army at Chancellorsville, leaving only dead and wounded behind; among the former the brave MCVICAR, who, had his life been spared, would have made his record high among the dashing leaders of the Union cavalry.

Colonel CLARKSON was not with the regiment at the time. Mr. TUCKER, whose horse was shot under him in the engagement, was anxious to meet those who had participated in it, and Colonel CLARKSON invited those who could be reached, to meet Mr. TUCKER at his house, to talk over this and other engagements in which these two regiments had met each other, for the "Old Sixth" was well known to all the Confederate cavalry serving in Virginia; each having the

C. C. C. Carr.
Editor

respect for the other that brave men feel towards those they meet in battle where true manhood is shown.

It so happened that a short time before this, the writer was told, that living in the same suburb of New York with him, was a Confederate officer, who had been in this engagement with the Sixth New York, and received a saber cut that nearly severed his nose from his face; and thought that his fellow townsman had been the offending party. And on my meeting Captain BENJAMIN F. MEDINA of the Fifth Virginia Cavalry, it proved to be so. How strange it seemed, that after a lapse of more than twenty-seven years, he should tell me in my own home, how in that wild charge in the woods of Virginia, at night, the officer that gave him that "right cut" was shot by Captain REUBEN BOSTON of his regiment, almost at the same moment, and how Captain BOSTON was killed at the last fight of the war, near Appomattox. As he told his story it seemed there could be no mistake in his conclusion; for, as I was engaged with one on the right, before I could turn my horse to give the "left cut" to one who had a pistol that I could feel pressed against me, he fired, the ball going through my left arm and making a wound in my stomach; at the same time a blow on the head knocked me from my horse, and I was left behind to be taken to Libby Prison.

Captain MEDINA participated with us in the reunion of the "Blue and Gray," and the reminiscences awakened then, have prompted me to write of this and other work done by the cavalry at Chancellorsville; however, before leaving the subject of this little gathering, where so much good feeling was shown between those who had often met in deadly strife, let me mention how we called to mind that as General LEE stopped at the little log house where we were, the next morning, and learning that the body of the gallant leader of the little band, which had driven back his whole brigade, lay unburied on the field of battle, he had it brought in, a coffin made from the material that could be had, and buried it there, whence, we afterward had it removed to its final resting place in Rochester, New York. Such kindly feelings existing, with the loyalty expressed for the Union by those who once had fought against it, made all feel that sectional animosity would not have continued long had the men who did the fighting had the readjustment of affairs when the South laid down her arms.

A newspaper correspondent once being asked why so little mention was made of the work done by the cavalry in our Civil War, tersely replied, "that they were generally so far to the front, and so near the enemy that it was rather dangerous and —— unpleasant to

be with them." And this was the case at Chancellorsville. The reports of that engagement written since the war, give but little attention to the work done by the cavalry at that time.

General HOOKER, who was then commanding the Army of the Potomac, says: "The cavalry under General PLEASANTON saved the army from annihilation." Upon entering the Chancellorsville campaign, General HOOKER detached the cavalry, with the exception of the brigade commanded by General PLEASANTON, and sent them under command of General STONEMAN to make a raid on the enemy's line of communication. This command accomplished nothing. There were left with PLEASANTON the Sixth New York, Eighth and Seventeenth Pennsylvania regiments of cavalry, with PENNINGTON'S regular and MARTIN'S volunteer batteries. As STONEMAN'S column moved out leaving us behind, we felt how unjust had been the detail that kept us from sharing in what all thought would bring so much glory to those who should ride with them; but the work done by our little brigade was the commencement of what gave our cavalry the name which has been unequaled by that of the cavalry of any other country.

In the advance to Chancellorsville I will follow only that part of my own regiment that led the advance of the Twelfth Corps under General SLOCUM, which was the right wing of the army; the Eighth Pennsylvania leading the advance of General MEADE'S column and the Seventeenth Pennsylvania doing the same duty for General HOWARD, the remainder of the Sixth New York being assigned to other divisions, but joining the cavalry command before the battle was over.

On Wednesday morning about two hundred of the Sixth New York, under command of Lieutenant-Colonel MCVICAR, were ordered to report to General SLOCUM; we crossed the Rappahannock river at Kelley's Ford, and soon after were engaged with a North Carolina cavalry regiment, driving them and taking some prisoners, among them a captain, whose lieutenant commanded the guard that a few days later escorted me to Richmond. The lieutenant remarked when he found out that it was the same command that had captured his captain "that the captain was in the habit of being taken without much trouble."

We skirmished all that day with cavalry in our front, reaching Germania Ford on the Rapidan late in the afternoon, a heavy force in rifle pits on the other side preventing our crossing. We took possession of an old mill on the banks of the river, exchanging shots with them until the infantry came up, and a battery put in position shelled the rifle pits, while the infantry crossed and captured all the defenders of the works. Crossing the ford we again

took the advance, capturing some prisoners and baggage of the famous Black Horse Cavalry. We reached the Chancellorsville House Thursday afternoon, having been engaged more or less all the time since we started, with a loss of three men killed, one officer and five men wounded. Having reported our arrival to General SLOCUM, who was about three miles back, orders were received from him to go to Spotsylvania Court House. Colonel MCVICAR knew full well from prisoners captured that the force we had skirmished with since crossing Kelly's Ford was vastly superior to ours, and that our advance, so far from support, would be attended with great risk, but as he told the officers with him what we were expected to do, he ordered the bugler to sound "Forward."

"His not to make reply,
His not to reason why,
His but to do and die."

As we marched on a few of the enemy were seen, but they fell back as we advanced; about dark, after marching through the woods, we reached a small clearing; the order to halt and dismount was given; a mounted guard was thrown out to the rear, and Captain BELL, with a few men, was sent towards the Court House. The men had been on almost continuous duty for forty-eight hours, and as they rested, holding their horses' bridles, most of them were lying asleep by the roadside. Captain BELL soon returned and reported that there was a heavy force at the Court House; about the same time the rear guard was fired upon and driven in. The command sprang to their feet, and mounting, very soon formed in line in the open field. It was now very dark, and there was some fear that some of our own troops had come up and, by mistake, had fired upon the rear guard. Colonel MCVICAR sent Captain GOLER back to ascertain the true state of affairs. Going back to the junction of the roads to Todd's Tavern and the Chancellorsville House, he was challenged, and on answering, "The Sixth New York Cavalry," was fired upon and driven back to the main body. Sergeant CARROLL was killed by the volley. As the enemy came down the road, which was only wide enough for a column of fours, our men formed in line, fired upon them and checked their further advance. Then Colonel MCVICAR ordered the command to draw saber, break by fours to the right, and cut our way through. As our bugle sounded the charge, it was at the same moment sounded by the Fifth Virginia, and the notes rang out clear and full in defiance of each other, as we rode down to where they waited for us. In the darkness it seemed as though a sheet of fire belched forth from their carbines, and at this first fire

the brave MCVICAR fell, and the rest of the command were mixed up with the Confederates as we rode through them. Besides Colonel MCVICAR, who was killed, three officers were wounded and about twenty men killed and wounded. These were left behind, and the survivors drove the enemy until the cross-roads were reached, where the Confederates took the one to Todd's Tavern, and our men went on to our own lines at Chancellorsville. The wounded were taken to a house near where they fell, and after a few days were sent to Libby Prison.

I copy extracts from an article written for *Blackwood's Magazine*, published in 1866, at Edinburgh, by Major HEROS VON BORCKE, who was chief of staff to General J. E. B. STUART at the time of the engagement, and received a bullet through his hat and had his horse shot through the head as we rode through the enemy's ranks. The extract commences at the time of Captain GOLER's being challenged:

"General STUART dispatched Captain WHITE of our staff, to FITZHUGH LEE with orders to send on one of his regiments as soon as possible and to follow slowly with the rest of his brigade. General STUART and his staff were trotting along at the head of the column, when, at the moment of emerging out of the dark forest, we suddenly discovered in the open field before us and at a distance of not more than one hundred and sixty yards a line of hostile cavalry, who received us with a severe fire which concentrated on the narrow road. Fully conscious of our critical position, STUART drew his sword and with his clear ringing voice, gave the order to attack, taking the lead himself. For once our horsemen refused to follow their gallant commander; they wavered under the thick storm of bullets; soon all discipline ceased, and in a few minutes the greater part of this splendid regiment, which had distinguished itself on so many battle-fields, broke to the rear in utter confusion. At this moment the enemy's bugle sounded the charge, and a few seconds after we brunted the shock of the attack which broke upon us like a thunder cloud, and bore our little band along with its vehement rush, as if driven by a mighty wave, sweeping us along with it, in the darkness of the forest."

During the night and next day, the scattered remnants of the regiment were brought together and reformed within our lines. On Saturday afternoon, General SICKLES occupying a position near the right of the line, seeing STONEWALL JACKSON'S flank movement, thought the Confederate army was about to retreat, and called for the cavalry to help in their pursuit. What was left of the "Old Sixth" was deployed as skirmishers. When the heavy firing gave the first indication that HOWARD'S Eleventh Corps was being attacked, an aide-de-camp from him galloped up to General PLEASANTON and asked for cavalry to check the enemy's advance until he could reform his

line. Major KEENAN commanding the Eighth Pennsylvania, was sent with his regiment to charge the head of the advancing column, while General PLEASANTON put his batteries in position, faced to the rear and double shotted with canister, awaiting the appearance of the enemy. The Seventeenth Pennsylvania and Sixth New York were engaged in trying to arrest the wild flight of the demoralized Eleventh Corps, who in the greatest confusion were running over the batteries already in position; while more artillery was stopped and, with the help of the cavalry, given a field for action. General SICKLES seeing the danger, told General PLEASANTON to hold his ground at all hazard until he could put his Third Corps in position to hold the ground which was the key to the position of the whole Union army, for with STONEWALL JACKSON in possession of this elevation, he would not only be able to throw his shells into the headquarters at the Chancellorsville House, but from the rear pour an enfilading fire upon the entire army.

While this was going on the Eighth Pennsylvania with KEENAN riding at their head, charged on the advancing corps of STONEWALL JACKSON. Brave KEENAN fell, saber in hand, and scores of his gallant troopers with him, but the advance was checked until PLEASANTON and SICKLES had completed the formation that was to turn back that advancing host; which without this check would have continued on and swept all before them and driven our army back to the Rapidan.

"By the shrouded gleam of the western skies,
Brave KEENAN looked in PLEASANTON's eyes
For an instant, clear and cool and still;
Then with a smile, he said: 'I will.'

"'Cavalry, Charge!' Not a man of them shrank,
Their sharp, full cheer, from rank on rank
Rose joyously, with a willing breath,
Rose like a greeting hail to death.

"And full in their midst rose KEENAN, tall
In the gloom, like a martyr awaiting his fall,
While the circle-stroke of his saber, swung
'Round his head, like a halo there, luminous hung.

"They raise no cheer.
They have ceased, but their glory shall never cease
Nor their light be quenched in the light of peace.
The rush of their charge is resounding still,
That saved the army at Chancellorsville."

As the enemy advanced General PLEASANTON gave the order to fire and those twenty-two guns carried death and destruction into the enemy's ranks. Three times they charged, but they could not

stand the hail-storm of shot, and fell back leaving their dead and wounded. General SICKLES' line was formed and the army saved.

From this time the cavalry played an important part in all movements of the Army of the Potomac. A few weeks later that tournament with all of STUART's cavalry in and about Brandy Station, followed by the cavalry engagement at Gettysburg, established its reputation, which later under the leadership of General SHERIDAN became known the world over.

The following General Order was issued after Chancellorsville:

GENERAL ORDER, No. 27. ARMY OF THE POTOMAC, May 10, 1863.

The General Commanding takes this occasion to commend the conduct of the "Second Brigade" and MARTIN's Sixth Independent New York Battery in the late engagement near Chancellorsville. The distinguished gallantry of the Eighth Pennsylvania regiment in charging the head of the enemy's column advancing on the Eleventh Corps on the evening of the 2d inst.; the heroism of the Sixth New York regiment in cutting its way back to our own lines, through treble its force of the enemy's cavalry on the 1st inst.; and the coolness displayed by the Seventeenth Pennsylvania regiment in rallying fugitives and supporting the batteries, including MARTIN's—which repulsed the enemy's attack under JACKSON—on the evening of the 2d inst., have excited the highest admiration.

These noble feats of arms recall the glorious days of Middletown, Boonsboro, Antietam, Martinsburg, Upperville, Barber's and Amisville where the First Brigade shared with us the triumphs of victory, and they will now, while exulting in this success, join in sorrow for the brave who have fallen. The gallant "McVICAR," the generous "KEENAN," with one hundred and fifty killed and wounded from your small numbers, attest to the terrible earnestness that animated the midnight conflict of the "2d of May."

A. PLEASANTON,
Brigadier General, Commanding.

W. L. HERMANCE,
Late Lieutenant-Colonel,
Sixth New York Volunteer Cavalry.

THE PROPER EMPLOYMENT OF CAVALRY IN WAR.

THE people of the United States are fortunate both in their form of government and in their geographical situation; the former guarantees the security of life, liberty, property and an opportunity for the highest individual development of the citizen, whilst the latter secures them from the fears, alarms, expense of preparation and constant readiness for foreign war.

Since the days of MORGARTEN certain political rights of the individual citizen have been recognized in all civilized governments, and nations can no longer be driven to war at the will or upon the caprice of their princes.

International communications and commerce have multiplied as the arts and sciences have advanced; disputes are sure to arise, and whilst the human disposition remains as it is, war is inevitable. If a nation wishes to be respected, it must maintain an army; and in case of war, if it hopes for success, this army should be officered by intelligent, highly educated men, devoted to their profession, and animated by the highest patriotism.

Our country is not threatened by powerful or warlike neighbors, hence we are saved from that ruinous competition in armaments which is so oppressive to the industries of Europe. But for the security of the nation we must keep a small standing army to serve as a nucleus for the great volunteer forces upon which we depend in time of war. For purposes of interior police, to keep up military traditions and instruction in the latest phases of the art of war among our people, there should be at least one soldier to every 2,000 inhabitants. The organization of this army and the regulations governing it should serve as models for the volunteer forces. The staff corps should be capable of indefinite expansion, without friction; the organization of the cavalry, infantry and artillery should be of a nature most adaptable to the character of our new levies, in order that the volunteer may not be hampered in his individuality more than is necessary for the cohesion of the mass. The cavalry, infantry and

artillery are the real fighting divisions or services of all armies. Each has a special mission peculiar to itself and a skillful combination of these three elements upon the same field, so that each can employ its utmost powers to the greatest advantage, tests the abilities of the great commander.

We propose speaking of the cavalry branch of the service only, and in discussing the proper employment of cavalry in war, a short account of its organization is deemed necessary to a proper understanding of its possible uses.

All civilized nations, except our own, have organized their cavalry into troops, squadrons, regiments, brigades and divisions. The law organizing our army, creates the troop and regiments only. The services of our cavalry since the Civil War have really required only such an organization. If the necessity should arise requiring larger bodies of cavalry to act together, the brigade and division would undoubtedly be formed.

Our drill regulations prescribe the battalion as the fighting unit. The battalion normally consists of four troops, but may contain a less number or a greater number, not exceeding seven. The law authorizes ten regiments of twelve troops each and prescribes that each troop shall consist of one captain, one first lieutenant, one second lieutenant, one first sergeant, five sergeants, four corporals, two trumpeters, two farriers and blacksmiths, one saddler, one wagoner, and such number of privates as the President may designate, not exceeding seventy-eight. Under the present orders, two troops in each regiment have been disbanded, leaving none but the commissioned officers; and the enlisted strength of the remaining troops is fixed at sixty each.

A detailed account of the organization and services of our cavalry of to-day will *not* give a correct idea of the proper organization or employment of cavalry in modern war.

Our battalion is too unwieldy, and lacks the proper cohesion for a fighting unit. The line is too long or the column is too deep to be under the control of one voice. Many errors are committed upon the drill ground, simply because the voice of the battalion commander can not reach the subordinate officers. The imagination can easily picture the confusion that would arise among the jingling of sabers, the clattering of hoofs, the dust, the noise of explosions and the excitement of the battle-field.

The battalion is too large a unit to use for the purpose of keeping immediate contact with the enemy, and the troop is too small. Two troops could be used, but they lack that cohesion and completeness

which are so necessary for contact service and, as a consequence, the duty would be imperfectly performed in some of its minor but vital details. The squadron can do the duty perfectly; it is a fighting unit: it is sufficiently strong to furnish all the necessary patrols for a reasonable area, to supply the number of messengers that have to be constantly sent to the rear, to keep a sufficient reserve to support the contact groups when needed, and it is perfectly mobile. The substitution of the battalion in our cavalry organization as the fighting unit for the squadron, is an innovation unwarranted by centuries of experience, and can be explained only upon the ground that at the close of the Civil War, a mania for uniformity possessed our military authorities, and an assimilated drill and organization for the three branches of the service were thought to be the *ne plus ultra* of military excellence.

It is to the cavalry in Europe that we must look for proper organization, and to some extent, for its proper employment in war.

Europe could have learned much by studying the employment of our cavalry during the Civil War, for SHERIDAN vastly enlarged the field of its usefulness. Throughout the entire history of its existence cavalry has performed almost every conceivable duty during war, but many of its feats were the result of the genius of its commander at the time, and hence could not be repeated in another era; or they were the result of accidental circumstances and no general tactical principle could be deduced.

Improvements in the fire-arms of infantry and artillery within the last twenty-five years have somewhat changed the functions of cavalry in particular cases. They have not only added to its value as a fighting factor, but they have vastly enlarged its field of general utility. These improvements were first practically applied in the war of 1866, but the full force of the lessons taught and the tactical deductions therefrom, were not fully demonstrated until the war of 1870–71. The new conditions required a different tactical employment of the three branches of the service, and to a certain extent a change of organization.

The cavalry retained the time-honored squadron which generally consists of two troops; but the squadron of about 130 men is the fighting unit. The regiment consists of four, five or six squadrons. There is not uniformity in this respect, nor is it necessary; but four squadrons to the regiment is the general rule.

The brigade is usually composed of two regiments—this is not uniform however, but it is found by experience that two regiments

must be regarded as the maximum that can be efficiently handled by the direct personal influence of one man.

A cavalry division consists of three brigades, but even here, the model formed by experience is not uniformly copied. A division formed of two brigades is objected to on the ground that detachments are unavoidable and the fighting strength of the division would be so reduced, that the great tasks devolving upon it during war, could not be efficiently executed. In the cavalry combat, the leader who brings forward the last reserve is usually successful. One brigade placed in the first or fighting line; a brigade in the second or maneuvering line, to protect the exposed flank and reinforce the first line during the *mêlée*, and the third brigade, either wholly or partially as a reserve, seem to be the natural distribution of a division of cavalry for the combat.

During the combat, events succeed each other so rapidly that a leader should see at a glance, every feature of the fight as well as everything which transpires in the vicinity of his troops. This is necessary to the exercise of his principal influence, which consists in skillful management and well-timed movements of the reserves, and these reserves should belong to the same organization and be under one commanding officer. A division of three brigades naturally fulfills these conditions.

The instant the *mêlée* takes place the individuality of every unit in the fighting line becomes lost, and in the case of a repulse, the leader can regain control of his men only when the adversary ceases from the pursuit, or when he, in turn, is driven back by the arrival of fresh troops. In case the troops are successful, the noise and confusion of the pursuit are so great that still some time must elapse before the leader can cause the men to feel his controlling power. It is because of this temporary loss of control over the men, that the influence of the second and third lines entering the fighting group, becomes of so much more importance in a cavalry combat, than in an engagement between other arms of the service.

In an organization of a less or a greater number of brigades, a second or a third line may be formed, but the third line, the last reserve, must either remain at the disposal of the brigadier or regiments may be retained by the division commander at his own disposal. In the latter case the organic cohesion of the troops has disappeared and when called upon for action, they find themselves in a loose and unusual formation.

Generally, the cavalry is classed as heavy and light—we make no such distinction in our service. Our cavalry is sufficiently heavy for

all duties required of modern horsemen. Heavy cavalry grew along with European institutions, and from motives of economy, as they have the heavy horses and have to utilize them; and we suspect it to be a trace of feudalism—the remains of the days of chivalry—a remaining impress of the dark ages. The distribution and armament of these heavy and light regiments do not enter into this discussion.

The organization of the cavalry division would not be complete without horse artillery. The operations of a large body of cavalry could be so impeded and restricted as to render it of but little effect during war if deprived of horse artillery. Small detachments of an enemy occupying a defile, a bridge, or other small and natural defensive position, could delay the march of a great body of cavalry, or exact sacrifices from dismounted men, much out of proportion, should cavalry not be in condition to drive them out by a few shells. An enemy's column must deploy when the artillery opens fire upon it, and the advance of troops in considerable bodies, over ground not suitable for cavalry movements, can be delayed or entirely prevented by the fire of artillery. Horse artillery should therefore be permanently attached to the cavalry division. The number of batteries to be attached depends much upon the character of the country and the special nature of the service required of the division. Its ordinary duties often require the temporary detachment of a brigade, and this should be accompanied by a battery, and there should be at least one battery with the other two brigades. Not less than two batteries should be so attached, and a third battery will frequently be needed.

There must be a signal or telegraph corps, a hospital corps, an ammunition and supply train, permanently attached to the division. If each wagon were to haul 4,000 pounds, it would take about seventy of them to haul three days' forage for the animals alone. This gives only a vague idea of the extent of the transport trains, but it is enough to indicate the impedimenta absolutely necessary, in time of war, even with the fleetest and most mobile part of a great army.

In some services there is a regiment of cavalry permanently attached to each infantry division. This is called the divisional cavalry, and must not be confused with the cavalry division described above.

The duties of this cavalry are: To furnish a cavalry contingent for infantry advance guard, to cover the road or roads on which the infantry division or its brigades march, to provide patrols to look out for the enemy in every direction, to thoroughly search the country immediately in advance of the infantry, to keep up communications with the parts of the infantry division that may be marching on other or parallel roads, to feel for, establish and keep up communications with troops marching on roads parallel to those used by its own division, to keep up communications with such troops as may be marching in front or rear, thus freely communicating with all the component parts of the army corps, to keep up communications of the latter with the army and with each other, and to provide orderlies for general officers, and such escorts as may be needed from time to time.

The employment of this divisional cavalry upon the battle-field, during pursuits and retreats will become apparent during this discussion.

The cavalry division is an independent tactical body, and stands in a strategical rather than a tactical relation to the rest of the army. Its service is rendered in advance of the army, where it acts as a screen, preventing the enemy from seeing or learning of any movement during the strategical period of the campaign. It is of equal importance that the cavalry division should see and know of every movement made by the enemy during this period, and report them to the army commander.

Before starting on his mission in advance of the army, the cavalry leader should be given all the information by the army commander that is in the possession of the latter, regarding what is known of the enemy, his possible position, his probable intentions, his line of communications, etc. If possible, he should be furnished with a map of the theater of operations. The army commander should inform him about when and in what direction it is probable that his own army will move. He should be informed of the present intentions of the army commander and he should be told what the latter is the most anxious about at the present moment. Finally, the cavalry commander is informed where he is to send his first reports and where he can rely upon getting support from other bodies of troops.

This information will probably be meager enough at first, but it is very important at the beginning; and the cavalry commander soon places himself in position to furnish, in his turn, all that relates to the enemy.

The cavalry commander now sets about the two tasks of executing strategical reconnaissance and covering the front of his own infantry forces. In the execution of this duty the cavalry must prevent a similar action on the part of the enemy. At the commencement of operations, before contact with the enemy, and in the absence of knowledge of his strategic deployment, it is better for the bulk of the cavalry to keep what are thought to be the central

routes, the brigades marching on parallel roads, so that, if necessary, a rapid concentration may be effected.

Each detachment will form its own special advance guard, and they must keep up constant communication with each other. All roads, trails and special features of the country must be patrolled and thoroughly examined. Detached squadrons must be sent far to the front.

The theoretical distribution of a cavalry division covering the front of an army, is about as follows: Two brigades of the division are in advance; each brigade keeps one regiment in first line. These regiments together cover a front of from twenty to thirty miles: this front depends upon the extent of the army covered, the proximity of the enemy, his enterprise, whether he is advancing or retreating; if the latter, whether it is after a defeat or is simply a retreat in maneuver, and many other conditions which naturally prescribe the extent of the front in each special case.

Each regiment observes from ten to fifteen miles, keeping two or three squadrons in the first line, the rest follow as near the center as circumstances will permit, in compact order. The number of squadrons kept on the first line in each regiment, will depend upon the ground, the enterprise of the enemy, and other circumstances which require sound judgment on the part of the commanding officer on the spot. The advance squadrons must keep up thorough communication among themselves, with each other, and with the remainder of the regiment in the rear. The second regiment of each of the two advance brigades, follows the first regiment in compact order, two or three miles in rear of its center. The third brigade of the division follows in rear of the center of this second line, as a reserve, at a distance of about five miles. There is a battery of horse artillery with each of the advanced brigades. If there be a third battery, it is with the reserve brigade. The movements of the cavalry are, of course, determined by those of the enemy; and the distance between these lines, and also the distance in front of its own army, will depend upon the progress made by the two armies, but as a rule, the latter distance will be twenty to thirty miles—two or three days' march.

The less resistance the advanced squadrons meet, the looser the first line may be, and the more extended may the reconnaissance be made. The main body of the cavalry should always be moved toward the point where the strongest resistance is expected: in other words, it should be moved where it is supposed the enemy's strongest force is located. If, in conforming to this rule, the main body should be placed in rear of one of the wings, and the extent of front such as to prevent ready support to the other wing, the latter must

be allowed great independence of action, and, in certain contingencies, a special line of retreat must be indicated. Large detachments during a reconnaissance are a necessity from the very nature of the service, but the general rule is, to keep the forces as near together as circumstances will permit.

The cavalry having been deployed upon the proper front, begin their work of finding the enemy and obtaining all possible information regarding him. This work is done by the squadrons in the first line—what are technically known as the contact squadrons.

The chief of squadron pushes forward, detaching platoons or patrols, as circumstances may require to reconnoiter particular localities. Each patrol sent out is given a special task to accomplish; each chief of platoon receives specific orders, usually verbal, regarding his duties and the mission he is to go upon. The squadron commander should always keep not less than one platoon—a fourth of his squadron—in reserve to support any part of his command that may need it. The chiefs of platoon move in the directions indicated, sending patrols of a non-commissioned officer and a few men—the fewer the better, so the object be accomplished—to examine the country, find traces of or sight the enemy, make a prisoner, and generally get all possible information of the enemy. They must make inquiries of the inhabitants, particularly if they be coming from the direction of the enemy and prevent the inhabitants from going in the direction of the enemy. If a telegraph station, lately in the possession of the enemy, can be reached, these patrols, reinforced if necessary, must take it and confiscate the dispatch book and all papers that are likely to give information. They must enter the post offices and capture the mails, enter villages, question the inhabitants, particularly the most prominent and those who are likely to be the best informed—ministers are good subjects for such catechism and bright children who know no guile—take all maps and newspapers, especially if the latter be printed within the enemy's lines. The country must be flooded with these inquisitive horsemen, always asking questions, getting information and at all times pushing forward, and if checked, simply halting whilst those on the right or left turn whatever halts them. Finally, when the enemy has been once checked, contact must never be lost, unless orders to that effect be given by proper authority. The cavalry fastens upon the enemy in such a way that the points keep up an unbroken touch with his front, whilst the officers' and other patrols hang on to his flanks where they have ample opportunities for observation. The moment that important information is obtained it is sent to the rear, where it is

transmitted by the most expeditious means to the army commander. When the enemy has been found, all surplus parties should be drawn in and only such parallel and flank roads be observed, as in the nature of the case are likely to be used by the enemy. The cavalry must be able to learn and report every movement of the enemy, and also to oppose in force, any attempt he may make to prevent the reconnaissance or to make one himself.

Fighting is not the object of the cavalry when covering its army; information of the enemy is what it wants, and this information is obtained by the patrols, either in small parties or acting singly; they are to see and not to be seen by the enemy. If chased by the enemy they should take every advantage of the ground for the purpose of getting out of his sight, and when that is done, they should make a detour, avoid him and complete the observation. Of course occasions will arise, when a bold, headlong advance is the only way to accomplish the desired inspection. At such times to hesitate is to waste opportunity, and the cavalryman who lacks resolution is as much out of place as were the money changers in the Temple.

To reconnoiter a hostile position previously to attacks or battles, officers' patrols are almost exclusively employed. They endeavor to observe the enemy's position, his strength and his reserves, the extent of his lines, the most available point of attack, and the topography of the ground occupied by him and in his front. Their success principally depends upon the bravery, quickness, coolness, ingenuity and military *coup d'oeil* of the officers conducting them.

The contact squadron has the most trying duties in time of war, of any of the tactical units. As every squadron is liable to be called upon for this duty, in order to accomplish it thoroughly the cavalry soldier must be trained as an individual, as well as one unit of a large mass. His individuality must be thoroughly cultivated, his knowledge and ability must be continually improved, and at the same time his power of acting as only one in large masses must be kept in view. It is by his intelligence and vigilance that the great mass of infantry and artillery in his rear can enjoy quiet and repose after their hard day's march, free from disturbance caused by vague rumors and alarms. The annoyance which such cavalry can cause an enemy gives them an uneasy feeling of insecurity, and will eventually demoralise the best army in the world.

The French give many graphic accounts of the daring and enterprise of the Prussian horsemen in 1870–71. Colonel BONIE says: "Arrived at Sarrebourg, the regiments were reformed. We received in the middle of the day of the 8th of August orders to saddle and

mount, because the enemy's cavalry was in view; some scouts were mistaken for the head of numerous columns. From that moment until we reached Luneville their scouts watched us unceasingly. Linked to their army by horsemen, they gave an exact account of our positions, of our halts, of our movements; and as they watched us from some little distance, incessantly appearing and disappearing, they spread uneasiness." This was the cavalry that destroyed the railroad junction at Nancy, and prevented the Sixth French Corps from receiving its reserve artillery, ammunition and engineers. This corps, a few days later, defended St. Privat, on the French right at the battle of Gravelotte, and much of their disaster at that place is attributable to the fact that this corps was tactically incomplete.

Another officer says: "We saw on a hill one or two thousand yards off on our left, three small groups, one mounted, the others in advance dismounted; on the slopes of the little valley that divided us, we saw a single horseman entirely exposed, alone in the fields near a hamlet, the inhabitants of which stared at him in surprise. We could not deceive ourselves, it was the enemy. One of the dismounted parties mounted and disappeared followed by the others. The single horseman, after carefully watching us, vanished also."

These contact scouts had passed twenty-four French squadrons, two divisions of infantry, the reserve artillery and baggage and were dogging the flanks of the leading infantry division of that retreating army.

General VINOY says of his retreat from Mézières: "From that moment we became the object of continual and rapid inspection from the enemy's scouts. They kept galloping on our flank, just out of range, seeking to see the head of our column and so calculate its force and report to their supports."

Actual fighting is only a means to obtain an end, and cavalry should resort to it only when maneuvering and demonstration cannot sufficiently intimidate the enemy to allow it to accomplish the reconnaissance in a satisfactory manner.

If a portion of the line should became engaged with the enemy, it will be supported from the rear by the nearest troops, and at the same time the other troops will be notified and they will advance resolutely to support the engaged line by an attack on the flank or rear if possible. If the enemy's cavalry be properly led, there will be a similar concentration of his forces and a cavalry action will ensue. The formation for this action will be governed by principles laid down in the tactics for this arm, but there are certain general prin-

ciples to be observed for which the maneuver tactics provide the detailed execution.

The charge is the very acme of cavalry life. As the brook leads to the river, which in turn flows to the ocean, the sum of all waters, so the charge is the life element of cavalry, and all instruction should point to it as the grand consummation of cavalry existence. The mode of its execution may not always give it success, but it certainly does fix its value as cavalry. The alignment must be good, the men riding stirrup to stirrup. The charge itself should cover from eighty to one hundred and fifty yards, the speed somewhat regulated by the utmost paces of the weakest horses, the officers in front where all the men can see them, the latter riding resolutely with no hanging back. The thought should be absorbed by the business in hand, and at the command, "Charge," "all should commend their souls to God and charge home."

Previous to the charge scouts should be sent to the front to observe the ground which is to be passed over before reaching the enemy, in order to give warning if there be any impassable obstacles, such as wide ditches, sunken roads, or any obstruction that would break the formation or create confusion in the ranks, but under no circumstances must these detached men or parties rush directly back to the lines, thereby bringing disorder into the ranks. During the charge itself the front of the attacking lines must be absolutely free, the scouts or detached parties must draw off to the flanks, rally and throw themselves upon the enemy's flank simultaneously with the collision of the attacking line. Cavalry must never wait at a halt to receive a charge; on the contrary it must meet it resolutely and at the utmost speed. When the enemy's cavalry is repulsed after the *mêlée*, the pursuit must be carried on by the squadrons engaged in the *mêlée*, the others following as a reserve; this pursuit must be kept up as long as the wind and the strength of the horses, the nature of the ground, and the measures of the enemy will permit. The time for the rally will depend on circumstances; the method is prescribed by the drill regulations, but when the rally is sounded it must be executed with the greatest rapidity. This is a matter of the greatest importance, and is thus spoken of by the great FREDERICK: "It must be thoroughly impressed on the hussar that he must be most attentive to the sound, 'Appell,' on hearing which each man will join his squadron and rank with the utmost rapidity possible; but as already stated it is not necessary that they should have the same men as before on each side or in front of them." And again he says: "N. B.—His Majesty will most particularly observe that the squadrons learn to rally rapidly."

If the charge should be repulsed the final reserves must be so disposed that they can take the pursuing enemy in the flank, to cover the rally of the defeated horsemen and to check the impetuosity of the pursuit.

If the defeated cavalry are forced to abandon the field, information of the state of affairs must be immediately sent to the army commander. The direction of the retreat should be such as to mislead the enemy and draw him off, if possible, so as to give favorable conditions to its own army. Only guiding principles can be given in this employment of cavalry, as absolute rules are out of place. The victorious cavalry should not release its hold of the adversary until he is driven behind his infantry for protection, and it must resort to every maneuver to keep the opposing cavalry intimidated, thus rendering it useless as a reconnoitering force.

EMPLOYMENT OF THE CAVALRY ON THE FIELD OF BATTLE.

The increased range, accuracy and rapidity of fire of the infantry and field artillery have modified the methods of employment, but they have by no means destroyed the usefulness of cavalry on the field of battle. The proper employment of cavalry at the right moment, has always been one of the difficult problems of war; modern arms have increased this difficulty, but they have not eliminated the problem, and its solution still tries the skill and ability of the cavalry officer. The case must indeed be exceptional when the action of modern cavalry will have a decided effect upon the opposing forces, and be the sole cause of their defeat, as has been the case in many battles of the past. Of the twenty-two great battles fought by FREDERICK, fifteen were won by his cavalry. Modern armies are so large and the front is so extended, that success at one point does not necessarily have a predominating influence along the whole line, unless that success be the seizure and retention of the key to the position; the task of doing this would not naturally devolve upon the cavalry. This arm performs the part of screening the infantry until the latter comes in contact with the enemy, when it naturally passes to the flanks and particularly to that flank which presents the best ground for the employment of its peculiar powers. There it must protect the flank of its own infantry at all times. No army can be surprised by a flank attack if its cavalry is properly posted and does its full duty. Cavalry cannot hope for success against the front of unshaken infantry, unless the ground be such that it can appear unexpectedly against the extended line; this formation renders infantry peculiarly liable to confusion if suddenly attacked by small bodies of cavalry

Success in such operations should be followed only until the infantry get into compact bodies, when the cavalry should quickly retire, leaving those bodies exposed to fire before they can again deploy.

The flank of infantry attacking in open order is the vulnerable part of the line, and the cavalry officer who has the skill and quickness to strike this weak point at the opportune moment will richly deserve the success which he will undoubtedly gain.

Cavalry may be employed to extend the lines of infantry or to occupy ground vacated by infantry which is taken away for some special purpose. Cavalry must detect any flanking movement of the enemy and act with boldness against the head of his column; as they themselves expect to attack to a flank, not to a front, their front is narrow and may be overlapped and they taken in the flank.

The attack upon infantry is made in successive lines, each line with a front of not less than two squadrons and more if necessary, for each individual object in the whole depth of the position must be struck. These lines may be two or more in number, depending upon the resistance anticipated, and there should be from eighty to one hundred yards distance only between any two consecutive lines, in order that the blows may be delivered in as rapid succession as possible.

If an infantry attack has been repulsed and the attacking troops have been shaken by heavy losses, it is the duty of cavalry to dart upon them, complete the defeat and take prisoners. If the French cavalry had been properly posted and properly handled, it would have been hurled against the masses of the Prussian Guard after its bloody repulse in front of St. Privat. This would not have prevented the German victory of Gravelotte, for the flank movement was irresistible as the French forces were at that time disposed, but it could have destroyed the Guard, and it would have rendered the retreat of the Sixth Corps less difficult.

Cavalry has at all times been employed to charge an unshaken enemy in order to delay him sufficiently long to enable its own infantry to arrive and seize upon a point, the possession of which was of vital importance to the enemy.

MARLBOROUGH's passage of the French lines of Méhaigne in 1705, which it had taken three years to construct, is an example. By a feint attack near Namur, he induced VILLEROY to move the bulk of his forces to the right, leaving the most invulnerable portion of his lines near Leuwe but thinly guarded. Here is where MARLBOROUGH proposed breaking through. By a skillful movement of his cavalry he forded the Gheet, his cavalrymen filled the ditches of the intrenchments with trusses of hay which they had carried with them, passed over the works, and charged the French with such impetuosity as to delay their movements for a sufficient length of time for the allied infantry to arrive and effect a secure lodgment. This obliged the French army to precipitately abandon the lines which had been constructed with great labor and expense, and was regarded as the bulwark of France as a defense against the allies.

Notwithstanding the great range and accuracy of the modern rifle and field piece, the successful use of cavalry to delay the attack of an unshaken enemy in superior force, a sufficient length of time to enable its own infantry to maintain a key position until reinforced sufficiently to attain a declared superiority, has been demonstrated in a brilliant manner.

BAZAINE was retreating from Metz to the westward, along the Metz-Verdun road. The Third German Army Corps struck this road from the south, at a point in advance of the principal French columns, thus cutting the main line of retreat. The fighting commenced about 9 A. M. and was extremely severe. About 1 P. M. the Prussians were exhausted and getting out of ammunition. It was observed that the French were being reinforced and, unless checked in their advance, the Germans would be hurled from their position before reinforcements could arrive, and the line of retreat would be open to the French. BREDOW's cavalry brigade was the only available force that could be employed to avert the imminent danger. There were but six squadrons of his brigade present. The good of the army demanded their sacrifice, and most nobly did they respond to the demand made of them. Of course it was apprehended that a cavalry attack undertaken against intact infantry and powerful lines of artillery would prove a failure, and if successful, the losses in either case would be fearful. There was no time or means to prepare for this cavalry attack by an overwhelming fire of artillery. The brigade accidentally entered upon the charge in echelons, but after the artillery had been reached and the gunners cut down at their pieces, the whole brigade, in one line, without reserves or flanking squadrons, charged the infantry supports with such vehemence as to break through their lines, despite a terrific fire. The task was now completed beyond all expectations, but the excited horsemen swept forward, regardless of the efforts of their officers to rally them. They darted at a line of mitrailleuses that was stationed in the rear of the infantry and were cutting and stabbing at the artillerymen, when they were suddenly attacked by the cavalry of FORTON's division. The hitherto victorious squadrons, now compelled to retreat, forced

their way back through the infantry masses, when the survivors—thirteen officers and 150 men—returned with their exhausted horses to their own lines. This attack so paralyzed the French Sixth Corps that its fatal advance was never resumed; the German infantry was given a breathing spell, and the arrival of reinforcements enabled them to firmly plant themselves upon BAZAINE's line of retreat. The victory of Gravelotte, two days later, shut BAZAINE up in Metz where he eventually surrendered an army of 170,000 men.

In attacking infantry, if cavalry can approach by an ascending grade the condition will be favorable, for infantry always fires high, and under the excitement caused by the approach of cavalry, if the lattor should be below them, this error would be increased.

The attack upon artillery should be made when it is limbering up, or unlimbering, or in motion, if possible. When in position, it should be attacked in flank, but as this is not always possible, an attack in front may have to be made. The number of pieces in position will, of course, determine the formation and the force making the attack, if the proper force be available. The general rule is to employ about one-eighth of the force as foragers to ride through the guns whilst the rest of the force makes the attack upon the supports. Artillery is always placed upon elevated ground and is very liable to shoot high as cavalry approach it. The quick action of cavalry constantly changes the object of fire and also the range, and as a consequence, the fire at close range is but little, if any, more fatal than that of the old field piece.

IN PURSUIT OF A DEFEATED ARMY.

To properly employ cavalry in the pursuit of a defeated army, a small force should precede the infantry and hang on to the rear of the enemy's main forces, but the mass of cavalry should operate against his flanks; seek every opportunity to cut in on his marching columns, destroy his trains and constantly harass him. This demoralizes a retreating enemy much more than the old system of constant and useless attacks upon his rear guard, which generally consists of his best troops. The rear guard itself can be flanked and attacked from its rear and ultimately destroyed. An enterprising cavalry upon the flanks of a retreating army creates a feeling of uneasiness and insecurity; it causes the enemy to make detachments to protect his flanks, it hastens his march and adds confusion, weariness and fatigue to his discouraged troops. SHERIDAN's employment of his cavalry in the pursuit of LEE's army after the battle of Five Forks furnishes the most brilliant example of this use of cavalry. After

SHERIDAN had defeated LEE's right at Five Forks, April 1, 1865, the latter evacuated the Richmond-Petersburg lines and marched westward toward the vicinity of Amelia Court House, intending to continue his retreat to the southwest in the direction of Danville. SHERIDAN moved his cavalry on the Confederate flank, struck the railroad at Jettersville Station, which he held until the infantry came up and relieved him. The infantry moved upon LEE's position at Amelia Court House, which LEE had evacuated. SHERIDAN anticipated this, and instead of taking part in the useless infantry movement he moved his cavalry on the enemy's flank to strike the road from Deatonsville to Rice's Station. The cavalry soon struck the enemy's trains, but they were so well guarded that no serious impression could be made upon them until after crossing Sailor's Creek, where it found an opening and destroyed several hundred wagons and captured sixteen guns. The cavalry firmly planted itself across the enemy's line of retreat to Danville, in advance of EWELL's and GORDON's corps. It fiercely assailed the head of EWELL's column, bringing it to a halt and battle formation. A brigade and battery penetrated the line in rear of EWELL's corps and in advance of GORDON, forcing the latter to take another road to the northward. EWELL was completely isolated and detained until the Sixth Infantry Corps came up, when his command was destroyed.

The next day, April 17th, the same plan was pursued, the main body of the cavalry hung upon the enemy's flank, whilst one division made a dash upon his trains near Farmville. On the 8th, the cavalry got ahead of LEE's army, capturing provision trains, etc., drove in his outposts, and took position about dusk in the vicinity of Appomattox Court House. The next morning, GORDON had commenced his movement to attempt the forcing of the cavalry lines, when ORD's infantry arrived after an all night's march, at the sight of which GORDON's lines recoiled without engaging, the curtain fell, and the four years tragedy was over.

THE CAVALRY RAID.

The raid, in a military sense, may be defined to be an incursion or irruption of mounted troops into the theater of war occupied by or under the control of the enemy.

The object of the raid is to ravage the country, destroy the enemy's property, supplies and stores of all kinds, take prisoners, break his communications, create confusion in his plan of campaign, call his cavalry away from some point where its presence is inimical, get information of the strength and distribution of his forces, cause him

to make detachments from his main army, or to divide his forces, if possible, prior to a strategic movement.

The employment of cavalry upon the raid is another of its duties in war, which, if well timed, well planned and well executed, always gives good results and is certain to raise the *morale* of the forces engaged in it.

The cavalry raid has been practiced from the earliest times, but prior to our Civil War, each particular raid was the result of a combination of circumstances that acted to produce it, and it was not embraced in the plan of campaign, constituting a part of it.

The raid is not encouraged in any of the cavalry services of Europe, except Russia; this power practices it in the annual maneuvers, and the results have been highly gratifying. Such service tries the skill of the officers and the intelligence of the men, developing the self-reliance and the individuality of both to a very high degree.

The time to start a raid depends upon many contingencies, such as the relative situation of the opposing armies, their lines of communication, the character of the country to be passed over, the time of the year, the distance to be traversed, whether the forces in hand are sufficient to accomplish the object, etc.; all which must be duly weighed and considered by the army commander. There are no set rules for his government in the matter, but experience seems to declare against stripping one's army of the cavalry screen just before a battle.

STONEMAN started on his raid with 10,000 men, to the rear of LEE's army, just prior to the battle of Chancellorsville; he traversed a great deal of southern territory, destroyed property and supplies, and temporarily interrupted LEE's communications, but during his absence the battle was fought and, although LEE was greatly outnumbered, he divided his army without hesitation, sending JACKSON against HOOKER's right, overpowering it and defeating the Federal army. JACKSON's march was not discovered by the Union forces until he actually made the attack. Had STONEMAN's cavalry been on the right, where it should have been, JACKSON could never have made his march unperceived; but in that case LEE would not have detached him and the result at Chancellorsville would certainly have been different.

This is an example of an ill-advised, ill-timed course of action, which, if judiciously employed, might have produced important results.

A well timed and properly executed raid may force an enemy to entirely abandon his plan of campaign. In December, 1862, General GRANT was moving his army down through central Mississippi intending to approach Vicksburg from the rear and force its abandonment, or destroy PEMBERTON's army. PEMBERTON was concentrated at Grenada, too weak to risk an action, but he employed his cavalry under VAN DORN and FORREST to raid GRANT's communications in Tennessee and northern Mississippi. Holly Springs, Mississippi, was GRANT's secondary depot of supplies; VAN DORN captured the place, destroyed the supplies and broke the railroad. This forced GRANT to retire to Memphis on the river, and commence operations on entirely new lines.

A raid may be able to collect information that a reconnaissance cannot, no matter how systematically it may be conducted.

STUART starting from Taylorsville raided around MCCLELLAN's entire army in 1862. He destroyed transports and supplies on the Pamunky, captured horses, mules and prisoners, broke the railroad, and learned the disposition of MCCLELLAN's army. The information thus obtained determined LEE to recall JACKSON from the Valley, which was the prelude to that magnificent flank attack and the seven days' battles, which finally resulted in the withdrawal of the Union troops from the Peninsula.

Again in August, 1862, STUART raided in rear of POPE's army and struck Catlett's Station on the Orange and Alexandria Railroad. He destroyed tents, wagons, supplies and captured horses and prisoners—learned the strength and disposition of POPE's army; which information enabled LEE to plan the turning movement through Thoroughfare Gap by JACKSON, which resulted in the subsequent defeat of POPE's army.

If an enemy is receiving supplies over several different routes, a cavalry raid can be employed to destroy some of them, thus limiting his possible lines of retreat just before the inaugurating of seriously offensive operations against him.

SHERIDAN started from Winchester February 27, 1865, with 10,000 cavalrymen, four pieces of artillery, eight ambulances, sixteen ammunition wagons, a pontoon train of eight canvas boats, and a small supply train with fifteen days' rations of coffee, sugar and salt. He moved through Woodstock and Staunton, where he turned southeast, and at Waynesborough destroyed the last of EARLY's forces in the Valley. At Charlottesville he turned south, destroying the railroad to Lynchburg as far as Amherst Court House. Failing to cross the James River at Duguidsville, he took a course down that stream as far as Goochland, thoroughly destroying the James River Canal to that point. Then moving north he struck the Virginia Central Railroad at Louisa Court House, which he permanently crippled, by the de-

struction of tracks, ties, stations and rolling stock, as far down as Beaver Dam Station. By a little finessing he threw the forces from Richmond off his route, and reached White House via King William Court House, on March 18th, where he found his much needed supplies. A few days later he commenced those brilliant movements that culminated in the battle of Five Forks, and the retreat of LEE's army. During this great raid over an almost impassable country—for the rains rendered the roads nearly bottomless—he had permanently crippled two lines of communication and destroyed subsistence stores of incalculable value to LEE's hard pressed army. Many other raids were made during our Civil War, but none were crowned with such magnificent results as this one.

The strategical value of the cavalry raid was fully demonstrated and brought into great prominence during the Civil War, and the future army commander or cavalry officer will be deficient in his professional education if he does not study this subject sufficiently to enable the former to weigh its strategical advantages under existing conditions, and the latter to execute it with a skill that calls forth all the mobility and physical and intellectual powers at his command.

The results obtained in our Civil War plainly indicate the raid as one of the strategical uses of cavalry in modern war, and that it is a proper employment of cavalry under the improved state of projectile weapons.

During the war of 1866, Prussia had forty-eight regiments of cavalry, and Austria had forty-one, the former numbering about 30,000 men, and the latter about 27,000. We learn that there were many cavalry combats, but there was not a single raid. When the Crown Prince entered Bohemia, the Austrians were using the Olmutz-Prague railway, and were very solicitous about its safety. They detained one corps as long as possible from the army near Königratz for its protection. If SHERIDAN, STUART, GRIERSON or FOREST had been in command of the Crown Prince's cavalry, that line, which was parallel and close to the Silesian frontier, would have been broken, and probably the Austrian army would have fought the battle with one corps less, and it is possible that the army could not have occupied the line of the Elbe at all.

During the advance of the Prussians against Vienna, subsequently to the battle of Sadowa, a good cavalry leader, by a dash at the Prussian communications, could have delayed the movements of their columns a sufficient length of time to enable the Austrian army to anticipate them into Vienna, where, joined with the forces recalled from Italy, a new army would have arisen for the defense of the Capital. The Prussians could have obtained good results by pushing a cavalry raid against the Olmutz-Vienna railroad. The battle was fought July 3d, and three days after the battle it was learned that the Austrians had retreated to Olmutz. One corps and the greater part of the cavalry had been sent to Vienna; the Third Corps was started July 11th, but the remainder of the army did not move until the 14th. The route taken was that down the valley of the March. Even as late as the 15th the railroad was cut at Goding by a detachment of cavalry only one day's march in advance of the infantry, and this forced the Austrians to pass over the mountains to the valley of the Waag.

The cavalry of both these armies knew nothing of fire tactics, and relied entirely upon the shock of combat. None of them could fight infantry, and consequently none of them were qualified to enter upon that wide sphere of action in which the American cavalrymen had so distinguished themselves.

FIGHTING ON FOOT.

In the proper performance of his many and trying duties, the cavalryman frequently finds himself in a situation where he cannot use his horse to the best advantage. He will frequently find himself confronted by infantry, so posted that it is impossible to get at his enemy mounted, and the defeat of whom is necessary to the accomplishment of his mission. It does not take a very formidable object, with an enemy behind it, to stop a force that can act only mounted, and if cavalry hopes for success, it must be trained to act, when necessary, as a dismounted force.

During July, 1864, GRANT wished to spring the Petersburg mine, and assault LEE's works south of the James River. To make a successful assault, he wished to entice as much of LEE's army north of the river as possible, so he detached HANCOCK's corps of infantry, and SHERIDAN's cavalry to the north of the river with that object. If LEE could not be induced to move north of the river, SHERIDAN was to raid the Central Virginia railroad. After crossing the river, SHERIDAN extended HANCOCK's lines to the right to such an extent that LEE thought GRANT was moving the most of his army to that side, and to confront the latter, LEE moved all his infantry and cavalry, except three divisions of the former and one division of the latter, to the north side, thus falling into the trap laid for him. On the 28th, HANCOCK and SHERIDAN were attacked by three divisions of infantry, most of them directed against the cavalry. SHERIDAN dismounted his men about fifteen yards in rear of a low crest, and when

KERSHAW's infantry attained the crest, the cavalry opened such a terrific fire upon them at close quarters, that human endurance was taxed beyond the extreme limit, the infantry broke and the cavalry pursued them, getting some prisoners and two flags. This stopped the Confederate offensive. KERSHAW's infantry were well drilled, seasoned troops, and had been accustomed to battle for nearly three years.

On the 31st of March, 1865, SHERIDAN formed his cavalry, dismounted, to receive the attack of five infantry brigades near Dinwiddie Court House. The cavalry were vastly outnumbered, but they reserved their fire until PICKETT's assaulting lines came within close range, when they opened upon the enemy with such a withering fire as to completely repulse the assault, and SHERIDAN's position at Dinwiddie was assured.

The next day at Five Forks, when AYRES' division of infantry attacked the enemy's works at the angle and along the refused part of the line, DEVIN's cavalry division dismounted and assaulted the line in front, charging on foot and entering the enemy's works by the side of the infantry. At the same time CUSTER assaulted CORSE's and TERRY's infantry brigades, with one of his cavalry brigades dismounted, which entered the works at about the same time as DEVIN's men, and with the other two brigades of his division mounted, he assailed W. H. F. LEE's cavalry division. Here we have the unusual spectacle of a division of cavalry fighting both infantry and cavalry, both as infantry and cavalry, at the same time.

At the battle of Sailor's Creek, April 6th, the cavalry placed themselves in front of EWELL's corps, after destroying many wagons, etc. The latter formed up ANDERSON's division of infantry behind barricades to fight the cavalry, whilst he tried to move the rest of his corps through the woods to the right to escape, but CROOK dismounted two of his brigades and in concert with MERRITT's division assailed ANDERSON's entire front, whilst with his other brigade, mounted, he overlapped the enemy's right, thus holding the entire force until the Sixth Corps of infantry came up and attacked his rear and left. STAGG's cavalry brigade was dismounted and charged on the left of the Federal infantry, extending its lines so as to completely envelop the enemy.

Many instances could be given, during our Civil War, where the cavalry successfully fought the infantry. It is absolutely necessary that the cavalry should be so armed, trained, organized and disciplined that it can not only protect itself under all circumstances, but that it can act offensively under all circumstances.

The sacrifice of BREDOW's brigade at Vionville was more than compensated for by the results. An equal number of SHERIDAN's men could have done as well under similar circumstances. The repulse of PICKETT's infantry at Dinwiddie Court House not only prevented a disaster to the Union left, but it assured the occupation of Five Forks the next day, and we do not hesitate to assert that an equal number of European cavalry, armed as they are and fighting as they are taught, could not have accomplished the same result.

Cavalry without instruction in effective fire action, will usually find itself powerless in front of infantry, and its sphere of action will be so circumscribed that no government can afford so expensive a toy.

It is claimed that the defensive power of civilized nations is so thoroughly organized that raids are impossible. Of course raids are impossible if we allow the halo of tradition to surround the cavalry so as to blind our eyes to its defective armament. The invention of the long range carbine has immensely increased the effectiveness of cavalry. Instead of finding itself powerless in front of unshaken infantry, by its superior mobility cavalry can always attack infantry with advantage, by being in superior numbers at the right time and place.

One of the hardest operations of war is to withdraw a defeated army from the presence of a victorious adversary.

After the battle of Sadowa the Austrian cavalry devoted itself to the protection of its beaten infantry, but when the fortunes of the conflict brought it in front of the victorious needle gun its sacrifice was accomplished. When cavalry leaders properly understand and teach the increased usefulness of fire tactics, their task of protecting their own defeated infantry will be simplified and can be made thoroughly effective. Fighting on foot behind cover can render the detaining fire of cavalry as galling and as effectual as that of the best infantry. Their mobility will enable them to attain a threatening flank position, and the enemy will have to take time for all the formality of a deployment for a regular assault, which the cavalry need not wait to receive unless assured of success.

At the beginning of the Franco-Prussian war we heard much of the ubiquitous Prussian horsemen, but at a later period, when the unskilled riflemen of eastern France commenced operations among the hills, the march of the Prussian cavalry was regulated by the speed of the infantry supports. It knew nothing of fire action and the horsemen who terrorized MCMAHON's columns were rendered harmless by a few starved mountaineers.

In a pure cavalry combat the horse is the missile, the arm is the

auxiliary, and if the men can ride their horses at speed, preserve their alignment and strike the adversary without hesitation, they are true cavalrymen and are animated by the true cavalry spirit.

The dread of the flashing saber retains its hold only upon the uncultivated mind, hence a rush of a body of horsemen has a terrifying effect upon European infantry; but our system of free schools has so enlightened the masses that our thinking bayonets can estimate at its true value, the sudden onset of the impetuous horseman, and they can take him at a disadvantage from which he cannot recover unless he be an adept in their methods.

An efficient cavalry cannot be a blind follower of precedent, but must change to suit the conditions of warfare at the time. The various inventions, improvements in arms and military appliances, have their influences, and the best cavalry will secure the greatest results by utilizing the material at hand and keeping abreast of the times.

A. E. WOOD,
Captain, Fourth Cavalry.

THE EFFECT OF SMALL-CALIBER ARMS AND SMOKELESS AND NOISELESS POWDER UPON CAVALRY OPERATIONS OF THE FUTURE.*

IN discussing the operations of cavalry it is difficult to avoid being drawn into the animated debate which, for several years, enthusiastic minds have devoted to the solution of the burning question of whether or not the days of cavalry charges are past, never to return. And yet, in spite of this indubitable fact, grand masses of cavalry are, at this very moment, being exercised as units on all the drill grounds of Europe; how, then, is it possible to escape the conviction that in the proper use of these masses a potent factor of future victories is sought?

And where is the spectator who can repress a profound enthusiasm and a pleasurable feeling of admiration at the sight of one of these sudden and impetuous charges, in which several regiments advancing either in line directly to the front, or in echelon of squadrons, traverse the field with the swiftness of a tempest and the force of a deluge?

At first, he hears a hollow and distant sound, which, coming nearer and increasing in volume, together with the distinct vibrations of the ground, produces an impression that can be compared only to that caused by an earthquake. Soon, in the midst of the advancing mass, the forms of individual horsemen can be distinguished. They rush past like a hurricane, each man with his lance at a charge, his body leaning forward, and horse and rider appearing as one. If the spectacle be completed by the addition of a formidable fire of artillery which has covered the point of attack with its projectiles, and the rolling fire of a numerous infantry, which unites its thick clouds of smoke to the dust raised by the cavalry; in fine, if, by an effort of the imagination, the ground is supposed to be thickly strewn with

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dead and wounded men and horses, the dreadful drama of war will be presented in all its majesty and all its horor. But all this is only a vain and empty shadow. An undue and exaggerated enthusiasm must be always guarded against in these maneuvers, where everything is arranged in advance. In truth, if an indispensable element of every combat be introduced,—the bullet, and the use of improved powder remove the clouds of smoke which now prevent the accurate aim of lines of infantry, the splendid and imposing features of the cavalry charge on the field of maneuver will be eliminated entirely.

The only reliable and practical conclusion that can be deduced from these maneuvers is that with good discipline, thorough instruction, and good horses, it is always possible to move considerable masses of cavalry at rapid gaits and with admirable precision. But it is another matter to prove the expediency of these theoretical maneuvers and the possibility of executing them in the face of the murderous fire of modern infantry, for such *will be* the fire of infantry henceforth, even if it be shaken by severe losses and the various emotions of the conflict.

Of the three arms of which the armed force of a nation is composed, cavalry is the only one which, from the most remote times, has undergone no essential change. A man armed with some weapon, lance, saber or javelin—it matters not which—and a horse, form the primordial and invariable elements of cavalry, elements, which from their very nature, are not susceptible of modification by scientific influences. On this immutability many earnest advocates of the retention of the shock action of cavalry base their theories. "Improvements in ballistics have not affected cavalry," say they; "FREDERICK and NAPOLEON employed their cavalry precisely as did ALEXANDER and HANNIBAL. Despite the combined results of the progress of ages, they were able to obtain results, if not of superior, of at least equal value. This argument is incontrovertible."

But, although improvements in ballistics cannot change the nature of either the horse or his rider, yet they may be the means of modifying the action of the cavalryman on the field of battle. A bullet may kill either the horse or the rider; the machine stops and no shock results. This argument seems no less incontrovertible than the other.

FREDERICK and NAPOLEON undoubtedly derived great benefit from the use of cavalry in some of their battles; but had ballistics in their epochs made sufficient progress to be able to exert much influence on the battle tactics of cavalry? Was not this a period of transition when many veteran soldiers could still recall the days of the pike

and of compact battalions like the ancient phalanx of Greece? Long after the wars of the Empire the infantryman, after sighting the hostile cavalry, had time but for one shot from the clumsy flint-lock in use, which often missed fire, and the cavalry was upon him; he was compelled to trust to his bayonet under conditions affording perhaps, fewer chances of success than those of the ancient pikemen, who undoubtedly had a weapon very effective at the moment of shock.

On the contrary, it is the very immutability of the element, composed of the man and horse, that constitutes the weakness of cavalry as opposed to the constantly augmented preponderance of the fire of infantry. This can be proved beyond the shadow of a doubt. To be convinced, it is only necessary to scrutinize the table showing the results of the trials of the rifle of the model of 1886.

The following are the probable results of collective fire directed at lines of cavalry drawn up in two ranks:

At 800 yards	21 hits to 100 shots fired.
At 700 yards	25 hits to 100 shots fired.
At 600 yards	29 hits to 100 shots fired.
At 500 yards	35 hits to 100 shots fired.
At 400 yards	43 hits to 100 shots fired.
At 300 yards	53 hits to 100 shots fired.
At 200 yards	62 hits to 100 shots fired.
At 100 yards	64 hits to 100 shots fired.

These figures speak for themselves. According to them, at 300 yards, a battalion of 800 rifles firing at a line of cavalry in *double* rank, would make 424 hits; now, this is about the effective strength of a modern regiment of cavalry. If we suppose the regiment to begin the charge at 800 yards from the position of the hostile infantry, and to be fired upon but once while passing over each space of 100 yards, it will, in accordance with the above theory, meet with 2,656 casualties; that is to say, it would be annihilated eight times over. But the events of the battle-field are not determined by any such mathematical formulæ; if they were, the question of charges of modern cavalry would have been set at rest long ago; for, even if armed with a breech-loader of the earliest pattern, the Chassepot for example, which was much superior to others, a body of infantry had nothing to fear from a charge of cavalry. Yet every one knows that in the war of 1870–1871 several charges met with complete success.

To what is this due? It is due to the fact so often stated that the emotions of the human mind are a powerful factor in the conflict, on account of their influence in depriving the marksman of his coolness, affecting his physical powers, and, as a consequence, reducing in so

large a degree the theoretical percentage of hits as to nullify all calculations. It was for such a reason that BREDOW's brigade at Rezonville was able to reach the front of the division Lafont de Villiers, to pass through and cut to pieces several of the batteries of the Sixth Corps, and when attacked by the French cavalry, to regain its position by the same road by which it came, at a gallop, with a loss indeed, of three-fourths of its strength, but after having gained an important tactical success.

On this memorable and unprecedented feat of arms the advocates of the shock rely in their efforts to prove that the improvements in arms will not succeed in doing away with the cavalry charge, if well conducted and executed by men of courage, and favored by certain accidents of ground, which it will not be difficult to find upon the vast battle-fields of the future. We will admit the cogency of their arguments if we are to be compelled to deploy our infantry for the combat, with an antiquated armament, in obsolete formations, and an artillery left without support, on account of its position in rear of the infantry.

But, on the other hand, if our infantry is supposed to be armed with our new rifle which, even with the bayonet fixed, gives results five times greater than those of the Gras rifle, and which has a penetrative power such that the bullet at 2000 meters will pass through two men; then the much vaunted charge of BREDOW of which the Germans are justly proud, would have undoubtedly failed, and not a man of the brigade would have escaped.

If to the source of superiority arising from perfection of firearms there be joined another of an entirely novel and unforeseen nature, as the use of smokeless powder on the field of battle, then there can be no doubt that all the efforts of cavalry, whether it acts in great masses or small detachments, by isolated or concerted movements, will be of as little avail against lines of infantry, however shaken and weakened by the combat, as though directed against walls of stone.

The extent to which the advocates of the charge rely for the maintenance of their theories upon the moral effect produced by the sights and sounds of the battle-field will be apparent from a remarkable and widely known article published in the *Revue des Deux Mondes* in September, 1889; from it can be judged how far the spirit of partisanship may influence even the most enlightened minds:

"However that may be, it may be claimed that the magnificent results of the experiments on the drill ground will be decisively reversed on the field of battle. Firing upon inert targets is a very different thing from firing at objects endowed with powers of locomotion and resistance. For these simulated effects is substituted terrible and perceptible danger, together with the consciousness of invisible death hovering in invisible space. The marksman will be unnerved by apprehension, blinded by smoke, deafened by the noise, and agitated by a thousand different and violent emotions; he bears within his breast, not a cunningly devised and constructed mechanism, but a heart susceptible of every kind of impression. Will he then, be able to estimate distances, adjust sights, and aim with accuracy, when threatened by a cavalry charge? if he could do so, cavalry would have been swept off the field thirty years ago."

After perusing these lines the reader will, of course, ask whether the writer ever set foot upon a rifle range. If he had he would know what he seems to be ignorant of, viz: that the marksmen are not blinded by smoke, for smoke is a thing of the past; neither do they have to take heed to their sights nor to estimate the distances; by firing straight to the front with their sights at 600 meters they will sweep all the ground up to 800 meters, converting all this into a dangerous space of an intensity unknown in the past. At such a moment who would think of requiring the infantry to take accurate aim? Let them fire straight to the front—that is all that can be asked of them, and that is enough. Only such balls as are fired too high will miss the mark, those which fall short will ricochet of course, but the new trajectory will be so flat that they will not rise above the heads of the advancing troopers and scarcely any will miss the mark.

Those fired too far to the right or left of the point aimed at will be equally effective, if they do not pass beyond the flanks of the line of horsemen; only these last will be absolutely lost. When the cavalry moves forward to the charge, the infantryman need not attempt to regulate his fire nor to estimate distances; he first fires several volleys at the word of command, then he begins the rapid, independent fire, and lastly, he empties his magazine, if the charging squadrons approach to within a short distance. He has to accomplish but two things, to keep his sight at 500 meters and to aim at the hoofs of the horses. Is this too much to ask of him, whatever his mental perturbation?

As for the cavalry, it will be obliged to take up the gallop in order to be under fire as short a time as possible, and cannot possibly escape annihilation, if exposed to the fire of which the table of the results of the trials of the rifle of the model of 1886 enables us to form an idea. The percentage of losses given by this table, fanciful and exaggerated as they may seem, are in reality a close approximation to the results which would undoubtedly be obtained in actual war. We

have been long advancing towards a point where fire action will have an absolute preponderance and a mathematical precision. Mechanical science has produced this wonderful result. All those who have kept themselves informed in regard to the progress made in the improvement of fire arms have not a shadow of doubt on the subject.

In proof of this assertion, it suffices to consider the results achieved by mitrailleuse fire. A Maxim mitrailleuse, without being overheated, will, at one discharge, cover a given space with 300 or 400 bullets, and with such precision, if worked by one skilled in its use, that it would mow down two or three squadrons in line, as a scythe mows down all the blades of grass which it meets. But, they claim, there is a vast difference between the fire of the drill ground and that of the battle-field, and a difference so essential, that the results of the latter cannot be deduced from those of the former. This may be so, but at all events it is diminishing from day to day, and, if the human element still continues to play the principal part in the combat, it will be freed from its emotional fetters, which formerly compelled it to passively submit to be ridden down by the charging cavalry; this grand result is due entirely to the confidence which the infantryman feels both in the arm which he has and in the power of its fire.

Up to the present time the powder used was such that, after the first discharge, a thick line of smoke concealed the line of cavalry from the view of the infantryman. The danger, being unseen, was only the more terrible, for, at each instant, the curtain might be rent by the impetuously advancing enemy. From this mainly arose the panic, terror and dismay that paralyzed his physical force and destroyed the efficacy of his fire. Besides, if he preserved his mental equilibrium, the target being invisible, he could not aim at anything, and fired at random into the smoke that masked his horizon, which he must see in order to be able to direct his fire parallel to the surface of the ground. It was by taking advantage of this smoke, which often completely covered the lines attacked, that a few charges of cavalry succeeded in the last war.

Foot troops have also, at times, met with like success. The last British campaign in the Soudan furnished several remarkable examples. With the new powder, the smoke no longer conceals his adversary, who will remain about two minutes exposed to his fire, and he will be able to secure the full advantage of his position. The danger which is impending will be almost instantly despised, and confidence will quickly return to the heart of a man holding in his hand a rifle, capable, in a few seconds, of covering with bullets the path to be traversed by his enemy. He will understand that his existence

depends on his coolness and the skill with which he fires, and as the target is visible and increasing in apparent dimension as it comes nearer, he will aim with care, the more so as he will pay no attention either to his sights or to estimating the distance. Then it will be seen whether the results indicated in the tables of the Normal School of Musketry (l'École normale de tir) are in accordance with those of the battle-field. On this day the shock action of cavalry will have been abandoned never to be resumed.

The advocates of the charge are not ignorant of all this; and they have been compelled, in order to avoid the abandonment of this maneuver, which they consider the grandest, most noble, and most heroic of the profession of arms, to look for precedents other than those of the wars of recent years, which the terrific power of infantry fire has rendered unsatisfactory; they have gone back eighty years and have borrowed from the Napoleonic era the tactics of masses and successive attacks. Certainly if brilliant valor, self-sacrificing devotion and heroism could deprive fire-arms of their brutal superiority, the grand school at which they seek enlightenment is well capable of restoring to them their wonted supremacy on the field of battle. But they have henceforth to deal with forces of such preponderating strength that a new procedure is imperatively necessary. Only by opposing the ones to the others will they be able to continue the conflict until it becomes impossible, which will be when the energy of these forces reaches its maximum.

Let us see whether the theory of masses as set forth by many cavalry officers, many of distinguished rank and service, is calculated to realize their hopes. In all their discussions on this important subject, the advocates of the shock always suppose that the infantry attacked has been decimated and demoralized by a long and sanguinary struggle, while the cavalry, which charges it is in the full possession of all its vigor, and that all the conditions are suitable to enable it to act with impetuosity and moral energy which are the most reliable pledges of victory.

Since they are naturally able to choose the moment proper for entering into the combat, they may be allowed to assume the data of the problem, but they will not refuse us the privilege of subjecting their conclusions to severe examination. We will admit that cavalry will often find itself opposed to infantry which has been weakened both physically and morally by various causes. But that cavalry can attack under conditions physical and moral, such as to enable them to crush the infantry, we emphatically deny.

"*L'École superieure de guerre*," discusses this weighty subject as follows:

To fulfill its mission cavalry must be prepared to attack infantry, not only when the latter is demoralized and disorganized, but also when it has preserved its steadiness and coolness, and is fully provided with its usual means of defense; it must attack in front, if need be, as well as on the flank. It must be noted that by the expressions used is not meant a perfectly intact infantry or fresh troops, upon whom the combat has as yet made no impression.

When cavalry is called upon to act in the manner referred to, the infantry is supposed to have been for a considerable time exposed to an overwhelming fire, both of artillery and of musketry. Even if this fire has not succeeded in crushing and disorganizing it, there is no doubt that the prolonged tension of all the faculties of the troops will have caused them to feel a physical fatigue and a moral lassitude which will diminish their powers of resistance and increase the chances for the success of the cavalry.

In spite of this, even if the conditions are those usually to be found in the case of a body of infantry after several hours fighting, yet the defensive powers of this arm are now so developed and perfected, cavalry can cope with it only by attacking in great masses. It can succeed in breaking a line of infantry by giving to its assaults the greatest extent and vigor, and by repeating them again and again. With small effectives this is impossible.

Partial engagements and scattered attacks must be removed from the tactics of cavalry. By concentrating its efforts, all its elements for concerted action and rapid movement, the power resulting therefrom and the moral effect, courage and audacity, will be combined to offset the means of defense which have, in such liberal measure, been placed in the hands of the infantry of to-day.

Doubtless attacks against an infantry not already shaken by a frontal attack, place cavalry in the most unfavorable situation, but nevertheless, if it wishes to do its duty it must resolve to attempt them. Its chances of success will be increased if great forces are used, disposed in several extensive echelons and acting in convergent directions. What will be the result? We shall attempt to depict it. The infantry will receive the first line with calmness, but it will, to some extent, draw in its scattered skirmishers, abandoning the most exposed points in order to concentrate upon such parts of the field as offer the most shelter. When the lines of cavalry which attack in front are extended there will be no opportunity to group fires on the assailants. Each group will be exclusively occupied with the cavalry in its immediate front. The first line of the cavalry will, beyond a peradventure, be decimated. If the horsemen are animated with courage and ardor, some fractions, some isolated elements of the organization, will succeed in reaching the position and will pass through the gaps produced by drawing in the skirmishers.

If a second echelon follows the first, its advance will be partially sheltered by the line in front of it; it will, consequently, be nearer

the enemy at the moment when his fire is turned directly upon it; the peril of their situation will be more menancing, more real to the enemy's troops, and their fire will become wilder and less efficacious. Now let us suppose that the thunder of the charge is suddenly heard on their flanks and rear, that the struggle is begun in these directions also, that the continually increasing volleys of the supports and reserves indicate that the condition of affairs is becoming serious. Under these conditions any troops, whatever may be their quality, will find their attention partially drawn away from the attack in their front by the combat in progress on their flanks and rear. Some will endeavor to see what is going on at these points. Then, some seeing themselves threatened by small bodies of cavalry which have penetrated into the interior of the position, will direct their fire at these enemies. A change will have come over the former steadiness of the defenders. Certain groups, at a given moment, will believe that their position is not sufficiently secure, and they will endeavor to reach others that will suit them better. This will be the beginning of some confusion.

In the midst of the confusion and tumult, with the peril of death and defeat impending on all sides, it will not be strange if the instinct of self-preservation does not reässert its inherent sway over the minds of many of the combatants. Here and there the devotion, vigorous action, and example of the officers, will be insufficient to keep the men to their duty. The control of the fire will escape from their hands. It will become precipitate and disorderly, and will be divested of that discipline which is its chief reliance. Thus, if regardless of their losses, successive echelons of cavalry continue, with invincible energy, offensive movements directed at the front and flanks of the position, it will often happen that little more will be needed to heighten the sentiment of hesitancy and doubt which has taken possession of some of the troops, that all coolness will be lost, and that individual soldiers will leave the lines to seek safety at the rear, and that this will soon become so prevalent as to produce a partial or general disorder and a paralysis of the defence.

In all these contingencies how many opportunities will be afforded for the action of bodies of cavalry successively supporting each other? How many causes may enhance its morale, and increase the probabilities of its success? If the attacks in front are repulsed, those on the flanks may succeed. If the first echelons acting in either of these directions should fail, those following may succeed in breaking through the position, disorder and confusion are carried into the enemy's ranks, causing a disorganization of the defense, and the desired result is obtained. These grand charges of cavalry will pass over the field of battle like a tempest, overthrowing and destroying all in its path, and leaving everywhere, disorganized fragments which can only with difficulty be rallied and reünited.

Of such a nature would have been the result at Woerth if our brave cuirassiers had not been led directly upon impassable obstacles, and troops sheltered by hop yards and vineyards enclosed by fences. The results of this splendid effort were absolutely and necessarily

valueless because the objective could not be reached. Similarly at Gravelotte in the memorable charge of the Third Lancers and the Cuirassiers of the Guard, if, instead of merely a half regimental front, upon which the entire fire of the enemy was concentrated, the line of cavalry had had a front equal to that of the infantry which it was to charge, and if this powerful effort had been several times repeated by other lines of the same strength, the result would have been very different.

The arguments that may be brought forward in opposition to the probability of events occurring in the manner described, are familiar to all. The first to suggest itself to the mind is, of course, that the infantry has such great confidence in the efficacy of its fire as to remove from it all fear of being overwhelmed by any charge of cavalry; that in this feeling it will find the morale necessary for the preservation of its coolness and equanimity in the midst of charges of the cavalry, however often they may be repeated, and whether directed upon the front or the flanks. This argument is of undoubted value, and this feeling of confidence is one with which every body of infantry ought to be inspired. It will constitute one of the greatest sources of its strength, of its noblest qualities. But, for analogous reasons, the cavalry, on its part, must not consider itself powerless when confronted by any of the duties which it has to fulfill in war, and among these duties will certainly, at times, be found, that of attacking unshaken infantry. If it is to attempt this, it ought to do so with the certainty that the task is not beyond its strength, and that success will crown its endeavors. Let each have its own peculiar and inherent sentiment. The infantry, an invincible confidence in its defensive power as opposed to cavalry. The cavalry, the audacity and boldness requisite for attempting, at times when the interests of the army demand it, to overcome all the resistance of which infantry is capable.

To attempt such enterprises, great resources are necessary. Attacks of this nature must be executed with the greatest forces that can be obtained. One, two divisions, more even, must be launched into the charge. This will depend upon circumstances and the object desired. In any case there will be a force required capable of occupying all the front of the attack and of acting simultaneously and effectively on one or the other exposed flanks; a force sufficient, in short, to form, in each direction of attack, two or three echelons at least.

We have striven to place before the reader this comprehensive and faithful picture, drawn by a master hand, and which, considering its source, has to a certain extent the stamp of authority, because it sums up in a magnificent synthesis the views of all the partisans of charges by great masses, and also because the author, without suspecting it, has furnished the most effective argument that can be brought forward in opposition to them. In fact, alone among all the writers who have discussed this much mooted question, he admits that the infantry

will find in the efficacy of its fire arm, the coolness and equanimity necessary for the successful resistance of several simultaneous attacks, on its front, flanks or rear.

This admission of itself, is enough to prove the fatuity of cavalry charges; for, if this confidence in his arms and its tremendous effects really exists in the mind of the marksman, he at once recovers his moral force and, as a result, the superiority of fire indicated by the trials of the rifle range. Now these trials have proved that the superiority of the small caliber rifle is so great that all examples of the past, whether derived from the campaigns of HANNIBAL in Italy, from the wars of FREDERICK or from those of NAPOLEON, have not the least value.

The following are some of the results obtained by Colonel LEBEL at the trials held at the camp of Châlons: Ten soldiers of the One Hundred and Sixth of the line, *selected at random*, each fired at two hundred yards, with the rifle of the model of 1874, bayonet fixed. The results were fifty hits out of one hundred shots fired.

The great superiority of the 1886 rifle in the particular case of firing with the bayonet fixed is to some extent due to the more accurate construction of the arm, but particularly to the position of the bayonet in the plane of fire, and its lightness. This simple improvement causes half the bullets to strike the mark.

Now when the mark is a line of cavalry, if it receives a single discharge at the distance of 200 meters, will a single trooper remain unhit? It will also be remembered that at the same distance the tables of fire of the rifles of 1886, with bayonet unfixed, give sixty-two per cent. as the probable result of collective fire on lines of cavalry in double rank. "But," it may be said, "cavalry will oppose to the power of infantry fire, first its mass and afterwards its audacity and boldness; for it must not neglect any of the duties which it ought to perform in war." Yes, but the performance of that duty must not be impossible.

We will admit the reasonableness of this opinion when it shall be satisfactorily proved that audacity and boldness will enable a cavalryman to gallop through a stone wall. "Well," the reply is, "instead of one cavalryman, we will use ten, a hundred. But the wall will not stir. We will attack it on all sides at once, we will return to the charge 10,000 strong, and continue our charges without respite and it will be compelled to yield."

The eighty squadrons of MURAT, which rode down the Russian lines at Eylau, would not now reach their opponents any more than if they found in their front a ditch two meters deep and four wide. Moreover, do you not admit this when you say, "Of such a nature

would have been the result at Woerth if our brave cuirassiers had not been led directly upon impassable obstacles?" We place before the cavalry, as impassable obstacles at 200 meters distance, sixty-two hits to the hundred shots, and at 100 meters, sixty-four shots. "We shall try to see what will be the course of events as viewed from our standpoint. Let us suppose that a battalion in battle formation has been attacked by cavalry before the supports and reserves have been able to join the firing line. We will also suppose that the firing line is composed of half the total strength of the battalion, or 300 skirmishers, and that firing is begun at 500 meters.

The line of cavalry will have a front of 300 meters, since it must equal the infantry in this regard; this front is that of a battalion in battle formation; the cavalry will then advance with 300 men in first line, riding boot to boot. Whatever the speed, we will be decidedly within the limits of practice, if we suppose that but one shot is fired while the cavalry is advancing over each space of 100 meters. We will then fire four shots at least. The two last discharges at 200 and 100 meters will of themselves be enough to disable almost all your men, and while the remainder are passing over the last 100 meters we will give them two shots from the magazine. As for the troopers who may attempt to rally on our flanks, they will be obliged to file off through our fire, for they cannot think of retracing their steps; the second line is advancing only 200 meters in rear of them. But for some time the empty spaces in the first line have permitted our bullets to pass through, and although you claim that the second line will still be intact when it reaches a point 200 meters from its objective, yet our opinion is that it will have been severely shaken at the moment when it is unmasked and finds itself face to face with the infantry.

I do not speak of morale; in spite of the audacity and boldness which animate them, it is easy to comprehend that the sights before them will have produced powerful emotions in the stout hearts beneath the cuirasses. It is probable that no small degree of hesitancy will result, to which will be added the difficulties in the path due to the dead and disabled men and horses of the first line, as well as to those men and horses who have not been struck, and are endeavoring to escape in all directions.

During this time the supports will have joined the firing line, our infantry is intact, and its confidence has been redoubled at the sight of the crushing effects of its fire. It will continue to shower bullets on the second line with almost mathematical precision. On the flanks and in rear the results will be about the same. At the first threatening

movement of the cavalry, if it is a regiment on one of the wings which is charged, the battalion placed on the flank will refuse its flank company, which, with the other reserves, will form a line compact enough to defy any attempt on its rear. In this formation the regiment will await your attack without fear: you may advance in several lines, as the French tactics prescribe, or, following the new German method, your main attack may be made by the first echelon reinforced by detachments from the two others, and if you persist in charging, regardless of results, whatever may be your strength, your losses will be so vast, that he will be a bold man indeed, who, in any succeeding war, will attempt to prove a theory by repeating your experience.

And, are you quite sure that you will be able to concentrate your mass of cavalry at the opportune moment at a designated point?

We will take the case of a regiment of infantry posted at the extremity of the line as the most probable one. It will have two battalions in line and one in reserve. Two battalions in line take up 700 meters of front. The reserve battalion may be put in double rank to receive cavalry or may form company squares. We will assume that in either of these formations it will occupy 300 meters. The complete deployment of the regiment, to the front and flank, will then occupy one kilometer. The charge being made boot to boot, one file to the meter, there will be required 2,000 troopers merely for the first line, and for all three, 6,000. Add to this four squadrons on the front and two on the flank as reserves, we reach a total of seventy squadrons. This force though large, is not extraordinarily so, and during the Napoleonic epoch, much more considerable masses were employed.

Our organization provides for no more than two independent cavalry divisions, or forty-eight squadrons, for an army of five corps; if to these squadrons be joined the forty of the corps cavalry, we obtain a total of eighty-eight squadrons. Since at least seventy of our squadrons are needed for the charge on the wing, we shall have only eighteen left for the corps of the army, or less than a regiment for each. Unless the results to be obtained are of such a nature as to require all the disposable cavalry to be used, will it be expedient to thus deprive each corps of half its cavalry, especially in these times, when this arm is more than ever necessary for the minor operations of war?

We will suppose that all the cavalry will be employed in making this exceptional effort, for which you say two divisions and more are necessary. Where will you post such a mass? Will it be divided into several detached bodies on your line of battle, which will be

more than twenty kilometers in extent? At St. Privat the front of the Prussians was nineteen kilometers long. How will you concentrate it if an opportunity offers for a charge on one of the enemy's wings? If you hold it massed at one point, where will this point be? In the center or behind a wing? If it should be far from the point where the necessity for its action is developed, the time requisite for moving such an immense mass, for the maneuvers in connection with the formation for the attack, will be such that the opportunity for its advantageous employment will have vanished.

How will you maneuver such a force of cavalry and, at the same time, conceal it from the view of the hostile artillery, now so efficient both as regards extreme range and accuracy of fire? Lastly, seven or eight thousand horsemen are not maneuvered on the field of battle without great risk of impeding and obstructing the movements of the other arms. On August 18, 1870, the First Division of the Prussian cavalry and the Ninth and Fifteenth Hussars obstructed the defile to the east of Gravelotte to such an extent that their artillery could not take up a position on the right bank of the Mance. The accounts of the German staff show that the defile was, for a long time, completely obstructed by the cavalry.

CHAPTER X.

We have, hitherto, in our discussion, assumed that infantry tactics have undergone no change; that the troops engaged derived no protection from cover, either natural or artificial, and that the action is concluded before nightfall. But we know that these conditions will not hold good in the wars of the future. Owing to the overwhelming power of the fire of the newly invented arms engagements will last several days, and the defense will, from the earliest period of the battle, invariably have the advantage.

Only by dint of successive, long, and laborious efforts, and by taking advantage of the accidents of the ground, and also of field works, will the attacker succeed in even approaching his objective. The armies will be, as it were, nailed to the ground, and the final success will result in favor of the army having the greatest tenacity and the greatest energy remaining after a long succession of partial engagements. No longer will the battle be terminated, as in the past, by a general attack, in which the cavalry, by a prompt, opportune and resolute charge, decided the fate of the day, or by sacrificing itself, saved the army from a humiliating rout. Modern fields of battle will be cut up by field-works and long systems of trenches which will render them impracticable for cavalry. The fire of artillery and

infantry being smokeless, the commander can no longer give to his cavalry a distinct and unmistakable point of direction, without which it will surge about here and there and lose its cohesion,—which is the secret of its force.

The combat of cavalry against infantry will, therefore, be very difficult both in inception and control, and the mass once launched in the direction of the axis of the charge, it will be subject to almost certain ruin: for if the chief attempts to check its mad charge and move it to the rear, its own inertia will carry it on to a ruinous contact with its antagonists.

But, will the capabilities of cavalry be restricted as a result of its inability to charge infantry? Certainly not. No more than the other arms can cavalry expect to escape the process of transformation which science has caused in all branches of the art of war. But only by renouncing its ancient methods, however much they may have contributed to the establishment of its glorious traditions, and by entering boldly and without chimerical regrets upon the roads which the infantry and artillery are now treading, can cavalry hope to see its mission enlarged and a new horizon open before it.

Cavalry alone, by the rapidity of its movements, can surround a column in march, and overwhelm it with its fire, without showing itself. Cavalry patrols alone, for the same reason, are able to rush at full speed upon the enemy's outposts, and collect the information which hitherto, only the smoke and report of the fire-arms used have revealed to the eye and ear. The charge of grand masses is a thing of the past, and in its stead, is substituted an individual charge, the elements of which, by taking advantage of the accidents of ground and the swiftness of the horse, may succeed in passing through the meshes of the protecting net which their adversary has thrown around himself, and, in many cases, may dismount and engage his infantry with its own arms. Far in advance of its own army, alone, or in connection with the other arms, it will put in a state of defense, defiles, bridges, fords, etc.; it may, thanks to the efficiency of its arms, acquit itself well in the most obstinate combats; often it may retard the advance of the enemy and prevent the guns of his advance guard from coming into battery.

In the protracted and severely contested battles of the future, cavalry will obtain results of the greatest importance by moving in great masses on the flanks or rear of the enemy, and often by fighting on foot. Its mobility and rapidity of movement will enable it to attempt concerted attacks on different points, and to threaten the enemy's line of retreat, and this, with the most favorable effect. Whenever

the presence of infantry is needed at a point so distant that it cannot be reached without subjecting it to great fatigue, cavalry can be substituted with great advantage. It will repair to the place with celerity and will create a diversion as efficacious as any that it could hope for from any charge, for which, during long and anxious hours, it awaits the opportunity that never comes.

History furnishes many examples of the use which enterprising and energetic leaders have been able to make of cavalry, both mounted and on foot. During the battle of Spicheren, the brigade Valazé having been ordered away by General FROSSARD, Lieutenant-Colonel DULAC was left at Forbach with two squadrons of the Twelfth Dragoons, a few engineers, and 200 reserve soldiers of the Twelfth of the line. The head of the Thirteenth Prussian division coming from Klein-Rossel and advancing on Spicheren, passed close to Forbach. From this point it received so destructive a fusillade that it had to use its artillery and make a serious effort to dislodge this weak force, of which dismounted cavalry composed the major part. Being finally compelled to abandon his post after a vigorous defense, Colonel DULAC, though almost surrounded, ordered his dragoons to mount, and, favored by the increasing darkness, charged upon the enemy and disengaged his force, but with a loss of four officers and twenty-five men.

A number of examples might be cited in which cavalry has been able to utilize its fire and withdraw quickly at the exact moment when its object had been attained, or at a moment when the superiority of the enemy exposed it to a danger from which no infantry could have escaped.

Lastly, does there still not remain to cavalry, in its extensive movements in reconnaissance and on the battle-field, the combat with its rival, the cavalry of the enemy, the imposing and chivalrous hand-to-hand conflict which, for all time, has been regarded as the most splendid and most noble incident of war.

Such an encounter was the sanguinary and stubbornly contested cavalry duel at Essling, of which THIERS in his "Consulate and Empire," gives the following account:

Upon our center the storm seemed about to burst, for the corps of HOHENZOLLERN, the grenadiers, and LICHTENSTEIN'S cavalry advanced towards it in a compact mass. NAPOLEON perceived their design and sent intelligence of the movement to LANNES who had also become aware of the Austrians' intentions; the Emperor and the Marshal warned the division of SAINT-HILAIRE, the divisions of OUDINOT and the cavalry to again sacrifice themselves for the salvation of the army.

LANNES placed the divisions of SAINT-HILAIRE, CLAPARÉDE and THARREAU in the first line; the cuirassiers in the second line; in the third, the Old Guard. He permitted the dense mass of the corps of HOHENZOLLERN and the grenadiers to approach to half musket range and directed upon them a fire of musketry and grape of such precision that the ranks of the enemy were perceptibly thinned. He then launched the cuirassiers at top speed upon the Austrian infantry, which gave way at several points, and its close array was broken, as a breach is made in a wall.

Prince JOHN OF LICHTENSTEIN in turn brought up his cavalry and charged that of BESSIÈRES. LASALLE and MARULAZ advanced with their chasseurs and hussars to the aid of our cuirassiers, and the vast field soon presented the singular and dreadful spectacle of an immense crowd composed of fifteen thousand horsemen, Austrian and French, furiously charging upon each other, united as they advanced, dispersed as they returned, and ceaselessly rallying to charge anew.

After the termination of this prolonged and desperate hand-to-hand conflict, the movement of the enemy on our center was definitely suspended, and the corps of HOHENZOLLERN was brought to a stand in front of the epaulement extending from Essling to Aspern.

Of the same nature was the cavalry encounter at Rezonville, on the plateau of Ville-sur-Iron, where 5,000 troopers rushed upon each other with the greatest impetuosity. This combat, in which, in spite of their bravery, our cavalry had to yield the palm to that of the Germans, cost us the life of General LEGRAND. General MONTAIGU was severely wounded and taken prisoner.

At the time when the enemy was triumphantly pursuing our squadrons, which, at the utmost speed of their horses, were retreating to the village of Bruville, an event took place, which, now that our troopers are provided with a carbine of a small caliber, has a significance which entitles it to a serious examination.

A few scattered squads of the Second Chasseurs d'Afrique, which had taken part in the action, having dismounted, threw themselves into the little wood of Ville-sur-Iron and opened fire upon the German cavalry. A few French skirmishers from an ambush in the valley of the farm of GRÉYÈRE did likewise, and the victorious cavalry which had just sustained a violent struggle with three hostile brigades, was compelled to discontinue the pursuit and return to its lines, unable to endure the fire of a few troopers whom it had dismounted. This fact is interesting because it brings into opposition the two modes of action of cavalry, according as it fights on foot or on horseback, and because the troops used both methods in the same combat.

These same troops, without in the least suspecting it, have solved the problem which, at this very moment, is perplexing so many emi-

nent minds, and it is in conformity with the dictates of sound judgment; it is that in proportion as the preponderance of fire-arms is increased, the employment of other arms is diminished. This is a law which has long been following its regular course. The struggle between the bullet and cold steel does not date from to-day. Fire-arms remained stationary for centuries, but they have at last, resumed their march, and are advancing with giant strides. At each stage some one of the accessory arms takes its place in the museum of antiquities. All of them are there now or soon will be. The lance, which some are endeavoring to introduce, and the saber itself, will, in the near future, peacefully repose on the walls of our arsenals beside the battle axes, the halberds and the armor of our ancestors; and this will come to pass on the day when our troops shall have learned to use their musketoon on foot and on horseback.

This at first sight will seem to partake of heresy, and will doubtless exasperate in a high degree those cavaliers who consider any method of fighting other than that with the saber and lance as unworthy of the glorious traditions of their arm. We respect these illusions; they are the last vanishing rays of light shed by the past; but at the same time we will ask these partisans whether they consider it impossible for a troop of cavalry, even at the risk of seeing its name nailed to the pillory of the glorious history of this arm, to refuse the duel with the saber, and instead, to dismount and attack its rival with its fire-arms.

A division of cavalry can put 2,000 troopers in line, reserving 400 for holding horses. This is almost the effective strength of a regiment of infantry, and we claim to have proved that no force of cavalry, no matter what its strength, can hope to attack such a force with reasonable prospect of success.

As for firing from the horses' backs, which was generally condemned when attempted with the fire-arms formerly in use, it now seems to be entirely practicable with either the Lebel carbine or the musketoon. The discharge of these arms being accompanied by neither smoke nor report, the horse does not become frightened as was formerly the case, and the rider can aim better. In short, it is only a matter of drill for the men and of training for the horse. Of course this fire can never be compared to that of a body of infantry, but results may be obtained which are not to be despised. A troop of cavalry coming up at a gallop, suddenly halting and opening fire on its adversary and then moving on again at the same pace, will produce an effect not to be despised.

We think that if any cavalryman is permitted to choose between

the lance and the Lebel musketoon, he will not hesitate to take the latter, which is a lance two thousand yards long. What limit is there to the power of two thousand vigorous men, who, by virtue of the rapidity of their movements, may make their presence severely felt almost simultaneously on different points of the battle-field, while the infantry is more than ever, as it were, chained to its position? But, it will be asserted, you are not describing a cavalryman; your creation is only that hybrid being, the mounted infantryman. A cavalryman does not cease to be a cavalryman, if, by stress of circumstances, he is compelled to leave his saber in the scabbard and use his fire-arms. Whether he be styled a dismounted cavalryman or a mounted infantryman, he none the less represents by the rapidity of movement due to the horse, and the power due to his carbine, the most perfect union of force and swiftness.

The ancients, to give a concrete expression to this idea, created the Centaur, armed with a bow, which was their most perfect missile weapon. Some have thought that if the lance be restored to the trooper, he will be endowed with a shock power of the highest order. Such might have been the result some years ago, but now that smokeless powder has been adopted, it is a profound error, for there is now no such thing as shock action, at least against infantry.

An attempt to justify the change is made by asserting that the lance shall be used only against cavalry, for as foreign cavalry still use this arm, it is absolutely necessary to meet it with the same kind of weapon. Let them cite an example in which two bodies of cavalry have charged home on each other and an actual shock resulted. The rule, based on experience, requires that when the lines are about to join, each man shall select a particular opponent, and attack him. This is not a shock, but a hand-to-hand encounter. The shock is proportioned to the mass and to the square of the velocity. Then whether the trooper has a lance, a saber, or nothing at all, matters little. The shock will take place in exactly the same manner, and with the same living force.

In the hand-to-hand conflict the saber finds its true place, and the lance can be of no real use. Certain partisans of the lance have proposed to arm the front rank with this weapon for the shock, and the rear rank with the saber for the mêlée. Any one can readily comprehend the situation of the wretched lancers with their long poles in the midst of a furious hand-to-hand conflict. We regard the timid and temporizing resurrection of the lance as one of those retrograde movements which are natural to the human mind, and which, al-

though they may obstruct the pathway of progress, can never close it entirely.

In the physical as in the moral order of things, equilibrium takes place only after a number of oscillations. The waters of a majestic river strive to combat with the rising tide. For some moments they appear victorious; but soon the rising wave triumphs over all obstacles and overthrows everything in its front. The sight of our brave dragoons returning from a drill, awkwardly holding their lances—for years of instruction are necessary to make a good lancer—call to mind the story of DANIEL ROCK and his sons CHRISTIAN and KASPER.

The heroic smith, a determined enemy to progress, has sworn that he will stop the first train that attempts to pass over the railway just constructed in the village. As the train approached, old DANIEL ROCK and his sons, each armed with an immense pike, were seen advancing from out the dim depths of the tunnel. The locomotive came on like the wind. Half a minute more and it would pass over their bodies and plunge into the mountain. The old smith stood on the track, between his sons, head erect, pike in his right hand, his brows contracted, his lips compressed, and his great aquiline nose standing out like an eagle's beak. He gazed on the approaching train with an air of defiance and seemed to say, "You shall not pass." It was impossible to help admiring his proud attitude. CHRISTIAN and KASPER, one on each side, necks and chests bare, stood as motionless as statues. Suddenly all three bent forward and rested the buts of their pikes on the ground with the points forward. The multitude began to tremble. It was too late to stop the locomotive. The engineer, fearful that the train would be derailed cried in a voice that rose above the thunder of the wheels: "Let her go." The locomotive was immediately covered with a cloud of steam, and rushed into the tunnel with a frightful scream.

When it had vanished from view, all eyes were directed to the spot where a few seconds before old ROCK and his sons had stood. The three smiths and their lances had been crushed like straw, and far in the distance the locomotive could be heard rumbling along with undiminished speed.

NIGOTE,
Major One Hundred and Nineteenth Regiment of Infantry, of the former Staff.

FURTHER REMARKS ON THE CAVALRY FIGHT ON THE RIGHT FLANK AT GETTYSBURG.

TO THE EDITOR:—When the last number (March, 1891) of your JOURNAL reached me a short time ago, I was very much pleased to find in it the admirable address delivered by General KIDD, upon the occasion of the dedication of the monument erected by the State of Michigan in recognition of the services of the Michigan Cavalry Brigade during the battle of Gettysburg. It is eminently proper that your pages should contain the account given by that gifted orator and truth-seeking historian, of one of the most brilliant cavalry encounters which occurred during the War of the Rebellion, and that his valuable work should not remain buried in the pages of a publication which has only a limited circulation. It may be, and probably is, the fact that previous to your publishing the address but comparatively few of your readers knew or had heard any of the particulars of that brilliant passage-at-arms, which, as some of us modest cavalrymen have not hesitated to claim, saved the battle of Gettysburg to the Union cause—or at any rate did much in that direction.

I beg hereby to tender to General KIDD my heartfelt thanks for the kind and courteous manner in which he has expressed himself towards me and my account of the fight. He finds much in which to agree with me, and but little in which to differ from me. This is all the more striking from the fact that when my account of the fight was first given to the public, in September, 1878, in a contribution entitled, "The Right Flank at Gettysburg," published by the *Philadelphia Times*, in its series of "Chapters of Unwritten History in the Annals of the War," and subsequently published in pamphlet form, there was almost nothing in the way of printed material to work upon. The cavalry fight had been *utterly and entirely ignored* by every author who had purported to write a history of the battle of Gettysburg. The publication of the official records of the Rebellion had not even begun. Nothing indeed had been printed but the report of General CUSTER of the services of his brigade in the Gettysburg campaign, which appeared in MOORE'S "Rebellion Record," Vol. 7, page 397—a report so full of errors and so apocryphal that it has not even been given a place in the Gettysburg volumes of the Official Records of the Rebellion recently issued. One

of the earliest publications relating to the matter was that of General J. E. B. STUART's official report, which was printed in the Southern Historical Society's Papers in September, 1879. This, together with all other matters then available, had been kindly placed at my disposal, in manuscript, by the authorities of the War Department. It was no small task, therefore, to prepare an account of a rattling, dashing cavalry fight fifteen years after it had occurred: and any one who has attempted to give a succinct history of anything of the kind, in which everything and everybody is here, there and everywhere a dozen or more times during its occurrence, will bear me out when I suggest that it was no easy task. When my second account of the fight was given to the public, in October, 1884, I then had placed at my disposal the full, but as yet imperfect, advance print of the Gettysburg volumes of Official Records, and I was thereby enabled to make some few slight corrections and additions to the text of my first account.

General KIDD, on the other hand, when he had occasion to prepare his account of the fight, had not only mine to work upon, but also Major H. B. MCCLELLAN's, given in his excellent and conscientiously impartial (from a Confederate standpoint) "Campaigns of Stuart's Cavalry;" General TROWBRIDGE's paper, read in October, 1886, before the Michigan Commandery of the Military Order of the Loyal Legion of the United States: the COMTE DE PARIS' account in the third volume of his "History of the Civil War in America," and Captain MILLER's account in the third volume of the "Battles and Leaders of the Civil War," as well as the more completely collated Official Records. I am therefore surprised that he found so little in which to differ from me. To be sure he saw the fight with different eyes from mine, and no two accounts of the same battle written by participants—it may be by those who fought side by side—have ever yet appeared in which material disagreements do not exist.

General KIDD takes exception to what I state in but five instances:

1. That my encomiums upon the part which the Michigan Cavalry Brigade took are perfunctory and not from the heart. GOD forbid that I should let that rest unchallenged! No one can but acknowledge that that superb command bore the brunt of the fighting: its losses show that. But what I *do* maintain, and have always maintained, is, that some of GREGG's cavalrymen were there also, and that General GREGG was in command on the field and entitled to the credit of the victory. Both these facts were for a long time denied by the men from Michigan, and it was not until we met in reunion upon the field and convinced them to the contrary, that they would acknowledge that we were entitled to some recognition.

2. That I stated that CUSTER's brigade spent the night of July 2d in bivouac at "Two Taverns." Well, it may have been late when the men got to bed—or what in those days constituted a bed—frequently the sharp angle of a fence rail—and some may have seen a few streaks of daylight before they turned in, but the majority nevertheless *did* get some rest. I do not think that any of us who might be returning from a ball or other similar dissipation would acknowledge to have been out all night, had we gotten home at the same hour that CUSTER's men went into bivouac.

3. That, according to my account, MCINTOSH's brigade of GREGG's Division had relieved CUSTER's, and that the latter had moved off the field. In the light of later testimony I will have to acknowledge that the *whole* of CUSTER's brigade had not left the field. It had, however, "pulled out," and two regiments at least (as General KIDD acknowledges) were in movement to the rear to join KILPATRICK on the right. That, however, the picket lines had been relieved, and that some of MCINTOSH's troops had actually taken the places of some of CUSTER's, I have a distinct recollection, and so has every man of my brigade with whom I have conversed upon the subject. This, however, is a very trivial difference.

4. With reference to PENNINGTON's battery being still in position near the SPANGLER house while its brigade had moved off.* This is now easily reconciled with the facts, inasmuch as I have acknowledged that CUSTER's entire command had not left the field when the fight opened. And here I may say that it has always been the recollection of those who served in MCINTOSH's brigade, that the fight was opened by the First New Jersey Cavalry advancing on the RUMMEL farm buildings, and since General KIDD maintains that one of CUSTER's regiments did the same, I suppose that this also will have to be relegated to that aggregation of disputed points which bristle up in the account of every encounter upon the whole battle-field.

5. But the only point in which I must take exception to my friend General KIDD is, that he has added a foot note on page 62 of the account as published in your JOURNAL, but which did not appear in the previous issues of the address. He states: "Colonel BROOKE RAWLE gives an exaggerated estimate of the losses, for which there is no verification in the official records." Now I claim that this is not fair. My words were: "General GREGG reported his losses to be one officer and thirty-three enlisted men killed, seventeen officers and one hundred and forty enlisted men wounded, and one officer

*Captain C. A. WOODRUFF, Second Artillery, who commanded a section of the battery in question, states positively that four guns, commanded by himself and Lieutenant HAMILTON, remained in position near the SPANGLER house during the whole battle.—EDITOR JOURNAL.

and one hundred and three enlisted men missing—total, two hundred and ninety-five. CUSTER, in his official report, stated his losses to be nine officers and sixty-nine enlisted men killed, twenty-five officers and two hundred and seven enlisted men wounded, and seven officers and two hundred and twenty-five enlisted men missing—total, five hundred and forty-two." Where are any words of mine? At the time my account was written, the Official Records in the War Department had not yet been collated. I suspected that something must be wrong, yet I had nothing to go upon except the official reports above quoted. No one can but acknowledge that I was non-committal in the statement. I was careful to assume no responsibility in quoting the estimate of losses, especially so in relation to General CUSTER's. General GREGG properly reported all the losses in his command, that is, in the Michigan Brigade, as well as in MCINTOSH's and IRVIN GREGG's brigades of his own division. But General CUSTER certainly does state in his report (see MOORE's Rebellion Record, Vol. 7, p. 399) that in the battle of July 3d he suffered the losses as above quoted. Since my address was published, it has been ascertained by the authorities of the War Department that the figures which he gives are much nearer the losses of his brigade *during the entire Gettysburg Campaign* than those of the battle itself.

There is one matter for which I am exceedingly thankful to General KIDD, the second foot note on page 54. At times I have almost persuaded myself that General CUSTER's official report was a romance. Among other things, I have never yet found a participant in the fight who will acknowledge that there was any fighting on the field as early as 10 o'clock. Indeed, I have much affirmative and positive evidence that there was none. The very brilliant suggestion that General CUSTER wrote "1 o'clock" (not long after which time the fighting did actually begin) and that in copying his report the "1" and "o" of "o'clock" were mistaken for "10," reconciled the difficulty in my mind. In my address, however, I gave an extract of that portion of the report for what it might be worth, though I must say that I thought that its author was relating some of the events which we of MCINTOSH's brigade had thought that we were responsible for.

And now, if you will accept for publication in your excellent JOURNAL my last, and, I trust, final contribution to the literature of the "Cavalry Fight on the Right Flank at Gettysburg," you will oblige, Yours very respectfully,

WM. BROOKE RAWLE,
Formerly Captain Third Pennsylvania Volunteer Cavalry.
Brevet Lieutenant-Colonel, U. S. V.

PHILADELPHIA, June 8, 1891.

FIRING AT BREAST-WORKS OF SNOW WITH THE BERDAN RIFLE.

IN the months of January and February, the Grenadier Battalion of H. I. H., Grand Duke PETER, went out to the Ochta polygon (firing ground) to test firing at snow breast-works, in order to obtain data from which to determine the thickness of snow breast-works to resist bullets.

In pursuance of this, it was necessary to construct breast-works of different thicknesses; they also differed in the quality of the snow, which was either in a melting, a dry or a frozen state, due to varying conditions. The firing distance varied between 150 and 600 steps, (one step twenty-eight inches).

The first test, that took place on the 23d of January, was made by a detachment of twenty-five sappers who, at 8 A. M., with simple sapper shovels, constructed, at a temperature of freezing, five breast-works of dry, loose snow thrown from the shovel and not beaten down; they were each six steps in length, (Fig. 1).

The first breast-work was four feet thick; the second breast-work was five feet thick; the third breast-work was six feet thick; the fourth breast-work was seven feet thick; the fifth breast-work was eight feet thick. The height in rear was four and one-half feet, in front four feet; the base of the exterior slope was four feet, that of the interior slope one and one-half feet. The work ended at 9 A. M. Behind the works, along the foot of the interior slope, boards painted black were placed. These served as targets, while on the exterior slope of each work was a round paste-board circle representing the bulls-eye. The tests were made with two rifles, and were begun at 9:15 A. M., at a temperature of six degrees above freezing, (Réaumur).

The first test took place at a distance of 150 steps; five bullets were fired into each work. The wind was rather strong and blew from the left side. The result of the firing is shown in Fig. 2.

Four of the bullets, striking the four foot breast-work, passed through it, reached the target, but not penetrating, fell at the foot of it.

Three of the bullets, striking the five foot breast-work, stopped at a distance of four and one-half to five feet.

Three bullets, striking the six foot breast-work, stopped at a distance of four to five feet.

Four bullets, striking the seven and eight foot breast-work, stopped at a distance of five feet.

After this the firing, continuing in the same order, took place from 200 steps.

Results:—Five bullets, passing through the four foot breast-work, struck the target and fell at the foot of the interior slope.

Of four bullets, striking the five foot work, three stopped at a distance of four and one-half feet, and the others, in passing through, fell at the foot of the target.

Four bullets, striking the six foot breast-work, stopped at a distance of five feet.

Three bullets, striking the seven foot breast-work, lay within the limits of four to five feet.

The eight foot one was struck by four bullets; they all stopped at a distance of five feet.

This ended the first test. The general result of the firing was as follows: The four and five foot breast-works should be considered unsatisfactory, as the bullets passed through them (especially the four foot one) striking the target with so little velocity that no traces of the shot could be seen on it.

Six, seven and eight foot breast-works may be thick enough to prevent the penetration of bullets, but only when they are constructed of snow, (soft, but not in lumps), forming a common compact mass. None of the bullets fired lost their shape, and all were found lying perpendicular to their line of flight.

TESTS ON THE 24TH OF JANUARY.

At 8 A. M. the same number of privates constructed in one hour's time, five breast-works of snow; the length of each was six steps. The work was made during a temperature of one degree R. The breast-works were made of the same quality of snow which, for the purpose of giving the embankments a greater compactness, was trodden with the feet and beaten with shovels. The profile and the position of the target and bull's eye remained unchanged. The same rifles and the same number of bullets were employed for the firing, which began at 9 A. M.

Distance, 150 Steps, (Fig. 3).—The five bullets, passing through the four foot breast-work, hit the target and fell without entering it.

Five bullets, penetrating the five foot breast-work, stopped at a distance of five feet. In the six, seven and eight foot breast-works four bullets stopped at the same distance as in the five foot embankment.

Distance, 200 Steps.—The same result as from 150 steps.

Distance, 300 Steps.—The same result was obtained, except that in the eight foot breast-work the bullets stopped within the limits of three and one-half to four and one-half feet.

Distance, 400 Steps.—The bullets passed through the four foot work. In the five and six foot ones the bullets stopped within the limits of four and one-half to five feet. In the seven and eight foot breast-works they stopped at a distance of three and one-half to four feet.

Distance, 600 Steps.—From this distance only the four and eight foot breast-works were tested; ten bullets were fired at each. Seven bullets, passing through the four foot breast-work, were found within the limits of three and one-fourth to three and three-fourths feet. Six bullets, penetrating the eight foot one, stopped at a distance of three and three-fourths feet.

The general result of this firing can be considered as follows:

Breast-works made of melting snow, well trodden, showed that in consequence of increase of both the thickness and distance, the bullet gradually loses its velocity and therefore penetrates the snow mass to a less depth. This is firstly proved by the fact that the four foot breast-work was not penetrated by the bullet at a distance of 600 steps, and secondly, by the fact that in the eight foot breast work the bullet stopped at a thickness of from three and one-fourth to three and three-fourths feet.

TESTS ON THE 27TH OF JANUARY—(FIG. 4).

For this test the breast-works were constructed two days earlier at a temperature of +3° R. in order to give the snow mass a greater compactness and time to freeze. On the eve of the 27th of January the temperature fell to —7° R.; the tops of the breast-works were frozen, forming a crust six inches thick. The profile of the works remained unchanged. The test began at 9 A. M., at a temperature of —5° R.; five bullets were fired at each breast-work.

Distance, 150 Steps.—Into the four foot breast-work, four bullets penetrated a distance of three and one-fourth to three and one-half feet; in the six, seven and eight foot breast-works, four bullets penetrated a distance of three and three and one-fourth feet.

Distance, 300 Steps.—Into the four, five, six and seven foot breast-

Three of the bullets, striking the five foot breast-work, stopped at a distance of four and one-half to five feet.

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Results:—Five bullets, passing through the four foot breast-work, struck the target and fell at the foot of the interior slope.

Of four bullets, striking the five foot work, three stopped at a distance of four and one-half feet, and the others, in passing through, fell at the foot of the target.

Four bullets, striking the six foot breast-work, stopped at a distance of five feet.

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Distance, 300 Steps.—Into the four, five, six and seven foot breast-

Fig.2,
24 January
Distance 150 & 200 Steps.

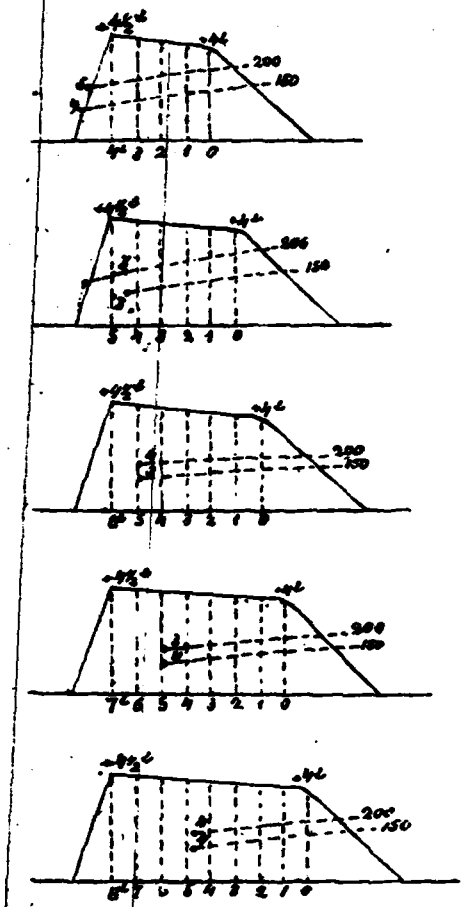


Fig.3,
24 January
Distance 150, 200, 300, 400 & 600 Steps.

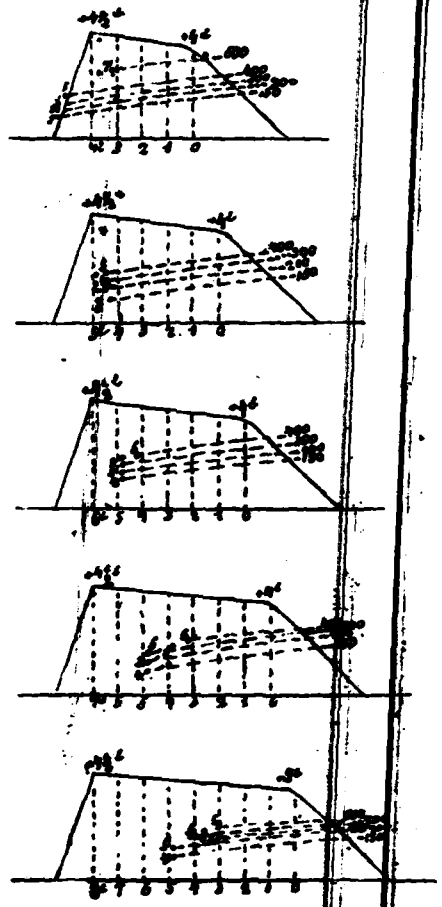


Fig.4.
27 January
Distance 150, 300 & 600 Steps.

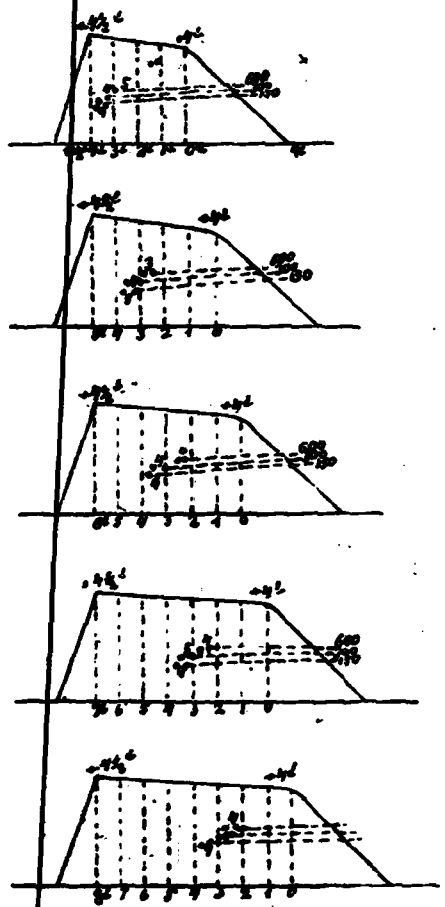
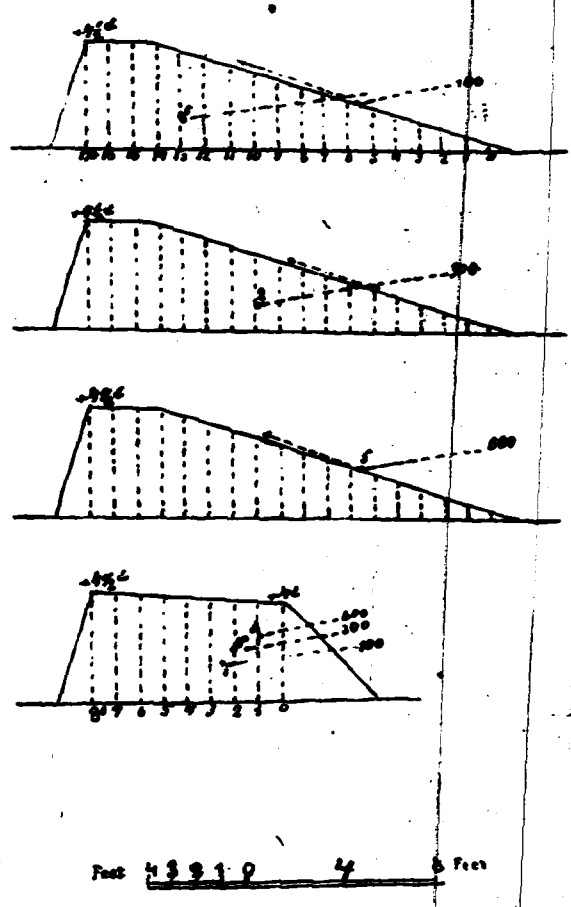


Fig 5
7 February
Distance 100, 300 & 600 Steps.



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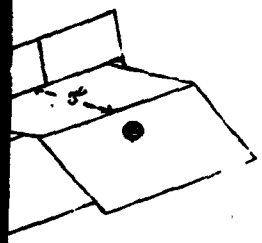


while the others, breaking through the crust, stopped at the ten foot line.

Distance, 600 Steps.—The bullets passed through the four and eight foot breast-works and penetrated to a distance of three-fourths to one and one-half feet. Of five bullets which penetrated the glacis, two making a ricochet along the slope, passed over the target, the third, also ricocheting, passed through the target, and the rest, breaking through the crust, fell at the five foot line. With this the tests ended.

In making a general resumé we may come to the conclusion that a breast-work six feet thick, constructed of melting snow (directly from the shovel) can be considered as satisfying all requirements. If the breast-work be made of the same quality of snow, but pressed with the feet and shovels, then such an embankment of a five feet thickness can be considered satisfactory. A work constructed of the same snow frozen at the top can also be considered satisfactory even with a thickness of four feet. A breast-work three and one-half feet thick, (watered from the top) with an ice crust at the top, at least two inches thick, can also be considered satisfactory.

The tests showed that glacis are the best for the firing from different distances. Some of the bullets striking the exterior slopes ricochet, leaving only shallow furrows, and pass over the embankment; others, however, passing through the crust, soon lose their velocity and penetrate an insignificant distance. It was observed in firing at the glacis that all the bullets were more or less deformed; in the four and eight foot breast-works the bullets were also flattened, but not to such an extent as in the first case. For the above tests three hundred and three cartridges were employed.

A. H. KOVRIGIN.

ST. PETERSBURG, April 4, 1891.

SOME THOUGHTS ON EQUIPMENT.

OUR cavalry owes its origin to the necessity of giving protection to the pioneers of western civilization. Its development has been, generally speaking, controlled by the peculiar conditions incident to warfare in wild and desolate regions, with savage tribes, skilled in all the arts of treachery and stratagem; and the qualities of independence and self-reliance have been, through these agencies, indelibly stamped upon its character. The Mexican War was an episode which marks an important stage in its development, while the four years of the Rebellion period demonstrated the value of its previous education and training, and confirmed and established for all future ages its distinguishing characteristics. Its progress since the war has consisted chiefly in the improvement of its armament and equipment; the organization having remained the same, except the attempted assimilation to infantry, which has thus far proved to be injurious rather than advantageous.

The armament of the American cavalry was determined by the character of its early service. The absolute independence of its operations rendered the best fire-arm obtainable a necessity, and in the days of percussion caps and muzzle-loaders no difference of opinion existed with reference to the value of the saber as a weapon always to be relied upon. The experience of the Civil War demonstrated the fact that neither the saber nor the carbine is the distinctive cavalry weapon, but that they are both equally necessary to its efficiency. The just renown of the cavalry of the Western armies is based not upon its many victorious encounters with the bold horsemen of MORGAN, FORREST, and WHEELER alone, but in an equal degree upon its splendid dismounted fighting at Nashville, West Point, Macon, and on other bloody fields. By the troopers who fought with SHERIDAN, the memories of Cold Harbor, Deep Bottom, and Five Forks are cherished no less proudly than those of Yellow Tavern, Winchester, and Tom's Brook.

The idea that his was a superior arm, to be escorted and protected by the infantry, and reserved for special and distinguished service at

some crisis of the battle, had no place in the mind of the cavalry soldier of the Union armies. He understood thoroughly that the requirements of war demanded that he should be prepared to meet the enemy with courage and effect in whatever shape encountered, and no defects in tactics or equipment were permitted to swerve him from his soldierly purpose. His intolerance of the unpractical or sentimental in equipment was evinced in the ridicule with which he greeted the appearance of the lance. The few organizations which ventured to carry this weapon in the early days of the war were hooted and gobbled at till they were glad to exchange the stylish lance, with its glaring red pennon, for the more practical and less pretentious saber. The fact was appreciated, that whatever value the lance might possess as a charging weapon it tied the trooper to his horse, and thus impaired that independence of action so essential to his efficiency.

The equipment of our cavalry, to-day, is probably not excelled by that of any other nation in the world. Changes have not often been made, or improvements adopted, before being subjected to the test of actual work in the field, and then only after long and persistent battering against the walls of conservatism which surround the department of manufacture and supply. Our advance has thus seldom kept pace with the onward march of the age, and it is only by unwearied and constant thought and attention on the part of cavalry officers that we can hope to reap for our arm the benefits which are rendered possible by the increased skill and improved methods which are every year apparent in the mechanical arts.

It is always easier to point out defects than to correct them; to indicate what improvements may be desirable than to devise practical methods by which they may be attained. I am well aware that my opinions have more value in my own estimation than they are likely to have elsewhere; and in placing them before the Association I have no desire to be obtrusive. Improvement is, however, impossible without interest and discussion, and if the crude and undeveloped ideas which follow contribute in any degree to this end they will not have been recorded in vain.

The Springfield carbine has served its purpose, and we can afford to wait with patience for the result of the labors of the Small Arms Board now in session, feeling confident that it will give us the most effective weapon which the progressive spirit of the age can produce. The target practice work of the last few years, has, it is believed, prepared us to accept cheerfully an increase of two or three inches in the length of the barrel, if thereby additional range and penetration

can be secured; and we will also hope that a rear sight may be devised which will not require both hands for its adjustment, and which will be better adapted for the serious work of the battle line.

The adoption of smokeless powder and a magazine gun of reduced caliber will naturally involve a pistol of improved pattern. Unfortunately opinion is divided concerning the uses of the pistol and its value as a weapon. This is not a proper occasion for a renewal of the old controversy of the pistol versus the saber; nevertheless, it would seem that those zealous advocates of the pistol who believe that it should take the place of the saber, as a charging weapon, and that more conservative class which believes that it should continue to hold the place which it has heretofore filled, that of a supplementary arm, serviceable for couriers and patrols, and useful in the mêlée, might agree that as long as a carbine is carried, a pistol with an effective range of from three to four hundred yards is unnecessary, and might, with advantage, be replaced by a lighter and handier weapon. When we consider the meager results which are attained after months of mounted target practice with the present pistol, its use seems hardly more reasonable than would that of a long-range rifle for snipe shooting.

The multi-ball cartridge was rejected by the Ordnance Department because its deadly effect was limited to seventy-five yards. Experience has abundantly shown that by no amount of practice, or instruction can the average mounted soldier be educated to make effective use of the pistol at distances beyond fifty yards, and for most men the firing at twenty-five yards and beyond is very random and uncertain in its character. It would, then, seem that the pistol should be made as effective as possible up to the limit of fifty yards, and that for firing at greater distances resort should be had to the carbine, which can be used on horseback with equal facility, and probably with increased accuracy. If the multi-ball idea can be so utilized as to give a considerable dispersion to the projectiles contained in the cartridge at ten yards and beyond, sufficient penetrative force being preserved to inflict deadly wounds at fifty yards, the result will be a far more effective weapon than the long range pistol now in use. Admitting that the pistol can be used as a charging weapon, it would hardly be claimed that the firing should begin before approaching within fifty yards of the opposing force, which is about the distance at which the actual charge should, in any case, be ordered. The increased effectiveness of such a weapon in the mêlée, or whenever used defensively, is apparent, and needs no argument. In the pursuit of fleeing cavalry the long range arm might have some advantage if it could be fired

with any degree of accuracy, but a pursuit continued after a distance of fifty yards has separated the hostile forces is of rare occurrence, and the carbine can always be used when necessary.

The pistol is a weapon which should under no circumstances be separated from the person of the trooper. It is essentially a defensive arm, and is frequently useful in an extremity, as when the wounded soldier, on the battle-field, is exposed to the attack of those merciless ghouls and robbers who sometimes infest armies to prey upon the unfortunate victims of battle. It must be carried on the waist-belt, which is a powerful reason for reducing its present excessive and burdensome weight. A holster should be provided, which, while protecting the barrel and breech mechanism, and holding the pistol securely, would leave the stock uncovered and ready to the hand. This could be effected by steel springs in combination with the leather, and no great amount of mechanical skill or ingenuity should be necessary for the production of such a holster.

The saber is far from being a perfect weapon, and yet no very radical change in its character appears possible. We often hear its sharpening advocated. It has even been suggested that it be issued from the arsenals in such condition that a sheet of paper lightly struck across its edge would be cut in two. This, with the addition of a wooden scabbard, it is claimed, would render it a much more effective weapon. Certainly such a weapon would be very dangerous to our own troopers, considering the moderate degree of skill in the saber exercise which they now possess. It would be folly to place such a saber in the hands of any but skilled swordsmen; and with the limitations which surround our troopers, we must be content with a moderate degree of proficiency in each of the manifold acquirements which go to make up their general efficiency.

The four or five thousand cavalry of our regular establishment would be a totally inadequate force to rely upon in the event of war. With a three years' enlistment (no reënlistment being permitted except in the case of non-commissioned officers and artificers), a reserve of instructed men could be formed, which, even if unorganized, would, doubtless, in the event of war, be found available for service, either in the ranks of the regular regiments or as volunteers. The present period of enlistment is, practically, for three years only, and those men who fail to attain the grade of non-commissioned officers during this period of service, are seldom fitted for the acquirement of much additional skill in the use of arms. Our object should then be to make the instruction of this three years' course as complete as possible, without giving especial importance to any one branch. The

fencing exercise of the new drill regulations is well calculated to awaken an interest in acquiring skill with the saber, and it may be supposed that many men will keep up their practice after leaving the service.

With the sabers as now issued an effective thrust is well nigh impossible; the ordinary clothing affording effectual protection against their blunted points. A cut, however, if delivered with vigor against the head, will have a stunning effect, be the blade ever so dull. This is opposed to the teaching of the drill book, but it is possible that the instructions therein contained, to prefer the thrust to the cut whenever practicable, contemplate a sharper saber than the one now in use. And there would seem to be no sufficient reason for not having the point and the first ten inches of the blade somewhat sharpened —not to the keenness of a razor, but to the degree which is consistent with the use of the steel scabbard. In some regiments, previous to and during the war, grind-stones were brought into requisition for this purpose; but as such grinding destroys the polish of the blade and induces rust, it is preferable that the sharpening should be done at the arsenal before polishing, and blades retained in the condition as issued.

A further improvement should be made in the saber by modifying the present clumsy shape of the gripe. The swell of the front part of the gripe, giving it an extreme thickness of about one and a half inches, interferes very seriously with the proper position of the hand when the thumb is extended along the back of the gripe, as it must be in all movements of the exercise except thrusts to the right and rear. This shape of the gripe renders it almost impossible for men whose hands are not above the average size to acquire any facility in the use of the saber; a fact which should become fully apparent if the fencing exercise prescribed by the new drill regulations receives serious attention.

The objections to the steel scabbard are that it is noisy, and that it would render it difficult to keep the blade sharp if issued in that condition. It, however, seems impossible at present to find a serviceable substitute for it. No non-metallic substance available possesses sufficient durability to stand the hard knocks to which a scabbard is subjected when the saber is attached to the saddle, as it must be when the trooper dismounts to fight, and as it should be at all times in order that he may have perfect freedom of action. The noise is reduced to a minimum when the saber is made fast to the saddle in a proper manner, and such sharpness as is essential or desirable is not affected by the use of the metal scabbard.

The stiff and clumsy strap now furnished as a saber knot, could be advantageously replaced by a light and flexible knot of braided leather. This necessary appendage would then, perhaps, not be so unpopular as it now appears to be.

The present modification of the "Stuart's saber attachment" appears to answer its purpose, though it is believed that a well made steel hook of the original pattern would be an improvement.

The woven cartridge belt is superior to any appliance heretofore furnished for carrying cartridges; nevertheless, it is not quite perfect, as the cartridges will sometimes stick fast in an exasperating manner. Should a magazine gun be furnished, it will probably be necessary to carry the cartridges in packets suitable for insertion into the magazine, which will render the cartridge belt in its present form obsolete, and involve the adoption of some more suitable device.

The sling-belt and swivel are simple and effective, but the swivel would be much improved by providing the short side with the corrugated thumb-piece devised by General KELTON.

The battered condition in which many carbine barrels are found at the end of every tour of field duty, through contact with the trooper's spurs and from other causes, is a sufficient argument for the provision of some sort of covering for the whole metallic portion of the arm. With a carbine of the present length of barrel the use of a closed boot of stiff leather is practicable. But any increase in the length of the boot would render it somewhat unwieldy and inconvenient. It is possible, however, that the new carbine may be provided throughout the length of its barrel with a protective jacket after the style of the present German rifle, which would, in a measure, obviate the necessity for a long boot.

Our present saddle is a modification of the one devised and recommended by GEORGE B. MCCLELLAN upon his return from Europe in 1857 or 1858, where he had been sent, when a captain of cavalry, to observe and report upon the organization and equipment of the armies of the old world. The original McClellan horse equipment, which was first issued for trial about the year 1859, was, as I remember it, far superior to any which has since been furnished by the Ordnance Department. The bridle was combined with a head halter, the bit being detachable. The equipment throughout was of fair tanned leather, the saddle being covered with the same material, while the bit, the buckles and all ornaments were brass plated. The saddle pockets were of a capacity befitting the modest wants of a trooper, and, in this respect, were in striking contrast to the Saratoga trunk attachments of our present equipment. The McClellan equip-

ment had not been generally issued to the cavalry when the Nation was called to arms in 1861, and the exigencies of war calling for large numbers of saddles, in the interest of economy the ornamental part of the equipment was dispensed with. Ordinary black leather took the place of the stylish fair-tanned, and the saddles were covered with raw-hide. The equipments of the war period were manufactured by contractors who enhanced their profits by inferior material and workmanship: but nevertheless, the so-called McClellan equipment stood well the test of war service, and was a vast improvement upon the old Grimsley which it displaced.

At the close of the war large numbers of these contract made equipments were left on hand, and several years elapsed before all the old stock was disposed of. Then the saddles were covered with black leather, brass was substituted for iron in the rings and buckles, the Shoemaker bit, with its polished steel, took the place of the homely and ponderous McClellan, and, in appearance at least, the equipment was much improved. Another change, however, which took place at this time has not been justified either in point of utility or appearance. The small saddle-pockets, which had answered perfectly all the requirements of war service, were exchanged for the huge saddle-bags, patterned after those of the western traveller, which pound the flanks of our horses whenever a faster gait than a walk is taken. The old Grimsley equipment had some very serious faults, but it had the virtue of permitting the pack to be fixed fast to the saddle, instead of having the various articles hung on in front and rear, and left to flap and dangle against the horse's sides, according to our present style.

Major DWYER gives the rule for seats as follows: "The saddle in the center of the horse's back; the girths, stirrups and rider in the center of the saddle;" and it will be difficult for any one who has read with care the first and second chapters of his work on "Seats and Saddles" to doubt that this rule is founded on perfectly correct principles. This style of seat has always been that of our western range-riders, and cavalry officers have more than once sought to adopt it.

Captain HALL tells us (in the JOURNAL for July, 1888) that "the correct position of the saddle is obtained by cinching it very tightly so that the cincha shall be midway between the elbow and stifle joint, when the horse is standing square with his legs under him;" he further adds that "it is of great importance that the cincha be very tight, in order to reduce as much as possible the slipping of the saddle upon the back." Captain HALL says that he has saddled his horses exclusively in this way for twelve years, and found "not a single objection." It has, however, been my experience that tight cinching invariably produces saddle boils and sore backs, and my efforts to keep the saddle in its proper place have generally ended in failure from this cause. In the First Cavalry, and possibly in other regiments, this result has been sought by an arrangement of the front and rear girth-straps, which admits of a reciprocal shortening and lengthening, thus changing the bearing point of the cincha. By this method, however, the saddle is given an unequal bearing, which must tend to the production of sore backs. The frontiersmen have solved the difficulty by using two cinchas, the second one well back. This method would be objectionable in the cavalry from the increase in the weight of the equipment and the additional time which would be required in saddling.

Now is it not worth while to enquire if the desired result may not be attained by a change in the shape of the bearing surface of the saddle? Major DWYER says: "To begin with, the under surface of the saddle—the portion coming in contact with the horse's back—we find two principal points for consideration: Its shape or form, and its size or extent. One general mechanical principle applies to both, namely, that the larger the surface over which a given amount of pressure is equably spread or divided, the less will be the action on any given point of the other surface in contact: and this translated into plain English means, as regards shape, that the under surface of the saddle should bear as nearly as possible the same relation to that part of the horse's back it is intended to occupy as a mould does to the cast that is taken from it, always saving and excepting that strip lying over the horse's backbone, which must remain altogether out of contact." We have been instructed for years to place the saddle "well forward on the withers," and an examination of the saddle will show that it is designed to fit that portion of the horse's back, and that it does not and cannot be made to fit the portion lying above the fourteenth vertebra. Consequently it cannot be retained in that position except by undue and injuriously tight cinching or some other objectionable device: and when so retained, its under surface will not be in equal contact with that portion of the horse's back which it covers. The author of "Seats and Saddles" further tell us that "the grand rule is to arrange the saddle itself and the stirrups so that the rider can sit only in the proper position, that he falls naturally into it, and that it requires no muscular effort to maintain it." He also shows how this result can be assured when the "Hungarian" saddle is used, by lacing the bearing or seat strap

according to the conformation of the rider. With our saddles no change in the shape of the seat is possible, and the necessity of giving the horse's back the first consideration usually results in the saddles being fitted to the horses rather than to the riders; thus it is not uncommon to see a number four man in a number one saddle, and vice versa, so that we have seats in a great variety of styles. I am inclined to the opinion that in the regulation saddle the curve of the cantle, with reference to the place of the stirrups, is too abrupt to admit of a secure, natural and comfortable seat. Certain it is that when the saddle is too small for the rider his body is pitched forward out of equilibrium, causing an undue strain upon the muscles of the inner thigh, and rendering the seat insecure. This style of seat not only gives the trooper much discomfort, but on long marches causes a great deal of positive suffering, with consequent detriment to his efficiency. Soldiers seldom or never find fault with their saddles. Pride, ordinarily, prevents them from acknowledging any excessive degree of fatigue, and they accept the discomforts of a forced and rapid march as necessary and unavoidable, without thought or inquiry. Old soldiers, however, taught by experience, will usually seek a large saddle for comfort, using an extra blanket under it, if necessary, to make it fit the horse. The truth of the observation in Major HENRY's letter, published in the March number of the JOURNAL, that the power and endurance of the horse, "when properly trained, are limited only by that of his rider," will hardly be disputed. Putting aside then all humane considerations, is not this subject worthy of attention on grounds of professional expediency? The clumsy and unattractive appearance of the "Hungarian" saddle does not recommend it to cavalrymen accustomed to the neat and shapely "McClellan;" but it would seem that the inventive genius of the American people should be equal to the production of a saddle combining its features of adaptability to the varying shapes of the horse's backs and the seats of the riders, with simplicity of construction and grace of outline.

The saddle-blanket has advantages not possessed by any form of pad, and should be retained.

The importance of proper bitting, and the defects of the present regulation bit, were fully and forcibly set forth in the JOURNAL for July, 1888, by its present editor. In that article it was conclusively shown that the Shoemaker bit is constructed on utterly wrong principles, that its use is attended with a large amount of unnecessary pain and discomfort to our unfortunate horses, with the result that large numbers of them are rendered restive and unmanageable, thus

presenting a serious obstacle to the improvement and efficiency of the cavalry arm. My own experience has been very similar to that of Major CARR's, and I am certain that I have seen many good horses rendered useless for cavalry service through the impossibility of fitting them with proper bits from those supplied by the Ordnance Department. I am confident that other officers will testify to the same effect, and that a majority of cavalry officers will condemn the Shoemaker bit. As nearly three years have elapsed since the article referred to was published, while no steps have been taken to correct the evil, it is evident that no change can be hoped for until some more effective method can be found for calling attention to the subject. In this matter of bits and bitting there is not much room for personal opinion. The principles which govern are susceptible of accurate demonstration, and by their application it can be readily determined whether or not our present bit is properly constructed. The military system which affords no method by which a matter of such importance can receive attention and investigation is indeed wonderful.

In considering the remaining articles of the equipment it should be remembered that in these days of smokeless powder and constant improvement in the deadly effect of fire weapons, the efficiency of cavalry is more than ever dependent upon its celerity of movement; and if we are not prepared to agree with the British officer, who in his letter to the *London Times*, (as published in the JOURNAL for March), proposes to strip the horses of all dead weight except a twelve pound saddle, resorting for this purpose to pack animals which are to follow the squadron, carrying everything which the troopers may require, we may yet concede the necessity of reducing the weight of the saddle-pack as far as may be possible by rigorously discarding every article, both of equipment and the soldier's personal belongings, which can possibly be dispensed with.

Our present saddle-bags were adopted upon the recommendation of cavalry officers, who, because they had at times found the similar large traveling-bags of the western frontiersman useful for scouting work under certain conditions, were misled into the opinion that the cavalry equipment would be improved by adding to it an appendage apparently so useful and practical. Absorbed in the work of the frontier, which consisted for the most part of toilsome marches over rough and broken country, where a faster gait than the walk was seldom practicable, they forgot for the moment that such use of cavalry was exceptional and temporary in its character, and that its true efficiency must be tested under the widely different conditions of war

and battle. We have now carried these bags, in their present form, some twelve years. Their weight when empty is about equal to that of the packed valise of the Grimsley equipment, while packed to their full capacity they would almost suffice for the burden of a pack-mule. They are, however, carried as seldom as possible, and I have never yet seen their capacity fully tested. Attached to the rear end of the saddle and hanging down over the flanks of the horse, their pounding motion when the trot or gallop is taken cannot be otherwise than distressing to the animal, and must tend to impair his powers of endurance.

I would replace them by two pockets, eight or ten inches long and five or six wide, fitting closely to the saddle, the lower portion of each being attached to, or forming a part of, the rear girth-strap. These pockets would have sufficient capacity for a change of underclothing and all other essential articles for the soldier's use. Similar pockets might be attached to the pommel of the saddle on either side as receptacles for the rations, to take the place of the haversack. All these pockets should be made a part of the saddle, not to be detached from it.

The lariat and the picket-pin are a survival from the days when the cavalry had the boundless West for its scouting ground. Before the advent of the squatter and the cattle herds of the ranchman the luxuriant grasses of the river bottoms afforded abundant subsistence for the horses, even within the grazing limits of a lariat; and the impossibility of transporting forage on long expeditions, or of procuring it by purchase in the unsettled regions where operations were conducted, together with the risk attending attempts at herding in a region which was the home of the Indian and the buffalo, rendered the lariat and the picket-pin necessary articles of equipment. The conditions have changed. All the ground suitable for agriculture, and much fit only for grazing has been enclosed; while countless herds of hungry cattle strive together, winter and summer, for the scanty herbage of the open ranges. Cavalry horses must either take their chances running loose with the cattle, or the privilege of grazing withing the enclosures must be paid for.

When it began to be apparent that the lariat could no longer be depended upon for grazing purposes, the side-line hobble was introduced. The usefulness of this article has, however, been affected by the same causes which have rendered the lariat and the picket-pin superfluous. It is a hollow mockery to turn cavalry horses out with hobbles to compete with cattle for the grass of the free ranges. When enclosed fields are used of course hobbles are needless. Certainly opportunities may occasionally be presented for the use of these articles; but all horses can be accustomed to herding, and it has been my experience that when it is unsafe to herd it is also unsafe to trust to either the picket-pin or the hobble. Forage can often be procured by purchase within a few miles of camp, and it is seldom necessary to transport it for very long distances. Horses are usually herded during the hours of daylight, and tied to a picket line and fed hay at night. When hay is wanting, early and late grazing is resorted to to make good the deficiency. Certain it is, that only in the exceptional conditions which surround the service of our cavalry on the western frontier, can grazing to any extent be depended upon; and, notwithstanding the Pine Ridge campaign, it may be asserted that the time has come when the equipment as well as the training of the cavalry should no longer be based upon these exceptional frontier conditions, but upon the requirements of ordinary warfare. Without being considered a part of the equipment, lariats, picket-pins and side-lines might be kept at posts and supplied wherever and whenever the conditions of service are such as to admit of their effective use. Doubtless there is a sufficient number of these articles now on hand to supply all future demands for them. Will it not be the part of wisdom then to relieve the horses of the weight of these useless burdens, and the troopers from the labor and responsibility which their care requires?

If a lariat is sometimes useful to the trooper on picket duty, or on the skirmish line, by permitting him to leave his horse under cover while he creeps forward to a suitable position for observation or for firing, the present heavy and clumsy rope is not well adapted to the purpose. A thick cord, however, half the size and weight of the lariat now furnished would, for the purpose indicated, be a useful addition to the equipment.

The nose-bag is indispensable, and a sack for carrying grain, having a capacity of not to exceed fifteen pounds, and constructed so as to admit of being strapped to the cantle or pommel of the saddle, should be furnished.

The most important part of the trooper's equipment remains to be mentioned. The cavalry horse as specified by the regulations, is all that can be desired. If only it were possible to procure such horses! As the years go by the hope that private breeders may be induced to give attention to the wants of the cavalry service grows fainter. Inspectors, apparently, find it useless to seek for qualifications beyond those relating to age, height and soundness, together with such a degree of docility as will permit the horses to be handled and ridden without serious danger. When these horses have been

raised on western ranches, months of patient and thankless labor must be expended in efforts to subdue, even partially, the wildness acquired in the free life of the range. The labor is thankless because these ill-bred animals are not, for cavalry purposes, worth the labor which must be expended upon them. A good horse attaches the trooper to the service by a powerful bond, while the discouraging effect of daily and hourly contact with a vicious and ugly brute has driven many a good soldier to desertion—even though this fact does not always appear in the Boards' of Survey proceedings. I am prepared to believe that the only effective remedy lies in the establishment of government breeding farms. There the type of the cavalry horse could be formed and perpetuated. There the systems of RAREY and GRACE and other horse-breakers would have no place. The gentling and educating process would begin with the first year of the animal's existence, and he would be insensibly formed, as his growth continued, into a perfect realization of the cavalryman's ideal—a constant joy and delight to his rider.

Let us then cherish the hope that amid all the reformatory projects which disturb the peaceful current of the service routine, this dream of the cavalryman may find its place; and that the future cavalry horse of America may be produced with national characteristics no less remarkable than those which distinguish his rider. When we shall have secured this ideal charger, let us not weight his feet with a heavier burden than six ounce steel shoes. Then, mounted and equipped as no other cavalry in the world, we may worthily aspire to lead in all which pertains to true cavalry efficiency.

MOSES HARRIS,
Captain, First Cavalry.

MILWAUKEE, WIS., May 19, 1891.

LETTERS ON CAVALRY, BY PRINCE KRAFT ZU HOHENLOHE-INGELFINGEN.

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

SEVENTEENTH LETTER.—THE CAVALRY DIVISIONS IN PEACE.

IF you draw the conclusion from my last letter that opportunity must be given the commanders of lines to lead their lines in division combinations as often as possible, you are quite right.

You will find the proof that I fully agree with you in the wish that I gave expression to in a previous letter, to-wit: That the men of the cavalry might serve until the 1st of November, in order that time could be found during the month of October for maneuvering the cavalry in division organizations after the great autumnal maneuvers.

If you have drawn a still further conclusion, and are of the opinion that it is necessary to have the cavalry divisions organized in time of peace exactly as they are to be organized in operating against an enemy in case of war, then various objections become apparent, and although much can be said in favor of such a course, still, there are equally strong reasons against such an arrangement.

Each infantry division still requires a certain amount of cavalry to be attached to it, and after detaching one regiment of cavalry to each infantry division, if the cavalry is to be organized in peace as it is to operate in war, then all the remaining cavalry would have to be formed into divisions of six regiments each. This would result sooner or later in creating two kinds of cavalry—that of the cavalry divisions and the divisional cavalry. The first, consisting of a large combination of similar elements, would, in course of time, look down with patronizing superiority upon the isolated cavalry regiments attached to infantry divisions, and finally the idea would be created in the army that there were two grades of cavalry; a difference which would not be advantageous in any way to that arm of the service as

a whole. Only an emulative comradeship of the entire army can secure the general development of it.

Besides, such a marked difference between cavalry divisions and divisional cavalry does not exist in war. The regiments are frequently exchanged and relieve one another. This would be simply impossible if the cavalry were originally separated in peace and were given different instruction.

I hold it to be of the greatest importance that all the cavalry should be exercised in division maneuvers every year, and it should receive practical instruction each year in the duties of divisional cavalry. If, however, permanent cavalry divisions existed in time of peace, and were separated from the divisional cavalry, this double instruction could not be accomplished; the regiments of divisional cavalry would never take part in the exercises of great cavalry organizations, and on the other hand, the regiments of the cavalry divisions would never participate in the exercises of mixed commands. In order to form the cavalry into divisions they could bring together all the cavalry of each army corps as is now done in the Guard and Twelfth and Fifteenth Corps. But in the other army corps this course would interfere with the main object had in view in the forming of the cavalry divisions, viz: In bringing the peace formation into harmony with the war formation and in facilitating and hastening the transformation from one condition to the other. We cannot form as many divisions of cavalry in time of war as we have army corps unless we form some of them of but three or four regiments; for most of the army corps have five or, at the highest, six regiments of cavalry each, and of these one must be attached to each infantry division.

This would not do. What is the reason that only two divisions of cavalry exist in the Prussian army in time of peace? Because we have but two army corps having eight cavalry regiments in their normal organization. These corps give one regiment of cavalry to each division of infantry, and then take the field with the other six regiments of cavalry united in one division, which is their normal formation for both peace and war.

An enthusiastic cavalryman will, perhaps, desire that more cavalry be formed, i. e., eight regiments per army corps. But they will not increase the cavalry in order to realize the pet idea of having the cavalry organized into divisions in time of peace. The numerical proportion of the cavalry to the infantry depends on other and more pressing conditions than the formation of independent cavalry divisions.

In the demands for the formation of cavalry divisions in time of peace, we hear, in cavalry circles, of an organic separation of the cavalry divisions from the organized army corps, and of uniting them for inspections, which could be under the guidance of a general inspector of the cavalry. It is a remarkable coincidence that the demands for a separation of this kind should be heard from the cavalry just at this time when the artillery expresses a general desire to enter into closer relations with the army corps. This appearance alone gives good cause for doubting the propriety of such a radical change, and the desire of the artillery for an intimate organic union with the other arms, in time of peace, establishes the fact that separation has its disadvantages. It must be taken into consideration further, that we have historical examples of such an organization. After the peace of Hubertsburg, FREDERICK THE GREAT created such cavalry inspections. He was himself the Inspector General of the cavalry. This organization sustained itself as long as men like SEYDLITZ were at hand to infuse nerve and life into it. But later, the cavalry gained nothing by it, as is proved by the figure they cut in the war of 1806. Although the latest historical investigations have indicated that the cavalry of 1806 did not fully deserve the severe reproaches hitherto heaped upon it, yet the conviction cannot be avoided that it did not feel itself in sufficient harmony with the other arms to stand always ready to give prompt assistance, and that the long isolation of the cavalry had greatly assisted in bringing about this condition of things.

How may this happen? In my last letter I have set forth how many characteristics must be united in a man to make up a capable leader of a cavalry brigade or division—strength, youth, fine equitation, endurance, sharpness of eye and theoretical education, (characteristics that often antagonize one another) and, although we may very rarely see all these requirements united in one cavalry leader, yet, they are even more necessary for a competent cavalry inspector.

Under an inspector who has been selected simply because he was a good officer in the routine duties of his arm, the cavalry will certainly receive an incompetent and sluggish direction, and in case of a long peace will finally let side affairs become the chief objects. Trifling objects, such as fat horses, fine performances in the riding hall, would become of chief importance and would have a very detrimental effect upon the war requirements of the cavalry. With WRANGEL such pedantry was swept away as by a strong, fresh wind. We have had experience in the past with old cavalry officers of high rank and glorious records, who, in their efforts to secure uniformity in the regiments confided to them, allowed their attention to be occupied by

unimportant things to the injury of the whole. An instructor in the riding hall would be reported as quite incompetent if, at the conclusion of the drill, he permitted the detachment to come into line on a different side, and with a different front from that with which it began, or if he varied from the exact routine of the prescribed drill or changed a command. To one of these gentlemen it seemed quite impossible that one of the regiments of his command should have straw for bedding and another not, and, in spite of the representations made to him that the stables of the one stood on dry, sandy soil, and that the others were located near the river, on wet ground, where the dampness affected the bedding and made it unhealthy, which did not take place at the former, still he ordered "uniformity." Everything was neglected that could not be brought into a general system of uniformity—field service, education in the terrain, coöperation in attacks with other arms. It will not be denied that this must be the foolishness of an idiot. I must repeat that these men had glorious records of past services. I am convinced that this deteriorating and stifling process would gradually, but greatly, increase during a prolonged period of peace if the arm be not so organized as to compel familiarity with its many and various duties by means of constant practice. That can occur only by keeping the cavalry combined with the other arms, and subject to the control of the corps commanders during times of peace.

But one can be done and the other not abandoned, and if the cavalry cannot and will not be increased, unite the cavalry of each two army corps in time of peace into a cavalry division and put it under the command of one of the corps commanders. Then a division of cavalry formed from two army corps must consist of at least ten regiments in time of peace, formed in three brigades; and on mobilization, one regiment must be detached to each of the four infantry divisions, as divisional cavalry, and thus go into war with a strength of three brigades of two regiments each. This would not result in any great alteration; but let us examine this plan in a concrete manner. The cavalry of the First and Second Army Corps forming a division of ten regiments in the First Corps; that of the Fifth and Sixth Corps of the same strength to the Fifth or Sixth Corps; that of the Third and Fourth Corps in a division, of eleven regiments, to the Third Corps; that of the Ninth and Tenth Corps in a division, of ten regiments, to the Tenth Corps; that of the Eleventh and Fourteenth Corps, of the same strength, to the Fourteenth Corps; while the division of the Guard, Twelfth and Fifteenth Corps remain in their hitherto peace formation. Now the division to be formed of

the Seventh and Eighth Corps and probably attached to the Eighth, would be too weak (eight regiments,) and after detaching the divisional cavalry would have only four regiments with which to take the field: equal to that of the Twelfth Corps. Even the cost of such a change in organization would not be important; it would reduce one brigade staff for each of the newly created division staffs.

But let us represent to ourselves the result of such a division of command; the principle of territorial boundaries for our army corps districts would be disturbed everywhere; constant annoyances and conflicts of authority would be unavoidable; the regulating of the recruiting and the completing of the mobilization would be very much complicated and delayed, and the existing principle of simplicity, in this work, would be greatly injured.

If cavalry ceased to be a part of the army corps in whose district it was garrisoned and consequently more isolated from the other arms, operations between the troops of different army corps—in order to secure a wider and more general instruction, either of a theoretical or practical nature—field maneuvers of entire garrisons of great cities would constantly become of more rare occurrence, the estrangement between the troops of the different arms of service would become greater and greater, and the instruction of each branch would gradually become more and more one-sided. I can recall having seen an infantry regiment, when I first entered the service, whose officers had never seen a cuirassier regiment. That should have excused their want of dexterity in operating with other arms. Something similar would occur again.

Now we come to a point of a more tender and delicate nature. Have we in peace, for independent cavalry divisions a sufficient number of commanders who possess the necessary experience and knowledge of the service for such a post, and the necessary characteristics, viz: eye, youth, endurance in riding, etc.

What would be the results of introducing independent cavalry divisions throughout the whole army? The army divisions would be infantry divisions and commanded by infantrymen only; the cavalry divisions by cavalrymen. A cavalry general who no longer possessed the requisite youth, endurance, and quickness of decision for a cavalry division must quit the service, and many a deserving, capable man would thus be thrown out of the army, who in knowledge of his profession and experience in command, was eminently fitted to render important services to the state at the head of an infantry division or even an army corps.

In comparison, the present condition seems much preferable. We

have on exceptional occasions formed a few cavalry divisions when necessary and obtainable. The cavalry is united periodically for the purpose of maneuvering in divisions under the brigade commanders, and from those who show themselves to be the most dexterous are selected the commanders for the mobilization of the next year. The instant war is declared, all regard for seniority is silenced; then we see a general of cavalry and a prince of the kingdom command a division, and the commanders for the cavalry division are chosen from the ablest army division commanders and from the youngest brigade commanders. And should we give up this extremely practical condition in order to create an organization which has been tried and failed?

Is the formation of cavalry divisions during peace really a pressing necessity?

There are two main considerations which make this need appreciable.

The first is the necessity to have the cavalry regiments exercised in division organizations, and the second is harmonizing the peace organization with the war organization, in order to dissipate as much as possible any difficulties that may appear, at the critical moment, in mobilization. That the exercising of the cavalry in division organizations is urgently needed, that it is very desirable, that every regiment should take part in such exercises every year, I have previously stated in detail; likewise how it seemed to me this might be accomplished. But that cavalry divisions must be organized during peace, I cannot grant. On the contrary, by pursuing the course we have followed heretofore of assigning brigade commanders, in turn, to the duty of conducting such exercises, and especially if such exercises take place in each army corps after the maneuvers with mixed arms, we can have many more cavalry commanders exercised in leading such mounted masses, and can recognize who among them should be chosen in case of war breaking out.

In the transformation from a state of peace to a war footing in our last great mobilization the commanders of cavalry divisions found much trouble, and much discomfort and fatigue was caused, in these newly organized commands by the strangeness of the personnel and because the newly created generals were not familiar with their regiments and scarcely knew where to find them. I can well imagine the discouragement of a division commander when, arriving with his staff at the destination indicated in the railroad transport, he finds no command and has no idea as to the whereabouts of his regiments. But he searches for them and finds them. The direction of the railroad transportation could not be turned over to him, but must be conducted by the Railway Commission of the great General Staff; it could not be communicated to him beforehand, for alterations may be made according to the changes in conditions, but the regiments were correctly scheduled and soon assembled. Such things could not fail to happen to many of our commanders in changing from a peace footing to a war footing in our last war. For example, the commander of the Guards Corps was billed from Berlin to Homburg in the Palatinate. During the two days' railway journey we found ourselves suddenly passing stations that did not appear upon our railway card. At one of the resting stations one of the train conductors informed us that our destination had been changed by telegraph. The change in the meal times soon excited astonishment and laughter; as for example, 8 o'clock in the morning, supper; 9 o'clock in the evening breakfast was served and the necessary halt was made. We finally arrived. But where? Upon inquiry we found that we were in Mannheim. Where the troops of the corps were no one knew. They were hunted up by telegraph. After a day's rest marching orders came, and we arrived in Kaiserslautern at the end of the second day. We found the Guard Cavalry Division already there before us, although it had quitted Berlin after we did; yes, we even saw that they were unloading our ammunition trains at the depot. Such things will, and must happen when the measures of the enemy make changes in dispositions necessary. That did not rest upon the non-existence of cavalry divisions during peace.

Besides, many of the higher commanders are changed at the moment of mobilization and are strangers to their new commands. I remember well that at the mobilization of the Guard Corps in 1870, both infantry divisions were given new commanders and most of the army corps also. In the higher commands it is not so important that they remain in the same position in mobilization. The main thing is, that complete regiments should be easily and quickly transferred from a state of peace to a state of war. United, well instructed regiments can easily be introduced into other brigade and division organizations. That often happens in all arms, and has never led to insurmountable difficulties.

It is necessary only that these regiments should be carefully and thoroughly instructed in tactical combinations that may be applied in war by these larger commands.

If, therefore, all cavalry regiments should participate annually in maneuvers of cavalry divisions: if they are exercised, not only in the established forms of the regulations and rules of tactics relative

to conduct in great tactical units, but in marching and in the system of command in division combinations, then it will be much less difficult to unite them quickly in brigades and divisions at the outbreak of a war. The complaint about the little cohesion in cavalry divisions at the beginning of our last war must be answered by saying, that until that time a very small fraction of our regiments had ever been through any evolutions in a division organization.

All discussions that I have had upon this subject with the advocates of the formation of cavalry divisions during peace have only strengthened me in my views, and I fear the introduction of such a change in our organization must, when extended throughout the whole army, result in more mischief and disadvantage, than advantage.

In this letter I have often touched upon the question of an increase in our cavalry, and have intimated that the number of cavalry that we keep up depends upon other conditions than the peace organization of that arm. Permit me to say a few words more concerning its numerical condition. There are various rules given in the numerous text books. It is said that as many squadrons are needed as there are battalions, or that the cavalry must be such a per centum of the army. These are demands which are based simply upon empiricism, as has been announced at various times heretofore, or upon an old foundationless theory. I have pointed this out in my first letter.

Since general military service has become a reality, we can call up at the outbreak of the war every serviceable horse as well as every serviceable man for the defense of the Fatherland. In the great importance which a cavalry mass has, in the incalculable advantage that a superiority in cavalry would give us over our enemy from the very opening of hostilities, since it blindfolds him, but extends our sight, since it confines him and secures us freedom of action; binds his hands while we strike him heavy blows, we cannot have too much cavalry, and the answer therefore, is very simple, viz: We must maintain as many regiments of cavalry as possible. If we were to make inquiry of the Remount Commission of the War Department we would certainly receive the reply, that the horse-breeding industry of our country would not admit of our getting the necessary annual remounts for more cavalry. I am fully convinced, if this answer were otherwise, that our government long since, either after our last war or upon the occasion of the last increase in the number of our infantry regiments, would have obtained the necessary means for the formation of more cavalry regiments.

The theoretical question of heavy and light cavalry is also quite

interesting. In my youth I was taught that it was necessary to have one-quarter heavy, one-half light and one-quarter medium cavalry. I must now laugh at all this. Heavy men must not be mounted on light horses. Heavy men on heavy horses make heavy cavalry; light men on light horses make light cavalry. With the Huns there was no heavy cavalry, and Germany had no light cavalry at the date of the cavaliers of the Middle Ages. Since Arabian blood has been introduced into our horse-breeding we have light cavalry, a good deal of light cavalry. Thus the condition of light and heavy cavalry exists of itself and forces itself upon the government as a stern necessity, but is not subject to its will.

THE STONEMAN RAID OF 1865.

I THINK I shall be quite within bounds in saying that no enterprise of equal importance during the late Civil War attracted so little attention as the "Stoneman Raid of 1865." Whether considered with reference to the actual physical results accomplished, or as a part of that comprehensive plan of operations, designed, not for the capture of Richmond merely, but for the overthrow of the Army of Northern Virginia, it was a very important expedition, and deserves special mention in history; and yet I presume the average American citizen is about as ignorant of it as of things that have never happened. This is not so strange when we consider the surrounding circumstances. So many other operations of greater importance were going on, that all eyes were directed elsewhere. WILSON, with his magnificent army of cavalry, was swooping down through Alabama, accomplishing what seemed to be miracles of valor, carrying by storm fortified positions of great strength, heavily armed and strongly manned. His thin lines of dismounted cavalry charging through abatis, over entrenchments and heavy parapets, driving before them the veteran infantry of the Confederacy, capturing prisoners and artillery in immense numbers, produced so great an effect that the true story of his wonderful march reads more like romantic fiction than the sober realities of actual war.

CANBY and FARRAGUT were knocking at the gates of Mobile. SHERMAN, with his great army fresh from its triumphal march to the sea, was stalking with the stride of a giant through the Carolinas: while GRANT, with tireless and never ceasing vigilance, was tightening his hold upon Richmond, and preparing for those final blows which were to shiver the Confederacy in pieces. What wonder that the eyes of all people were directed to these great operations, and that few thought of the movement of a small division of cavalry starting from East Tennessee and destined to accomplish a service, which in certain contingencies would have been of the greatest moment in the great tragedy of war then drawing to a close.

In the spring of 1865, General GRANT anticipated that if LEE should be forced out of Richmond he might undertake to move through southwestern Virginia, and; driving our forces out of East Tennessee, strive to establish himself in some of the many strong positions which that mountainous country afforded. He would thus be enabled to greatly protract the struggle, though he might be hopeless of securing the independence of the Confederacy.

To prevent such a possibility, as well as to cut off General LEE's army from the rich supply fields of southwestern Virginia, General THOMAS was directed to send a force to destroy the railroads as far as possible towards Lynchburg, thus putting a great obstacle in the way of the movement supposed to be possibly contemplated by General LEE.

The expedition, consisting of three brigades of cavalry under the command of General STONEMAN, was concentrated at Mossy Creek, Tennessee, March 22, 1865. It moved toward the Virginia line, and on the 25th of March, ten miles west of Jonesboro, everything that could retard a rapid march was left behind; one ambulance, one wagon and four guns with their caissons being the only vehicles accompanying the expedition. There was at that time a considerable force of Confederate cavalry operating in southwestern Virginia, a fact which should be borne in mind to understand and appreciate the strategy of this movement. The object of the expedition was kept a profound secret. If any one but General STONEMAN knew it, the knowledge was not allowed to get to many of the subordinate officers. By the movement of one brigade to Carter's Station, the idea was conveyed to the enemy that we were going directly into Virginia. But by a rapid movement the command crossed the Watauga river higher up and struck directly across the mountains towards North Carolina. On the 27th of March we reached Boone, a little town far up in the mountains. At this place, Major KEOGH, of General STONEMAN's staff, a very gallant officer, afterwards slain by the Indians in the CUSTER massacre, with a detachment of the Twelfth Kentucky Cavalry, charged and routed a company of Home Guards, capturing sixty. At this point the brigades separated; General STONEMAN with PALMER's brigade, moving on to Wilkesboro by Deep Gap, while the other two brigades with the artillery moved to the same point by the Flat Gap road.

An incident occurred here, which, while of no special importance, may be of interest, as showing the embarrassment which sometimes came to an officer through the failure of a superior to give the necessary orders. I was sent with my regiment a distance of a mile or

more on a side road, to a place where I would find forage for my horses, with orders to be ready to move at 5 o'clock in the morning. I asked the orderly who brought the order, whether he had instructions for me as to the order of march in the morning; "No," he said, "you will receive the order in the morning."

We turned out early, got our breakfast, and at 5 o'clock stood with our horses saddled, ready to mount; but no order came. We waited an hour, and, receiving no word, I sent an orderly to see whether the other regiments were moving. He soon returned and reported all quiet in the other camps, with no signs of movement. We waited and waited. Seven o'clock, 8 o'clock, 9 o'clock came, but no orders. I then sent an officer to headquarters, to ascertain whether there were any orders for us. He soon came back and reported that everybody had gone. Not a soldier was to be seen anywhere. Where they had gone, which road our brigade had taken, was not known, and there was no way of finding out.

I could not think it was intended that we were to be left there, and so we moved out. Finding a road running to the east, along which a body of troops had passed, we took it, not knowing whether it was the road followed by our brigade or not. We marched all day without coming up with our troops, and without means of obtaining information. I do not remember that we saw, during the whole day, a single person of whom we could make a guide or from whom we could gain any information as to the country. Night came on, and it was so dark we could scarcely see our horses' heads. About 10 o'clock we came upon a broad stream. We did not know whether it was fordable, or where the ford lay if there was one. On the opposite side, lights could be seen moving back and forth, and the voices of men could be heard; but whose they were, was not known.

Supposing there must be a ford there, we resolved to try it. Having a large, strong horse, I started in first, and, although the river was deep and the current swift, we found a respectable ford. Just then came on a violent storm. When we reached the opposite bank, we found the battery belonging to the division which had taken another road, stalled in a deep, narrow cut in the road, and it was with great difficulty that we could get past it. The banks on the side of the road were very steep, and, of course, very slippery with the rain. The rear battalion, not understanding the cause of the delay, turned back and went into camp on the other side of the river. Slipping and floundering along, many horses falling, we finally succeeded in getting past the battery, when an orderly found me, and brought the pleasing intelligence that we were to move nine miles down the river, again cross the stream, which was rising rapidly with the violent rain, and go into camp. Weary, wet and hungry, this was not the most agreeable news, but like good soldiers we moved on, and at 2 o'clock in the morning we again forded the river, were conducted to a piece of woods, and told that we could make ourselves comfortable for the remainder of the night, and that under the circumstances, we need not put out pickets, as that duty had been attended to by our comrades who had gone before.

After disposing of the men as best I could, I sat down on the root of a large tree, leaned my head against the tree, and in less than two minutes by the watch was fast asleep. The rain continued all night, and in the morning I was awakened by the water trickling down my neck inside my rubber cloth coat. If you would have a picture of some of the minor discomforts of a cavalry raid, imagine the writer sitting on a log in the woods, near a sputtering fire, with a tin plate on his knees, a tin cup with coffee in it on a stump near by, making a breakfast of fried bacon and corn pone, while the breakfast was fast being cooled and the coffee rapidly diluted by the incessant rain. Up rides an officer, who exclaims: "Why, Colonel, what are you doing here? They have a good warm breakfast for you down at that farm house. There are about thirty of the fellows there, and they are keeping a place for you." It only needed some appearance of wings to make me quite sure that that man was an angel.

At this point the command halted for a day, partly for rest, and partly because a sudden rise in the Yadkin River had made fording difficult and dangerous; but more, I fancy, to give full effect to the sudden appearance of so large a body of cavalry in that portion of North Carolina, threatening both Greensboro and Salisbury. The strategy was well planned and effective. Had we moved directly into southwestern Virginia, the forces there could have so hindered and delayed our movements as to seriously imperil the great object in view. By this movement across the mountains, those forces had been avoided, and were so far away as to offer no serious obstacle to the accomplishment of our mission. What that mission was, was still a profound mystery to all not in the secret confidence of the Commanding General. The enemy was entirely deceived as to our point of attack. By a rapid movement to the north, General STONEMAN found the railway running from Lynchburg to East Tennessee, entirely at his mercy. At Hillsville, Colonel MILLER, with five hundred picked men, was sent to Wytheville—where he had a sharp engagement with the enemy, but succeeded in destroying a depot of supplies, and, on his march, two important railway bridges. At

Jacksonville, Major WAGNER, of the Fifteenth Pennsylvania Cavalry, with a small force, was dispatched to Salem, where he began the work of destruction, and carried it to within a few miles of Lynchburg. The remainder of the command moved on to Christiansburg, where it arrived about midnight, April 4th.

The Tenth Michigan was at once sent to the east to destroy the bridges over the Roanoke River, and the Eleventh Michigan to the west to destroy the great bridge over the river New. The next morning these bridges were effectually destroyed. About twenty miles east of Christiansburg the railroad crosses the Roanoke River six times in as many miles, and the Tenth Michigan destroyed six large beautiful bridges, five of them covered, a destruction which would have been avoided could the events of the next ten days have been foreseen. It was while engaged in the demolition of these bridges that I obtained a Lynchburg paper of the day before, giving an account of the fall of Richmond. News of our approach having preceded us, the train which brought the paper had gone no farther than the station where we were at work. I at once sent the paper by the fleetest horse to be found in the regiment to General STONEMAN at Christiansburg, and was thus fortunate in giving him the first information that he had of the fall of Richmond.

The main object of the expedition was accomplished. For a distance of one hundred and twenty-five miles, that railroad, so important to General LEE in case of his escape from GRANT, was in ruins. Nearly every bridge and trestle of any importance, for that distance, had been totally destroyed or entirely disabled. Well might General THOMAS say, in his official report, "A railroad was never more thoroughly dismantled than was the East Tennessee and Virginia from Wytheville to near Lynchburg."

The main object of the expedition had been accomplished. The railroad was in ruins, and Richmond had been evacuated. What would be General LEE's next effort? Would he undertake to make his way through southwestern Virginia into East Tennessee, as had been conjectured; or would he strive to unite his army with that of General JOHNSTON, in North Carolina, and with their combined forces attempt the overthrow of SHERMAN before GRANT could come up?

Whatever his plans, he doubtless little understood the ceaseless vigilance and the untiring energy of his pursuers.

I suppose it was in anticipation of the attempted junction of LEE's and JOHNSTON's armies that it was thought that our division could do some more effective work on the railroad running from Richmond through western North Carolina. After a day of needed rest, which

was well employed in picking up fresh horses, the command moved in that direction. PALMER's brigade was ordered to concentrate at Martinsville or Henry Court House, as it is called. The Tenth Michigan was then in the beautiful valley of the Roanoke near Salem, about seventy-five miles from Henry Court House. We were ordered to be at the latter place by 9 o'clock on a certain morning and there await the arrival of the remainder of the brigade. To be sure to be on time, we made the distance in twenty-six hours, and reached Henry Court House about 6 o'clock in the morning to find it occupied by a superior force of the enemy's cavalry under Colonel WHEELER.

I do not know that I ever found the time when it was exactly pleasant to come unexpectedly upon a superior force of the enemy, but if there is any time which is more unpleasant than another, it is in the early morning after a continuous march of twenty-four hours when men and horses are thoroughly fatigued. The fight was short but decidedly sharp, and we remained masters of the field, though not without serious loss, having one officer, Lieutenant KENYON, and four men killed, and another officer, Lieutenant FIELD, and three men seriously wounded. The enemy's loss was reported at twenty-eight killed and mortally wounded. This movement to Henry Court House had a meaning and a significance which we did not then fully appreciate, as we afterwards learned. By it the enemy was made to believe that Greensboro was our objective point, and consequently troops were withdrawn from Salisbury, and rapidly sent to the threatened point.

The enemy saw their mistake when a few days later General STONEMAN appeared before Salisbury instead of Greensboro.

The brigade being reunited at Henry Court House, we moved to Danbury and Germantown, from which latter place PALMER's brigade was sent to Salem to destroy some large factories engaged in the manufacture of clothing for the Confederate army, and thence to operate on the railroad running from Greensboro to Salisbury, while STONEMAN, with the other two brigades, crossed the Yadkin River at Shallow Ford, and started directly for Salisbury. Upon arriving at Salem, General PALMER sent the Fifteenth Pennsylvania Cavalry under Lieutenant-Colonel BETTS to strike the railway between Greensboro and Danville, and the Tenth Michigan Cavalry to destroy some bridges over Abbott's Creek between Greensboro and Salisbury, sending one battalion to High Point to make a diversion in that direction, while he remained with the remainder of the brigade at Salem.

The Fifteenth Pennsylvania met with marked success on its ex-

pedition. It broke the railroad between Greensboro and Danville as directed, and on its route surprised a South Carolina regiment of cavalry, making prisoners of its commanding officer and a large number of the men.

The battalion of the Tenth Michigan sent to High Point, under the command of Captain CUMMINGS, succeeded in capturing two railroad trains loaded with quartermaster, commissary and medical supplies, and several thousand bales of cotton belonging to the Confederate government. The value of the property destroyed by this detachment was estimated at more than three millions of dollars. The other two battalions of the Tenth, numbering not more than three hundred men, proceeded to destroy the bridges over Abbott's Creek, after accomplishing which they were to move on directly to Salisbury to coöperate with General STONEMAN. Another all night march was before us. It was desirable that the bridges should be destroyed before daylight. Consequently two companies were sent forward at a trot while the remainder of the command moved on more at leisure. All our information was to the effect that there was no force of the enemy in that vicinity. It seemed quite unnecessary, but as a matter of form, a small advance guard was sent forward, although it was confidently expected that should there be any enemy on the road, timely notice would be given by the two companies which had gone on in advance.

As day began to dawn, a blacksmith of Company "B" came up to me, and said that he had nearly run into the pickets of the enemy. I paid little attention to what he said, supposing that he had mistaken the pickets of the two companies who were supposed to be at work at the bridge, for those of the enemy. Not long afterwards a young officer, Captain DUNN, riding by my side, called my attention to a covered wagon which had turned into the road, and at once disappeared around a curve in it. At my request he galloped on and overhauled the wagon which was found to contain two Confederate officers. They informed me that a large force of Confederate cavalry was encamped some distance ahead on the road. I paid slight heed to this, as I thought they were trying to tell a startling story, and I could not understand how such a force could escape the notice of the two companies which had gone ahead.

Turning our prisoners over to the officer of the day, we resumed our march, but had not gone far when I observed that the little advance guard had halted. Galloping up to learn the cause of the halt, I was informed that a large force of the enemy was encamped a short distance ahead, apparently unaware of our approach.

This force was FERGUSON'S brigade of WHEELER'S cavalry corps, and outnumbered us about four to one. With fresh horses it would not have been difficult to make a sudden attack even against largely superior numbers, with the chances of success greatly in our favor. But with horses worn by a continuous march of twenty-four hours without rest, it seemed extremely hazardous to attack a force so largely outnumbering ours, and that force refreshed by a comfortable night's rest in camp. Then again, should we succeed in driving the enemy, it would be directly toward Salisbury, where he might augment the forces with which STONEMAN was expected soon to be engaged. On the other hand, could he be drawn after us it would increase the chances of STONEMAN'S success which was beyond all things most desirable.

These considerations decided the matter, and we determined to withdraw. No sooner was the movement commenced than we were attacked with great fury. I think I may be pardoned for saying that there then followed one of the most spirited and exciting, and, in my judgment, one of the best fought minor engagements of the war. The Tenth falling back by alternate squadrons, constantly presenting an unbroken front to the enemy; wheeling out of column into line, and steadily delivering their volleys from their Spencer carbines until they could see another squadron ready to receive the shock of the enemy; then wheeling into column and falling back to a new position — officers and men, without exception, showed a courage, coolness and discipline truly gratifying to a commanding officer.

The movements were all conducted with as much precision as if the place had been but the parade ground, and the exercise but the sham fighting of the drill. The enemy attempted to pass a column by each flank, while the attacks in the rear were made with a daring and courage worthy of a better cause.

The fighting was constant and fierce, without a moment's interruption for nearly three hours, and extended over a space of about six miles, when the enemy became discouraged at his failure to surround the handful of men, and ceased his pursuit.

His loss in the engagement was afterwards ascertained to have been about seventy-five in killed and wounded, while ours was trifling.

General STONEMAN had moved on to Salisbury with two brigades. He met the enemy a few miles from town, at a little stream which had very high and precipitous banks and could not be forded. The only way to cross it was by a bridge, which was effectually commanded by the enemy's artillery. After trying for some time in vain to dislodge them by his artillery, he called to him a staff officer, Lieu-

tenant-Colonel SMITH, of the Tenth, now commander of the State troops of Michigan, and said to him: "Colonel, I want you to take twenty men armed with the Spencer carbine, cross this creek in some way, and outflank those fellows up there." SMITH took his twenty men, crossed the stream on a log out of sight of the enemy, stealthily crept up on their flank, when suddenly, with a yell, he poured a murderous volley into their ranks. The effect was remarkable. Panic stricken, the whole force broke in the greatest confusion. STACEY was on them in an instant with his Tennessee cavalry, and the fight was over. Results: Nineteen pieces of artillery, eleven hundred prisoners, and supplies enough for an army of a hundred thousand men.

A few days later we learned of the surrender of LEE's army, and for some days we were engaged in paroling prisoners. Then came the armistice, and we were ordered back to Tennessee. We made one day's march into the mountains in that direction, when we learned that the armistice had been disapproved at Washington, and we were ordered back into South Carolina to lay waste the country so that no supplies could reach General JOHNSTON's army from west or south of the Catawba River. The execution of that order was happily made unnecessary by the surrender of JOHNSTON's army.

Although the division was engaged for some weeks afterwards in the pursuit of JEFFERSON DAVIS, the capture of Salisbury terminated what I have chosen to call the "Stoneman Raid of 1865." From the beginning to the end, the expedition was managed with rare judgment and skill. While its movements were so directed as to constantly deceive the enemy as to the real point of attack, its quick and heavy blows were delivered in unexpected quarters, working immense damage to the waning hopes of the Confederacy.

LUTHER S. TROWBRIDGE,
Brevet Brigadier-General, U. S. Volunteers.

A CONFEDERATE CAVALRY OFFICER'S VIEWS ON "AMERICAN PRACTICE AND FOREIGN THEORY."

EDITOR OF THE JOURNAL:—A few years ago the prospectus of the JOURNAL was kindly sent to me with an invitation to become a member of the U. S. Cavalry Association. Cordially endorsing its objects and the sentiments expressed, I accepted the honor as a compliment to an old Confederate cavalry officer who had served in the Army of Northern Virginia during the entire period of its existence. I have enjoyed the JOURNAL as a souvenir, finding much in it to interest an "old soldier." I have not participated in the discussions up to this time, preferring to enjoy the entertainment afforded by professional writers, to disturbing their equanimity. I find, however, that silence may be construed into acquiescence in statements that I do not concur in, and, believing that the distinguished gentlemen who differ with me, conscientiously no doubt, will be equally willing to give and take; to correct erroneous impressions, if convinced of their errors, I will take issue with the well written article by Lieutenant-Colonel E. V. SUMNER, Eighth Cavary, on "American Practice and Foreign Theory."*

I concur fully with him in regard to the practice, which he illustrates by examples furnished by the Union cavalry, but I fear he forgets that we who were on the other side, did the heaviest of the work, and yet have received little or no credit for it. Both were Americans. All that we have left was written in blood and carnage by brothers' hands; all that we hope or care to preserve is its sublime and melancholy history; its truth, its valor, its patriotic devotion to principles we were educated to believe were right.

I am an old Confederate trooper, but I know the flag of our country will never lack for men; under a proper call, the ex-Confederate soldiers and their descendants would show the same readiness to-day that their ancestors have ever shown; and the lessons taught by

*JOURNAL of June, 1890.

FORREST, HAMPTON and STUART, among the greatest of American cavalry leaders, will never be forgotten in any land where their descendants may live.

It will not be my object to detract from the glory to which any officer may be entitled, but simply to tell what I know and, if I attempt to draw a contrast it will, I hope, be considered simply an exercise of my privilege.

I recognize the text from which Colonel SUMNER makes his deductions. Soldiers are born and bred, but circumstances and opportunities do more than science, wisdom far more than learning. We had three great officers, General R. E. LEE, General ALBERT SIDNEY JOHNSTON, and GENERAL JOSEPH E. JOHNSTON. All of them were *cavalry officers*, and made the most of their cavalry. When the cavalry record is made up their "handwriting will be seen on the wall," while the "eyes and ears" will shine as beacon lights not only in the advance and in covering the retreat, but also behind impromptu breast-works of the crudest kind. The Confederate cavalry never had tools with which to make intrenchments, but relied upon fence rails, stones, dead logs and other natural obstacles: when necessary, lying as near to the ground as they could get for protection. We sometimes had a few axes, but in the four years of war I never saw a cavalryman with a spade or anything better than a shingle pulled from the roof of some house near by with which to throw up breast-works.

I will add here that the American system which General R. E. LEE inaugurated first, was transmitted to Germany by Count Colonel HORES VON BORCKE, Confederate cavalry, (of General J. E. B. STUART'S staff) who was disabled by a wound at Upperville, Virginia, June 18, 1863, and returned to his native land, which he no sooner reached, than the Crown Prince sent for him, and after having heard from Colonel VON BORCKE a description of the methods and usages of the Confederate cavalry, the Crown Prince assembled his cavalry officers of rank, and they had an opportunity of hearing all that VON BORCKE had seen and learned. *This system of ours* was at once engrafted on that used by the German cavalry and was employed in the Franco-Prussian War of 1871, as VON BORCKE personally informed me, upon his return to Virginia a few years ago.

But to return to my subject: On page 146. CAVALRY JOURNAL, Colonel SUMNER says: "The records of the Cavalry Corps of the Army of the Potomac, presents to the world lessons in cavalry fighting unsurpassed in any other service, (Note: May I add, except the Confederate cavalry whom they were fighting) fighting as it did

against infantry, cavalry or artillery, mounted and dismounted, through the snow and mud of winter, in the heat and dust of summer, in advance or in the rear, in building bridges or running trains, or in burning bridges and destroying railroads, telegraphs and canals, in supplying themselves when there was anything in the country, or cheerfully going without when there was nothing to be had—its counterpart is unknown."

This is only one side of the picture; let us turn to the other. Think of the Confederate soldier environed by 2,800,000 men-at-arms against 600,000, cut off from the outer world except for the assistance of a few blockade-running vessels, the soldiers poorly fed, first on one-half, then on one-fourth rations, thousands often without shoes, without medicines and often almost without clothing, without any other money than what was manufactured on paper and that redeemable only "after they had won their independence." Think of men being paid eleven dollars per month, in Confederate money, for four years, for the use of the cavalry horse which each private soldier furnished and hired to the government, and that this was the best our poor country could do. Remember that before the war ended a cavalry horse sold for from one hundred and fifty to three thousand dollars, and, although the government tried to do justice by advancing the assessed valuation of horses mustered into the service, they paid only for those that had been killed or permanently disabled in battle; and in no case was the price allowed sufficient to replace the horse killed, for the prices of horses constantly advanced in proportion as the demand for them increased. Each private soldier had to take care of the horse which he hired to the government, and, in case the soldier was disabled, unless some friend looked after the riderless horse, the chances were that he would fall a victim to starvation and want of care, or become a total loss to the owner. If the horse was only slightly wounded or disabled, it had to be sent home, and that involved the rider's leading his sorry jade from the point where his regiment might be stationed to his home—not unfrequently a hundred miles or more, at his own expense. Many Confederate troopers mortgaged their land to pay for horses for the army. Later in the war, General MEIGS said: "The Confederate cavalry are our best customers; they are either stealing or taking our horses by thousands, for they are not accounted for." As a matter of fact, our men saw that their only chance of supplying themselves with horses lay in getting them from the other side, and instead of getting permission to go home, they were allowed to scout, and if a stray picket or straggler could be captured, it was done. Sometimes, of course, it happened

that the parties in search of horses were themselves captured,* and the game did not prove to be so profitable or satisfactory. Time and space will not admit of my going into details, but the hardships of the Union cavalry were mere sport as compared to those suffered in the Confederate service. The one represented the most powerful nation on the globe, its ports open to the world; the other with nothing but its brains, its grit, its determination to do or die in the attempt, if need be.

Many a good cavalryman furnished two, and often as many as four horses during the year. Many a fellow with his last horse, and all his money gone, had to ride his lame, tenderfooted, shoeless horse to death on a macadamized pike, bearing dispatches of which he knew the importance, and thousands of them fell at the heads of columns and were left there to die, without hope of recognition or reward, who had given up wife, children and friends and plenty at home, to serve in the ranks. But this should not be forgotten: When the war ended, there was not a first-class cavalryman in our service who was not fully equipped with saber, pistol, carbine and horse equipments, all of which had been issued by "UNCLE SAM." Necessity and the American practice prescribed that we should live off the enemy if we could.

I have, in a blunt way, stated facts, and am sure that they are what is wanted.

Colonel SUMNER makes a fling at General MEADE, who was using the Union cavalry at Spottsylvania, 8th of May, 1864, in one way, while *we* were conducting the American Practice in another. There FITZ LEE'S division held two divisions of Union cavalry until relief came with General ANDERSON, who was commanding LONGSTREET'S corps. Colonel SUMNER says (page 147): "The cavalry corps, pulling itself together after four days' fighting on foot in the Wilderness, was truly glad to get out." I confess I should have preferred to have them remain, for we held our own until WARREN'S corps came to the relief of the Union cavalry, and pushed us back. No infantry had come to assist us, until the Fifth Corps drove us back on ANDERSON'S advancing troops. We were fortified behind dead pine logs, which took fire and smoked us out the next day.

General SHERIDAN made his first raid, which was a success, his troops having been mounted on fresh horses at the opening of the campaign, while our horses, like those described by General POPE in his report on the second Manassas battle, "were worn down, starved

*Mr. LINCOLN said: "The horse question was a serious one. He could make an officer with the dash of a pen, but horses cost money, and were hard to keep."

out and in poor condition generally." The Cavalry Corps Army of the Potomac numbered about 12,000, and that of the Army of Northern Virginia about 8,000 men. (pages 14 and 17, "Virginia Campaigns").

In General STUART'S efforts to intervene between SHERIDAN and Richmond, he had divided his command, having only three brigades, and SHERIDAN took it in detail with his concentrated forces. The death of General STUART was by no means called for, as the troops would have done just as good fighting without his leading as they were doing when he fell. His untimely loss only proved that his hands were less valuable than his head and eyes. Any good captain in his command could have done all the work that he did when he lost his life in a vain effort to keep back the greatly superior forces he was contending against. This was a heavy loss for us and scored one for SHERIDAN, whose prestige started in this very unequal contest.

Now turn back to page 146, where Colonel SUMNER says, that "SHERIDAN, who had all the theory there was about it in his own head —with MERRITT, GREGG, WILSON, DEVINS, GIBBS, DAVIES, IRVIN GREGG, CHAPMAN and MCINTOSH commanding divisions and brigades, this body of horsemen was never defeated." I have watched the careers of this galaxy of distinguished officers with interest, and have felt their blows, but let us see: General SHERIDAN, with his cavalry corps, was sent by General GRANT to join General DAVID HUNTER who was moving up the Shenandoah Valley, destined to Lynchburg. Why did he not join him? Because of the American practice of General LEE, who sent General HAMPTON, with one-half of SHERIDAN'S numbers, to attack and detain him. HAMPTON, on the 11th of June, 1864, with his tattered divisions, lay across his path at Trevillian's Station, and with that gallant handful in SHERIDAN'S front, and our division (FITZ LEE'S) on the Louisa Court House road, stopped him the first day, and on the second day defeated him and drove him back, his dead and wounded being left in HAMPTON'S hands. In his report General SHERIDAN says that PICKETT'S infantry (they were FITZ LEE'S dismounted cavalry) came from the direction of Gordonsville, and the want of ammunition determined him to return to the army on the James River, having accomplished his mission.

It may not be pleasant to acknowledge defeat, but had General SHERIDAN been able to carry out his orders, General LEE could not have maintained his position at Petersburg another day, with HUNTER and SHERIDAN holding Lynchburg, and the railroads in his rear destroyed, as it was intended by GRANT'S order that they should be, by SHERIDAN. Here the American Practice was fully executed from

dire necessity, and though it cost us dearly for the splendid victory. HAMPTON was made a lieutenant-general as a reward of merit; and the fight itself has been regarded by Confederates as the proudest achievement of their cavalry during the war.

The case was illustrated as well by General JOHN BUFORD's First Division of U. S. Cavalry at Gettysburg; and nowhere better than by my brigade at Winchester, (September 19, 1864,) when we covered General EARLY's rear, and where General SHERIDAN failed to capture EARLY's army, though he had ten thousand cavalry, three corps of infantry, and one hundred pieces of artillery on the field. General EARLY's army, consisting of only fourteen thousand troops of all arms, escaped, and that in an open country. The *escape* of the Confederates was a decided victory for them.

The American practice was exemplified the next day or two afterwards at Front Royal and at Milford, where my little command, Second Cavalry Brigade, Army Northern Virginia, with less than fifteen hundred men, held at bay two divisions which ought, by all means, to have run over us, and could have done so with some slight losses, and by that means could have gained EARLY's rear, through the mountain gap at Newmarket, to which place General TORBERT was ordered and marched his command after we had retreated from Milford; but by that time EARLY's army had passed on unmolested. The first decided advantage of the Cavalry Corps of the Army of the Potomac, was its surprise of General STUART at Brandy Station (Beverly Ford) June 9, 1863. The plan was well formed by General HOOKER and as well executed by General PLEASANTON, and the records show that the object of the expedition was accomplished. From that time its organization and concentration made it conscious of its own strength.

When General SHERIDAN turned upon ROSSER in the Shenandoah Valley, at Tom's Brook, October 9, 1864, his success there did more to cripple our cavalry than any other thing that had ever happened. We lost our wagons and artillery; and all the accumulated comforts we had captured in years were swept away in that disaster; winter coming on, they could not be replaced. We had our ups and downs, but the battle of Dinwiddie Court House and the next day's fighting, April 1, 1865, showed that our thinned ranks were as ready to meet SHERIDAN as they had ever been before. At Five Forks, had General SHERIDAN cared less for WARREN's movements, and handled his cavalry more skillfully, not one of us would have been left to support our banner. WARREN had seventeen thousand infantry, SHERIDAN thirteen thousand cavalry, and we, about eight thousand men, all

told, yet he did not capture over one-half, although the Confederates were without a commander on the field until after the battle.

Having now given my views, I am free to say that I believe the American cavalry, equipped with a magazine carbine, revolver and saber, and assisted by good horse artillery, are capable of performing any duty, of marching any where and protecting themselves against troops of any kind whatsoever, of one-third greater numbers, it matters not where they are from, *if the opponents are dismounted.* I estimate the value of the good cavalry horse at one-third more than that of men, when the men are horsemen and accustomed to the use of fire-arms.

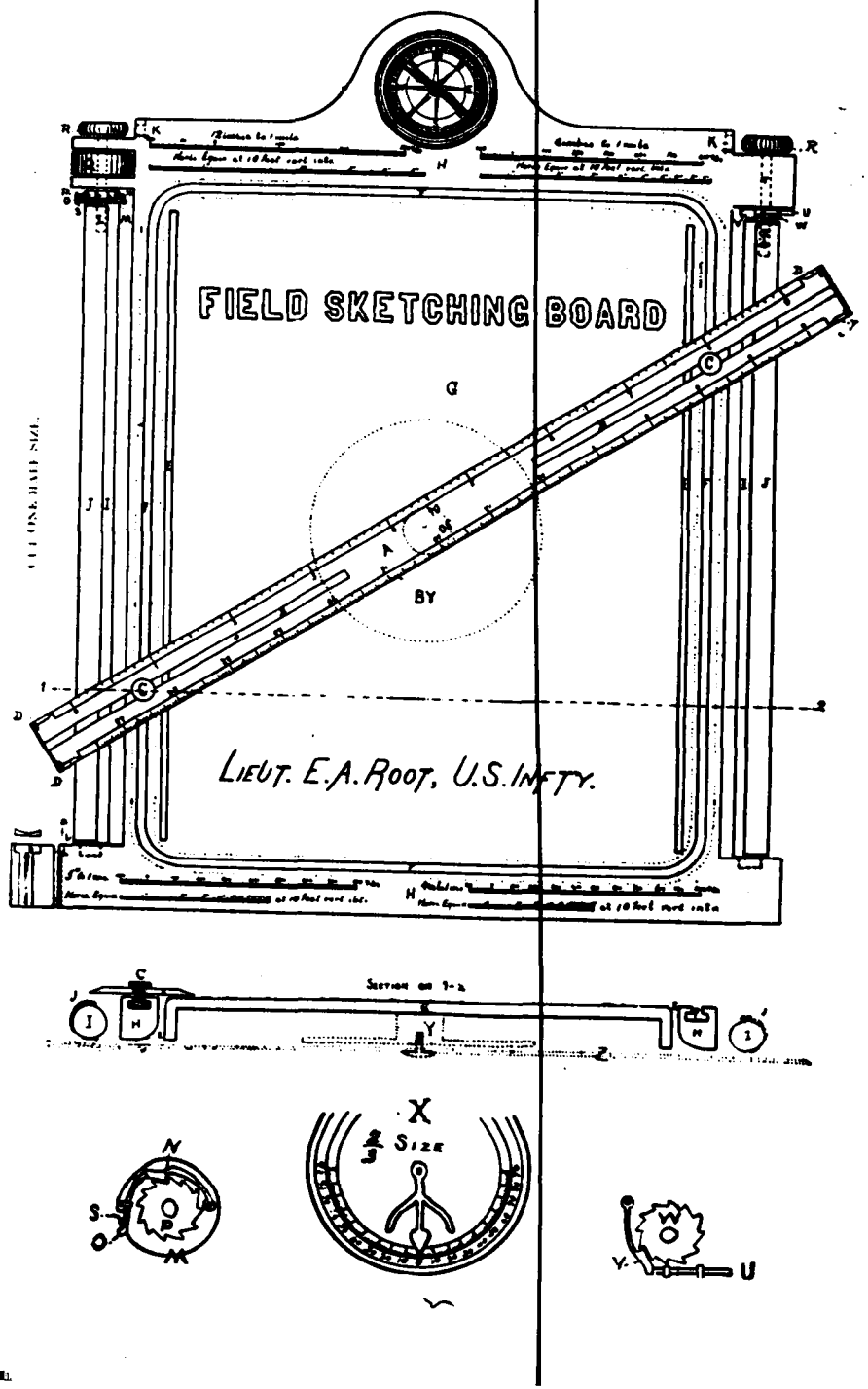
THOMAS T. MUNFORD,
Lynchburg, Virginia.

PROFESSIONAL NOTES.

DESCRIPTION OF "FIELD SKETCHING BOARD."

The board proper may consist of a single casting of some light material (as aluminum) having the two slots EE cut entirely through, and the groove F running around the edge. The casting to be as thin as possible in all parts, consistent with strength and durability, to reduce its weight to a minimum, or the board may be made of wood having a rim of metal inlaid to form the upper part of the groove F. On the bottom of the casting, in the center, is the wrist-plate Y, on to which a strap Z may be screwed for fastening the board on to the wrist when used on horse-back, or the board may be screwed on to a tripod when desired to use it as a plane table.

On the left side of the board is the roller I to which is fastened on the upper end the face-plate M. To this face-plate is attached the ratchet dog N and the release O. On the perimeter of the face-plate is a notch S, into which the release drops to hold the dog away from the ratchet wheel. The spindle L passes through and has fastened to it a milled head R, a spiral spring Q and the ratchet wheel P. On this spindle the roller is free to revolve. On the right side is a roller I into the upper end of which is fastened the spindle T with a milled head on the outer end. On this spindle is also fastened the ratchet wheel W. To the casting is attached the ratchet dog V and the release U. On each of the rollers is a spring J, between which and the roller the end of the strip of paper is inserted to hold it fast. "a" is a spring for holding the paper when putting it on the board to keep it from uncoiling. In the head of the board a compass is sunken, but with the case free to be revolved entirely around. On the back of the board behind the compass is placed a clinometer shown in X. K and K are two sights to be turned down for use with the clinometer. The ruler A of suitable material, is fastened on top of the board by the two buttons CC which work in the slots BB in the ruler, and the groove F in the board. On the edges of the ruler at the ends are sights DDDD which can be raised like knife blades for use. On the board and ruler as represented, the most useful scales could be stamped. The size of the board represented was chosen with particular reference to the use of paper prepared and drawings made in accordance with paragraphs 541 to 553 A. R., 1889.



To prepare the field sketching board for use, a strip of paper six or seven inches wide and two to three feet long is first wound on the left roller and extended over the board to the right roller. To do this place the ruler about parallel to the rollers over the center of the board, release the dog N from the ratchet wheel P, lay the paper from the right side across the top of the board, insert the left end under the spring J, (as shown in section) then wind up the paper by turning the roller towards the board until all but about eight inches has been wound. *Pass the free end of the paper over the roller to the left*, then holding it on the roller to prevent its uncoiling, by means of the spring "a" raise the release, pass the paper under the roller, up through the left slot E over the top of board under ruler, down through right slot E under right roller, up over and under the spring J, (as shown by the red line in the section) one full turn of the paper being taken around the roller to hold spring down firmly. Any slack in the paper is afterwards taken up on the left roller by winding up the spring Q, turning the milled head to the right. The spring Q and ratchet arrangements on the rollers enable one to keep any desired tension on their paper, and always ensuring its lying firmly on the face of the board. A few turns of the paper can be wound from the left on to the right roller by simply turning the latter, the spring Q permitting this to be done. To bring fresh paper on the board release the dog N and turn the right roller until as much has been drawn out as desired, then throw the dog back into the ratchet. To remove the paper from the board after finishing the drawing release both dogs from the ratchets and withdraw the paper.

Extract from RICHARDS' *Topography*:

"The compass box has a small projection at the north end of the meridian line by which it is turned around to coincide with the direction of the needle, in order that the meridian line may be placed in such a relation to the sketch that the road, river, etc., will occupy its center. To do this, strap the board on left wrist and hold it so that the length of the strip of paper may correspond with the general direction of the road, the left side of board to the front. Revolve the compass box until the north end of meridian line corresponds with north end of needle. Draw a meridian line on the sketch, parallel to that in the compass box, and mark the north end. Care must now be taken that the position of the compass box shall remain unaltered during the sketch, unless it becomes necessary to change the general direction.

"To draw the direction of the road or of any object turn the horse exactly in the direction of the object, revolve the board on the wrist until the meridian line corresponds with needle, the board being level when any direction is drawn; by moving the arm to the right or left bring the point from which the line is to be drawn on the sketch in front of the center of the body. Now turn the ruler in the required direction, its edge corresponding with this point, and draw the line; just before doing this glance at the meridian line to see that it coincides with the needle, and that the latter does not touch

the box. A slight alteration of the board is now better effected by moving the arm than by revolving the board on the wrist.

"Should the road change its general direction at any point so as to run off of the board, a line should be drawn across the paper at this point, and the sketch recommenced. The meridian line in compass box is now altered, as on commencing the sketch, to suit the new direction, and is drawn on this portion of the sketch.

"The new starting point is taken in the center of the sheet and two or three inches above the line. These alterations of meridians may have to be made several times. When the sketch is finished it is removed from the sketching board, cut across the line where the meridian was changed, the points where the sketch was discontinued and recommenced are made to coincide by a pin driven through them into a table, the pieces are then turned so as to bring their meridian lines parallel and firmly pinned in this position both are cut through at one cut of a sharp knife. The pieces are then joined by a strip of paper pasted on the back."

The particular claims of superiority of this sketching board over all others made either in the United States or Europe, are the universal motion obtained for the ruler by the method adopted, together with the fact that the ruler is always on the board when wanted, and cannot drop off, which is a very important factor when sketching on horseback. There is no resort to uncertain rubber bands for holding the ruler, rollers and paper, as have to be done with the most improved styles at present in use. When desired to obtain greater accuracy, or to use it as a plane table, the sights on the ruler coinciding with the drawing edges are a great advantage. Other important points of superiority are the means provided for always keeping control of the paper when adjusting it on the board, and until it is ready to be removed. None of the vexations encountered when trying to use other sketching cases or boards are here met. Every point of difficulty in such work has been carefully considered and studied, for the purpose of devising some means of overcoming it, and it is believed that this sketching board does so to a greater extent than any other, and that it possesses about everything to be desired for rapid field work, and with an accuracy as great as can be expected. In view of the great importance attached to the facilities for making rapid field sketches and reconnaissance maps of roads, rivers and positions, and in view of the influence that such maps and sketches will have upon future military operations and battles, the providing of a suitable sketching board to be used in such work is necessary.

E. A. ROOT,
First Lieutenant, Nineteenth U. S. Infantry.

THE WOUNDS CAUSED BY SMALL CALIBER BULLETS.

Translated from the *Revue du Cercle Militaire*, Nos. 18 and 19 of 1891, by Lieutenant R. H. WILSON, Eighth U. S. Infantry.

For a number of years past nations have evinced a most gratifying tendency to render war more humane and less sanguinary. Inventors of engines of destruction for the use of man in warfare seem to have in view the object of disabling the greatest number of combatants in the shortest possible space of time, but without necessitating the infliction of the terrible wounds which were one of the most prominent and distressing features of war in the past.

This idea has been predominant in all the changes which have been effected in modern armament, and to this is also due the fact that weapons more in accordance with the sentiments of civilization have replaced the old fire-arms, the aim of which was so uncertain, and the horrible wounds resulting from which were almost always necessarily fatal.

In addition to the immense influence which the new arms have had upon tactics, they have also attracted the attention of surgeons, and their effects have formed the subject of long and minute studies, the results of which are to be found in numerous publications which have recently appeared. Among the most interesting of these may be mentioned: In France, those of CHAUVEL and DELORME, and others by CHAVASSE and NIMIER.

A work of very recent date by Dr. BRUNS, a German, who has made a conscientious study of this subject, has thrown a new light upon it, and has also given rise to numerous comparisons of his ideas with those of the French surgeons. Dr. BRUNS has devoted his study exclusively to the Mauser rifle, while the effects of the Lebel form the subject of a very minute investigation made by Dr. NOEL, and published by him in the *Medical Bulletin*, of February 25 and March 5, 1891.

Before entering into the active discussion of the question, it will be not without interest to describe the wounds formerly produced by the leaden bullets of the large caliber fire-arms used by European armies. These bullets, at first round, then cylindro-conical and ogival, were of enormous weight: some of them weighed as much as 740 grains, and rendered necessary the employment of such calibers as .68 and .72 (the Minié carbine). The bullet of the Chassepot rifle, caliber .43, which was really a notable step in advance, still weighed 385 grains, while that used by the Germans in the war of 1870–71, weighed 478 grains. In consequence of the malleability of the metal of which they were made, these bullets were expansive, that is they easily lost their regular form; at the short ranges they mushroomed readily and burst into fragments upon the least contact with a hard body. The result was that wounds were sinuous and irregular, their edges were more or less lacerated, and the apertures of entrance and exit were of very disproportionate size. Frequently the latter was three or four times larger than the former. Moreover these bullets often left in the wound, besides fragments of clothing, splinters and fragments of lead, which, by their presence in the various parts of the body, induced long and obstinate suppurations, frequently rendering secondary operations necessary. Wounds of the blood vessels were naturally more frequent, as they were more exposed to risk of laceration, and hemorrhage—the greatest danger of all on the battle-field—was always grave. Bones were likewise often struck and, if the contact was direct, they were shattered, and numerous splinters added new complications to the wound. Such were the causes of the horrible wounds which, according to Dr. BRUNS made such a profound impression on PIROGOFF during the Crimean War.

Every one is familiar with the grave prognosis of the wounds caused by the fire-arms of that period, and the knowledge of their murderous effects is the principal cause of the sentiment of relief and gratitude which has greeted the advent of arms of small caliber. It was not until 1866 that these new arms made their appearance, in the adoption by France of the Chassepot rifle (caliber .43) weight of bullet, 385 grains. It was displaced by the Gras, model of 1874, caliber .43, weight of bullet 385 grains, and this in turn by the present rifle, the Lebel, the caliber of which is .315, and the weight of bullet 231 grains. In Austria the Mannlicher has been adopted, while the Germans use the Mauser, caliber .311. Portugal, Switzerland and Belgium have also taken steps in this direction and have indicated their predilection for arms more or less similar to those described. The principle characterics of the Lebel rifle are its reduced caliber and its great power. Its use necessitates the employment of a special slow burning powder; it is a magazine rifle of comparatively light weight, the bullet of which is composed of a hard metal, lead and antimony, covered with a protecting envelope of nickel. This envelope is closely united to the body of the bullet, and only in exceptional cases, do the two become separated. Its weight, as has been said, is 231 grains, and it has an initial velocity of 2067 feet. Its trajectory is very flat, and its zone of effect extends to a distance of from 3280 to 3500 yards. By virtue of its immense velocity both of rotation and translation, its penetrative force is very great. Following are some examples of its penetration in various substances and at various distances:

At 218 yards the penetration in oak was..... 10. inches.
At 218 yards the penetration in pine was ..... 24. inches.
At 218 yards the penetration in sheet iron was..... .24 inches.
At 547 yards the penetration in oak was..... 6. inches.
At 547 yards the penetration in pine was..... 20. inches.
At 547 yards the penetration in sheet iron was..... .16 inches.

These few examples give the means of forming an idea of the effects of bullets of such penetrative power on the human body. These effects must be considered at different points of the trajectory, and for this reason, authors have recognized three distinct zones of action:

First, a zone of explosion; second, a zone of penetration; third, a zone of contusion.

It is evident that these three zones do not appertain exclusively to arms of small caliber; they may also be studied with arms of the old models. The only difference existing between them is in their extent, resulting from the greater range of the new arms. Thus, in the case of the Gras rifle, model of 1874, the zone of explosion does not extend beyond 120 yards; but in that of the Lebel to 330 yards. In like manner for the Gras, the zone of penetration is comprised between 330 and 1100 yards; for the Lebel extends to 3300 yards. The zone of contusion for the Gras ceases at 1950 yards; the effects of these three different arms will not vary appreciably within the zone of explosion, and according to DELORME and CHAVASSE, all wounds in the space between 330 and 900 yards are about equally dangerous. CHAUVEL, while generally sharing their views, admits however, that explosive effects are of much less frequent occurrence in the case of arms of small caliber. As Dr. NOEL has well expressed it, the wounds produced by the explosive action of bullets are of the gravest character. "The disorganization of the soft parts is so extensive and the loss of tissue so considerable, that in general all reparation is impossible and a considerable sacrifice is rendered unavoidable." Only in very exceptional cases and only near the boundary of the zone of penetration, can the surgeon hope to save a limb which has been struck.

Bones are almost always crushed and splintered, the blood vessels lacerated, and the nerve centers receive a profound shock. This complication renders the prognosis so much the more likely to be serious. Therefore it cannot be claimed that for short ranges the employment of the Lebel is a step in advance, except from a tactical point of view. In the zone of penetration the appearance of things is changed; for, while with arms of large caliber the wounds were of comparatively great size, on account of the ball breaking into fragments, and the mushroom shape which it often assumed—a shape which had the effect of violently throwing the fluids of the body from the path of the bullet towards the surface—with the new arms the course of the bullet in passing through the human body is almost always rectilinear, and the two orifices are about equal in size. The edges of the wound, moreover, are neither lacerated nor bruised; it has almost always the appearance of a simple furrow. The skin once pierced, the bullet passes directly through and traverses the tissues without stopping. On account of its density it does not change its form, and seldom carries with it pieces of clothing. As it does not burst into fragments, foreign bodies are not generally present in the wound, and, therefore, suppuration and consequent abscesses are not to be feared. Reunion is ordinarily by first intention, and if the healing process does not take place equally throughout the path of the bullet, it will be the result of the presence of small fragments of clothing already alluded to, and which it will always be impossible to entirely exclude from the wound. In any case, the period of recovery will be greatly abbreviated, and extensive shock or paralysis of the member will be of comparatively rare occurrence. Gangrene will less often result, and will never be of the grave nature frequently

encountered at present. The new conditions will also result in diminishing the serious features of injuries to bones, and direct shocks will be less frequent. They will rather receive tangential blows and consequently the comminution will be diminished. Fissures and splinters will always result from a bone being hit, but the splinters will be smaller and not carried so far. Moreover, the bone will often be pierced through and through and fewer fragments will find their way into the medullary cavity. Proportionally to the diminished diameter of the bullets, blood vessels and nerves will be more rarely struck, and, in the event of such occurrences, the injuries will be definite, precise and without the former serious features. The liability of hemorrhage will be diminished, and the wounded will be so much the more able to await the arrival of assistance. What has just been said applies to wounds produced by bullets fired at ranges from 875 to 1,300 yards; at ranges greater than this last named distance it would seem that the .315 bullet is more destructive in its effects. According to certain investigators they are even greater than those of the .43 caliber, but no satisfactory explanation of this fact has as yet been offered.

The same observations are applicable to short bones, the perforation of which by the small caliber bullet is much less funnel shaped than that of the .43 bullet, and is attended with less splintering, and also to flat bones, which are almost always perforated in the cleanest and most sharply defined manner. An interesting property of these last is that they are more sensible to the effects of hydraulic pressure than long bones. This in itself is of little importance, however, as when a flat bone is perforated, its injury is only of an accessory nature, that of the subjacent organs almost always determining the prognosis. Hence, the general result is that the wounds caused by the .315 bullet are much less serious than those of the former caliber. This holds true of shots fired at equal ranges, and is even more apparent if the effects of bullets of equal velocity are compared.

This fact results directly from the experiments of NIMIER and CHAVEL, as published in the *Archives de Medecine et Pharmacie Militaires*. The advantage is entirely with the .315 rifle, and therefore it cannot be denied that it forms a step in advance, since it permits a hope of saving limbs which formerly would have been necessarily sacrificed. The simple nature of wounds, the certainty that the bullet has passed through, the absence of contusion of the edges of the wound, will preclude unnecessary probing and examination, and will also facilitate the application of a simple antiseptic dressing which will permit the wounded to be transported to a central point where they can receive the necessary medical attention. The wounds which will be encountered in the zone of contusion will be either simple contusions or contused wounds. In this zone the wounds mentioned in speaking of bullets remaining in the tissues, will be met with. These wounds have nothing very remarkable in their nature. It is evident that their gravity will diminish in proportion as the bullet has approached the end of the trajectory, and has therefore lost its force. Occasionally, however, a bone being struck, inflammation of

the periosteum will result, leading to abscesses and exfoliations. But these will be the most serious cases, and for the most part there will result merely extravasations of blood into the areolar tissues, which can be readily cured without risk of gangrene of the parts affected.

From what has been said, then, it may be concluded that the Lebel from a surgical point of view, has many points of superiority over arms hitherto used, and that in many cases, the wounds caused by it may be likened to those of the revolver, the bullets of which, of small caliber also, may, without much danger, be allowed to remain for some time in the wound. (CHAUVEL).

The experiments of Dr. BRUNS in Germany were made, not with the German rifle, model of 1888, but with the Mauser rifle which was adopted by the Belgian army on October 23, 1889, as compared with the old German rifle, model of 1871–1884.

The German rifle of 1888 has a caliber of .304; it has four grooves, and its bullet, which weighs 234 grains, is composed of a steel envelope coated with German silver, into which a core of hardened lead is compressed. The Mauser rifle, used by the Belgian army, is of slightly smaller caliber than that of the French army, viz, .301; it has four grooves, and throws a bullet weighing 216 grains. This bullet is formed of a core of soft lead covered with a steel envelope, which is coated with German silver. The charge is composed of a special powder, giving, at eighty feet from the muzzle, a velocity of 2,035 feet, and a motion of rotation of 2,500 revolutions per second. The resemblance between these two arms is so close that the observations of Dr. BRUNS on the Belgian rifle may be considered equally applicable to the German. Although the experiments of Dr. BRUNS were made at very short range—forty feet—it is evident that the penetration of the bullet is very great. As compared with that of the model of 1871–84 it is six fold greater. Making use of these data, Dr. BRUNS, by a method of procedure analogous to that of the French surgeons, has studied the destructive effects of the Mauser rifle at different points of the trajectory of its bullet. He divides this space into four distinct zones:

1. Zone of explosion, in which the living force is very great—from 435 to 545 yards.

2. Zone in which the living force is great. It extends to 1,080 yards.

3. Zone of living force, extending to 1,650 yards.

4. Zone of spent force, extending to 2,175 yards.

These four zones correspond approximately to the three French zones, the second and third being consolidated into one. In shots fired at short ranges the explosive force is less, but that of penetration is much greater. For this reason fractures of bones struck by its bullet are one-half less in extent than those of the rifle of 1871–84, while, on the other hand, the bullet will pass entirely through several limbs placed one behind the other. In case of fracture the fragments adhere to the periosteum, while the soft parts are cut out as if by a punch. The orifices of entrance and exit are of unequal size, but

the inequality is not so marked as in the case of the old rifle. As with the Lebel, the perforation made by the bullet in passing through muscles is often contracted and reduced to a minimum. The bullet quite frequently loses its regular form; out of fifty-nine shots fired, in but seventeen was the bullet found unchanged, and in eleven the head was slightly flattened. In the remainder the envelope was more or less detached from the core, and torn to some extent.

From this point of view the bullet of the Belgian arm seems to be inferior to that of the Lebel, although infinitely superior to its predecessors. At long ranges the gravity of the wounds of the Mauser rifle seems to be less; the wound, as in the case of the Lebel, assumes the nature of a subcutaneous wound; in other words it will heal without suppurating. Fractures of bones are clean and free from fissures: neither are fragments forced into the medullary canal or into the surrounding tissues. These features render the prognosis more favorable, and, according to Dr. BRUNS, it is not attended with the unfavorable tendencies noticed by the French surgeons in the case of wounds at ranges greater than 1,300 yards. His observation on wounds of the blood vessels and nerves present no new facts; they serve only to confirm those already known.

In conclusion, although everyone will not share the optimistic views of Dr. BRUNS, who regards the Belgian Mauser rifle as the ideal weapon, regarding it from a humane standpoint, it may be affirmed from what has been said, that the introduction of arms of small caliber is an important step in the art of war. The task of the surgeon, rendered more onerous on the one side, has been lightened on the other, and perhaps it has also been made more attractive by the hope of more cases of wounds successfully treated.

BOOK NOTICES AND EXCHANGES.

THE TRIALS OF A STAFF OFFICER. By Captain Charles King, U. S. Army.

This is a handsome little volume, made up of papers published at different times in Hammersly's *United Service Magazine*, now collected in permanent form for preservation. We risk nothing in saying that the book shelves of our army officers, laden as many of them are, with biographies and campaigns of the great army commanders of all countries and all times, will hold nothing of more real value, in many respects, to the officers who have lately arrived and are now entering the military service, than this series of sketches of the duties performed by the subalterns of some twenty years ago. They possess all the charm of truthful description and literary style which have made the author what he is generally admitted to be—by unprejudiced and unbiased officers of the army—the real painter of life as seen and lived by our officers on the frontier, when coming railroads were regarded as the dreams of a visionary, and the noble red man, anticipating the great Cook and his tourist schemes, "personally conducted" nearly the whole effective force of the army through three-fourths of the territory of the United States in the course of a summer.

Under the trained hand of the literary artist the picture has been made to assume, with a perspective of nearly half an ordinary life time, a humorous side, plainly apparent now, but which had no existence then. Those were days when, in the school of experience, no task or number of duties were regarded as beyond the province of the youngest officer to tackle, whatever the result might be. Without clerical assistance, with the most meager facilities for performing office work, he was liable to have thrust upon him the duties of two or three of the supply departments, and permitted to work out his own salvation; and that with little or no sympathy from his seniors, most of whom had previously traveled the same rough and rocky road, whose scattered mile-stones were supposed to lead to a final "settlement" somewhere, but really bore only such inscriptions as "stoppage of pay," or other legends of an equally reassuring kind.

It is seldom that one class of people can suffer without being the source of amusement to others. In this case the only persons who

derived any real enjoyment from a contemplation of the perplexities and misfortunes of the overworked subalterns were the "de jure" officers of the different staff departments. Ensconced in fine offices in some large city, surrounded by a host of high-salaried clerks, with "little to do and plenty to get," they realized Sam Weller's idea of a good thing; and to show their appreciation of it devoted themselves assiduously to the task of filling the empty pigeon holes of their rosewood desks with a choice collection of papers wrung from the hands of an Acting Quartermaster who, far from having any aspirations towards literary fame, would have willingly forgone all hopes of that kind for an invitation to a dinner of bacon and beans with the packers of the command with which he was making his usual summer tour after Indians. It was easier to call for a new return than to take the one of the previous month from the pigeon hole in which it served as a propagating medium for microbes and bacteria; and, besides it was necessary, for decency's sake to keep up a semblance of employing the office force.

Away off in the dim distance—so far off that, although all had sorrowfully heard of it as something that like death must be encountered some time—but few had ever seen it—was the Treasury Department, with its auditors and comptrollers who, when the officers of the Staff Departments grew weary of persecuting and took a rest, turned loose upon the defenseless subaltern with Statements of Differences, in which he was generally charged, each time, with all the property which had ever been issued to him, or any one of a similar name, since his first entry into the service. If this were accompanied, as it frequently was, by a letter bearing the signature of the Chief Clerk of the War Department, who did not neglect to enclose, simply as a matter of courtesy, a quotation from the Revised Statutes, intimating that the delinquent would, if the returns were not at once forthcoming, be considered a defaulter and be subjected to the usual penalty, a fine of five thousand dollars or imprisonment in the penitentiary, or both—the subaltern's cup was filled to overflowing—and so was he apt to be, if the wherewithal could be obtained.

In spite of all this red tape and annoyance, not by reason of it, the property of the government entrusted to the care of its army officers has generally been accounted for with scrupulous care and fidelity, and settlement of the accounts concerning it been ultimately obtained, after the usual expenditure of the time and stationery deemed necessary to satisfy all parties charged with their final examination.

"What has been, will be again," and therefore we recommend to the young officers who, for want of experience in the rough school of the frontier, are beginning to find fault with the conditions of life as found in our large garrisons, a careful and thorough study of the sketches entitled respectively "The Adjutant" and "The Ordnance Officer;" for so surely as we have another great war or insurrection on our hands, the drudgery of issuing stores and the exasperating system of accountability for government property, will be again thrust

upon the subalterns of the line under conditions closely resembling those so vividly described in the sketches named. The experience of their predecessors may enable them to avoid, or surmount with greater ease, the difficulties they are certain to encounter.

HISTORY OF THE FIRST MAINE CAVALRY. By Lieutenant Edward P. Tobie, formerly an Officer of the Regiment.

This is a book of 755 printed pages, bound in morocco, with sixty-nine pages of illustrations, comprising 307 portraits of members of the regiment and scenes of camp and field, with representations of the uniforms, arms and equipments, as they appeared in the days of the war. Price, $5.00. Address, J. P. Cilley, Treasurer First Maine Cavalry Association, Rockland, Maine.

THE "BATTLE ORDER" OF THE ARMY OF THE POTOMAC.

General Orders No. 110, Headquarters Army of the Potomac, March 7, 1865. This order contains the names of two hundred and sixty-three regiments, and the names of battles which each regiment is entitled to bear on its colors. The original order was never circulated in any wider manner than through the regular army channels, and hence, is entirely out of print. Price, ten cents per copy, or twenty copies for one dollar. Address J. P. Cilley, Treasurer First Maine Cavalry Association, Rockland, Maine.

MILITAER WOCHENBLATT. Series of 1891.

No. 24: The War of 1806–7. The English Squadron Maneuver of 1890. No. 25: Horse-Shoeing in the Army. Cases of Typhus in the French Army in 1889 and 1890. Grand Autumn Maneuvers in France. Recruiting the English Army. No. 28: Remarks on Infantry Fire Tactics. Military Slaughter Houses in France. Experiments with Unshod Horses in France. Companies of Discipline at Guadaloupe. The Largest Cannon in France. No. 29: Estimates for the English Army. Remounts for the French Cavalry. Changes in Tactical Principles. No. 30: Suggestions as to the Attack of Large Bodies of Infantry. A New Belgian Carbine. No. 31: Suggestions as to the Attack of Large Bodies of Infantry (continued). Heligoland and the German Fleet. Demolition of a Part of the Ramparts of Belfort. No. 32: Suggestions as to the Attack of Large Bodies of Infantry (conclusion). Experiments with Smokeless Powder in Denmark. The Portsmouth of China. The Saint Marc Smokeless Powder. The Garrison of Paris. No. 33: The Question of Fortresses. Review at Nice. No. 34: Horse-Shoeing in the Army. Reply to the Article, "The English Squadron Maneuvers of 1890." Filtration of Drinking Water. Green Fodder. No. 35: Officers' Horse Races in France. New Naval Guns. No. 36: The Officers' Patrol in its Relation to the Strategical Operations of Cavalry. Programme of the Italian War Minister. Shoeing of English Horses. Increase of the French Cavalry. No. 38: New Military Field Lantern. Smokeless Powder in Switzerland. No. 39: The French Army Estimates for 1892. Health of the English Navy. Ascent of the Pic de Belledonne by a Company of the Twelfth Alpine Chasseurs of the French Army. Increase of the Italian Fleet during the Past Year and Prospective Increase in the next Five Years. Experiments with Snow as Ramparts in Russia. No. 40: A Maneuver with Ball Cartridges Executed by the Eighty-Third Russian Infantry. Expedition Against Osman Digna. No. 41: Admiral Sir Thos. Symonds on the English Navy. New Head-Dress for the French Army. The Question of Fortresses in Roumania. Monument to General Lasalle. Jointed Lances. No. 42: The Austro-Hungarian Army in its Relations with the German Army. Remounts in Austria. Forced Marches in Italy. Bicycles in Military Operations. A Bear Hunt by the Eighty-Fifth Russian Infantry. Formation of a French Colonial Army. Visit of the Czarowitz to China. No. 43: Thoughts on Our Service. Instruction in Riding. The Carbine. Care of Horses and Forage. Weights of the Troop Horse. Organization of a Balloon Corps in Russia. Bicycling in Belgium. No. 44: The Normal Attack and the Indicated Enemy. Instruction of Seaman Gunners. Clipping Horses. No. 45: System of Instruction in Riding. The Position of Amsterdam. Fire of Artillery with Reduced Charges. English Fleet Maneuvers. French Carbines. Changes in the Garrison of Paris.

REVUE DU CERCLE MILITAIRE. 1891.

No. 12: The Newfoundland Dispute. Military Bicycling. Control of the Offensive. Use of Patrols Composed of Both Infantry and Cavalry. No. 13: The Newfoundland Dispute, (concluded). Firing While in Motion. Notes on the Russian Infantry. Speed of Vessels and the Sheathing of their Hulls, (concluded). No. 14: The Military Section of the Moscow Exposition. The Revolution in Chile. The Population of Germany. Military Strength of England. The Italian Alpine Troops. No. 15: The Military Section of the Moscow Exposition, (continued). The Revolution in Chile, (concluded). Drill Halls. Manometers on the Eiffel Tower. German Names in the Russian Army. No. 16: Reviews of the German Army. The Bicycle in a Mountainous Country. Assassinations in the Sahara. The German Navy and the Fortifications of Heligoland. The New Code of Punishments for the United States Army. No. 17: Suggestions in Regard to the Manner of Posting Outposts. Review of of the Garrison of Paris by General Saussier at Vincennes. No. 18: Skobeleff's Opinion of the Lance. Wounds by Balls of Small Caliber. Armament of the Belgian Cavalry. Sinking of the Blanco Encalada. A New Danish Powder. No. 19: Notes on the Swiss Army. Wounds by Balls of Small Caliber, (concluded). The Sims-Edison Torpedo. Military Explorers in Africa. The Railroads of Europe at the Close of the year 1889. No. 20: Notes on the Swiss Army, (concluded). The Fetes in Honor of Jeanne d 'Arc at Orleans. The French Soudan. French Names in the Prussian Army. Register. Infantry in Reconnaissance. No. 21: Infantry in Reconnaissance (concluded). Estimating Distance by Sound. Purification of the German Language. Aerial Torpedoes.

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

April, 1891: The Development of Field Artillery Material. Attack Formation. Manning the Fleet. Military Prize Essay: The Tactical Operations of the Future (including Questions of Supply and Transport of Ammunition) as Affected by the Introduction of Magazine Rifles, Machine and Quick-Firing Guns, and Smokeless Powder. On the Utility of an Elementary Knowledge of Geology to the Officers of the Army. On Battalion Command. May: Navigation and Pilotage of Her Majesty's Ships. Some Recent Continental Ideas upon Tactics. The Education and Training of Infantry Militia Officers. The Navy and its Exhibition. Foreign Section: Balloons for Naval Purposes. Disciplinary Companies in the French Army. Military Maneuvers in 1891.

THE WESTERN SOLDIER. April and May, 1891.

A bright and handsome monthly publication, devoted to the instruction and information of the California National Guard. It contains short articles and notes upon almost every topic that could possibly interest or benefit members of that organization, and, were its merits known, would probably find many subscribers among the officers of the army. The April number contains a very handsomely executed portrait of Major General John M. Schofield, commanding the army, in the full dress uniform of his grade; that of May is illustrated by an excellent representation of Colonel William P. Sullivan, First Infantry, N. G. C. Published by Walter N. Brunt, 535 Clay street, San Francisco, Cal. Terms, $1.00 per year.

THE UNITED SERVICE. Hammersly & Co.

April, 1891: The Indian Problem. General Sherman. History of the Mormon Rebellion of 1856–57 (conclusion). The Persian Army. Old Regiments of the British Army. Admiral David Dixon Porter. The Difference between Military and Martial Law. Colonel Henry Whitney Closson, U. S. Army. May: Attack upon a Railroad Train. National Legislation required on Weights and Measures. Recent Army Legislation. The Last Victim of the Gauntlet. June: A Ride Through the Indian Territory. Legal Aspects of the Killing of General Barrundia. General William T. Sherman. Modern Practical Military Instruction. The Crossing of Columns on the March. A Western Campaign.

THE FIRST MAINE BUGLE.

Several numbers of this valuable and interesting journal, devoted to the highly honorable task of perpetuating the good name and fame of one of the grandest of our volunteer organizations, have been received. It contains, not only notices of many of the enjoyable reunions of the surviving members of the regiment but, in addition, obituary notices of many who, having "fought the good fight," have passed over to the land of perpetual peace. The *Bugle* is published four times a year by the First Maine Cavalry Association, at Rockland, Maine. As an aid to the future historians of the Civil War, it should be bound and preserved in every public library in the country.

THE REVIEW OF REVIEWS.

April, 1891: How to Fight the Tap Room. The State as Antichrist. Another Practical Social Programme. The English Church of the Future. Girl Life in Italy. The Horrors of Cattle Ships. General Booth. A National Literature for America. May: A Socialistic View of Immortality. Will Morality Survive Religion? Iron and Steel Industries of America. How Charles the First was Beheaded. Democracy on Diamonds. Eight Hours Experience at Victoria. The Scriptures of Satan. Alas, the Poor English!

PUBLICATIONS OF THE ALDERSHOT MILITARY SOCIETY. 1890.

No. 24: "The Battlefield of Noisseville (31st August, 1870) Revisited." No. 24: "Modern Military Rifles and How to Use Them." No. 26: "Imperial Federation and the Defense of the Empire." No. 27: "Physical Geography in its Relation to Military Operations." No. 28. "The Phonograph and its Practical Applications to Military and Other Purposes." No. 29: "The Battle of Villiers-Sur-Marne on the 29th of November, 1870." No. 31: "Electricity and its Tactical Value for Military Operations."

JOURNAL OF THE MILITARY SERVICE INSTITUTION.

April, 1891 (Extra Number): Gun Making in the United States, by Captain Rogers Birnie, Ordnance Department. May, 1891: Cavalry in Virginia During the War of the Rebellion. Theory of Drift of Rifled Projectiles. Artillery Difficulties During the Next War. The Recent Indian Craze. The New German Rifle and Firing Regulations. The Red River Dam. Reprints and Translations. Military Notes. Historical Sketches of the United States Army—The Adjutant General's Department.

OUTING.

April, 1891: Composite Photography. The Wisconsin National Guard, by Captain Charles King, U. S. Army. The Athletics of Ancient Greece. With Rod and Gun in Northwestern Woods and Waters. May: Photographic Dark Rooms. The Wisconsin National Guard (concluded). Athletics at Amherst.

PROCEEDINGS OF THE ROYAL ARTILLERY INSTITUTION.

March, 1891: The R. A. Mess at Woolwich. Fire Discipline. Notes on the Equipment and Service of our Mountain Artillery. April, 1891: Imperial Federation and the Defense of the Empire. Some of the More Recent Developments and Applications of Explosives. The R. A. Mess at Woolwich.

THE IOWA HISTORICAL RECORD. April, 1891.

Austin Adams. The Address of Governor Kirkwood at the Dedication of the Monument to General N. B. Baker. Bushwhacking in Missouri. The State Teachers' Association in the Civil War. Justice Samuel F. Miller.

THE JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES. April, 1891. William R. Jenkins. New York.

Meningitis. Tracheotomy and Laryngeal Injections in the Throat. Age of the Horse, Ox, Dog, and other Domesticated Animals. Pseudo Tuberculosis Selections from Foreign Journals. Society Proceedings.

QUARTERLY REPORT OF THE KANSAS STATE BOARD OF AGRICULTURE. March 31, 1891. H. Mohler, Secretary, Topeka, Kansas. Monthly report of same for April, 1891.

POSTAL SAVINGS BANKS; AN ARGUMENT IN THEIR FAVOR. By the Postmaster-General. Government Printing Office. 1891.

HUDSON'S ARMY AND NAVY LIST. April and May, 1891.

THE INVENTIVE AGE. Weekly. Washington, D. C.

PRINTER'S INK. Weekly. New York.

JOURNAL

OF THE

UNITED STATES CAVALRY ASSOCIATION.

VOL. IV. SEPTEMBER, 1891. NO. 14.

TRAINING THE TROOP FOR FIELD DUTY.

IN the system proposed for training the troop for field duty, the instruction is imparted: First, theoretically; second, practically. In the theoretical instruction a fairly accurate map of the reservation and surrounding country, drawn on a blackboard in colors on a large scale, should be used. The ground is known to the trooper. In all explanations the formation of the troop should be adapted to the ground. So called "pen pictures" and "normal formations" should be studiously avoided. They invariably tend to cause the object and principles of the general formation to be lost sight of, and to make the recruit believe that what he then sees, he is to do always. Never teach a man anything that he must unlearn—the last lesson may not be as good as the first. "The truth is that normal or typical formations * * * do not represent what has ever occurred or will ever occur on the battle-field." [MAYNE, "Infantry Fire Tactics."] "I remark a fatal tendency in the clearest minds to reduce every system of war to absolute forms and to cast in the same mould all the tactical formations a general may arrange without taking into consideration localities, moral circumstances, national characteristics or the abilities of commanders." [JOMINI.]

Theoretical instruction.—The instructor will then explain the object of the formation and the general principles on which it is based. On the board the disposition of the troop is made for the

locality chosen. The march is taken up and as the ground varies, so the consequent modifications of the dispositions.

At each step the reasons for changes should be clearly stated. Questions should be asked to see if the men understand what has been said, and after the general lecture the men should be encouraged to ask questions, their good ideas being strengthened and erroneous ones corrected. In this manner the men are made to think for themselves; a clearer understanding of what they are to do, and how they are to do it will be obtained.

Practical instruction.—Each exercise will be preceded by theoretical instruction. As to time, so much must be taken as is necessary to render the trooper expert. Doing a thing once correctly is not enough. Practice is essential. Action should be the habit of developed instinct.

Above all, in practical work care should be taken in making corrections, to point out not only what is wrong but wherein the error lies, and what is right and why it is right. Appeal to the intelligence of the trooper in all cases. What is most needed and therefore should be most aimed at, is the development of the individuality and intelligence of the trooper. At each turn he must ask himself, "What must I do now?" and decide for himself quickly. This is best assured by awakening a mutual interest in the work in hand, by varying the phases of the formation with its modifications during each exercise, and after a certain proficiency varying the exercise itself.

PATROLS.

General remarks.—Instruction in patrol duty is the basis of the field training of the trooper. To be a good scout, the trooper must have his bump of locality well developed; he must have pluck, self-confidence, quick decision and be given special training. Some men never will become good scouts, for they will be lacking in some requisite. For the sly patrols good scouts are needed, but for the larger officers' patrols the ordinary trooper may be trained to do his part well enough. Great judgment must be exercised in the final selection of the troop scouts. Sly patrols must if possible move without being seen. They avoid high roads and open places and ride through woods, ravines and across country along the most unfrequented routes. Success depends upon secrecy; for they are too weak to fight larger bodies, and if seen may be driven in without succeeding in gaining the information for which they were sent. They study their route and fix the line of retreat, in general returning by a different route so as work up additional ground. The reconnoitering

patrols of the outpost line are governed by the same rules. The mounts must be speedy, of great endurance and trained jumpers, for no trifling obstacle should impede their movements.

The sly patrol is essentially "foxy" in principle. The men must enter into the spirit of the work, well aware of its hazards and dangers, as well as of its honorable nature. They must use nice discretion, but take every risk necessary, until further perseverance must lead to capture. When driven off they must return and try to hang on unseen. Meeting like patrols near its own lines it must fight, for it may be just as important to keep back the hostile patrols as it is to gain information of the enemy. So the hostile patrol must be driven back or captured. Various well defined objects will be selected along the route as rendezvous in case of dispersion.

On approaching the enemy, the men may separate, keeping in feeling, or one may dismount and reconnoiter while a comrade holds his horse, and the third posts himself *en vedette*. But the scout must not go far from his horse by day. If hotly pursued the patrol scatters to meet again at a post agreed upon; but if closely pressed the post will be avoided as leading to the capture of all.

Patrols of all sizes will march in a formation adapted to the ground which will give security from surprise, with opportunity for mutual defense; and if beaten, a chance for the escape of a portion at least. Do not burden the trooper with too many details; the intelligent scout will work them out for himself.

The system of squads proposed in the "New Drill Regulations for Cavalry," is excellent. Each squad should contain one or more expert scouts and be trained to act together under its regular leader as a patrol.

A system of sound signals should be used. The whistle is the best, and should be made to imitate a bird after the Indian fashion. It seems most advisable in these days of smokeless powder to make use of trained dogs to accompany the patrol to give warning of the presence of a hidden enemy. It is stated that the Russian experiments have proved most successful. It has been said "that the manner in which guard duty is performed is the test of the discipline of a command in a garrison," so it is believed that the manner in which patrol duty is performed will be the test of the efficiency of the troop on field service.

Theoretical instruction.—On the map point out the position of the enemy's outpost line, or his route of march or the village or locality to be reconnoitered.

Make the disposition of the patrol, and trace its movements, ex-

plaining all precautions to be taken, how it gathers its information and returns. Then how to make a proper report of its operations. Similarly the movements of the sergeants' and officers' patrols will be explained.

Practical instruction.—Detail a patrol of three men to work the ground over which its general movement was shown on the map. The work of the patrol is supervised and corrected by a subaltern, the troop following in observation. Attention is called to all skillful work, and all errors are pointed out, the troop commander taking notes. When the exercise is over, he will criticise the movements, making clear explanations of all errors.

Alternate details are made, carefully supervised and observed. Then several patrols are sent at the same time under the general supervision of the troop officers, who follow watching narrowly all movements. Similarly details for sergeants' and officers' patrols are made. Dispositions are made for a safe advance till the objective is reached, when the halts are made, covered by vedettes while the sketch is prepared.

THE ADVANCED GUARD.

General remarks.—The object of the advanced guard is first, to gain such early information in regard to the movements and intentions of the enemy as will prevent surprise and give the main body time to form up for the attack. Secondly, to act as a screen against hostile parties seeking information as to the strength, composition and disposition of the forces on the march.

The general rules for the formations adopted in the European armies, if carried out will do neither. The alert enemy will not be found waiting on our track. He will maneuver to strike the flank or rear of the column.

The English, who have assimilated their minor tactics to those of the Germans, have for their normal formation, "First a leading group of four men under a corporal, and flanking groups of three to four men at from 200 to 300 yards from the main route. * * * The flanking parties of either arm can of course only move when the country is open enough to permit it. If it is so confined as to prevent this possibility, the advanced party and support are each sent forward entire, except that a leading group or point must still be in advance of everything." [Shaw, p. 56.]

Such a formation will neither prevent surprise nor gain information. In any ordinary rolling country troops resting behind some slight fold in the ground in easy range, from 400 to 500 yards, would

be entirely concealed, their presence unsuspected. The main body arriving, a few well directed volleys would throw the ranks into confusion, and ruin would be completed by the flank charge. Even infantry could easily surprise cavalry on the march. The probable development of smokeless powder will render precautions against such surprises all the more necessary.

The following disposition of the vanguard is proposed, first as giving immunity from surprise; secondly, for obtaining information soon enough to be turned to advantage against the enemy; thirdly, as forming a screen against hostile patrols.

		N. C. O's.	Privates.
Vanguard..	Point	1	2
	4 forward patrols	4	12
	Flanking files	—	4
	Connecting files	—	4
	Van commander's party	1	4

The vanguard in a close country would be disposed with the point along the line of march, the leading files on each side near the route, covering front and flanks to fifty yards, the leader about fifty yards in rear of either file. The inner forward patrols are echeloned from the point to both flanks, and cover 450 yards of front. The outer forward patrols are echeloned from their flanks, also covering 450 yards of front. Each file is thus extended approximately 150 yards from his neighbors, observing seventy-five yards on each side.

The leaders direct their patrols from a position in rear of the center, but may go on the line whenever their presence is necessary. In this manner 900 yards from the flanks are certainly covered, and in favorable country probably more will be made secure.

The van-commander moves with his party along the line of march about 500 or 600 yards in rear of the point, where he can quickly receive reports and go forward to verify what has been observed. His party acts as a support against any hostile patrol, or as orderlies, as the case may require. Connecting files communicate with the forward patrols and the support in rear.

Any serious attack forcing the line of patrols would require more than the third or fourth of a troop usually detailed as the "support" to repel it. So that this body must be large enough to hold the assailants in check till the reserve (or main body, in forces smaller than the regiment) can form up. A half troop is the minimum body that can perform this duty. This support of half a troop should march in two lines from 200 to 300 yards apart, the first line about 500 yards in rear of the van-commander's party. If cavalry attacks, it is in readiness to meet it, advancing in two lines. The rear line acts as a support to the first line in all cases.

It may be urged that this system will be hard on the horses. So it may be. But good riding will mitigate the evil, and only in exceptionally rough country will it be any harder on the horses than the dusty march of the close column.

In an open country, the patrols, preserving their relative places may march entire, or as it is most convenient to the men, and cover the ground as effectually, for "in open country one man can see as well as twenty." As it grows hilly the patrols will examine the country from the high ground. All side roads and forks of roads should be examined for at least a half mile, the patrols crossing country to their places in the general line.

A battalion on the march would have its advance covered by one troop—half a troop as vanguard, the other half support—the main body itself constituting the reserve.

For larger forces, as the regiment, a battalion being the advanced guard with one troop as vanguard, the van-commander's party being so much larger, admits of special patrols being sent to reconnoiter at greater distances where advisable. One troop would constitute the support and two the reserve. Distances between parts are about 500 yards. The support and reserve march in two lines, each with 200 to 300 yards distance. Each sends out flanking parties.

The advanced guard in contact.—The patrols on coming in sight of the enemy hang on, if possible hidden, till they observe his strength, position and intentions—whether he intends to attack or retreat, or if in ignorance of the proximity of the command, to pass on his way.

The van-commander, having received word, rides forward and reconnoiters and sends his report. The support makes the attack, sending report to the reserve. If the enemy advances in force, the support dismounts, behind some fold, or the best cover at hand, and fights a retarding combat till the reserves come into action.

The advanced guard pursuing small rear guard.—The troop will have, in the battalion composing the advanced guard, a position in the center along the main route, or on either flank, or in reserve. If the former, it will dismount two platoons, led horses in rear of other platoons. The dismounted troopers keep up a running fight taking advantage of all cover afforded, firing on men in position, mounted officers, and the horses when carelessly exposed or when a movement is made to the rear.

If a mounted countor attack is made the rear platoons are ready to meet it. A rapid advance can be steadily kept up for at least an hour, when these platoons are relieved by the other two. By thus alternating the platoons, the led horses can be kept under cover, and a steady advance can be rapidly made, the men being frequently rested. If the enemy decamps, the mounted platoons move out and gain contact at once, relieving the firing line. The flanking troops will make every attempt to gain the rear or flanks of the rear guard, by rapid movements, and will fight mounted or on foot as the circumstances dictate.

In this manner the rear guard will surely be driven in on its main body, a superiority of force being presumed against them.

Example illustrating march of advanced guard.—Force, one battalion of cavalry; line of march, highroad from Carbury to Llanyell; detail for advanced guard, one troop; vanguard, lieutenant commanding, six non-commissioned officers and twenty-six privates; remainder of troop in support; the main body is the reserve; three positions are shown on map. (Vide Map, No. 1.)

Theoretical instruction.—1. *The dispositions for the march.*—Select route on map to be used in the practical exercise. Care must be taken to select the route over varying ground, including hilly and level, wooded and open country. Each in succession will best illustrate the principles on which the formation is based. Dispositions are made on the map conforming to the nature of the ground. Successive positions are chosen, the routes of the parts traced, each being modified to suit the topography. Each modification and change is clearly explained, and the reasons given.

2. *In contact.*—Two troops should be operated in the selected theatre. The positions of the patrols where the enemy is first seen and their action in observation are shown. The nature of the report sent by the van-commander is explained. The action of the support and reserve will be traced in detail, together with the concentration of the patrols for flank action.

3. *Fursuing rear guard.*—The dispositions in contact of both parties are made; the maneuvers for frontal, flank, and rear attacks are traced on the map. Positions commanding line of retreat are pointed out for prompt seizure, causing hasty retreat or cutting off the rear guard. Details for dismounted action, and the cover for led horses are given as recommended.

Practical instruction.—1. *The march.*—The troop is marched to the selected route. The details for the vanguard and support are made. On service the vanguard should be composed of the best scouts and riders. The dispositions are then made, the advance taken up, the parts conforming to the ground as it varies, under the careful supervision of the officers. Villages on the route and to the flanks are reconnoitered by the patrols.

2. *In contact.*—Two troops are detailed to operate over a selected theatre, one in brown the other in blue uniform. The orders of each, insuring collision, should be unknown to the other. The patrols on sighting the enemy send word to the van-commander, who moves forward, observes and reports. The support will shape its action as the judgment of the captain dictates. The van-commander signals for concentration of the patrols, and moves in support of the attack as the circumstances require.

3. *Pursuing rear guard.*—Opposing troops, in brown and blue, are detailed, a superiority of force being given to the advanced guard. The commander on each side will conduct the operations in the manner that he deems best. The details are alternated.

For attacking defiles, and turning villages, the equipment of the American cavalry is admirably adapted, the flanks being rapidly attained and the attack carried home by a dismounted firing line and finished up by the mounted troopers.

THE REAR GUARD.

General remarks.—The object of the rear guard in retreat is to check pursuit and allow the main body to move unmolested. The rear guard must hold the enemy beyond the range of field artillery from the main body. The greatest skill and tactical knowledge are required of the officers, and the highest courage and determination of the men in the successful performance of their honorable duty. The coolest judgment is absolutely necessary. Rashness, by causing self-destruction, will only clear the road for the pursuer. The American cavalry is the best equipped for this work:

1. Within effective range of the present rifle, its dismounted work is approximately the same as that of the infantry, and by exercising judgment in the selection of positions, and knowing accurately the range which was just passed over, its fire ought to be more effective than any the pursuers can bring to bear at first.

2. Its great mobility will permit its safely being kept well to the rear, and after checking and causing deployment of the enemy, will enable it to move rapidly to a second position, repeating the maneuver.

3. The flanking bodies, by their mobility and defensive action, keep their opponents in check, and if possible to do so for some time, send speedy report of the maneuver to turn the flank or gain the rear, with size and disposition of the turning forces, thus giving time to meet the movement.

4. For the defense of a defile the dismounted troopers can hang on to the last moment, assured that a short retreat will bring them to their horses held near by in rear.

The object being to check or delay the enemy, as many men will be employed as are available in the fighting line, protecting the flanks by strong bodies, patrols in general not sufficing. A general reserve is always held ready for any emergency. The dispositions will depend upon the nature of the country and the composition of the hostile forces. A very broken ground is fatal to rapid maneuvers, so, in such country, or if the enemy has little or no cavalry, a few patrols on the flanks will suffice. But in ordinary rolling ground with hills and small streams, the best formation for the battalion as a rear guard is one troop on the main route, one on each flank and one in reserve. The distances depend on the character of the country and maneuvers of the enemy.

If the country is enclosed, the troop along the main route should be divided into two parts, a firing section and a support. For only a limited number of carbines can be brought to bear on the restricted front, and both men and horses will be kept fresher. The troop in reserve must furnish information to the fighting line of all changes of direction, obstacles, etc., so as to enable it to conform its movements. The troop in reserve should alternate with the center fighting troop to keep the men and mounts fresh, and both should be in line together when exceptionally good opportunities occur for bringing a large number of carbines to bear on the pursuing columns, as at a defile or bridge.

The fighting line does not dispute the advance inch by inch, for that would inevitably result in its being tied to the spot. But they hold successively strong positions as they occur, and they will occur, for a mere fold in the ground is a great protection, and hedges, buildings, etc., will afford cover for the horses, thus affording strong points for temporary defense.

The rear guard must fight and fight hard, but without compromising its retreat. No check can be made by making a show and then running away. The essence of the handling is so to fight as to get away and fight again. Each position must be rapidly but carefully chosen and then with known range, fire volleys into the columns as they appear. In the choice of positions a primary consideration is shelter for the horses.

After inflicting loss on the enemy and causing deployment, just before being committed to a compromising action, the position is given up and a rapid move to the next position in rear is made. A

formation into column again is necessary before a rapid pursuit can be made.

Even a very strong position near a decided bend in the road must not be held; for unless the flank is strongly posted a prompt advance of the enemy in that direction would surely strike the rear or flank of the defenders. Perfect communication must at all times be kept up between the parts.

Theoretical instruction.—Dispose a battalion as a rear guard on the map. Dispose the enemy's forces also. Select a position and dispose the parts for its defense. Trace the maneuvers of the enemy and explain how they are met. Show when further defense would be fatal, and the movements to the second position made, and so on over the theatre selected. Explain the way of keeping up connection.

Practical instruction.—The first day the troop is marched to the ground. The officer in command selects positions in succession, showing how to defend them, and how to give them up. The men will then have a general idea of the spirit of the work required and how to do it. In the second and subsequent exercises troops should be opposed to each other, in brown and blue uniforms, and the men having been made familiar with the object and principles of the duty will give intelligent aid to the instructor.

OUTPOSTS.

General remarks.—The object of outposts is to gain repose for the main body by obtaining information of the movements of the enemy, checking his advance and thus gaining security against a sudden attack.

To effect this, outposts consist of a first line or outer screen of vedettes and patrols supplied by the pickets; a second line in support, and a third line in reserve. The main body constitutes the reserve for forces smaller than the regiment. In exposed situations the first line will be strengthened by detached and Cossack posts.

The vedettes.—The vedettes should be few in number and posted only where an extensive outlook is had. Vedettes are always posted in pairs for these among other reasons; in case a report is urgent one remains in observation, the other rides in quickly with his report. This will obviate the necessity for so many connecting files.

Vedettes should be given a beat of from 200 to 300 yards, with latitude to move to points where the outlook will be extended. Frequently excellent outlooks will be found in tree tops and high buildings.

In selecting posts the primary consideration is that an extensive view is gained. If such posts cannot be found, then no vedettes should be posted and the whole work should be done by patrols.

It makes little difference if the vedette is seen. It would be desirable to place a screen around the vedette through the meshes of which he could peep, being invisible to the enemy, so that he could "see without being seen." But we are not aware how such an article so much desired by European tacticians, can be manufactured. It would seem to require Yankee ingenuity to invent, and Vulcan's skill to execute; but the god has departed. Yet this condition is necessary where vedettes are posted, according to rules for certain topography, with the same intervals, as laid down by the foreign authorities. For, any one noting the nature of the ground, counting the vedettes, and applying the rule would have no difficult problem to solve in calculating the strength of the pickets, hence the supports and reserves, and with these numbers as a basis, the strength of the command, to within its organization, whether a brigade or division, certainly.

Anything like regularity in posting vedettes is wrong, for at such intervals no good posts will in general be found. And the "fan-like picture" where even a rough knowledge of the locality is had, would only serve to betray the strength and approximate dispositions of the whole outpost line. Vedettes are of service only at posts commanding an extended outlook.

Patrols.—The main work of observing must be done by patrols. The patrols must move over the entire allotted front of the pickets reconnoitering all places where it is possible for the enemy to advance. The patrols move for half a mile at least to the front and look out for all indications, such as dust, glitter of arms, noises, rumbling of wheels. They communicate with vedettes of neighboring pickets.

The picket.—The picket should furnish one or two vedette posts and sufficient patrols in three reliefs, to observe the allotted front. It holds itself in readiness for immediate action, in the best cover available some 600 or 800 yards from the vedettes.

The support.—Except in a country made to order to suit the "typical formation," the line of observation will pretty nearly coincide with the line of resistance, and the supports should be posted on this line or as near by as a position which screens from view can be found. The pickets, separate from the supports, are also posted on this line to the flanks.

Nice judgment must be exercised in selecting the strongest post

commanding the probable line of attack, which will pretty generally be indicated by the configuration of the ground. The commander of the support must, however, study the positions in his vicinity and be ready to move to the one which the attack when developed approaches.

The supports and pickets constitute the firing line, in case of attack.

The reserve.—The reserve is held centrally in rear from 500 to 1000 yards. It acts as "support" or feeder to the firing line.

In case of an attack in force, the main body will adapt itself to the fight, being the third line, or line of general reserves.

When a command halts and goes into camp, its security is not made complete by merely throwing out an outpost chain in the general direction of the line of march. What in these cases, hinders a flank attack or an attack in reverse surprising the main camp? There is nothing. And our opponent may not be so accommodating as to direct his effort *where we show him we expect it*. The cordon must be complete; the full circumference must be guarded. Where the flanks rest on obstacles, or the rear is secure as by the presence of superior forces, of course, this is modified.

Outposts for whole corps or armies may be successful on the old principles, but for regiments and brigades on field duty, something more is needed. The distances must be reduced, for it is possible for the line of resistance to be forced before the reserves can come into action.

No definite rules can be laid down for positions and distances. They must be determined by the good judgment of the officer in command. Each phase of ground demands something best suited to itself. But this principle must be recognized, that security can be made perfect only when the dispositions of the outpost give immunity from surprise in all directions. A few Cossack and detached posts judiciously selected greatly aid and strengthen the line.

When smaller organizations, as the regiment or battalion, are in field duty, the principle of observing all avenues of approach, will obtain. The only modification being that there is no special reserve for the outpost line; the cordon of posts and patrols, with the pickets and supports, holding the line of resistance, while the main body acts as the general reserve in case of action.

The system proposed *may be* somewhat harder on the men and horses; but whether the extra riding will prove harder on the horses than the increased number of vedettes lounging in the saddle, is questionable. The system proposed is best adapted to the general topography met with; it gives immunity from surprise in all directions;

in case of attack the fighting principle is that of the defense of a position, the supports and pickets constituting the first or firing line; the reserve the second or line of supports; the main body the third or line of reserves; it requires no greater number of men for outpost duty.

Example in posting outpost, (see Map No. 2).—Location of camp, Williamsburg Heights. Force, one brigade of cavalry, three regiments, in camp at W. Detail for outposts, First and Second Battalions, First Regiment, Lieutenant-Colonel X. commanding.

First Battalion, Major Y., north and east fronts.

			Privates.	*N. C. O's.*
Troop A...	1 Picket.	1 Vedette Post, 3 x 2.	6	4
		2 Patrols, 3 x 2 x 3.	18	
		1 Small Post	4	1
			28	5
	Support		28	5
		Totals	56	10
Troop B....	1 Picket.	2 Vedette Posts	12	4
		2 Patrols	18	
		1 Small Post	4	1
			34	5
	Support		22	5
		Totals	56	10

Troops "C" and "D" in reserve.

Second Battalion, Major Z., south and west fronts.

Troop E...	1 Picket.	2 Vedette Posts	12	4
		2 Patrols	18	
		1 Small Post	4	1
			34	5
	Support		22	5
		Totals	56	10
Troop F....	1 Picket.	1 Vedette Post (outlook on College)	6	4
		1 Patrol	9	
		1 Detached Post	18	3
		1 Connecting File	3	
			36	7
	Support		20	3
		Totals	56	10

Troops "G" and "H" in reserve.

(The letters on the map correspond to the details above given. The approximate routes of the patrols are shown by arrows.)

Theoretical instruction.—The regiment in camp would have one battalion on outpost duty, the main body constituting the general

reserve. The line of outposts would be established about 800 to 1000 yards from the camp, the general line being thus from 5000 to 6000 yards in circumference.

Four positions will in general be selected for the supports, each picket thus covering from 1200 to 1500 yards of front. Select on the map the position of the main camp. Indicate the general line of outposts which will best give security to the main body. The troop will furnish one picket and support.

The picket will furnish, say, two vedette posts, two patrols of three men each in three reliefs and a small post. Detail for the troop:

		Privates.	N. C. O's
Picket	2 Vedette Posts	6	4
	2 Patrols	18	
	1 Small Post	4	1
Support		28	5

The position of the support and picket will be indicated, the post of each vedette and small post shown, the routes of the patrols traced, giving reasons for selection in each case.

Practical instruction.—The troop will be detailed for support and picket duty as determined in theoretical instruction. The troop is marched to the ground selected, its advance secured by forward and flank patrols. The commanding officer selects his line of resistance, and the posts of the support and picket are approximately selected. The patrols continuing work up to the ground to the front of the line allotted to the picket, all woods and ravines being carefully examined.

The picket commander then selects posts for the vedettes where the best outlook is gained. The beats will be gone over by the officer and shown to the men. The vedettes will thus be posted generally from 600 to 800 yards apart with beats permitting word or signal "all right" to be passed. The patrols ride in reliefs, constantly working up the ground in front of general line, preventing surprise and secret advance of artillery to within half a mile of outpost in close country. In open country their work will be easy, for no large movements can take place and fail to be detected.

SCREENING AND RECONNOITERING DUTY.

General remarks.—The object of the cavalry screen is to keep all hostile parties from penetrating and obtaining information, and by moving forward to gain contact with the enemy; then by means of reconnaissance to gain information of his strength, dispositions and movements. Until contact with the enemy is had, every avenue by means of which a hostile party can enter, must be closed. The squads are so disposed that no spot will be passed without being able to give it closest scrutiny.

With this end in view, instead of spreading them out by driblets over miles of front where they can neither detect hostile movements nor stop them if they accidentally do see them, as the Germans did in '70 and '71, and as the English recommend in consequence to-day (Vide "Cavalry Instruction," p. 171) in a close country which best affords the opportunity for the hostile patrols to act, the line of squads must be continuous and held close to the supports.

Unless we traverse the densest underbrush or most broken ground the horseman's view may be safely taken as seventy-five yards on each side, and unless in such bush as will hinder all movement, his view will be at least twenty-five yards on each side.

The formation for the squad, (Vide Map No. 2, Dispositions of the Troop for Screening Duty in a Close Country,) will be approximately as follows:

A scout along route of patrol, covering fifty yards on each side; at seventy-five yards are two files echelonned back twenty-five yards; and beyond at fifty yards the flanking files ride echeloned back twenty-five yards. In rear of the scout, about fifty yards behind the patrol ride the leader and two files. The front of the squad is thus 250 yards.

This formation is necessary for only the closest country and these distances may be doubled in open ground; but in general no greater extension should be made, for the total front of the line of squads would be too great for the size of the force undertaking the duty in case of attack. The troop furnishes four squads for the first line, the remaining four being held in support. The front of the troop is thus from 1000 to 2000 yards, according to the country.

All suspicious places should be specially examined by the files who march with the leader, in order to not delay the forward movement. As the country gets open the flankers may be called in, the squad marching entire, but still preserving its own direction and distances from its neighbors. From time to time special small patrols will be sent to gain an outlook from hills, and sly patrols sent to examine hamlets, etc., to the flanks.

Consecutive squads should keep in touch and give unity to the whole line of squads. The flanks of the line of squads are refused in the general movement in advance.

The squads are placed under the command of the troop subalterns, each having two squads under his direction. He marches with his orderlies where he can best direct and observe the line of march. It is his special duty to see that his squads cover their allotted front. Thus, each pair of squads becomes an officer's patrol. The troop

support, the remaining four squads, under command of the captain marches in rear of the center of the line of squads, about 600 yards distant. (Vide Map 2, Dispositions of the Troop.)

The regiment would be disposed as follows: Two battalions in first and second lines, one battalion in reserve. Each of the former battalions disposes three troops for screening duty, holding one troop in reserve. Each battalion reserve, marches about 1000 yards in rear of its center troop. The battalion reserves are about 3000 yards apart. The regimental reserve about 2000 yards in rear of the line of battalion reserves being about 3000 yards distant from these bodies. Thus in a close country the front covered by the regiment is about 6000 yards, the regimental reserve being about 4000 yards from the line of squads.

Points not in the direct front of advance are to be examined by special reconnoitering parties. If small hostile patrols are seen by the squads they must capture or drive them in. If larger bodies are met, word is sent to the troop support, the squads keeping in feeling. The route of each troop is given by the battalion commander. The squads are allotted their fronts, and the subalterns see that the proper direction is kept by compass or map.

On gaining contact with the enemy's screen or outposts, it is in the line of events that cavalry combats must ensue. With this end in view a concentration of the battalion and regimental reserves must be promptly made, and the maneuver to beat him in detail driving him in on his outposts be executed. If in this manner successively large portions of the hostile cavalry are beaten and driven in, it is most unlikely that the remainder will attempt to penetrate the screen. They must concentrate to try to hold back the victors, who must therefore pursue rapidly to cause dispersion of the hostile forces. Having driven the cavalry behind the outpost line, special reconnoissances will be made by the officers, immediately, and in force where necessary. It is here that the best opportunities will arise for the trained scouts and sly patrols to effect an entrance to the outpost line in search of information.

Example in screening duty.—Idea: The enemy lands his forces southeast of Richmond, using the James River as his base. The army covering Richmond sends forward its cavalry towards the line of the James to screen its operations, and gain information of the positions, numbers and movements of the hostile army. One brigade of cavalry consisting of three regiments, is ordered to move from White House to Williamsburg operating between the York and Chickahominy Rivers. One position of the brigade is shown. (Vide Map No. 2.)

Theoretical instruction.—The troop is told off for duty on the first line. The area to be worked up is shown on the map. Disposition of the troop is then made and the advance of the line of squads traced, the support conforming. The advance of the battalion and regimental reserves is also traced in order that a general idea of the principles may be given.

Practical instruction.—Four squads are detailed for the first line. Each in turn is disposed and directed by its lieutenant, the remainder of the troop following in observation. By handling a single squad at a time, the remainder of the troop in observation, correct ideas will soonest be gained. Then the four squads are worked together, the support conforming. The details are alternated.

If it is found after long practice that certain men excel in patrol and scouting duties these men should be given special opportunities for perfecting themselves.

DEFENSE OF A CONVOY.

General remarks.—Due to its length and immobility a convoy is difficult to defend. The only means of providing safety will result from early information of the enemy, which must be gained at all hazards by the patrols.

A battalion as escort for a convoy would detail one troop for advanced-guard, one for rear-guard, holding two in reserve. The main body marches in two lines or columns near the most vulnerable portion of the convoy, throwing out flankers. The advanced-guard will be divided into two parts, half the troop being under the captain along the main route; the other half being divided into equal parts each under a subaltern. Each part is then split up into small patrols of from three to five men, constituting the right and left forward patrols respectively. A small party rides with each officer, connecting files keeping up communication between the parts.

The forward patrols reconnoiter for at least a mile in advance and to the flanks. All places where even small patrols might be lurking must be subjected to the most searching scrutiny. The most careful work is required when it is considered what damage, confusion and delay even a few well directed shots against the teams in a defile or sunken road would occasion. The rate of march of the convoy is slow enough to allow this being done without overworking the horses.

The flanking parties keep well out to the effective range of individual fire, while the rear guard must keep a similar screen to give timely warning of attack from that direction.

In passing a defile the advanced-guard after reconnoitering moves

out beyond to see that the road is clear, while the main body posts itself strongly on the sides; the rear-guard, dismounting and sending its horses on, covers the filing through. If it is known that a flank attack is to be made, the plan practiced by the British is excellent. The column is closed up, the teams obliquing successively on reaching the carriage in front, forming a continuous column of wagons facing the enemy, the teams sheltered behind. If the attack takes place in the open and time permits, the square should be formed, which affords a strong, defensive position. But generally neither time nor space will permit this maneuver. The main body must move to meet the enemy, taking up a strong defensive position beyond effective range of the convoy, and the advanced and rear-guards will maneuver to take the enemy in flank.

Theoretical instruction.—The convoy and escort are disposed on the map according to the general principles laid down. The advance and work of the parts of the escort are traced on the route, with dispositions for passing defiles and resisting attacks.

Practical instruction.—The troop will be disposed, with the wagons, as advanced-guard and rear-guard successively, until a clear idea of the defensive action is had. Then opposing troops will be detailed to maneuver against each other in attack and defense.

ATTACK OF A CONVOY.

General remarks.—The patrols will furnish information of the length and character of the convoy, and the size and dispositions of the escort. If the escort is small a direct attack may be made, sending detachments to block the escape of the convoy both in front and in rear.

If a surprise is to be made, the commanding officer, will, from his personal knowledge or reports, select the locality, and the position must be taken secretly. It will be best to advance to it rapidly after the forward patrols have cleared the spot, detaching a body to keep the advanced-guard from striking the flanks of the attackers. If the escort is too large to attack, a sudden dash, even of small patrols, killing horses, will do much to delay the advance of the convoy. Such movements may be made with impunity, for those who make the attempt may be well assured that pursuit will not be carried far.

Theoretical instruction.—The convoy and its escort will be disposed on the map. The working of the patrols to gain information will be shown. Reports of the strength and dispositions and of the country will be made. The instructor will then adopt his plan of attack, and trace out all movements on the map.

Practical instruction.—In the first exercise the troop will send out patrols to work up the ground and gain intelligence, making proper reports. In subsequent exercises bodies will be opposed, one in defense, the other in attack of the convoy.

DISMOUNTED ACTION.

The scouts especially and the troopers generally, should be given practice in firing dismounted, the bridle rein over the arm. Patrols will frequently be called upon to defend themselves in this manner against superior forces. Skirmish targets should be placed somewhere along the line of operations for the day. The scouts and patrols should report their presence and position, and the troop will maneuver against the line. This practice has the advantage of teaching accurate field firing. The range will be estimated and then determined by volley firing, using two sights. The volley practice will be undertaken by squads and platoons as well as by troop. Such conditions will present what will occur in service and the practice is necessary to insure the probability of hitting the object at unknown ranges, and also a proper system of fire tactics.

SPECIAL INSTRUCTION.

All non-commissioned officers and scouts should be taught how to read a map. Those who show special aptitude should be given a course in topography, and be taught the use of the cavalry sketching case, or other methods of simple, rapid work.

All non commissioned officers and scouts should be taught how to make reports. The requisites of a report are clearness and briefness. If a watch is in the party, the time at which it is sent should be noted. But it will generally be found that no watch is possessed. The instructor will indicate positions on the map whence reports will be sent embodying information of hypothetical cases regarding the enemy, and of the ground. Afterwards in all practical exercises frequent reports should be required.

The best scouts should be given special practice in their duties; and generally men showing special interest and aptitude in any kind of duty should be given every opportunity and encouragement to perfect themselves by practice; and then should be selected for those positions in which they excel in the various exercises. While a few men may be found who do all things well, there will be many to whom certain duties are impossibilities, and if they are compelled to undertake them, failure must result. This they should never be compelled to do, but instead be given that in which their interest is excited and which they can well perform.

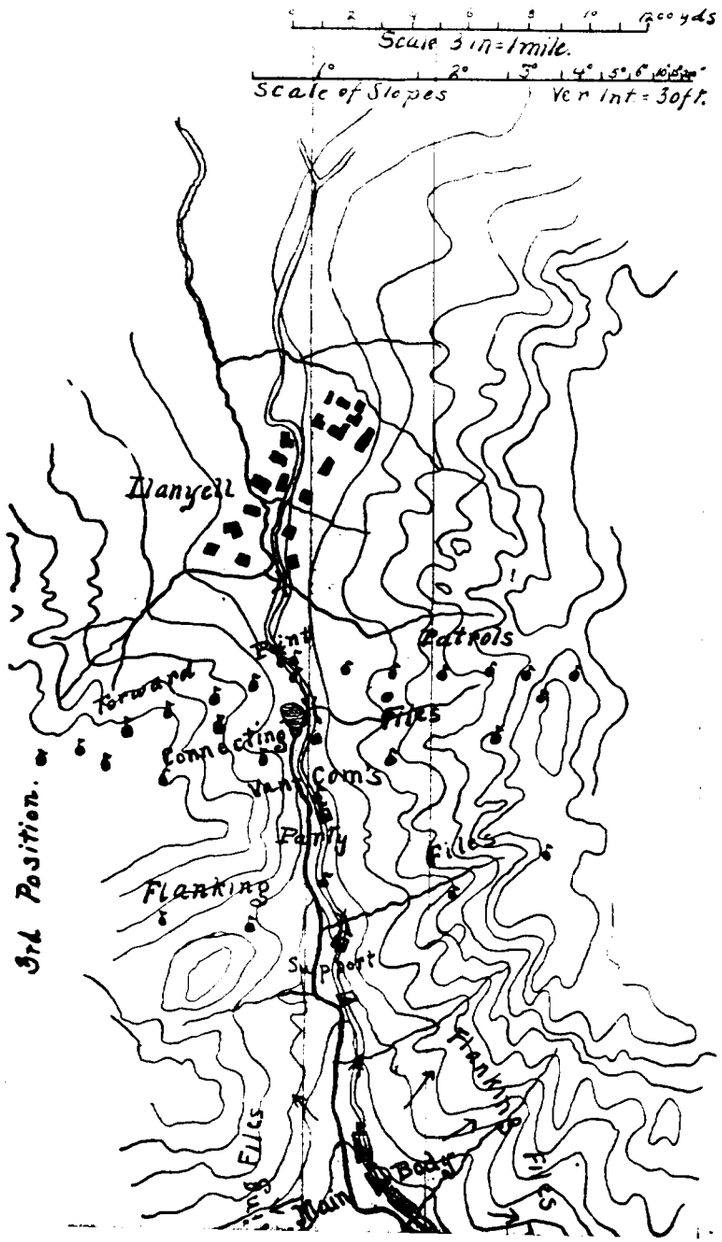
No time limit is placed on these exercises. They must be kept up until the troopers understand the general principles, and become efficient by practice. The exercises are varied, and will present opportunity for maneuvering the troop in all parts of the drill regulations, so that nothing is lost in that direction. Moreover the riding required in these exercises will be the best school of practical horsemanship. "Too much attention cannot be bestowed upon equitation and to make the man a perfect master of his animal. Man and horse should be one individual, thus realizing the centaurs of fabulous memory." [Marshal MARMONT.]

The system proposed will require the most painstaking work on the part of the officers; but that is their business, and should be gladly undertaken in view of the immense benefits to be derived.

It is believed that the eternal "fours right" and "right front into line," will no longer be a bore when they are shown to be a means to a valuable end by these practical problems. That all these matters have been neglected is as true as that they demand careful attention. Americans of all ages have been accustomed to the use of arms and to taking care of themselves; their individuality is proverbial; which traits are invaluable in the development of the cavalry soldier. The experience of our frontier added to the peculiar genius of our people, must do much to hold the American trooper in the proud position he won from '61 to '65—the prototype of the cavalry soldier in modern war.

JOHN M. JENKINS,
Second Lieutenant, Fifth Cavalry.

Nº 1. The Advanced Guard



Nº 2

Nº 3.

Disposition of The Troop for

3rd Position

Flanking

Party

Files

Support

Flanking Files

Main Body

Rear Guard

L & N R.R.

Point

Patrols

Forward

Connecting Files

Van-Coms

Party

Files

Flanking

Support

Flanking Files

Main Body

Flanking Files

Rear Guard

Point

Patrols

2nd Position.

Black River

Jamestown Is.

College Ct.

JAMES RIVER

No 3.

Disposition of The Troop for

Screening Duty in a Close Co

Scale 1in = 200yds

LINE OF

Scout

Scout

Scout

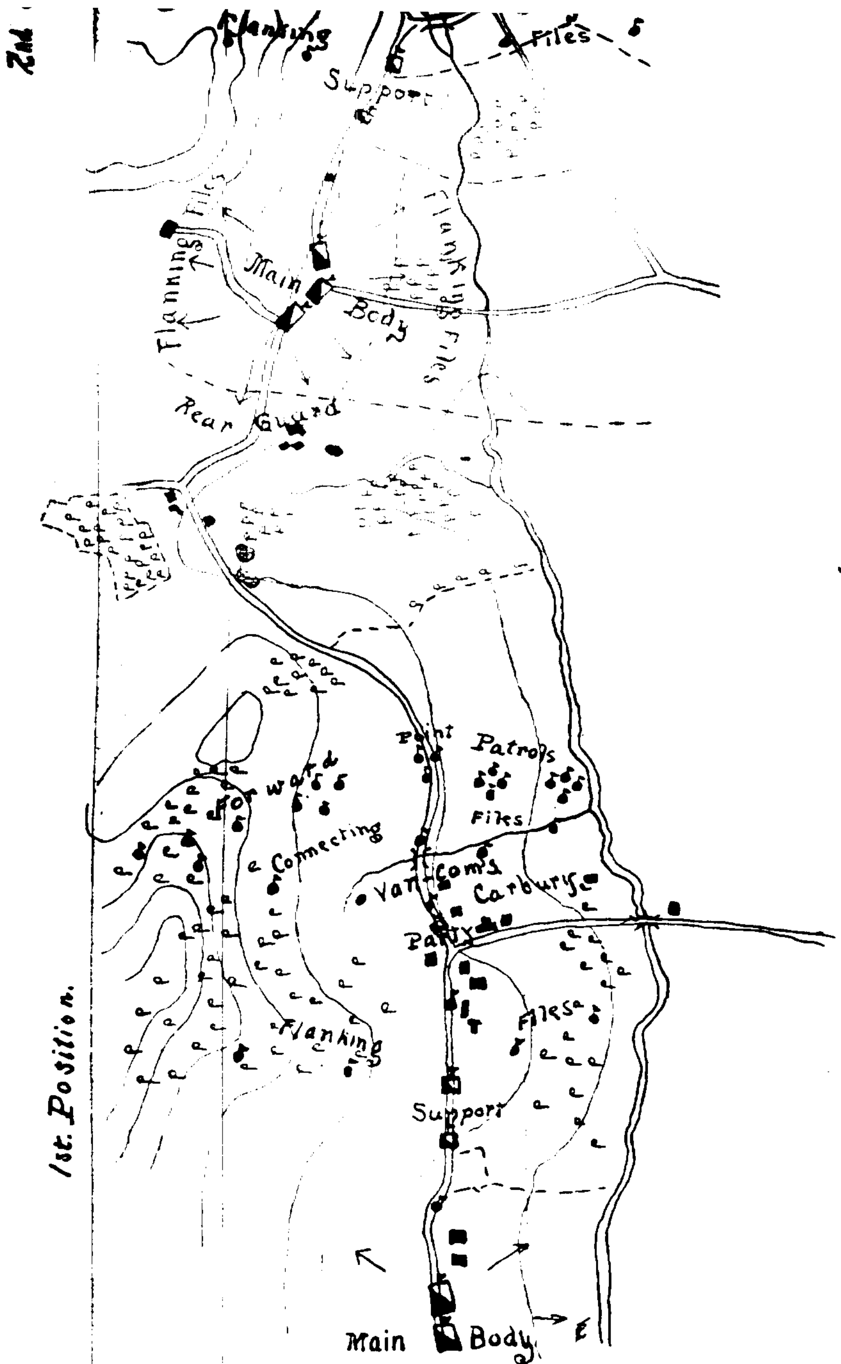
Connecting Files

Captain

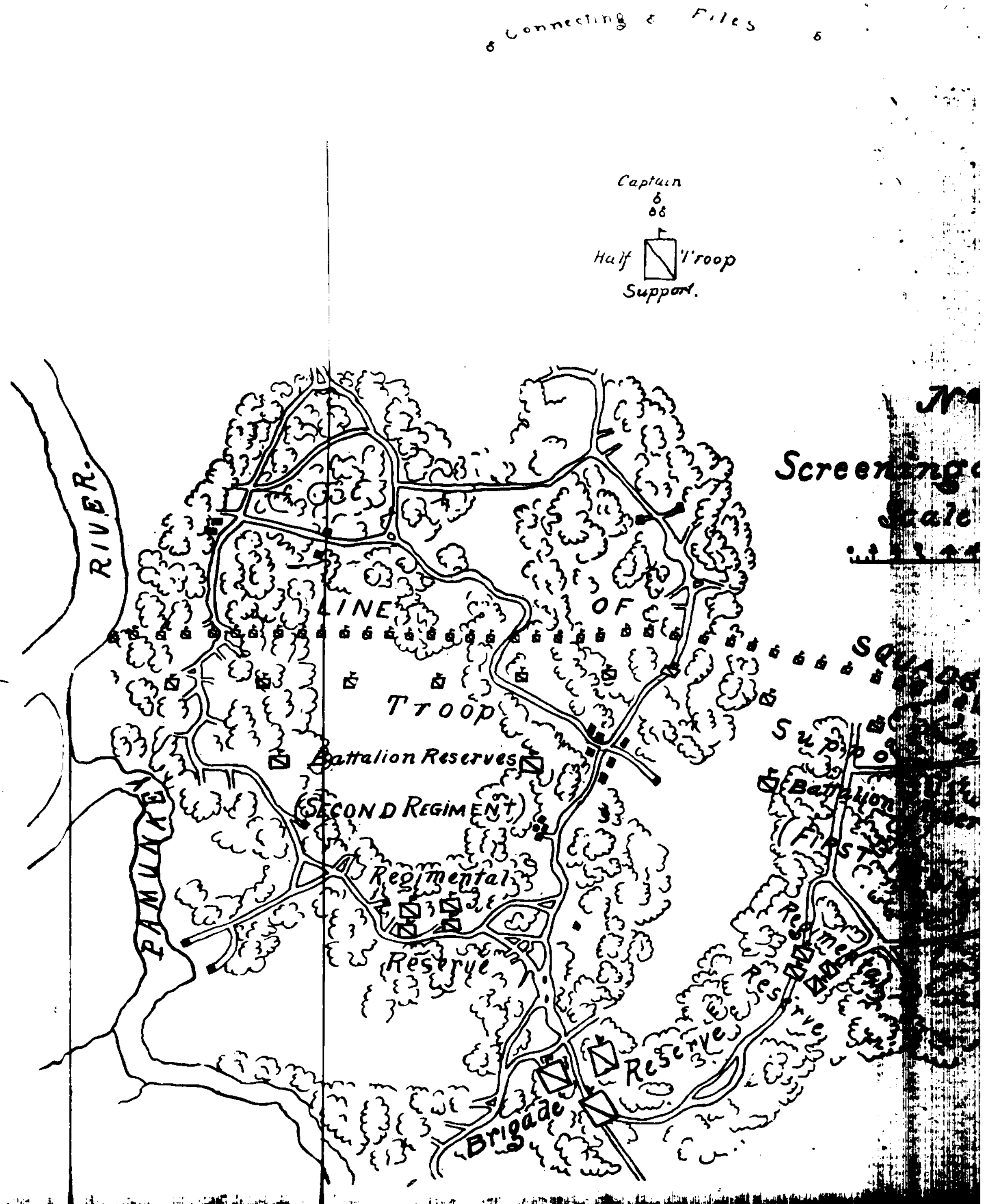
Half Troop

Support.

RIVER.



Flanking
Files
Support
Flanking Files
Main Body
Flanking Files
Rear Guard
Point Patrols
Forward
Files
Connecting
Party
Files
Flanking
Support
Main Body
1st. Position.



Connecting Files
Captain
Half Troop
Support.
RIVER
PAMUNKEY
LINE OF
Troop
Battalion Reserves
SECOND REGIMENT
Regimental
Reserve
Brigade
Reserve

SOME FOREIGN CRITICISM OF THE AMERICAN CIVIL WAR.

NOTHING is more surprising to an American than to find the campaigns of our Civil War and the methods of fighting therein described in terms applicable only to those of the dark ages. He is astonished to find our most familiar names in such medieval company; and still more to be assured over the signature of some noted writer that what he has been reading is an article on the American Civil War!

One of the principal exponents of this style of military romance is General Lord WOLSELEY, who may be remembered as a leader of British troops in Egypt. This distinguished author has recently published an article entitled "General Sherman," in which he discusses the career of our former Commanding General, who is mentioned therein as "T. W. SHERMAN."* This is perhaps a typographical error; but all his mistakes cannot be so charitably dismissed.

The opinions of the gentleman referred to in regard to our Civil War, would require no special notice did he not assume to "speak as one having authority," and did he not advance views quite at variance with those entertained in this country, and with those held by the great majority of such foreigners as have taken the trouble to form any. But, however difficult it may be to take his articles seriously, it is manifest that they are so intended; that their author regards himself as the critic *par excellence* of the subject in hand; and for all these reasons, his fitness for the task he has chosen becomes a proper subject for inquiry.

Just criticism of a series of military operations certainly requires of the critic: sound judgment; a comprehensive knowledge of the principles of war; freedom from bias; a thorough familiarity with the history of the operations in question, and with every important fact, particular and circumstance affecting the same.

Assuming that these conditions are essential—and it can scarcely be denied that they are—let us see whether the critic in question is

*General T. W. SHERMAN was, as is well known, a fine soldier, but not identical with the subject of General WOLSELEY's article.

duly qualified. Waiving the consideration of all but the last requisite above mentioned, it can, we think, be shown that he is misinformed upon so many points essential to a correct understanding of our military operations that his opinions in relation thereto are necessarily devoid of value.

For convenience of comparison, we arrange some of our critic's opinions side by side with those of other writers, some American and some foreign:

WOLSELEY:

*"The military problems involved were not worked out by armies constituted like those of the great military powers of the world. It was throughout a war between hastily raised levies, and where, with the exception of the most remarkable leaders on both sides, even the officers were without any military education or instruction. The Southern planter and the professional and business man of the North suddenly found themselves called upon to perform a new part in the drama of life. Hundreds, aye, thousands, of gentlemen who had never even killed a snipe or fired anything but, perhaps, a revolver at a mark, had not only to command men, but to lead them into action. Not only were they unaccustomed to their work, but they had no conception of what war was like. *The battles conducted by such men in command of undisciplined, hastily raised soldiers do not, it must be admitted, convey many useful lessons* to the military student of nations with great regular armies highly trained in the science and art of war."

†MAUDE:

‡"It is curious to note how little attention has been devoted to the study of the fighting of this most bloody of modern wars; and yet it would seem that the records of these campaigns fought out to the bitter end, by men of our own Anglo-Saxon races, would be a far more likely source of information, from which to deduce the theory of an attack formation specially designed to meet our needs, than the histories of struggles between French and Germans, or Russians and Turks. VON MOLTKE is reported to have said, that 'nothing was to be learnt from the struggle of two armed mobs.' If that is really the case, which we venture to doubt exceedingly, the great strategist must, ere this, have been sorry he ever spoke; for armed mobs or not, both Southern and Northern troops bore and bore victoriously, a percentage of loss, before which even the best disciplined troops in Germany, the Prussian Guard Corps, failed to make headway.

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"Actually, though the armament was inferior, the percentage of hits was frequently far higher than in breech-loading campaigns. There

*All quotations credited to Lord WOLSELEY are taken from his article on General SHERMAN, published in the *United Service Magazine*, May, June and July.

†Captain MAUDE, Royal Engineers.

‡Tactics and Organization, p. 290, *et seq.*

is no action on record, during recent years, in which the losses rose so high, and in so short a time as in the American fights. At Fredericksburg, MEAGHER's Irish brigade, 1200 strong, lost 963 men in the attack on the stone fence below Maryc's Heights. The Confederates, standing six deep under cover, reserved their fire till the attack came within 120 yards, and in a few moments it was simply destroyed. At Gettysburg, PICKETT's division, some 4000 strong, attacking in line penetrated into the heart of the Federal position, but only with some few hundred men, (about 300 to the best of our recollection), the remainder having fallen on the way; the survivors held on and did not run, but being unsupported, they eventually surrendered themselves prisoners. Surely, MOLTKE never spoke of such gallant soldiers as an armed mob, seeing that they succeeded in driving an attack home against four times the percentage of loss that stopped the Prussian Guard at St. Privat.

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"And assuming for the moment, that the saying attributed to him is really true, we cannot help fancying that he must have often bitterly regretted it, when watching his own men in the maneuvers of late years, attacking in what is really practically the same formation which the armed mobs worked out for themselves.

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*"We will take more recent examples from the American War, *where the accuracy of the shooting more than compensated for the want of rapidity. Indeed, to our mind, there has been no fighting of late years more instructive to us Englishmen than this little understood struggle.*"

Now, compare two opinions of the army with which GRANT beseiged Vicksburg:

GRANT:

"The close of the siege of Vicksburg found us with an army unsurpassed in proportion to its numbers taken as a whole, of officers and men. A military education was acquired such as *no other school could have given.* Men, who thought a company was quite enough for them to command, probably, at the beginning, would have made good regimental or brigade commanders. Most of the brigade commanders were equal to the command of a division."

WOLSELEY:

"This was written of an army only a few months old, composed entirely of newly formed regiments of very imperfectly drilled and undisciplined men, a large proportion of whom had been induced to enlist by great bounties, and of officers who—excepting a few seniors—were untrained and, as far as military science or knowledge went, were uneducated also! This statement is certainly open to criticism if General GRANT wished the reader to judge his army by our European standard of fighting excellence, and if he meant to compare the *fighting value* of his army with that of the regular armies of this continent."

*Tactics and Organization, p. 283.

These troops had been in service about two years. They had fought at Fort Donelson, Island No. 10, Shiloh, Haines's Bluff, Chickasaw Bayou, Walnut Hills, Arkansas Post, Jackson, Champion Hills, and Big Black River, and had made two assaults upon the lines before Vicksburg, besides participating in more than a hundred smaller affairs.* They had been upon the whole successful, and HOME says that "the best of all schools is successful war."

Now, it is possible, even in times of piping peace, to convert a raw levy into a very respectable army in *less* than two years. And does it not stand to reason and common sense and do we not know from experience that the veterans of many hard fought fields must be better soldiers than men who never smelled gunpowder? What is the standard of efficiency? What is "fighting value"? Can there be a better proof of its presence than a list of victories?

WOLSELEY:

"SHERMAN *had to command and win battles with armies of raw levies,* whose discipline can be fairly estimated by the officer experienced in war with regular armies from the one fact, that in those armies 'bummers' were a recognized institution."

JOHNSTON:

†"At the time of paroling the Confederate Army at Greensboro, N. C., speaking of this part of SHERMAN's march (through the Salkehatchie swamps) and of the combination of physical labor with military hardihood, General JOHNSTON said, in the hearing of the author, that when he heard of it 'he made up his mind that there had been no such army since the days of JULIUS CÆSAR.'"

The "raw levies" with which SHERMAN "had to command and win battles" were principally composed of—

(*a.*) GRANT's Vicksburg army already noticed.

(*b.*) The Army of the Cumberland, organized at about the same time as the former, and out of the same material. It had fought at Shiloh, Perryville, Stone River, Chickamauga, and Chattanooga, besides in many smaller affairs. Stone River and Chickamauga were among the severest battles mentioned in history, if percentage of loss is any indication; and at Chattanooga, the infantry of this army made the celebrated charge up the face of Missionary Ridge.

(*c.*) HOOKER's corps which had fought in most of the battles of the Army of the Potomac down to and including Gettysburg.

*As an instance showing the amount of service that had fallen to the lot of these troops, it may be well to mention that previous to the surrender of Vicksburg, FOSTER's First Wisconsin Light Battery had been in seventy-two separate and distinct actions.

†General COX, "The March to the Sea," p. 168.

*CHESNEY:

†"There is a disposition to regard the American generals, and the troops they led, as altogether inferior to regular soldiers. This prejudice was born of the blunders and want of coherence exhibited by undisciplined volunteers *at the outset*,—faults amply atoned for by the stubborn courage displayed on both sides throughout the rest of the struggle; while, if a man's claims to be regarded as a veteran are to be measured by the amount of actual fighting he has gone through, the most seasoned soldiers of Europe are but as conscripts compared with the survivors of that conflict. The conditions of war on a grand scale were illustrated to the full as much in the contest in America, as in those more recently waged on the continent. In all that relates to the supplying and feeding of an army in the field, the Americans displayed quite as much ability as any continental power; while if the organization and discipline of their improvised troops were inferior, the actual fighting was in fact more stubborn, for no European forces have experienced the amount of resistance in combat which North and South opposed to each other. Neither was the frequently indecisive result of the great battles fought in America any proof that they formed exceptions to the ordinary rules of military science These actions were so inconclusive, first from deficiency in cavalry, and next because the beaten side would not break up. The American soldiery, in thus refusing to yield to panic when losing the day, retiring in good order, and keeping a good front to the victorious enemy, displayed, let us venture to believe, an inherited quality. In order to pursue, there must be some one to run away, and, to the credit of the Americans, the ordinary conditions of European warfare in this respect were usually absent from the great battles fought across the Atlantic. Hence partly the frequent repetition of the struggle, almost on the same ground, of which the last campaign of GRANT and LEE is the crowning example."

WOLSELEY:

"The military student is also much struck by the honest seriousness in which American writers apply the term 'veterans' to troops whom European military writers would describe as very raw levies. It is strange to hear this term applied to men who have never gone through any course of military training, although they had, perhaps, been present during some months of fierce, but very loose fighting against levies as undisciplined as themselves."

CHESNEY:

"If a man's claims to be regarded as a veteran are to be measured by the amount of actual fighting he has gone through, the most seasoned soldiers of Europe are but as conscripts, compared with the survivors of that conflict."

*Colonel CHESNEY, Royal Engineers.

†Extract from the preface to CHESNEY's Military Biography.

WOLSELEY:

"At the battle of Shiloh, crowds of armed citizens dressed as soldiers—absolutely undrilled men—ran away. Not only were they then under fire for the first time, but many of them had never previously fired a round of ball cartridge. It would be astonishing if they had not run away. Indeed, I have no hesitation in saying that, had such an army found itself in front of regular troops, one would have expected every one of them to have bolted."

The identical case here supposed, occurred at Bennington, Saratoga, Plattsburg and New Orleans; and there is no evidence that any "bolting" that may have occurred on those memorable occasions was done by the "crowds of armed citizens."

Attention is asked to the following table:

	Union.	Confederate.	Total.
*Number of regiments that lost, in a single action, 56.6 per cent. or more of their strength	39	17	56
Number that lost sixty per cent. and above	21	13	34
Seventy per cent. and above	4	4	8
Eighty-two per cent.	1	1	2

Few indeed, are the instances comparable to any of these that can be furnished by any other recent war. The table itself can not be duplicated from all the European wars fought out by regular armies since the Napoleonic era.

HANCOCK's division at Fredericksburg was not repulsed until its losses exceeded forty-two per cent. of its strength; at Gaines' Mill, LONGSTREET's division lost more than fifty per cent.; HARROW's and GARNETT's brigades at Gettysburg, lost respectively, sixty-one and sixty-six per cent.

The Prussian Guard seems to be considered the best body of troops in Germany, if not in Europe, and the same was true in 1870. Yet, at St. Privat, these troops were stopped at 400 yards from the enemy's position; and were unable to advance until the position had been shelled for two hours by 180 guns, and until another corps had joined in the attack. The whole loss sustained by the Guard in this and in a second assault amounted to about thirty-two per cent. They were probably stopped by a loss of less than twenty-five per cent.

From this data, the reader can estimate for himself the degree of probability that any of the American troops referred to would have "bolted" if they had been placed "in front of regular troops"—in front of the Prussian Guard, for instance.

The supposed situation also arose repeatedly during the French Revolution. According to the above rule it should be astonishing if

*Compiled from Fox's "Regimental Losses in the Civil War."

the "raw levies" of France did not run away. Consulting history, however, we find the "regular, highly disciplined, etc., armies" of every nation in Europe doing the running. Students of history may draw their own conclusions.

The above remarks upon the troops at Shiloh possess the degree of accuracy to which we are accustomed in works of fiction. They are correct in regard to one or more new regiments, without previous experience; and incorrect in regard to all the remainder.

The astonishing character of the statement concerning their marksmanship becomes apparent when we reflect that both armies were composed almost entirely of native Americans, and probably contained but few men who had not been accustomed to the use of the rifle from childhood. It would seem that our author had heard the story of the new regiments who received their arms on the steamer on the way to Shiloh, and were taught to "tear cartridge" when the battle was actually beginning; and that he assumes the same state of things as pervading all the troops on the field.

It may be a proper comment on the above quotation to remind the reader that Shiloh was not decided until each of those "crowds of armed citizens dressed as soldiers" had lost a greater percentage of its fighting strength than was necessary to break WELLINGTON's veterans at New Orleans.

This fact is of high importance, because all English writers who mention these soldiers, assure us that they were "the best troops in Europe;" because they were superior in numbers in every combat, and yet invariably had the worst of it; because the force opposed to them, besides being greatly inferior in numbers, was one of the most poorly drilled and disciplined that the American Government ever put into the field—similar in antecedents to those who fought at Shiloh, but with far less training and experience in war; and because at New Orleans, the decisive action of the campaign, these veterans sustained a crushing defeat at the hands of little more than half their numbers of the "raw levy" above described.

LOSSING says: *"No less than 2600 were lost to the enemy in that terrible battle, of whom 700 were killed, 1400 were wounded and 500 were made prisoners. The Americans lost only 8 killed and 13 wounded! The history of human warfare presents no parallel to this disparity in loss."

Armies constituted almost exactly like those that really were at Shiloh have, at least twice in our history, fought and defeated nearly

*Field-Book of the War of 1812, p. 1049.

double their numbers of "veteran, regular, European troops" well seasoned by many campaigns under their best generals.

A "regular army" is doubtless, at first, and for some time, superior to a "raw levy." But the "raw levy" does not remain so forever; and, when somewhat drilled and disciplined, such a force has scored more than one victory over regulars. If in addition, the levy was originally made up mostly of men, intelligent, educated, excellent shots, and animated by the belief that they are fighting for principles admitting of no choice between success and ruin, no good reason can be perceived why such troops should stand in any special dread of regular troops, and history shows us that the former have often prevailed. And when, in addition, the "raw levy" has had the experience of several years of actual campaigning and fighting, we confess ourselves unable to understand why such a force should not be superior to any regular army secured under ordinary conditions, because it was composed of better material in the first place and had been trained in "the best of all schools"—and this exactly describes the American troops.

This point our critic will never concede, either as a general principle or as applying to the Civil War; refusing to be convinced by either Americans or Europeans; and apparently refusing to credit or to consider historical truths with which he is doubtless acquainted.

In all our eminent critic's writings upon this subject, there probably is no point so frequently mentioned, nor so persistently urged as his opinion that our armies were "very imperfectly drilled and undisciplined," an idea which appears in some form, usually that of direct assertion, on every page.

General DE CHANAL observed the operations of our forces from March, 1864, to January, 1865, and wrote as follows:

*"In the main, and in that which is essential, the discipline is as good, if not better, than in the European armies, but it has not the external marks. *It is this which may deceive the observer who merely passes through the American army.* * * * Few troops are so submissive to their commanders; and during the whole war, among more than two million soldiers who appeared in the ranks, there were only seven military executions."

LIVERMORE:

†"Before the end of 1862, our regiments became equal to tactics in the face of the enemy. At Antietam the greater part of the field was as open as that of Waterloo. Although no great tactical maneuvers such as might have been employed, were resorted to by the commander of the army or his corps generals, yet, in parts of the field where opportunity was presented, the ability of the regiments of the Peninsular campaign was manifested in some brilliant maneuvers. Under a severe fire of artillery and musketry at short range they charged in line, they changed front to meet flank attacks, and they maneuvered around the flank of the enemy; lines relieved lines by companies breaking to front and rear and coming into line again; and in one instance, a regiment went to the aid of its neighbor on the left under a heavy fire by passing along its rear and then coming into line on its left and opening fire as it arrived on the line.

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"At the battle of Atlanta, the divisions of SMITH and LEGGETT repulsed the attack of HARDEE from their rear by leaping over their own breast-works and fighting from the other side; and then LEGGETT's division, indifferent as to the direction of the enemy, when CHEATHAM attacked from the original front, leaped back to the proper side and beat him back.

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"In no battle in modern wars have soldiers shown more tenacity than that which held our soldiers up in the mighty struggle over the salient at Spottsylvania, which lasted for twenty hours at such close quarters that the flags of the contending lines were often planted at the same time on the opposite sides of the earthworks.

"The most of our great battles lasted two or three days. European armies have seldom fought the second day.

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"No finer instance of the calm resolution in the face of death which was fixed in him (the American soldier) by intelligent patriotism, was ever seen than that which was beheld at Mine Run, November 30, 1863. Six divisions were drawn up in line of battle for an assault. When General WARREN rode down his line in the dawn of morning, he and all his troops saw unveiled, as light came on, a most formidable line of earthworks upon a crest a few hundred yards in front. Cannon pointed through embrasures and over the works at every available place. Generals were riding along the line as if preparing for the coming attack. Men were visible everywhere, and it was plain that a great force manned the works. The intervening ground was a slope bare of obstacles. The skirmishers of the two armies were at rest within a few yards of each other. Not a shot was fired; the skirmishers even seeming to regard it as useless and trivial in the face of the great conflict which seemed to impend. Groups of the enemy reclined at ease on the hither side of their works, looking at the array of troops preparing to assault. Their indifference seemed to speak of a confidence which pervaded the enemy, in the certainty of repulsing our attack. Our men knew that they were drawn up for the assault. They were veterans of many battles. Not a few of them had been present at the disaster of Fredericksburg a year before. Their experience taught them that every chance was with the enemy in the conflict which they foresaw. They had piled their knapsacks on the ground so as to be relieved of their burden in the charge, and

*Quoted from Colonel LIVERMORE's article in the *M. S. I. Journal*, p. 915.
†"The Northern Volunteers," in *M. S. I. Journal*, September, 1891.

in cool blood were pinning to the fronts of their blouses pieces of paper with their names written on them. They were naming their bodies for the grave digger."

Is the American soldier so incomparably superior to all others that he can, though "very imperfectly drilled and undisciplined," perform deeds which compare favorably with any military achievements in history? Or is it true that these troops as the war went on became, in both drill and discipline, fully equal if not superior to any of the European regular armies? Whether the critic select this or that horn of the dilemma is a matter of no importance. It is plain that he has not a proper conception of the armies which he attempts to criticise. He seems to realize this himself, for he says: "The American Civil War is full of features difficult of comprehension by those who have never lived amongst our brethren across the Atlantic." This gives the whole thing in a nutshell and, notwithstanding his short stay on this side, it describes his own case so accurately that we almost think "our occupation's gone."

He evidently regards the American citizen as about on an equality with the poor peasantry of Europe, devoid of education, ignorant of everything but his own vocation, unable to read and write, and with little or no interest in the contest. He does not seem to understand the intelligence and individual self-reliance of most of our people, their degree of education, their familiarity with the rifle, their personal interest in the struggle and the consequent energy and earnestness with which they undertook the business of war. Being thus handicapped at the start, he fails to comprehend the nature of the army composed of such material and seasoned by war. His opinion that they were "very imperfectly drilled and undisciplined" has greater weight in his mind than the facts of a dozen hard fought battles and several hundred lesser affairs.

Now, considering the disadvantages under which he labors, is it not apparent that when his opinions are in conflict with those of such men as GRANT and JOHNSTON—men born and bred among these very people, familiar with all those "features difficult of comprehension" to outsiders, men who raised, organized and commanded these troops through good and evil fortune—is it not inevitable that they must be right, and that our distinguished author must be wrong?

Drill and discipline are matters of degree. If in the beginning the volunteers could not accurately execute every movement in the drill book, it is at least certain that they could and did fight with a tenacity and skill that have never been surpassed. If they were never disciplined into unreasoning obedience to any order, however

foolish, neither was their worst conduct by any means so persistently mutinous nor so bad generally as that of the crack troops of a certain European army has been repeatedly within the last few years.

AMERICAN DISCIPLINE IN THE ENEMY'S COUNTRY.	BRITISH DISCIPLINE IN THE COUNTRY OF THEIR ALLIES.
LIVERMORE:	NAPIER:
"Although cities were repeatedly taken both by siege and assault as at Fredericksburg, Petersburg, Atlanta, Columbia, Richmond, New Orleans, Savannah and Mobile, no instance of general incendiarism, sack, drunken riot, or violence to women ever occurred."	"While the rear-guard was thus engaged, drunkenness and insubordination, the usual concomitants of an English retreat, were exhibited at Torquemada, where the well stored wine vaults became the prey of the soldiery; it is said that twelve thousand men were to be seen at one time in a state of helpless inebriety."

This comparison speaks for itself, and we purposely refrain from noticing such details as those of Badajos and Ciudad Rodrigo.

The truth is that the armies of which the critic writes, but which he does not understand, were admirable bodies of men; they had been drilled for many months and were very much better off in this respect than he will admit; they had that kind of discipline which is necessary for earnest, intelligent and educated men, who do not make war a profession, but who go forth to fight their country's battles with the full intention of resuming their peaceful pursuits upon the completion of that task, and the vast majority of these men had enlisted with that distinct understanding.

We quote once more:

WOLSELEY:

"As an illustration of my meaning, I may mention the fact that in most of the histories of these American campaigns there is constant allusion made to the 'cavalry,' and to the magnificent use made of it by men like STUART, FORREST, SHERIDAN and other dashing leaders. Now, the real fact is, neither side possessed any cavalry at all, in the European sense of the term, and according to the European notions regarding that arm. More than this, *had they done so, they could have made no practical use of it, because the country was ill-suited,* indeed as impossible for cavalry as England is generally.

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"*Unless to charge down a road on a front of four or five troopers, armed with revolvers and not with swords, be regarded as a legitimate use of cavalry, there was practically no country which the American armies traversed in this war where cavalry could act.* Had the war taken the combatant forces away to the prairies, the case would have been different. There, the side possessing the largest and best or-

ganized cavalry force would have been bound to win. But those great grassy plains were outside the theatre of war, just as Salisbury Plain will be beyond the field of operations of the army which invades England."

As we are not favored with the authority for the above statements, the reader is at liberty to account for them in his own way. The above certainly reads like strange history to those familiar with the Civil War; and yet its author finds all American writers upon this subject untrustworthy; some are guilty of exaggeration, others of an "inflated hyperbolism."

In connection with the above quotation, the following extracts from SHAW and HAVELOCK may seem interesting:

*SHAW:

†"Of the higher trained mounted troops those commanded by SHERIDAN on the Federal side claim attention, their action having greatly contributed to hasten the conclusion of the war. This force acted with equal effect mounted or dismounted. The battle of Winchester in the fourth year of the war, which decided the fate of the Shenandoah Valley, was won by a charge of SHERIDAN'S cavalry.

"Colonel FLETCHER'S account of this affair is as follows: 'The infantry on both sides was now fiercely engaged, and success was inclining to the Confederates, when SHERIDAN brought up his reserves of the Army of Western Virginia. Even with the preponderance of force which these reinforcements gave to the Federals, EARLY'S men held their ground. Then SHERIDAN, riding to his right wing, found TORBERT with two divisions of cavalry under MERRITT and AVERILL. There were at least 7,000 sabers headed by CUSTER, DEVIN, LOWELL, and others well known as dashing cavalry officers, and this force, well equipped, well mounted and well led was hurled against the left wing of the small Confederate army. The charge was magnificent; nothing could resist it; the enemy was doubled up; and as the storm of cavalry broke on his flank, the Federal army advanced. In confusion and rout the Confederates fled through Winchester, losing heavily in prisoners.'

"It must be admitted that this was good cavalry work for 'mounted infantry' to perform."

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"It must be remembered that the war in America lasted some years, and that although the cavalry regiments on both sides were more or less of an irregular type, the men in most of the corps after they had served for a time became *veteran soldiery*, not only expert in their infantry work, but also *skilled and experienced in all cavalry exercises*. At one time they were on foot as a shooting line to meet the enemy's infantry, at another moment mounted to charge the enemy's cavalry."

¶Lieutenant Colonel WILKINSON SHAW, British Army, late Garrison Instructor at Aldershot.

†"The Elements of Modern Tactics," pp. 60 and 61.

*HAVELOCK:

†"Now mark the readiness SHERIDAN showed to take advantage of any good opportunity of charging *mounted*. *It has often been groundlessly alleged against the Federal horse that their training with fire-arms disinclined them for this more special function of cavalry.* As MERRITT fell back gradually, in pursuance of the orders received from SHERIDAN, his left was retired while the right held its ground. (This means facing the Confederates). This change of front, which may be called 'a quarter circle, left thrown back,' was immediately followed by a corresponding forward left wheel of the Confederates, who, in so doing, incautiously exposed the whole of their rear to SHERIDAN'S line of four brigades drawn up in front of Dinwiddie.

"No sooner did the happy chance present itself than it was seized. SHERIDAN ordered an immediate *mounted* charge. His dispatch says: 'When their line (its rear be it understood) was nearly parallel to mine, General GIBBS'S brigade of the First Division, and General GREGG'S of the Second, were ordered to attack at once, while General CUSTER was ordered to bring up two brigades of the Third Division in support. In this gallant attack made by GIBBS and GREGG, the enemy's wounded fell into our hands, and he was obliged to face by the rear rank (an Americanism for 'facing about'), and give up his movement, which, if continued, would have taken in flank and rear the infantry line of the Army of the Potomac.' (He means here the repulsed Fifth Corps.)"

To many persons of intelligence, experience and large information, it has appeared that our armies ultimately became superior to any modern armies of equal numbers. Yet, the term "raw levy" is almost the only one that our eminent critic can find whereby to describe them.

Many duly qualified experts believe to-day that our cavalry, in the last years of the war, was the most generally efficient mounted force that was ever organized—an opinion for which we may be pardoned by those who will note that *nearly every cavalryman in Europe has copied our fire-arms and that some of them have practiced movements in imitation of the American raid.* Our critic gravely informs us that they were "so-called cavalry;" that mounted charges could only take place "down a road on a front of four or five troopers, armed with revolvers and not with swords;" "that there was no country where cavalry could act," etc., etc.

What a revelation it will be to him to learn that every man of the 80,000 Federal cavalry was armed with a *saber* as well as a pistol and carbine; that the Confederate cavalry was armed in the same manner as far as possible; that the "so-called cavalry" repeatedly

* Major Sir HENRY M. HAVELOCK, British Army.

†"Three Military Questions of the Day," pp. 77 and 78.

made charges, mounted and with drawn sabers, by squadron, by regiment and by entire brigades; that they charged successfully, in this manner, infantry, cavalry and guns!

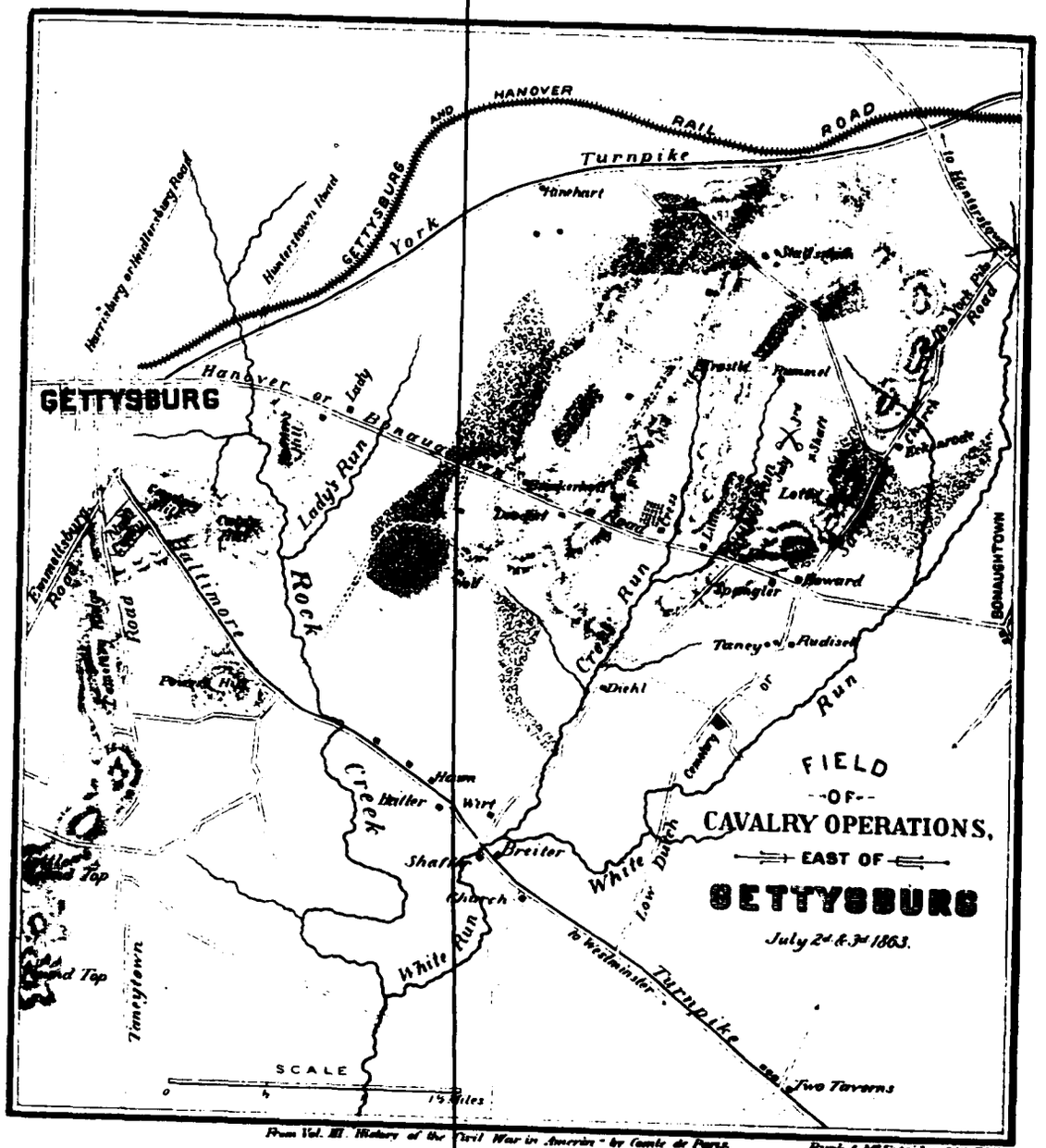
What are we compelled to think of his knowledge of our topography? It is certainly our duty to inform him that between Gettysburg and the Rappahannock, there are open plains, miles in extent, from which in 1863–64 every fence had long since disappeared in the ashes of camp-fires; "and the stone walls thereof were broken down." To a greater degree the same conditions obtained in the west. The critic seems to think that the Southern States are as rough, broken and impracticable as the Black Forest.

What must we think of his knowledge of the history of our war? Can it be possible that the author of such opinions can have read of KEENAN and the Eighth Pennsylvania, sacrificed at Chancellorsville in obedience to the same principle that dictated the sacrifice of LA SALLE'S cavalry at Aspern and of BREDOW'S at Mars-la-Tour, to save the army from impending destruction? Apparently not; and we are forced to make a similar supposition in regard to Kelly's Ford, Winchester, Tom's Brook and all other cavalry battles, east and west.

It certainly does seem incredible that any person who had even read carefully a description of the campaign and battle of Gettysburg could have fallen into such astounding mistakes in regard to either our topography or our cavalry. And it is remarkable that while the distinguished critic gives us much credit for the dismounted work of our cavalry, it is clear that its mounted action has completely escaped his notice.

It would, therefore, seem that we are warranted in the conclusion that this eminent writer's opinions in relation to the American Civil War should be received, if at all, with the utmost caution, because he has not a proper appreciation of the elements of which our armies were composed — nor of the armies themselves; because his information in regard to their training is entirely erroneous; because he is not familiar with their actual performances; and because he is not acquainted with the topography of the theatres of operations. Correct criticism under such circumstances would savor of the miraculous.

WILLIAM A. SHUNK,
First Lieutenant, Eighth Cavalry.



*GREGG'S CAVALRY FIGHT AT GETTYSBURG, JULY 3, 1863.

WE have gathered together, my comrades, to commemorate the good work done here twenty-one years and more ago. What that work was is briefly told by this monumental shaft of enduring granite which we are now dedicating to the truth of history. Its inscription tells us that—

THIS SHAFT
MARKS THE FIELD OF THE ENGAGEMENT
BETWEEN THE
UNION CAVALRY
COMMANDED BY BRIG.-GEN. D. McM. GREGG
AND THE
CONFEDERATE CAVALRY
COMMANDED BY MAJ.-GEN. J. E. B. STUART
JULY 3d, 1863.

What memories do these simple words recall! As we stand here, looking upon this beautiful landscape, surrounded by these well remembered hills, and fields, and woods, the recollections of that bright summer day crowd thick and fast upon us. Let us go back together in our thoughts to the eventful time when first we met on this historic field, and sanctified it with the blood then shed, the trials endured, and sacrifices made in defense of the Nation's cause.

I have told the story of the fight before.† Here, upon the ground where it occurred, I venture to tell it once again. It is a simple and an unvarnished tale, with no words of eulogy of men, or of exultation over the defeat of a gallant foe.

The objects had in view by the Confederate authorities when, after the battle of Chancellorsville, the invasion of the North was projected, in the spring of the year 1863, are well known. To transfer the seat

* Historical address, delivered October 15, 1884, upon the occasion of the dedication of the monumental shaft erected upon the site of the cavalry engagement on the right flank of the Army of the Potomac, July 3, 1863, during the battle of Gettysburg.

† The account here given is substantially the same as that published for the first time in *The Philadelphia Weekly Times* of September 14, 1878, in the series of "Chapters of Unwritten History in the Annals of the War," under the title of "The Right Flank at Gettysburg," but revised with the aid of additional information and official records.

of war, permanently, if possible, or at any rate temporarily, to the country north of the Potomac, thus giving to those who remained at home a chance of securing the harvest from the fields of Virginia, and at the same time making probable the recognition of the Confederate cause by the hesitating powers of Europe, was a bold game to play. No time was lost in setting about it. In the early days of June, the Army of Northern Virginia began to show signs of activity. The cavalry of the Army of the Potomac had returned worn out and jaded from STONEMAN'S raid, but after a short rest was again put in motion, and was kept actively engaged in watching the movements of the Confederate army. On the 9th of June the cavalry battle of Brandy Station was fought, and the intended invasion of Maryland and Pennsylvania was discovered through Confederate dispatches captured upon that occasion. Reconnaissance-in-force and scouting in all directions daily followed that brilliant passage-at-arms. The equally well-fought cavalry battles of Aldie, Middleburg and Upperville ensued. Hard work and starvation told heavily upon both men and horses, and when BUFORD'S and GREGG'S divisions, covering the rear of the army, crossed the Potomac at Edward's Ferry during the afternoon of the 27th of June, their physical condition was far short of what could have been desired. After crossing the river GREGG'S division, consisting of the brigades of Colonel MCINTOSH (First), General KILPATRICK (Second), and Colonel IRVIN GREGG (Third), started on the march about dusk, and, keeping it up steadily all night long, reached Frederick, Md., early on the morning of the 28th.

During a short halt at that place, General KILPATRICK was ordered to take command of STAHEL'S division of cavalry, which, as the Third Division, was assigned to duty with the Cavalry Corps of the Army of the Potomac, and Generals FARNSWORTH and CUSTER were appointed to command the two brigades of which it was composed.

In the movements of the Army of the Potomac after crossing into Maryland, the Cavalry Corps, with its three divisions, operated in its front and on its flanks. General BUFORD with the First Division took the left flank, General KILPATRICK with the Third Division the center, and General GREGG with the Second Division the right flank. On June 30th, KILPATRICK, having taken the direct and shorter road from Frederick, struck the cavalry of the Army of Northern Virginia at Hanover, and intercepted its line of march to join LEE'S army. Being thus headed off it was compelled to move over to the right, with KILPATRICK in close pursuit.

In the concentration upon Gettysburg, GREGG, with the First and Third Brigades of his division, left Hanover at daybreak on the 2d

of July, and about noon, after a tedious and exhausting march, took position on the Hanover (or Bonaughtown) Road near its intersection with the Low Dutch Road, about three and a half miles east of the town — MCINTOSH'S brigade on the right and IRVIN GREGG'S on the left.

These two brigades were constituted as follows: —

The First Brigade, commanded by Colonel JOHN B. MCINTOSH of the Third Pennsylvania Cavalry, consisted of his own regiment under Lieutenant-Colonel EDWARD S. JONES, the First New Jersey Cavalry under Major MYRON H. BEAUMONT, and the First Maryland Cavalry under Lieutenant-Colonel JAMES M. DEEMS, with Captain A. M. RANDOL'S Light Battery "E–G," First United States Artillery, of four three-inch rifled guns. It was temporarily deprived of much of its strength by the loss of the First Pennsylvania and First Massachusetts Cavalry regiments which had been detached for special service with the reserve artillery and the Sixth Corps respectively. A section of a light battery ("H") belonging to the Third Pennsylvania Artillery, under command of Captain WILLIAM D. RANK, and the Purnell Troop of Maryland Cavalry, under Captain ROBERT E. DUVALL, were also serving temporarily with the First Brigade, having on the evening of June 28th, while proceeding from Frederick to Baltimore, been cut off by the Confederate cavalry, and, narrowly escaping capture, having fallen in with the brigade. The Third Brigade, commanded by Colonel J. IRVIN GREGG of the Sixteenth Pennsylvania Cavalry, consisted of his own regiment under Lieutenant-Colonel JOHN K. ROBINSON, the Fourth Pennsylvania Cavalry under Lieutenant-Colonel WILLIAM E. DOSTER, the First Maine Cavalry under Lieutenant-Colonel CHARLES H. SMITH, and the Tenth New York Cavalry under Major M. HENRY AVERY. The Second Brigade of the division under Colonel HUEY had, on July 1st, been sent back from Hanover Junction for the purpose of guarding the rear of the army, and protecting the trains which were to assemble at Westminister.

After crossing the Potomac the column had marched steadily day and night, and, having been for many days without food or forage, the two brigades arrived with wearied men and jaded horses upon the field of Gettysburg. The long march had been a terrible one. The intense heat had at times been almost unendurable, the dust almost impenetrable. Horses by the score had fallen from exhaustion along the road. Officers and men, begrimed past recognition, could have been seen tramping along on foot, leading their worn-out horses to save their strength, well knowing how much depended upon

it. Those whose horses had fallen dead or dying had struggled along, some carrying their saddles and bridles, in hopes of being able to procure fresh mounts, others with nothing but their arms. All had been straining their energies in the one direction where they knew the enemy was to be found.

As has been stated, GREGG's column closed up near the intersection of the Hanover and Low Dutch roads about noon of July 2d. Two regiments of infantry belonging to the Eleventh Corps were found in the advance, deployed as skirmishers along Brinkerhoff's Ridge, which crosses the Hanover Road nearly at right angles, about two miles or more east of Gettysburg. In their front, there was a considerable force of Confederate infantry. About 3 o'clock the Union infantry line was relieved by the Tenth New York Cavalry regiment of IRVIN GREGG's brigade, and RANK's two guns were unlimbered and loaded in the middle of the Hanover Road on a hill near the REEVER* house. The officers and men of the command sought what rest and shelter from the scorching heat they could, while from the hills they watched the conflict between the infantry and artillery of the opposing armies. Some of the men groomed their horses to freshen them up; some allowed theirs to nibble the rich clover, whilst others, thoroughly worn out, tried to obtain a little sleep.

During the afternoon there was some skirmish firing between the opposing lines, and about 6 o'clock Colonel IRVIN GREGG ordered fifty men of the Tenth New York Cavalry to advance dismounted and clear the front. A regiment of Confederate infantry was at once sent out to meet them, and drove back the small party of cavalrymen. Suddenly a party of the enemy appeared on the top of Brinkerhoff's Ridge where it crosses the Hanover Road. In a second RANK's men were at their guns, and put two shells into the midst of the party, causing the Confederates to fall back instantly under cover of the ridge. "To horse!" sounded at once, and the Third Pennsylvania, advancing at a trot along the road toward Gettysburg, formed close column of squadrons in an orchard back of the CRESS house. The first two squadrons were quickly dismounted to fight on foot, advanced at a run, and in a few minutes were deployed at close intervals as skirmishers on the summit of the eastern spur of Brinkerhoff's Ridge north of the road. The Purnell Troop and two battalions of the First New Jersey, under Major JANEWAY and Captain BOYD, followed, and deployed dismounted on the left of the road on the prolongation of the same line, with the third battalion under Major BEAUMONT in reserve. A strong, well-built stone wall ran along the top of the ridge on the right of the road, with a field of tall wheat just ripe for cutting on the other side of the wall. This wall was the key of the position, as each of the contending parties at once perceived, and by the time our men reached it a line of Confederate infantry was seen making for it at full speed. The fire of RANK's guns had delayed the enemy's advance for a sufficient length of time to enable us to get there first, and give a withering reception with our breech-loading carbines to the infantrymen, who were not more than twenty feet off from the wall when we reached it.

*There has been some confusion regarding the appellation of the REEVER and HOWARD houses respectively. In the former account the house at the junction of the Hanover and Low Dutch Roads was called the REEVER house, and the next house west of it, on the northern side of the Hanover road, the HOWARD house. One of them, at least, so appeared on the maps of Adams county. The official map of the field recently prepared transposes these names, and to avoid confusion, the altered designation has been adopted in the text.

After vainly attempting to drive our men back, the enemy retired to a more sheltered position, along the edge of a piece of woods some two hundred yards distant, where he remained until after dark, the opposing forces and RANK's two guns meanwhile keeping up a brisk firing. Later in the evening the Confederates, taking advantage of the darkness, turned our right unobserved, and dislodged a portion of our line, which, however, was reëstablished after some trouble. Our adversaries proved to be the Second Virginia Infantry, of General WALKER's celebrated "Stonewall Brigade," which latter was supporting it, close at hand, acting as a flanking party of JOHNSON's division of EWELL's corps, in its advance to the attack of Culp's Hill. The threatening position occupied by the cavalrymen, and their vigorous fight, compelled the Confederate brigade to remain on the ground until too late to participate in the assault of Culp's Hill* which came so near proving successful, and which, had it succeeded, would have rendered the heights south of Gettysburg untenable.

About 10 o'clock in the evening the line was withdrawn, and the two brigades moved over to the Baltimore Turnpike, where it crosses White Run, near the position of the reserve artillery, and there went into bivouac, in accordance with orders from Cavalry Corps headquarters, to be available for whatever duty they might be called upon to perform on the morrow.

On the morning of July 3d, General GREGG was directed to resume his position on the right of the infantry line and make a demonstration against the enemy. Upon reaching the ground occupied by him on the previous day on the Hanover Road, he found it in the possession of the Second Brigade of the Third Cavalry Division.

* Generals JOHNSON's and WALKER's Reports, Official Records of War of the Rebellion, Vol. XXVII, part ii, pp. 504 and 518.

This brigade, known as the "Michigan Brigade," of which Brigadier-General GEORGE A. CUSTER had taken command on June 29th, was composed of the First, Fifth, Sixth, and Seventh Michigan cavalry regiments, commanded by Colonels CHARLES H. TOWN, RUSSELL A. ALGER, GEORGE GRAY, and WILLIAM D. MANN, respectively, and Light Battery "M," Second United States Artillery, under Lieutenant A. C. M. PENNINGTON, with six three-inch rifled guns. On June 28th, the brigade had been assigned to duty with the Army of the Potomac; on the 30th it had been actively engaged with the Confederate cavalry at Hanover, and again at Hunterstown on July 2d. It was a splendid body of men; its ranks were better filled than those of the other cavalry brigades, and the greater part of it was fresh from pastures green.

General CUSTER, after his fight with the Confederate cavalry at Hunterstown, had spent the night* of July 2d in bivouac with the rest of the Third Division at Two Taverns, a small village on the Baltimore Turnpike, about five miles south-east of Gettysburg. His earlier movements of the following day are best described in his own words:

"At an early hour on the morning of the 3d," he states in his official report, "I received an order, through a staff officer of the brigadier-general commanding the division, to move my command at once and follow the First Brigade on the road leading from Two Taverns to Gettysburg. Agreeably to the above instructions, my column was formed and moved out on the road designated, when a staff officer of Brigadier-General GREGG, commanding Second Division, ordered me to take my command and place it in position on the pike leading from *York*† to Gettysburg, which position formed the extreme right of our line of battle on that day. Upon arriving at the point designated, I immediately placed my command in position, facing toward Gettysburg. At the same time I caused reconnaissance to be made on my front, right and rear, but failed to discover any considerable force of the enemy. Everything remained quiet till 10 A. M.,‡ when the enemy appeared on my right flank and opened upon me with a battery of six guns. Leaving two guns and a regiment to hold my first position and cover the road leading to Gettysburg, I shifted the remaining portion of my command, forming a new line of battle at right angles to my former line. The enemy

*This should be "the latter part of the night."

†General CUSTER erroneously calls the Hanover Road the York Turnpike, and the Low Dutch Road the Oxford Road.

‡This most probably was intended for "one o'clock." See note p. 54, Vol. IV. JOURNAL OF U. S. CAVALRY ASSOCIATION.

had obtained correct range of my new position, and were pouring solid shot and shell into my command with great accuracy. Placing two sections of Battery "M," Second (regular) Artillery, in position, I ordered them to silence the enemy's battery, which order, notwithstanding the superiority of the enemy's position, was successfully accomplished in a very short space of time. My line, as it then existed, was shaped like the letter "L," the shorter branch formed of one section of Battery "M," supported by four squadrons of the Sixth Michigan Cavalry, faced toward Gettysburg, covering the Gettysburg Pike; the long branch composed of the remaining two sections of Battery "M," Second Artillery, supported by a portion of the Sixth Michigan Cavalry on the left, and the First Michigan Cavalry on the right, with the Seventh Michigan Cavalry still further to the right and in advance, was held in readiness to repel any attack the enemy might make coming on the *Oxford* Road. The Fifth Michigan Cavalry was dismounted and ordered to take position in front of my center and left. The First Michigan Cavalry was held in column of squadrons to observe the movements of the enemy. I ordered fifty men to be sent one mile and a half on the *Oxford* Road, while a detachment of equal size was sent one mile and a half on the road leading from Gettysburg to *York*, both detachments being under the command of the gallant Major WEBBER, who from time to time kept me so well informed of the movements of the enemy that I was enabled to make my dispositions with complete success."

General GREGG placed his two brigades to the left of General CUSTER's line, taking position between the Baltimore Turnpike and the Hanover Road. The Sixteenth Pennsylvania Cavalry, of IRVIN GREGG's brigade, was dismounted and, deploying as skirmishers, moved through the woods in the direction of Gettysburg. It had not proceeded far when a strong picket force of Confederate infantry was found. After driving in the outposts for a short distance, the cavalrymen succeeded, in the face of a strong resistance, in establishing their line connecting with the infantry on the left near Wolf's Hill, and extending to the right as far as the Hanover Road. This had scarce been done, when about noon, a dispatch from General HOWARD, the commander of the Eleventh Corps, to General MEADE, was placed in General GREGG's hands, notifying him that a large body of the enemy's cavalry had been seen from Cemetery Hill moving toward the right of our line. At the same time an order was received from General PLEASANTON, who commanded the cavalry corps, directing CUSTER's brigade to join its division (KILPATRICK's) on the extreme left of the army. Accordingly, McINTOSH's brigade was

ordered to relieve CUSTER'S, and to occupy his position covering the intersection of the Hanover and Low Dutch Roads.

While these movements were going on upon our part, the Confederate cavalry, under Major-General J. E. B. STUART, which for some time had been cut off from all communication with the main body of LEE'S army, was hastening to join it. It is needless here to follow in detail STUART'S earlier movements, but on July 2d, after having encountered KILPATRICK at Hunterstown, he arrived in the vicinity of Gettysburg, and took position on the York and Harrisburg Roads. He too, had been marching hard and long. Men and horses had, like ours, suffered severely, but, marching as he had been through an enemy's country, his losses from straggling had, of course, been less than those of the Union cavalry.

During the morning of July 3d, STUART moved forward to the left and in advance of EWELL'S corps, for the purpose of occupying the elevated ground east of Gettysburg, from which, while protecting the left of LEE'S army, he could command a view of the routes leading to the rear of the Army of the Potomac, and could, at the same time, be in position to move out at the proper moment, and there attack it, simultaneously with the grand assault which was to be made upon Cemetery Ridge from the other side by PICKETT'S division of LONGSTREET'S corps, supported by HETH'S and PENDER'S divisions and WILCOX'S brigade of HILL'S corps. That this was his purpose he tells us almost in so many words.

To appreciate how well adapted was STUART'S position to such a move, one should stand on yonder hill back of RUMMEL'S. The whole country for miles in front of him, clear up to Cemetery Hill and the Round Tops, lay at his feet. In his rear a cross-country road branches off from the York Turnpike about two and a half miles from Gettysburg, and, crossing over the high ground mentioned by STUART, runs in a south-easterly direction toward the Low Dutch Road, which connects the York and Baltimore Turnpikes. This high ground is divided south of the cross-road by the upper valley of Cress' Run, forming two ridges, that west of the run being known as Brinkerhoff's Ridge, and that east of it as Cress' Ridge. A piece of woods crowns the eastern side of the ridge on the southern side of the cross-road, affording protection and cover to the supports of the battery which was subsequently placed there. Screened by this and another piece of woods on the opposite side of the cross-road is a large open space on the STALLSMITH farm, where the Confederate leader was enabled to mass and maneuver his command unobserved by his opponents.

The position occupied by the Union cavalry had none of the advantages claimed by STUART for his own. As he himself states in his official report, the whole country for miles lay at his feet. On the other hand, the ground occupied by his opponents was less commanding, and more exposed to his view. The Low Dutch Road crosses the Hanover Road nearly at right angles, about three and a half miles south-east of Gettysburg, at the HOWARD house, and continuing on about two miles farther in a south-westerly direction, strikes the Baltimore Turnpike about one mile and three fourths south-east of Rock Creek and the rear of center of our main line of battle. Another cross-country road, from half a mile to a mile nearer Gettysburg, runs nearly parallel with the Low Dutch Road from the Hanover Road at the REEVER house along the valley of Cress' Run, and strikes the Baltimore Turnpike by the bridge over White Run about a mile south-east of the bridge over Rock Creek, close to which, by Powers' Hill, the reserve artillery and the ammunition trains were stationed. This, being the shorter and more direct road, was used by our troops in operating between the Baltimore Turnpike and the Hanover Road. By these roads the rear of our main line of battle was directly accessible. About three-fourths of a mile north-east from the intersection of the Low Dutch and Hanover Roads the cross-country road first above mentioned branches off to the north-west toward the York Turnpike and the left center of STUART'S position. This piece of woods near which we stand, and which since the battle has been somewhat reduced in extent, covered the intersection of the Low Dutch Road and the cross-road on the side toward the enemy's position, extending about equi-distant on each road from near a lane leading down to JOHN RUMMEL'S house and farm buildings on the north, to the LOTT house on the south, a total distance of a half-mile or more. One side of this piece of woods faced the north-west and the enemy's position. Between the ridge on which the HOWARD house stands, and along which the Low Dutch Road runs, and that part of Cress' Ridge occupied by the right of STUART'S line, but close under the latter, is a small creek known as Little's Run, starting from the spring-house at RUMMEL'S. The RUMMEL farm buildings eventually became the key-point of the field, which lies about three miles east of Gettysburg.

The force under GREGG numbered about five thousand men, though not more than three thousand were actually engaged in the fight about to be described. It consisted of the three regiments of MCINTOSH'S brigade, IRVIN GREGG'S brigade, and CUSTER'S brigade, which, as will appear, remained on the field. On the other hand STUART

had under his command General WADE HAMPTON'S brigade, consisting of the First North Carolina and the First and Second South Carolina Cavalry regiments, and COBB'S Georgia, the JEFF DAVIS, and PHILLIPS' Georgia Legions; General FITZHUGH LEE'S brigade, consisting of the First, Second, Third, Fourth, and Fifth Virginia cavalry regiments, and the First Maryland battalion; and General W. H. F. LEE'S brigade, under Colonel JOHN R. CHAMBLISS, consisting of the Second North Carolina and the Ninth, Tenth, Thirteenth, and Fifteenth Virginia Cavalry regiments. To this force was added, for the proposed movements of the day, JENKINS' brigade of cavalry, under Colonel MILTON J. FERGUSON, armed as mounted infantry with Enfield muskets, though short of ammunition, and consisting of the Fourteenth, Sixteenth, and Seventeenth Virginia Cavalry regiments, and the Thirty-fourth and Thirty-sixth Virginia Battalions. The artillery with STUART consisted of MCGREGOR'S Virginia, BREATHED'S Maryland, and GRIFFIN'S Second Maryland batteries. This entire force has been estimated by reliable Confederate authority at between six thousand and seven thousand men.*

When MCINTOSH, shortly before 1 o'clock in the afternoon, came with his brigade upon the ground occupied by CUSTER for the purpose of relieving him, he made the necessary inquiries as to his picket line, and the position and force of the enemy. Everything was quiet at the time. CUSTER reported, however, that the enemy was all around, and that an attack might be expected at any moment. The First New Jersey was at once ordered out, mounted, to relieve CUSTER'S pickets, taking position in the piece of woods on the Low Dutch Road, facing to the north-west, and the Third Pennsylvania and First Maryland were drawn up in columns of squadrons in a clover field west of the LOTT house, awaiting developments. While in this position, and a few minutes after 1 o'clock, the tremendous artillery firing which preceded PICKETT'S attack began. Not being within range, however, the officers and men of the brigade while allowing their horses to graze, looked with astonishment upon the magnificent spectacle.

As soon as the Michigan brigade had moved off† for the purpose of joining KILPATRICK near Round Top, MCINTOSH, who had looked well over the ground, determined to ascertain what force was in his front without waiting to be attacked. Accordingly, about

*The information as to the organization of the four Confederate brigades has been obtained from records in possession of the War Department. As to the Confederate artillery the information has been obtained through the kindness of Major H. B. MCCLELLAN, formerly Assistant Adjutant-General upon the staff of General STUART.

†This should be, "had begun to move off."

two o'clock he ordered Major BEAUMONT to move the First New Jersey forward toward the wooded crest about five-eighths of a mile in front of him and a short distance beyond RUMMEL'S, expecting there to find the enemy. This movement was a signal for the deployment of a skirmish line from RUMMEL'S barn, where a strong picket force of the enemy had been concealed, and which at once occupied a line of fences a short distance in front. The First New Jersey was dismounted and took position behind a fence running parallel with that occupied by the enemy, the right of the line under Major JANEWAY and the left under Captain BOYD, and immediately became hotly engaged. Two squadrons of the Third Pennsylvania, under Captains ROGERS and TREICHEL, and the PURNELL Troop were deployed dismounted to the left in the open fields, and the two* other squadrons of the Third Pennsylvania under Captains MILLER and WALSH, deployed mounted to the extreme right of the whole line, in the woods covering the cross-road above mentioned running toward the enemy's position, MILLER on the left of the road and WALSH on the right. To meet this movement the Confederate skirmish line was strongly reinforced by dismounted men, and a battery was placed in position in front of the wooded crest back of the RUMMEL house.

The Confederate battery now opened fire, and PENNINGTON, whose battery was still in position on the Hanover Road near the SPANGLER house, replied with promptness. MCINTOSH at once sent back for RANDOL and his guns, at the same time reporting to General GREGG that he was engaged with a greatly superior force and requesting that IRVIN GREGG'S brigade be sent up at a trot to support him. That brigade was yet some distance off, and GREGG, meeting CUSTER on the march in the opposite direction, ordered him to return and reinforce MCINTOSH, and to remain on the ground until the Third Brigade could be brought up. CUSTER, ever ready for a fight, was not loth to do so. Heading his column about, he moved up at once to MCINTOSH'S support, while General GREGG came upon the field and took command of the forces.

The enemy having filled the large barn at RUMMEL'S with sharpshooters, who, while picking off our men, were completely protected from our fire, Captain RANDOL, upon coming on the ground, placed in position on the edge of an orchard back of the HOWARD house, a section of his battery under Lieutenant CHESTER, and opened upon the barn. Shell after shell from PENNINGTON'S battery and CHESTER'S section struck the building, soon compelling the enemy to abandon it, and as he did so, the center of our line advanced and occupied the

*Three squadrons under Captains MILLER, WALSH and HESS.

enemy's line of fences near the farm buildings. Having thus pierced his line, a force was sent out to take the enemy in flank, which succeeded in driving back the portions of JENKINS' brigade in front of our left center. This movement caused the left of the enemy's line, held by the dismounted skirmishers of HAMPTON'S and FITZ LEE'S brigades to give way also. The center and left of our line were thus advanced, and four squadrons of the Sixth Michigan went into position dismounted along Little's Run, on the left of the PURNELL Troop, extending still further to the left so as to cover the Hanover Road, the remainder of the regiment supporting them. RANDOL'S second section, under Lieutenant KINNEY, an officer of General TYLER'S staff who had volunteered to serve with the battery, having come up, he placed it to the left and rear of CHESTER'S section. By the accuracy of their fire and superior range, the two batteries soon silenced the enemy's guns on the crest back of RUMMEL'S, as also some others in position more to our left on Brinkerhoff's Ridge.

Meanwhile a column of Confederate cavalry began to move out of the woods to make a charge upon the right of our line, but it was at once driven back, with some loss, by the effective fire of our artillery.

As the ammunition of the First New Jersey and Third Pennsylvania was becoming exhausted, the Fifth Michigan, armed with Spencer repeating carbines, was ordered to relieve them, and moved up to the front dismounted, along the line of fences which intersected the field lengthwise. No sooner had it reached the line than a dismounted regiment from W. H. F. LEE'S brigade advanced to the support of the enemy's skirmishers, and made a terrific onslaught upon the position. The Fifth Michigan, though short of ammunition from the beginning of the fight, and the troops it had come up to relieve, held the ground stubbornly. When the fire had slackened, the First New Jersey and the two Third Pennsylvania squadrons, which had been ordered to retire when the Fifth Michigan came up, endeavored to withdraw. The enemy, believing it a signal of retreat, advanced first on the right and then on the left. The Jerseymen and Pennsylvanians came back upon the line and assisted in the repulse of the attack, and again and again was this repeated.

The right of the First New Jersey and of the Fifth Michigan remained at their part of the line until the last cartridge was used, and the last pistol emptied, and then fell back, but not until they had suffered heavily, among the killed being the gallant Major FERRY of the Fifth Michigan. This movement was taken advantage of by the enemy, and the First Virginia of FITZ LEE'S brigade was ordered to

charge upon our right center. As it was seen to start, MCINTOSH rode over quickly to the LOTT house where he had left the First Maryland prepared for such an emergency. GREGG, however, upon coming on the field, had moved the regiment over to the right to cover the Low Dutch and Hanover Roads for the purpose of guarding more effectually that important quarter. The Seventh Michigan which was to take its place, was just then coming upon the field from the direction of the REEVER house in column of fours. CUSTER who was near, also saw the emergency, ordered close column of squadrons to be formed at the gallop and advanced with it to meet the attack.

As the First New Jersey retired, the right of the Fifth Michigan swung back and took a position behind the fence which ran nearly parallel with the line of the charging column.

The Seventh Michigan advanced boldly to meet the First Virginia, but on coming up to a stone and rail fence, instead of pushing across it, began firing with their carbines. The First Virginia came on in spite of the heavy fire, until it reached the fence from the other side. Both regiments then fought face to face across the fence with their carbines and revolvers, while a scorching fire was centered upon the First Virginia from either flank. The enemy's reinforcements at last came up and assisted the First Virginia to pass the fence, whereupon the Seventh Michigan gave way, the enemy following in close pursuit.

The First Virginia, becoming strung out by this movement, was exposed to a terrific fire from the two batteries in front and the skirmish lines on the flanks, while some of the Fifth Michigan, who had succeeded in mounting, advanced under Major TROWBRIDGE to assist the Seventh. It was more than even the gallant First Virginia could stand, and it was compelled to fall back on its supports, which were fast advancing to its assistance.*

*The statement that this preliminary charge was made by the First Virginia Cavalry of FITZ LEE'S brigade is based upon the authority of General STUART'S report, confirmed by a letter of General FITZHUGH LEE. General STUART further states that the First North Carolina and Jeff Davis Legion were sent to the support of the First Virginia, and that gradually the hand-to-hand fighting involved the greater portion of his command. On the other hand the Rev. GEORGE W. BEALE, then a Lieutenant in the Ninth Virginia Cavalry, in a letter written a few days after the battle, and published in Vol. XI, Southern Historical Society Papers, p. 320, stated that the charge was made by the Ninth and Thirteenth Virginia of W. H. F. LEE'S brigade, commanded by CHAMBLISS. General WADE HAMPTON states in his report that, seeing that a portion of CHAMBLISS' command was being driven back by a large force, he ordered the First North Carolina and Jeff Davis Legion to its support, which drove our people back, but encountering our reserves in heavy force his and FITZ LEE'S brigades charged, and in the hand-to-hand fight which then occurred he was wounded.

No official reports of the battle made by General FITZHUGH LEE or Colonel CHAMBLISS are to be found among the Confederate official records in the War Department.

Just then there appeared in the distance, emerging from behind the screen of woods on the cross-road by the STALLSMITH farm, a large mass of cavalry—the brigades of HAMPTON and FITZ LEE.* Every one saw at once that unless this, the grandest attack of all, were checked, the fate of the day would be decided against the Army of the Potomac. They were STUART'S last reserves, and his last resource. If the Baltimore Pike was to be reached, and havoc created in our rear, the important moment had arrived, as PICKETT was even then moving up to the assault of Cemetery Ridge.

In close columns of squadrons, advancing as if in review, with sabers drawn and glistening like silver in the bright sunlight—the spectacle called forth a murmur of admiration. It was, indeed a memorable one. CHESTER, whose guns were nearest, opened fire at once, with a range of three-fourths of a mile. PENNINGTON and KINNEY soon did the same. Canister and shell were poured into the steadily approaching columns as fast as the guns could fire. The dismounted men fell back to the right and left, and such as could got to their horses. The mounted skirmishers rallied and fell into line. Then GREGG rode over to the First Michigan, which, as it had come upon the field a short time before, had formed close column of squadrons supporting the batteries, and gave the word to charge. As TOWN ordered sabers to be drawn and the column to advance, CUSTER dashed up with similar orders, and placed himself at its head. The two columns drew nearer and nearer, the Confederates outnumbering their opponents three or four to one. The gait increased—first the trot, then the gallop. HAMPTON'S battle-flag floated in the van of his brigade. The orders of the Confederate officers could be heard, "Keep to your sabers, men, keep to your sabers!" for the lessons they had learned at Brandy Station and at Aldie had been severe. There the cry had been, "Put up your sabers! Draw your pistols and fight like gentlemen!" But the saber was never a favorite weapon with the Confederate cavalry, and now, in spite of the lessons of the past, the warnings of the present were not heeded by all.

As the charge was ordered the speed increased, every horse on the jump, every man yelling like a demon. The columns of the Confederates blended, but the perfect alignment was maintained. CHESTER put charge after charge of double canister into their midst, his men bringing it up to the guns by the armful. The execution was fearful, but the long rents closed up at once. As the opposing columns drew nearer and nearer, each with perfect alignment, every man gathered his horse well under him and gripped his weapon the tighter.

* According to the writer's diary this was about 3 o'clock.

Though ordered to retire his guns towards which the head of the assaulting column was directed, CHESTER kept on firing until the enemy was within fifty yards, and the head of the First Michigan had come into the line of his fire. Staggered by the fearful execution of the two batteries, the men in the front of the Confederate column drew in their horses and wavered. Some turned and the column fanned out to the right and left, but those behind came pressing on. CUSTER seeing the men in the front ranks of the enemy hesitate, waved his saber and shouted, "Come on, you Wolverines!" and with a fearful yell the First Michigan rushed on, CUSTER four lengths ahead.

MCINTOSH, as he saw the Confederate column advancing, sent his adjutant-general, Captain WALTER S. NEWHALL, with orders to ROGERS and TREICHEL to rally their men for a charge on the flank as it passed. But sixteen men could get their horses, and with five officers they made for the battle-flag. NEWHALL, sharing the excitement of the moment, rushed in by the side of ROGERS and TREICHEL, at the head of the little band. MILLER, whose squadron of the Third Pennsylvania was already mounted, fired a volley from the woods on the right as the Confederate column passed parallel with his line, and then with sabers drawn, charged into the overwhelming masses of the enemy.

The small detachment of the Third Pennsylvania under ROGERS and TREICHEL struck the enemy first, all making for the color-guard. NEWHALL was about seizing the flag when a saber cut was directed at his head, and he was compelled to parry it. At the same moment the color-bearer lowered his spear and struck NEWHALL full in the face, knocking him senseless to the ground. Nearly every officer and man in the little band was killed or wounded. Almost at the same moment, MILLER with his squadron of the Third Pennsylvania, struck the left flank about two-thirds of the way down the column. Going through and through, he cut off the rear portion and drove it back past RUMMELL'S up to the Confederate battery, and nothing but the heavy losses which he had suffered and the scattering of his men prevented his going farther and taking it, wounded though he was.

Meanwhile the heads of the two columns had met—the one led by HAMPTON and FITZ LEE, and the other by CUSTER—and were fighting hand to hand. MCINTOSH with his staff and orderlies and such scattered men from the Michigan and other regiments as he could get together, charged in with their sabers. For minutes, which seemed like hours, amid the clashing of the sabers, the rattle of the small arms, the frenzied imprecations, the demands to surrender, the

undaunted replies and the appeals for mercy, the Confederate column stood its ground. Captain THOMAS of the staff, seeing that a little more was needed to turn the tide, cut his way over to the woods on the right where he knew he could find HART, who had remounted his squadron of the First New Jersey. In the mêlée near the colors was an officer of high rank, and the two headed the squadron for that part of the fight. They came within reach of him with their sabers, and then it was that WADE HAMPTON was wounded.

By this time the edges of the Confederate column had begun to wear away, and the outside men to draw back. As HART's squadron and other small parties charged in from all sides, the enemy turned. Then there was a pell-mell rush, our men following in close pursuit. Many prisoners were captured, and many of our men, through their impetuosity, were carried away by the overpowering current of the retreat.

The pursuit was kept up past RUMMEL's, and the enemy was driven back into the woods beyond. The line of fences, and the farm-buildings, the key-point of the field, which in the beginning of the fight had been in the possession of the enemy, remained in ours until the end. The enemy, however, established and maintained a skirmish line on his side of the farm-buildings, and for a time kept up a brisk firing, but all serious fighting for the day was over, for PICKETT's simultaneous attack upon Cemetery Ridge had also been repulsed, and the victory along our line was complete. Skirmishing and some desultory artillery firing were kept up at intervals by both forces until after nightfall, these disturbances being for the most part caused by the enemy's endeavors to recover his killed and wounded, who were lying thickly strewn over the field in our possession. At dark STUART withdrew to the York Turnpike, preparatory to covering the retreat of LEE's army toward the Potomac. In the evening CUSTER's brigade was ordered to join its division. GREGG remained all night in possession of the field of the hand-to-hand contest, and in the morning his Third Brigade started in pursuit of the retreating enemy.*

The brunt of the fighting in GREGG's division was borne by the

*The COMTE DE PARIS states (Vol. III., Am. Ed., Hist. of Civil War in America, page 673, etc.) that STUART's object was to move his command west of Cress' Ridge, so as to turn the left of the Union cavalry unobserved, and thus separating it from the rest of the army, to strike the Baltimore Turnpike without waiting for the issue of the great struggle, in order to create a panic in the rear of our main line of battle, the effect of which would be decisive upon the battle-field, but that his presence having been disclosed by the debouching of HAMPTON's and FITZ LEE's brigades into the open fields beyond RUMMEL's, and MCINTOSH having forced the fighting, he (STUART) was compelled to leave those brigades to detain the Union cavalry north of the Hanover Road while he continued his movement with JENKINS' brigade and that commanded by CHAMBLISS, which also were soon forced to join in the fight, the consequence being that he was prevented from accomplishing his object.

Third Pennsylvania and First New Jersey Cavalry regiments, for, by the time the Third Brigade had come up, the Michigan brigade had gotten so deeply into the fight that it could not be withdrawn. The Third Brigade, together with the First Massachusetts Cavalry, which latter, under the command of Lieutenant-Colonel GREELY C. CURTIS, had come upon the field during the fight, and RANK's section of artillery, had consequently been held in reserve, close at hand, drawn up in column of regiments on the south side of the Hanover Road west of the Low Dutch Road, near the SPANGLER house. The Sixteenth Pennsylvania Cavalry remained all day, and until late into the night, upon the skirmish line established in the morning, interchanging at frequent intervals a brisk fire with the enemy's infantry, especially about the DEODORF farm-buildings which were filled with sharpshooters, and at one time repulsing a vigorous attack upon the line, thus efficiently maintaining the connection between our infantry and cavalry, and preventing a flank attack from that quarter of the field. The moral effect of the presence of these troops in full view of the field of the fighting, and easily observed from the enemy's position, went far toward securing the successful results of the day.

The losses of the Confederate cavalry were undoubtedly heavy, but were never ascertained. General GREGG reported his losses to be one officer and thirty-three enlisted men killed, seventeen officers and one hundred and forty enlisted men wounded, and one officer and one hundred and three enlisted men missing—total, two hundred and ninety-five. [CUSTER in his official report stated his losses to be nine officers and sixty-nine enlisted men killed, twenty-five officers and two hundred and seven enlisted men wounded, and seven officers and two hundred and twenty-five enlisted men missing—total, five hundred and forty-two.]*

*General CUSTER in his official report of the services of his brigade in the battle, inadvertently included his losses in the whole of the Gettysburg campaign. Though suspected at the time the text was written, this was not definitely ascertained to be a fact until the official records in the War Department, subsequently collated, proved it to be so. The writer was careful in the text to assume no responsibility in quoting General CUSTER's estimate of losses. General GREGG's estimate included as well the losses in MCINTOSH's and IRVIN GREGG's brigades as those in CUSTER's brigade. Owing to the much fuller complement of the latter and the numbers engaged the proportion of its losses were much larger than those of the other brigades. According to the final corrected statement prepared by the War Department its records show the losses to have been as follows: July 2d, in MCINTOSH's and IRVIN GREGG's brigades, four enlisted men killed, twelve enlisted men wounded, and one officer and three enlisted men captured and missing—total, twenty; July 3d, in MCINTOSH's, IRVIN GREGG's and CUSTER's brigades, one officer and twenty-nine enlisted men killed, eighteen officers and one hundred and thirty-one enlisted men wounded and seventy-five enlisted men captured and missing—total, two hundred and fifty-four; total on right flank, July 2d and 3d, three hundred and nine. This estimate does not include the losses of the batteries.

In consequence of the movements of the cavalry during and following the battle, and the lapse of time before the rolls were prepared, some of the killed were included in the report of "captured and missing."

It has been said that GREGG's fight at Gettysburg was one of the finest cavalry fights of the war. To borrow the language of CUSTER in his report of it: "I challenge the annals of warfare to produce a more brilliant or successful charge of cavalry than the one just recounted."

STUART, according to his custom, claimed in his official report that the Union cavalry was driven from the field of the engagement, thus insinuating that he was the victor of the fight, and other Confederates are now doing likewise. That we, on the contrary, remained masters of the field is maintained by Generals PLEASANTON, GREGG and CUSTER, and Colonels TOWN and ALGER, in their official reports. In denying STUART's unwarranted insinuation, you my comrades, will also bear me out.*

We cavalrymen have always held that we saved the day at the most critical moment of the battle of Gettysburg—the greatest battle and the turning point of the War of the Rebellion. I know that it has not been the custom among historians to give us credit for having done so, nor, exept very recently, to give us credit for having done anything. So fierce was the main engagement, of which the infantry bore the brunt, that the fighting on the part of the cavalry passed almost unnoticed; yet this was the only battle of the war† in which the three arms of the service fought in combination and at the same time, each within supporting distance and within sight of the other and each in its proper sphere. The turmoil incident to an active campaign allowed us no opportunity to write up our achievements, and no news correspondents were allowed to sojourn with us, to do it for us. But now that the official records of the campaign, both Union and Confederate have been brought together, and for the first time been made accessible, and the official map of this field has been prepared,‡ the Great Historian of the War as yet unknown, and perhaps unborn, will have at hand materials which have been denied to others. He will see the importance of the fight which I have attempted to describe, and will give it the credit due to it. Had STUART succeeded in his well-laid plan, and with his large force of cavalry

*As has been stated in the text, the Union cavalry at one time, when the two Confederate brigades almost reached our guns was nearly driven from the field of the main fight, but STUART omits to report correctly what followed our counter-charge, and his words leave an incorrect impression.

Since the Union and Confederate commanders each claimed to have driven the other from the field, the COMTE DE PARIS endeavors to settle the question by stating that the ground was abandoned by both parties.

†This should read, "one of the few battles of the war." That of the Opequon, Winchester, September 19, 1864, and that of Cedar Creek, October 19, 1864, are notable instances of the same kind of employment of cavalry mounted.

‡In pursuance of the act of Congress of June 9, 1880.

struck the Army of the Potomac in the rear of its line of battle, simultaneously with PICKETT's magnificent and furious assault in its front, when our infantry had all it could do to hold on to the line of Cemetery Ridge and but little more was needed to make the assault a success—the merest tyro in the art of war can readily tell what the result would have been. Fortunately for us; fortunately for the Army of the Potomac; fortunately for our country and the cause of human liberty, he failed. Thank GOD that he did fail, and that with His Divine assistance, the good fight fought here brought victory to our arms!

Comrades, your work here is now done—well done. This shaft, beautiful in its simplicity, will stand when we are gone, to point out in silence, from far and near, and for all time let us hope, the spot on which you fought so well.

Before we part, never perhaps to meet again, let us not forget to pause one moment, and in our inmost thoughts pay a reverent tribute to the memory of those brave men, our companions-in-arms, who here poured forth the full measure of their lives' devotion for the cause they loved. And what shall I say to those who yet survive? That you, my comrades, bore each your share in that good fight will always be to you a pleasing memory, and when your children and your children's children hear and read of what you did on this historic field, it will ever be to them a source of honorable pride that you fought with GREGG on the Right Flank at Gettysburg.

"Oh! glorious field of Gettysburg!
High in the rolls of fame,
With Waterloo and Marathon
Shall men inscribe thy name!"

WILLIAM BROOKE-RAWLE,
Secretary of The Historical Society of Pennsylvania, formerly Captain Third Pennsylvania Cavalry, and Brevet Lieutenant-Colonel U. S. V.

A CONFEDERATE CAVALRY OFFICER'S REMINISCENCE.

IN the following paper it will be my endeavor to state facts in my own way, and when I take the liberty, incidentally, as I shall do, of bringing again to light some of the crude theories regarding the uses of cavalry, promulgated by distinguished officers in the late war, it may provoke the risibles of some of the old veterans, and, perhaps excite the indignation of some of the younger officers who are now in that service, who have been better instructed, and who possess the finest weapons in the world.

In those days, yes, so late as 1862, we were glad to get a double-barreled shot-gun—a muzzle loader at that—and a saber resembling a grass scythe blade, with a leather scabbard, as such were the only arms issued to us. The belt of the scabbard ran over the shoulder; our percussion caps were carried in the vest or trousers' pockets, and our paper cartridges of buckshot in small haversacks of cloth. A leather socket was attached to the stirrup-leather by the side of the right foot to steady the gun. Our saddles were generally of the old English pattern, to which additional rings were stitched to attach the coat or blanket straps. Thus equipped we started to the army in May, 1861.

Most of the officers and very many of the privates had their body servants, who followed on horse-back, remained in camp, and administered to the wants and comforts of their masters, and generally clung steadfastly to them through weal and woe. I should like to describe this element (our servants), which would cost only the time consumed in examining it, but for the present, will content myself with the remark that it is a subject worthy of investigation, as it has its beauties, and its pathetic as well as its gloomy side and admits of a consideration creditable alike to master and servant. It has been truly said that such sentiments belong to a higher and purer part of human nature; that they add not a little to the strength of states, and that "a people which takes no pride in the customs, habits and noble achievements of remote ancestors, will never achieve anything worthy of being remembered by remote descendants."

My immediate object will be two-fold: First, to vindicate the endurance, pertinacity, and individuality of the cavalry arm, whose

duties are the hardest and most precarious; and whose maintenance is by far the most expensive of all the different arms of the service; and secondly, to record my tribute to the worth of some of those whom I had the pleasure to know personally and intimately, while in the army, where I was enabled by my associations to form a correct estimate of their abilities, and profit by their skill and judgment as officers.

The following exhibit, introduced here, contains an alphabetical list of the places where affairs, skirmishes, engagements and battles were fought by my old regiment, the Second Virginia Cavalry, Confederate Army, Northern Virginia. All are not given, but simply those in which some of its members were killed or wounded; while in many other battles they performed, perhaps, greater service as reserves or supports to batteries, picketing flanks and guarding trains against attacks of the enemy:

LIST OF ENGAGEMENTS AND BATTLES IN WHICH THE SECOND VIRGINIA CAVALRY SUFFERED LOSSES IN KILLED AND WOUNDED.

	Killed.	Wounded.	Captured.		Killed.	Wounded.	Captured.
Aldie	2	17	.....	Jack's Shop (Custer's Raid)	2	3	12
Annandale	1	.....	.....	Kelley's Ford	4	10	11
Appomattox C. H.	2	1	.....	Lovettsville	.....	.....	1
Amelia C. H.	1	2	.....	Leesburg	2	7	.....
Ashland	.....	1	.....	Lee Town	1	.....	.....
Beverley, W. Va.	2	2	.....	First Battle Manassas	4	7	.....
Bristoe Station	6	8	.....	Second Battle Manassas	3	*26	.....
Berryville	5	4	.....	Mechanicsville	1	2	.....
Buckettsville, Md.	1	2	.....	Mount Jackson	6	10	.....
Boonsboro, Md.	3	3	1	Meadow Bridge	5	8	3
Buckland, Va.	.....	2	.....	Mt. Zion Church	1	.....	.....
Bridgewater	.....	5	.....	Mt. Meridian	.....	1	.....
Beverley Ford	.....	2	1	Millwood	.....	2	.....
Beaver Dam	1	5	.....	Massaponax C. H.	1	1	.....
Cunningham's Ford	.....	1	.....	Nance's Shop	5	8	.....
Crampton's Gap	1	.....	1	New Town	1	1	.....
Cold Harbor	3	12	.....	Namozine Creek	1	.....	.....
Chancellorsville	2	.....	2	Opequon	3	6	.....
Cedar Creek	.....	1	.....	Oak Shade	.....	1	.....
Cross Keys	.....	1	2	Orange C. H.	.....	1	.....
Dumfries	1	1	2	Port Republic	1	1	.....
Drainesville	1	.....	3	Raccoon Ford	7	5	1
Flint Hill	2	.....	5	Shepherdstown	2	10	1
Fort Kennon	3	8	.....	Stephensburg	2	7	.....
Fredericksburg	2	.....	19	Spottsylvania	15	38	1
Five Forks	4	3	.....	Sugar Loaf Mt., Md.	.....	1	.....
Funkstown, Md.	2	1	.....	Stannardsville	.....	4	.....
Front Royal	3	10	2	Sharpsburg	.....	1	.....
Fall's Church	1	2	.....	Trevillian's Station	6	11	.....
Fairfax C. H.	.....	2	2	Todd's Tavern	5	23	.....
Farmville	.....	2	.....	Tom's Brook	13	9	12
Gettysburg	3	6	10	Warrenton	1	7	.....
Gaines' Cross Roads	.....	1	.....	Westminster, Md.	.....	2	.....
Hartwood Church	4	1	1	Williamsport, Md.	1	5	.....
High Bridge	2	4	1	Winchester	1	1	.....
Hawes' Shop	3	19	6	Woodstock	.....	.....	3
Hunter's Mill	1	.....	.....	Waynesboro	.....	7	.....
Hanover Town	1	.....	.....	Yellow Tavern	3	9	3
				Total	165	783	94

* Fourteen others slightly wounded.

The colonel of a regiment is, in a large degree, its sponsor; if he and his subordinates know one another there is a mutual dependence. My heart has ever been brimful of love for and pride in my old regiment; and, until "Death do us part," it will ever beat the same; its very name rekindles sad memories; but they are as dear to my heart as the clear notes of the bugle as their cadence is reëchoed on and on to the far off mountains, and then surge back with their mellowed softness on the whispering winds. On each wave of sound there is a face or form long ago photographed on memory's page, "and their bright smiles haunt me still." From my heart I thank GOD, most reverently, that I have lived to make a record of the spots on which my comrades fell; and, while only their intimate associates may know it, at every mention of them the survivors will stand on tiptoe and say with a soldier's pride, "I too, was there." But—

> "Our bruised arms are hung up for monuments,
> Our stern alarums changed to merry meetings.
> Grim visaged War has smoothed his wrinkled front,
> And now, instead of mounting 'jaded steeds'
> To fright the souls of fearful adversaries,"

we have simply to point to these bruised arms and battle scars, having no monuments; but they will show our late adversaries their "illustrated work," in the battles I have named, the list of which will endure at least as long as the pages of the JOURNAL. If we received these, the question, "Who gave them?" must be answered. Many of them were received as "head cuts" from gleaming, uplifted sabers, with full many a "tierce point;" the carbine and pistol, too, were at work with equal dexterity; while the shrieking shell and hissing, crashing, howling shrapnel, grape and canister, filled the air with sulphurous smoke, tearing limbs from bodies, setting souls free, with splinters flying like autumn leaves, leaving bodies writhing in the agonies of pain and mutilation. And this was done and known on the wayside as military "glory." But that glory belongs alike to "the blue and the grey;" the one gave the wounds, the other received them. This serves only to make clear another point: Many grand and costly monuments are raised on the ground where heroes fell, and where regiments and companies stood in line of battle; this is all right when it can be afforded and is not done in a partisan spirit. When it is thus done, it may mark the spot where "loyal spirits" sped from earth; the very ground will raise around it flowers and grass which will whisper in the winds as they blow, "Here Confederates have been and left their work well done." This is OUR country; it is *our* heritage; it belongs to *us all* now—the "blue and the grey."

History must tell future generations the truth, the whole truth, and nothing but the truth, for the glory of the one can never be the shame of the other.

I must beg indulgence for digressions, as I am writing for soldiers; they love their colors and their comrades; a brave man can but honor those who open and expose their hearts as they did their breasts in times that tested those who were the true. I do not hold up the paper heretofore shown with the idea that no other regiment suffered so much, but only as an illustration of the average results of cavalry service. Take these ten companies of cavalry of seventy-five men each, and remember what I endeavored to show, somewhat in detail, in the last number of this JOURNAL, what were the special difficulties that the Confederate cavalry had to surmount in order to keep mounted. Credit it with that showing, and the aggregate number of its casualties will make its record a fair illustration of the service of which no member of the cavalry arm will have cause to be ashamed.

Other regiments may have a better record; I am speaking only of what I know, that no regiment could have seen harder service or endured it more uncomplainingly. It was the oldest regiment of cavalry in the Army of Northern Virginia. It went into the service in May, 1861, as the Thirtieth Regiment, Virginia Volunteers (mounted). No other cavalry regiment in Virginia was fully organized until after the first battle of Manassas. Colonel R. C. W. RADFORD, of the old Second Dragoons, U. S. Army, was its colonel, and never forgave General STUART for designating his (STUART'S) command First Virginia Cavalry, and RADFORD'S the Second. At the first Manassas, STUART was only a lieutenant-colonel, where both he and RADFORD were engaged. The latter had been a captain of the Second Dragoons in the old army before STUART was graduated, but had resigned and was a farmer when the war began. He was the best camp officer I ever saw; a good disciplinarian, a fine horseman, an excellent swordsman and a thorough drill master. Personally, he was a brave officer, as was shown in the field, but he had an exalted opinion of the regular service, and underestimated the value of volunteers, which made him very unpopular with his command.

There were twenty-three graduates and *élèves* of the Virginia Military Institute as officers in his regiment, and, having been in camp a month before it was marched to the front, it was drilled by him three times a day, each drill occupying about two hours. It was by far the best drilled cavalry regiment I ever saw in the army, and during his administration, the first year of the war, he exacted such

uniform obedience to all the regulations that it became the equal of any regular regiment. It was composed of the best material in the land; all the men were from the mountain section of the State, generally the very best kind of rifle shots. Many of them could cut the head off of a squirrel on the tops of the highest trees, or kill a running deer with a rifle, and all had been accustomed to horses from early infancy, and could ride as well without saddles as with them; yet he regarded them simply as volunteers, and said they had not learned to submit willingly to regulations, and could never be trusted because they knew too d——d much.

I can hardly give a better illustration of his temperament than by describing what happened while we were retiring from Manassas to the Rappahannock. I was sent with a part of the regiment on a scout into Loudon county, where Generals GEARY and ABERCROMBIE were operating, and discovered a small squad of some thirteen men of the First Michigan Cavalry, in the town of Paris. I dashed in and gobbled up the squad, and sent them back to the colonel with my compliments. We were fearfully in need of cavalry equipments, and as these men were well mounted and armed, it was quite a prize. When the guard returned there came a note from the colonel (by his adjutant), which ran almost as follows: "Your report and the Yankees are received; the Colonel bids me say he is fearful lest when he next hears from you, both you and your command will be in the Old Capitol at Washington, as you are getting too near the regulars, who are reported not far off."

Just before the battle of the first Manassas General BEAUREGARD had promised to Colonel RADFORD, the senior cavalry officer, the command of all the cavalry; but General J. E. JOHNSTON promoted General STUART, which soured RADFORD so that upon the reörganization he determined to leave the army.

While stationed at Stone Bridge, near Cedarville, in the winter of 1861–2, I had four companies, and Colonel RADFORD had the other six at Leesburg, and our outposts connected at Goose Creek. From there to Drainesville I had control. While riding out one very rough day to inspect the cavalry pickets, I met General J. E. JOHNSTON, who stopped me and told me that he had just issued an order for a field officer of the day to inspect the cavalry pickets, and said as I headed the list he wished me to come to his headquarters. The next morning it was snowing and blowing, and I went by for my orders very early as I had a long and fearfully rough ride before me. Late in the evening as I was returning I stopped to make my report; he received me so cordially that I was at once relieved of all embarrassment on account of my rough wrappings. The General said: "You have surely had a rough day; I insist upon you throwing off your wraps and eating a piece of turkey. Perhaps a little brandy will remove the chill and numbness; I was just about to take some myself, and will be glad to have you join me before dinner."

There was no time lost in joining him. The aroma of the brandy was what I imagine that of the old "Falernian," made by BACCHUS himself, must have been. I was so hungry that the sight of a hot roast turkey, well garnished, made my "mouth water" for a seat in front of it. The toddy gave zest to my appetite, and when I did get at it that turkey fairly "flew;" but as I had a leg and a wing it disappeared in the right direction. The old General, usually very formal, was, on that day, simply charming; full of life and graces, "riding a high horse," but still an elegant host, an "officer and a gentleman." As I left, full of admiration for him, having for the first time seen the "inner man," he said: "Colonel, I thank you for your prompt and satisfactory report. It is fortunate that you went as you did, on such a day as this; these people in front of us are like the foxes and rabbits, born in the frost and snow, and as the southern troops are shivering over their fires, they will be most likely to make a movement, and may surprise our pickets; hence, the importance of going in such weather to look after them."

It was now late at night, and when my horse was brought to me it was easily seen that his comfort and refreshment had been attended to as well as his master's.

I desire to make here a record of my "impressions." When General J. E. JOHNSTON hurled his troops from Winchester upon General MCDOWELL'S army at the first battle of Manassas, he became the real hero. General BEAUREGARD had planned to be attacked in his works, as he expected the attack to be made upon his right flank, or by direct assault upon his front, as his army was newer and weaker than General MCDOWELL'S. The latter, however, had a head of his own, or was directed by General SCOTT, and did not accommodate General BEAUREGARD, but, by a long march, turned his left flank, and was in turn doubled up by General JOHNSTON'S army.

After that battle changes took place; up to that time the most cordial relations had existed between President DAVIS and Generals BEAUREGARD and JOHNSTON. Their letters are filled with expressions of confidence, friendship and esteem — almost affectionate — certainly beautiful and kind. But there were two generals of equal rank, who had united their armies. BEAUREGARD had had the front at Manassas as it was recognized as his army. General JOHNSTON had

been working quietly but earnestly in another direction, at Harper's Ferry, watching General PATTERSON's army. Having by his celerity won the battle, it began to be whispered about that it wasn't BEAUREGARD, but JOHNSTON, and a squabble in the papers followed. EWELL, that grand old man, it was said, had failed to execute orders which would have resulted in the utter destruction of the Union army. The old cavalryman, EWELL, who was never known to be caught "napping," came back at BEAUREGARD "with his papers and his orders," and General BEAUREGARD then very properly retracted. EWELL put the correspondence that followed in his trunk and sent it home for safe keeping, fortunately for his fame, for General BEAUREGARD again forgot it, and again made a similar statement, which was replied to in a withering paper, by Major J. CAMPBELL BROWN, EWELL's adjutant-general and son-in-law.

On the 12th of March, 1862, "saddle up" and "boots and saddles" sounded with a spirit that will be long remembered. Our "wild campaign" had now begun. I left Centerville with Colonel FITZ LEE. At Gainesville we parted, he going to Warrenton, in the immediate rear of LONGSTREET, while my orders were to follow the Manassas Gap Railroad and destroy the meat packing establishment at Thoroughfare Gap, and to remain there as long as I could. Then to fall back on the left flank of our army, via White Plains and Orleans, but to watch the left flank and, if possible, to keep up communication with General JACKSON then retiring upon Winchester.

On April 1st, Generals GEARY and ABERCROMBIE had arrived at White Plains in Fauquier county, with 7780 men and 12 pieces of artillery. They were soon reinforced at Manassas by SHIELDS with 10,859 men. In the Shenandoah Valley BANKS had 35,467 men, including 3,652 cavalry. General JOE JOHNSTON moved towards Richmond for which the bulk of MCCLELLAN's army was marching, leaving in our front 52,000 men, not including FREMONT's Mountain Army, with headquarters at New Creek, numbering 35,000 men, which was to move up the valley, destroy the Virginia-Tennessee railroad and go on to Knoxville. Meantime, General EWELL, with his division—to which my regiment had been assigned—was stationed at Lamont Point, five miles west of Gordonsville. He was watching ABERCROMBIE and MCDOWELL at Fredericksburg, and held in readiness to go to the latter place, or to join General JACKSON, as the exigencies of the service might require.

We were picketing from in front of Culpeper C. H. to Madison C. H., and communicated with the pickets of ASHBY, under JACKSON, in the valley. JACKSON was "champing his bit," but being under the

command of General LEE, he knew who held the reins, and was employing his time in getting information and preparing to carry out his leader's plans. We had some elegant "war horses," as I hope to show.

Our campaign was about to open with all its stern realities, but at the same time the Army of Northern Virginia was never, perhaps, in such a plight. It may have been weaker in one sense, but now it was undergoing a reörganization. The Confederate Congress had ordered an election of regimental and company officers throughout the army. Very few regiments had enlisted for more than one year, and the army would have gone to pieces by expiration of enlistments, had not this step been anticipated. The election of officers and reenlistment of men at this time made discontent, disorder, heartburnings and their concomitant anxieties and difficulties. Some of the best and most conscientious officers were retired or had to return to the ranks; untried men, sometimes politicians and demagogues were placed in command of regiments, which completely disorganized the old order of their workings; but, upon the whole, the reörganization was perfected with less loss than was anticipated. The new officers, stimulated by pride, soon had the old dough leavened and moulded. They transformed the chrysalis into the butterfly, but without the colors. The old uniforms were faded and gone, and the new officers found it difficult to get even a coat and the necessary trimmings, with the insignia of rank they now delighted to wear.

I became the colonel of what I believed to be the best cavalry regiment in the army, and was more in love with it than ever.

EWELL marched through Swift Run Gap and relieved JACKSON's command, which had left ASHBY with his cavalry in front of BANKS on the Valley Pike, near Harrisonburg, and slipped back via Staunton, where he gathered up General EDWARD JOHNSTON's command and made a dash at Milroy, driving him back to Franklin, then turning off in an easterly direction he moved on Harrisonburg and, as General FREMONT says, "leaving a thin curtain of his forces"—his cavalry—to conceal the movement, hurried back to join EWELL, then of JACKSON's army, who was moving again with the speed of a falcon down the Luray Valley, having on his part left a thin curtain of cavalry in front of BANKS; but the latter was so constantly flopping and changing position that he could not comprehend the situation, for as often as anyone disturbed him his horse artillery and sharpshooters turned loose in such a way as to show that he was still there.

Meantime my regiment, which had been until now picketing on

the east side of the mountains, was sent through Martin's Gap to look after General SHIELDS, who was leaving the valley to join General McDOWELL, now preparing to move on Richmond via Fredricksburg. I was also instructed, if practicable, to make a raid on the Manassas Gap railroad and destroy it, and report the results of my operations to General R. E. LEE, at Richmond, and to General EWELL. This was accomplished in a successful manner, and I then moved back to Madison C. H., where I received orders to report to General JACKSON, who was moving down the Shenandoah Valley, stampeding General GEARY and scattering BANKS' command, which left more plunder and trumpery than we could bring off. Next we were sent from Winchester to Darksville, Martinsburg, to within a mile of Williamsport, to Charlestown, Shepherdstown and Harper's Ferry.

When General JACKSON left Harper's Ferry to move back to Strasburg, General ASHBY, of whom I shall speak further hereafter, informed me that my regiment, which had been driven from Bolivar Heights by the Union artillery at Harper's Ferry, must be sent to bring back behind them on their horses the Second Virginia Infantry, who were thus crossed over the river from Loudon Heights.

The race now began in earnest. Whatever JACKSON had seized he held to; his train of captured wagons laden with plunder reached for miles and miles, and he was determined to take it with him. If a wagon wheel broke the quartermaster was required to fix it, and nothing was abandoned. The Northern newspapers, which we received from friends, showed that General FREMONT, with 20,000 men, was at Moorefield, with orders to hasten to Strasburg, in our rear, to which he was nearer than JACKSON was. General McDOWELL had 21,000 men at Manassas and Warrenton, and was ordered to push on to Front Royal by the Manassas Gap railroad, which we knew could be done, having recently been there. General BANKS was reinforced and ordered to move out from Williamsport, to which point he had been driven by JACKSON.

We, of the cavalry, were in the rear, and thought that "what might be fun for the boys would sometimes be death to the frogs." when we read the dispatches in the papers, and glanced at that infernal wagon train which seemed to us to be drawn by snails or to move as though a part of a funeral procession. Yet the flaming dispatches from the other side said: "The swift footed enemy moving thirty miles a day will soon be overtaken with all that plunder."

General McDOWELL writes General SHIELDS to hurry up with his advance: "It is a matter of legs whether we get to JACKSON and EWELL before they get away." SHIELDS replied from Manassas Junction: "No force of the enemy worth speaking of; they (General GEARY's troops) ran at the sight of 'rabble cavalry'—(not very complimentary to us at that time). I will retake the valley and rejoin McDOWELL, but you must send me men to keep it. The women will take it if you don't," and he called for working cavalry, promising to stampede JACKSON to Richmond. (See his letter, page 325, Vol. XII, Part iii. Reb. Records.) General McDOWELL naively replies to the Secretary of War, at Washington: "General SHIELDS asks for, as a condition of being able to stampede the enemy to Richmond, some cavalry of a kind I am unable to give him. The Rhode Island are as good as I have, and as to his preventing the enemy's escape, 'somehow' I fear it will be like his intention of crossing the Shenandoah river, 'somehow' (the bridge having been destroyed by the 'rabble cavalry') his command is not in condition to go to the place he names. It has occurred to me that possibly the enemy, having effected his purpose here, may now go to Richmond or Fredericksburg without being stampeded to do it."

Perhaps if this warning by an officer of acknowledged ability had been heeded, things might have been a little different at Richmond. McDOWELL had the instincts of a soldier, but he was not properly appreciated.

The Federal reports show one continued complaint of the condition of the cavalry horses; but think of ours on the pike, feeding on green grass, without salt—which could not be had—moving incessantly day and night, and bringing up the rear of everything.

McDOWELL's advance was now at Front Royal, FREMONT was approaching Strasburg and we near Harper's Ferry. Upon our arrival at Strasburg, after a march of thirty-six miles, we actually had a hostile army on the left of us, and in our front, either one as large as our own. We halted facing both ways and JACKSON determined to give his men a breathing spell, as they had been under whip and spur so long in order to make the desired connections. ASHBY, gallant, noble ASHBY, the DIOMEDE of JACKSON's army, had destroyed all the bridges on the Shenandoah River, and the elements seemed to favor us, as we had rains to cool and refresh our tired troops, and keep up the streams so as to delay the enemy when the bridges had been burned.

JACKSON made up in speed for the disparity of numbers, but he had reached the point when speed must be slackened and his troops rested. General BAYARD with his brigade, supported by the Bucktails, a rifle battalion, was very enterprising and harassed us inces-

santly day and night, and General HATCH was equally bold, so that between the two we had a "rough and tumble" time. Our splendid artillery which had been so well supplied with captured guns and ammunition, stood by us and scattered its projectiles with a lavish hand whenever the occasion was offered, in a way that would have done credit to NAPOLEON as a lieutenant, or JACKSON himself, when as a lieutenant of artillery, he rendered such brilliant service during the Mexican War. Our infantry, JACKSON'S "foot cavalry," poor fellows, had performed feats of marching unparalleled in war. General HOOKER said he regarded one foot soldier well drilled in the bayonet exercise equal to seven untaught its use. "Old JACK" did not have a soldier in his army who professed to be so instructed, but he went up and down the valley just the same. When the numbers were reduced by "hard times," he was still ready to meet the enemy. At times, nearly half of my men carried infantry soldiers behind them on their horses, who, at the approach of the Union cavalry, opened on them with their long range guns.

General ASHBY was an excellent tactician, and I have always thought that had his life been spared to the end of the war he would have stood upon the top round of the ladder of fame as a cavalry officer. He had intuitively the keenest perception in fathoming the enemy's designs. If JACKSON was the right arm of LEE, ASHBY was JACKSON'S stretched to its fullest extent. He never grew weary or slept while anything remained to be done; he was as nearly ubiquitous as it was possible for man to be. No soldier ever sat a horse with more grace and ease to himself and his steed, and he knew everything to be known about horses, and those he rode seemed to know and anticipate his slightest wishes. He was fearless, and as modest as chivalrous; idolized by his men, they seemed to be magnetized into self-possession under the most trying circumstances by the mere fact of his presence. He would lead just where no one else might care to go, but wherever his men were placed they believed that was exactly the place to be. He was killed while undertaking one of these exploits, in which fortune had always favored him before; but the "pitcher had gone to the well once too often," and was broken at last. He met his death the day before the battle of Port Republic while preparing with an infantry regiment an ambuscade for the Union cavalry by placing a "masked battery" behind my regiment which was to be charged on account of its exposed position. The cavalry were to wheel right and left, let the battery open fire, then charge upon the attacking force while the infantry

poured their volleys into the exposed flanks of the charging squadrons of the enemy.

After ASHBY'S death, General BRADLEY JOHNSTON, of the First Maryland, especially distinguished himself by assuming command while there was yet some confusion resulting from the loss of so distinguished a leader. He charged, drove back the Bucktails, captured Lieutenant-Colonel KAIN, commanding them, who was severely wounded, and held possession of the field, on which lay many men so badly wounded that they could not be removed.

That night big-hearted, grand old EWELL arrived, and my regiment escorted him to the field, where I saw him cheer some of the wounded, who were carried off behind the cavalry, and give money to others who were necessarily left. While returning with him I heard him saying to himself: "The wagon train, the wagon train, the great impediment on the road to glory; it is hanging behind us like a drag." We were now off of the pike and the dirt road was a "loblolly," because of the rains and trains, and we had with our train more captured horses than we had in the column, and it was only with great difficulty that many of them were saved.

The time for action had now arrived, and JACKSON'S train having almost reached a place of safety, he formed his line of battle to test FREMONT'S mettle. Leaving EWELL to take care of FREMONT, JACKSON pushed on to Port Republic to look after SHIELDS and to make his dispositions on the south side of the Shenandoah River, which at that point runs almost east and west. EWELL fought the battle of Cross Keys, but before we arrived there, as I have already said, the cavalry had been severely taxed, as the enemy, with unusual enterprise, pressed us closely. Many poor, bare-footed Confederate infantrymen who had endured almost to the end, now gave out, broken down by the weight of arms, ammunition and accouterments carried during marches of thirty miles a day. Hundreds fell by the wayside, and afterwards strayed away to the neighboring farm houses, preferring to die there to being seen exhausted on the road. But the main body of JACKSON'S "foot cavalry" were as hard as pine knots, and as loyal and royal as the best troops ever marshalled by a NAPOLEON, a MURAT or NEY. Although they wore no gaudy uniforms, and lacked, perhaps, the solidity of trained regular troops, they possessed intelligence and dash, so that sometimes a mere boy with a beardless face, would pull off his hat and give a yell which would carry forward with him, pell-mell, a whole brigade, all feeling that it was the thing to do, no matter where the order came from.

In that valley campaign the artillery enjoyed a regular picnic.

Generally officered by the most dare-devil lot of young fellows in the service and ever ready to perform their duty, they had not had much opportunity until we had captured at Winchester many superior guns and all the ammunition for them that we could bring away with us. The batteries connected with the infantry loyally supported the horse artillery, and they never allowed the head of the enemy's columns to come in sight without at once sending them a message of greeting with shot, shell or canister, as the case might require. They soon became so expert and so pleased with their success that we always found them more than ready and willing to protect the rear of our retiring columns.

As the cavalry had captured at Winchester and Martinsburg all the arms they wanted, they soon exchanged their double barreled shot guns for carbines and began to be dragoons, and before two years were out, were good ones too, for we had an abundance of carbine and pistol ammunition which we used without stint.

FREMONT had joined his forces to those of BANKS, DIX, SHIELDS and MCDOWELL. With three armies pursuing ours, laden down with its plunder, commanded by as determined a "fighter" as JACKSON, his rear guard had but to "grit its teeth," grin and endure. But our army was growing small by degrees and beautifully less. Day after day and hour after hour the skirmishing went on, and the artillery duels never left off. Until after the battle of Cross Keys and Port Republic had been fought we performed the hardest kind of duty on picket, flanking the army and guarding the trains. After the latter battle had been won we pursued the enemy eight miles in the direction of Conrad's Store, and even then hurried back to follow up FREMONT who was retreating to Harrisonburg and thence to Strasburg. In the meantime JACKSON was preparing to complete the circuit General LEE had prepared by sending EWELL to him to enable him to clear the valley and then swoop down upon MCCLELLAN'S right flank before he should become aware of JACKSON'S flight from the valley—a movement which had been predicted by General MCDOWELL. In regard to JACKSON'S movement which was conceived and arranged in all its details by General LEE, and was so well executed by his trusted subordinate, the reader is referred to the correspondence between the two, page 892, Chap. 29, Vol. XII, Part III, Rebellion Records.

T. T. MUNFORD,
Brigadier-General, Second Brigade,
Fitz Lee's Division, Army of Northern Virginia.

(TO BE CONTINUED.)

SOME OBSERVATIONS ON THE GERMAN CAVALRY.

WHILE in Düsseldorf in May, 1891, I had the privilege of witnessing the drill and inspection of two regiments of cavalry, the Eleventh Hussars and the Fifth Uhlans, and also a regiment of infantry stationed at the same place. The impressions received are herewith recorded for the benefit of the readers of the JOURNAL.

The drill ground of these regiments is situated in the outskirts of the town, from three to three and a half miles from their barracks. The Germans utilize the daily marching to and from the drill ground to settle their horses into regular gaits and keep their infantrymen in condition for route marching.

While, of course, this remoteness of the drill ground from the barracks is unavoidable in most German garrisons, it impressed me as being productive of the most excellent results here, and as likely to produce equally good results if voluntarily adopted at our own garrisons.

If, for instance, our infantry companies were daily made to shoulder their full kit, march four miles out to a drill ground, drill there an hour or two and then march back, as the infantry do here, it would not be necessary as at present to provide escort wagons and ambulances for men and officers to ride in whenever an infantry company changed station.

In the cavalry, however, it seems to me still more important, for not only can horses and men be kept in good hard condition, but in the daily marching over measured distances the horses can be trained to take and maintain more steadily the regulation gaits than by any other method I have yet seen tried.

When I arrived at Düsseldorf the course of squadron instruction had just been completed, and the brigade commander was making his inspection. In Germany, in place of having a staff officer to make an inspection for him, the general makes it for himself. The army authorities hold that whoever is responsible for the efficiency of a command should see and know its exact state himself. This system

possesses the advantage that when an irregularity or want of efficiency is discovered prompt corrective measures can be taken on the spot, instead of as with us, a report being made setting forth the defects, which report or extracts from it are referred back and forth between department headquarters and the post, with the result usually of merely using up paper and ink. It may, perhaps, be thought in our service that general officers cannot devote the time necessary to keeping posted in the drill and other regulations of the different arms and to going around inspecting troops; that their time is more profitably employed sitting in their offices signing papers; but in Germany they evidently think somewhat differently.

In order to understand the squadron inspection and regimental drills, which will be described later on, it is necessary to describe somewhat in detail the drill ground. The drill ground at Düsseldorf is a rolling, sandy plain of irregular outline, being, perhaps, about a mile and a half long and varying in width from a quarter to a mile at its broadest part. It is surrounded on three sides by groves of stunted pine timber, through which roads run in various directions. The plain itself is sufficiently undulating in places to almost conceal the movements of different bodies of cavalry from each other, so that it presents an excellent field for practicing maneuvers.

The General inspected two squadrons per day, and as the inspection was practically the same for all, only differing in detail, I will describe that of the first two.

One squadron preceded the other to the drill ground. The second squadron on the way out received orders to search for and attack the first. Scouts were immediately sent out and the squadron moved forward at a trot. By the time it reached the drill ground the scouts had located the first squadron. As soon as the second debouched on the plain it was seen by the first, and the two squadrons moved forward at a trot to the attack and charged each other, the halt being sounded when they arrived within a few yards of each other, when each squadron pulled up without a horse bolting out of line. The Germans practice this method of charging a good deal, but they also practice charging skeleton enemies.

After this, each squadron was drilled separately before the General in the different squadron movements, then in the riding school exercises, riding at headposts, dummy figures on the ground, etc., the officers using the saber and the men the lance; after this, individual charges of the men against each other, using blunt lances. Then the squadrons were formed and marched in review at the walk, trot, and gallop.

All this occupied from about 6 A. M. to 11 A. M., when the squadrons were marched back to their barracks. At the completion of each stage of the inspection the General had the officers assembled around him, and made his criticisms or commendations on what had had just taken place.

In the afternoon, these same two squadrons were inspected in dismounted and gymnastic exercises, which consisted first of setting up drill very similar to ours; then in running high jumps in which every man cleared a bar about three feet high; then in vaulting on and over the wooden horse in several different ways; then quite a number of exercises on the horizontal bar; then in mounting and dismounting horses in various ways, such as bareback, saddle without stirrups, saddle with stirrups, but no girth, etc.

Two days later, when the other squadrons of the regiment had been inspected in a manner similar to that above described, the men in each squadron who had been specially trained in constructing and destroying telegraph lines, were inspected by the General.

This completed the inspection of the squadron as far as I could see it. Whether or not the General went around and inspected the letters sent and letters received books of each squadron, and saw that they were properly indexed, I do not know.

After the completion of squadron inspections, regimental drills commenced. As these drills were naturally of a similar character, only differing in detail, I will describe one drill of the Hussar regiment: At 6 A. M. the regiment moved out of the barrack-yard in column of threes. I stationed myself at the first street corner and watched it file past. There were about 500 horses in ranks, yet I counted only three that were not walking. I at first thought the walk was very slow, but on falling in at the rear of the column I soon found it was close on to four miles an hour. As the regiment moved along I was careful to see if there would be any checking and closing up at the rear of the column on account of any unevenness of gait or changes of direction due to the short crooked streets of the town, but there was not. The rear of the column moved as steadily as I ever saw the head move with us.

As soon as the column cleared the paved streets of the town, the trot was sounded; then for about one hundred yards I noticed a slight unsteadiness at the rear of the column, but soon it settled down and moved as steadily at the trot as it had done at the walk. I then moved out to the side of the column to see if any horses were galloping or fretting, but I did not see one; the whole column was

moving along as steadily as a railroad train, and this, too, at a trot of something over eight miles an hour.

Appearances are very deceptive in watching German cavalry either at the walk, trot, or gallop. Every horse moves so smoothly and easily that it is difficult to realize the rapidity of each gait until one rides with the column. Another great beauty is that every horse moves at exactly the same rate of speed, so that there is none of the alternate checking and rushing forward so common in a long column with us.

The head of the column having arrived at the drill ground, it was directed to the left so as to skirt around a grove of pine timber; then front into line was sounded. The squadrons first formed column of platoons at a gallop; then front into line at a gallop, two of the squadrons going to the right and two to the left of the leading squadron, which formed front into line at a gallop, and then continued on at a trot. In a very short time, certainly in less than two minutes, the whole regiment was in line and trotting across the plain. Then right turn was sounded, and executed in a beautiful manner, the right squadron keeping up the trot and the others increasing the gait towards the left flank, which moved at a gallop. When the regiment had wheeled sufficiently, the forward was sounded, and then the gallop; the regiment moved forward for nearly a thousand yards, keeping almost perfect alignment, and without the least crowding or losing of intervals. Then the halt was sounded and men dismounted, when the Colonel assembled the officers to give them some instructions, and also to tell them of any faults he had observed in the movements just executed.

And in passing it may here be remarked that German battalion and regimental commanders, instead of shouting themselves hoarse bawling out instructions, content themselves with assembling their officers about them and then giving their instructions or making their criticisms in an ordinary tone of voice. After the lapse of about five minutes the regiment was remounted, wheeled into column of platoons and moved off at a trot; this gait was kept up for probably three-quarters of a mile, the column changing direction several times; then the gallop was sounded and this gait maintained for a half mile or more, the column frequently changing direction as before, when it was wheeled into line and moved forward without the least loss of interval or crowding. After this quite a number of maneuvers were performed at the walk and trot, then the regiment was dismounted to fight on foot. This, judged by the standard of our cavalry, was very poorly done. In the first place only two out

of three men were dismounted; then the men were slow in dismounting and still slower in remounting.

By this time the Uhlan regiment having arrived on the field the two regiments executed a charge against each other. Starting at about 1200 yards apart, ground scouts were sent to the front and patrols out on the flanks, the regiments then advanced towards each other each in line of platoon columns. On arriving at about 600 or 700 yards apart, line was formed and the gallop sounded; when about 250 yards apart the charge was sounded and when about forty yards apart the halt, the two lines pulling up within twenty yards of each other. After this the Hussar regiment was several times marched in column of squadrons over the hurdles and ditches, the squadrons taking them without disturbing their alignment or exciting their horses. These hurdles, or rather fences, are from two and a half to three feet high and from 100 to 300 yards long: they are placed at intervals over the drill ground so that the whole or a part of a command will have to take them during the drill movements; ditches from three to six feet wide are similarly placed.

After this each captain drilled his squadron individually for a short time, when the regiment was reformed and marched back to barracks; on arriving at barracks files were opened and the men drilled in the lance and saber exercise, after which the horses were taken to the stables, groomed and fed, and the men had their dinner. In the afternoon gymnastic exercises were practiced.

Once or twice per week in the afternoon the young officers are taken out on a reconnoitering ride by the colonel or major.

The German cavalry tactics are characterized by celerity and common sense movements, no movements being practiced except those which would be of use before an enemy. Each lieutenant is the leader and guide of his platoon, and each captain the leader and guide of his squadron, and leads it and posts it wherever directed by the colonel without finding it necessary to have an adjutant, sergeant-major and two principal guides to show him where and how to do it; in fact, there is an utter absence of the galloping about of adjutants, sergeant-majors and principal guides so conspicuous at our drills. Line is formed in any direction and moved forward or halted as the colonel orders. Line or column is always formed in the most convenient and rapid manner, without regard to the relative order of squadrons. The adjutant is used purely and simply as a staff officer.

It is only after observing the practical workings of drill regulations like those of the Germans that one realizes the waste of time

and even absurdity of a great many forms in our own; for instance, can one imagine a greater absurdity than a battalion or regiment forming front into line from column of route, with the adjutant and sergeant-major posting principal guides, the troops coming up and being halted and dressed, and all this time the enemy coming down on you at the gallop; yet according to our regulations, line must be formed in this way. No provision is made for forming line to the front and moving forward at the same time. How much time is wasted ordinarily at one of our drills in posting guides and commanding "guides posts?" Does it not assume a want of common sense to suppose that a captain cannot post his troop in line without being shown where to do it by one of his sergeants? Can any one imagine a more helpless situation for a battalion than to be caught forming right or left front into line, faced to the rear in the presence of an active enemy?

Many more equally absurd movements might be instanced if this were a critique on our tactics instead of the German cavalry. It may be said that these formalities would never be attempted in time of war; then why retain them in time of peace? The Germans think they have not time enough to sufficiently practice even the simple movements required in war, yet they work from eight to ten hours per day.

The German cavalryman's day's work usually begins about 5 A. M., and is completed about 4 or 5 P. M. After this he is free to amuse himself until taps, undisturbed by thoughts of dress parade, etc. In fact German military life is characterized by an absence of all formalities which are merely for show and the amusement of the women and children, such as our dress parades, guard mountings, etc., and their men are never assembled except for instruction or inspection. Very different is our service, where frequently for weeks at a time the only formations are those of guard mount, dress parade, retreat and reveille calls, at which as a rule the men learn absolutely nothing, and the officers get apathetic and coated with rust sitting around waiting for these formations to take place. But in place of these ceremonial formations of ours the Germans have constant drill and instruction, with the object not only of perfecting their men and officers in the duties they will have to perform in time of war, but also with the object of keeping officers, men and horses in good, hard physical condition. The German officers spend from four to eight hours per day in the saddle, besides doing dismounted work, and as a result, they are the youngest looking and most vigorous lot of men for their ages that I have ever seen. From

the corps commander on down to the youngest lieutenant, they not only look strong, but daily demonstrate their ability to perform the physical work required of them in war.

In place of our ceremonial guard mount, the Germans have a very simple one. The sergeant of the guard takes his details when they are reported to him, inspects them and marches them to their post. An officer, corresponding to our officer of the day, goes on for a week at a time and inspects the guards and sentinels whenever directed or whenever he thinks it necessary. It is difficult to imagine why all the formality of our guard mounting has been thought necessary to impress a soldier with the magnitude of his responsibility in guarding a hay stack or rick of wood, when in time of war a platoon or troop would be marched to its position on the outpost line and enter upon its duties with no ceremony at all.

EQUIPMENTS.

In the matter of saddles, carrying equipments, etc., we have nothing to learn from the Germans. Anglomania has invaded Germany even more than our own country. The flat English saddle is being introduced into their cavalry—all the officers and about half the troopers now ride them. For purely straight forward riding where a man has nothing to do but keep his seat and manage his horse, or for steeple chasing and cross country riding where the horse is liable at any time to fall, the flat English saddle is a good one, for the reason that it is a good saddle *to get out of*, and beside is not very liable to hurt the man in case the horse rolls on him; but the flat saddle and chair seat necessitate short stirrups, which render it almost impossible to guide and control the horse with the legs, and also make mounting very difficult. If any of our officers have ever had any doubts about our McClellan saddle and American seat with long stirrups being the best for cavalry, one observation of a German cavalry command trying to mount after dismounting to fight on foot, would almost dispel them, but if any doubts remained, the sight of their insecure seat, especially at the trot, would certainly do so. I think that our cavalry would have nothing to fear either in a charge or in individual combat with the Germans, notwithstanding their magnificently trained horses, because our saddle gives us so much more secure a seat and enables us to manage our horses and arms so much easier.

One thing about the German saddle we might copy to advantage, however, and that is leaving the leather its natural color instead of blackening it. The blacking is always rubbing off on the men's

clothing, besides requiring a great deal of time to re-blacken and polish up for inspections, etc. With the leather of the natural color a saddle would merely have to be washed, and it certainly looks as well if not better than black leather. The same remarks would apply to bridles, halters, etc.

The Germans have the best bit I have ever seen used by any cavalry. The curb part is practically what is known in America as the "Daniel's bit," but of a very mild type. They also use in addition to this a simple snaffle.

When mounted the saber is carried on the saddle, attached to the cantle on the left side instead of the pommel as with us. This would be a convenient method for our officers to carry the saber, but I think our method of packing the saddle would interfere with our troopers carrying it in that way.

Dismounted, the saber-belt is worn under the blouse and the saber worn hooked up (with the point to the rear instead of to the front as with us) on a little chain, the hook of which hangs about on a level with the lower edge of the blouse. This is certainly a much better way than ours of wearing the saber-belt outside the blouse, where it has to be worn too tight for comfort, besides spoiling the blouse in a very short time.

Our undress uniform, with the saber-belt worn under the blouse, and with the present regulation boots and spurs, is the neatest and most serviceable I have yet seen, but our full dress is a caricature, and I think the sentiment of the service is in favor of abolishing it altogether.

HORSES.

The German cavalry horses are magnificently trained. They are purchased as three and four-year-olds, and handled and ridden for two years by selected men before they are put to general use in the squadron. Then for the next year or two they are ridden by the old soldiers so that their docility and handiness seem almost perfect. With the different conditions of our service I regard it as impracticable to train our horses to the same extent, but it would effect a great improvement if the training of remounts, say for six months or a year, were made compulsory as our recruit drill now is.

WILLIAM H. SMITH.
First Lieutenant, Tenth Cavalry.

ON THE SABER AND SABER EXERCISE.

IS it a possibility to improve the tactical saber exercise? Is it a possibility to devise a better plan than that presented in our cavalry tactics, for the instruction of our cavalrymen, to make them more proficient in the use of this important weapon? I think so, and consequently submit the following:

In order to understand what follows, it is deemed advisable to give the following résumé concerning the saber and its use.

The saber belongs to what are known as "hand weapons." There are two ways in which these hand weapons act; to deliver a cut or to deliver a thrust; and, according to the different uses, singly or combined, to which these weapons may be put, we arrive at the different grades of hand weapons, the principal of which are, the straight sword, lance, bayonet, cavalry and light artillery saber.

Now, the object of all these hand weapons is to penetrate the body of an adversary while still in the grasp of the assailant, the weapon remaining in the latter's grasp after the cut or blow has been delivered. The hand weapon with which we shall concern ourselves, is the cavalry saber.

This curved steel hand weapon is supposed to be used both for cutting and thrusting at an adversary, consequently it should combine the qualities both of a cutter and thruster.

The requisites of a thrusting weapon are that it be straight, taper to a point and have the center of gravity in the hand; the requisites of a cutting weapon are, that it be curved so as to present as few points as possible to an opposing surface, that the center of gravity shall coincide with the point of contact or shall be as near coincidence as possible.

From a string attached to a stone, the former held in the hand, the latter whirled around the hand, we have a case where the center of gravity is as far as possible from the hand, giving us great force at the stone but little control over its direction; the same would be true, in a less marked degree, in a saber where the center of gravity lay too far from the handle.

The present cavalry saber has the center of gravity about six inches from the guard plate; the blade is thirty-six inches long, tapers to a point, and has sufficient curvature to enable it to be used, when sufficiently sharpened, as a good cutting weapon; and it has not too much curvature, nor is the center of gravity too far away from the handle to prevent its effective use as a thruster.

Now that it has these two undoubted qualities, the question naturally arises, when should it be used as a cutting and when as a thrusting weapon?

A cut, made obliquely to a man's body, is very much more effective than one made perpendicularly to the tissue, a blow, for instance. in the former case, such as would be delivered by a cavalryman against an infantryman, and in the latter by one cavalryman against another. The reason is that there is a great deal of elasticity to the two layers of skin, to the muscular fascia, to the walls of the blood vessels, to the muscles and finally to the bone. In an oblique cut, the elasticity of each layer is overcome in detail; first, that of the epidermis, then that of the true skin, then of the fascia, blood vessels, muscles and bone; but in the direct stroke, or stroke perpendicular to the tissues, these elasticities must all be overcome together; so that, in order to disable your adversary, wherever possible deliver an oblique cut, a slashing cut; in other words, the saber as a cutting weapon used by a cavalryman against an infantryman is very effective.

Whenever the saber is used as a thrusting weapon, its efficacy depends on the power of the wedge at its point, and this power depends upon the force with which the blade is thrust home and upon the direction in which the force is acting. Assuming that the line of direction of the force is the axis of the wedge, the utility of the saber as a thrusting weapon depends on the force of the thrust. In a cavalry charge the saber has merely to be properly directed; the motion of the horse forwards gives more force than the human arm is capable of exerting; this of itself indicates when the saber should be used as a thruster primarily.

Although in Par. 89, U. S. Cavalry Tactics, we find that "the thrust requires less force, and its result is more prompt, sure and decisive than the cut;" nevertheless in Par. 591 it is made imperative that at the command "charge" the troopers take the position of "raise saber," which of course implies that the cut is to be employed. Possibly it may have been so ordered through past traditions, or possibly owing to the demoralizing effect supposed to be produced by a line of troopers rushing at you with saber raised on high; but

how much more demoralizing is it to see a line with sabers point foremost, when you know that it isn't merely the shock that must be considered, but the successful parry of the point which, if it reaches the adversary's trunk, means almost certain death.

Were the lance as useful after the shock as before (as a demoralizer) and during (as a decimator) we would be using it now in place of the saber; unfortunately, after the shock it is useless. A weapon that could cope successfully with the lance before and during the shock and that would still be a saber after the shock, would be the beau ideal of a cavalryman's weapon.

Our present saber is very effective if only it be handled properly; it has a thirty-six inch blade, then add about thirty to thirty-six inches for arm extension at the tierce point completion of second motion, and about twelve inches more for a slant forwards from hip to shoulder, and you have a reach of between six and seven feet, in many cases more, from saddle to point of saber, thereby enabling the trooper to reach about three feet beyond his horse's head, thrust his adversary, gaining at the same time the full force of the horse's motion and maintaining a far better position for resisting the shock and preparing him for the mêlée. It is surely far easier to direct a thrust in a cavalry charge than to deliver a blow which must be given after the shock and when the assailant is probably in a stunned or dazed condition, due to the impact.

Therefore, in accordance with the principles on which the saber is constructed and the knowledge arising from its use, the tierce point, edge up, should always be employed in the charge, whether against cavalry or infantry—by all means in the former, men leaning well forward in the saddle. During the mêlée, the cut should be used against infantry and the thrust or cut against cavalry, as occasion demands.

In all cases where I have mentioned tierce point I have stated "edge up," and the reason is as follows: In executing "tierce parry" according to the Tactics, it will be noticed that the point is just opposite the right shoulder, whereas in executing "quarte parry" the point is "a little to the left" of the left shoulder; this distinction is made because we are supposed to fight right handed. If we held the saber in the left hand and fought left-handed, then in the present "quarte parry," which would thus become "tierce parry" (back of left hand being up) the point would be exactly opposite the left shoulder; and in the present "tierce parry" (edge to the right) which would then become "quarte parry" (back of left hand down) the point would have to be a little to the right of the right shoulder;

all this so as to enable you to fully parry an adversary's blade when he makes a thrust in tierce at you, edge up, in accordance with the Tactics.

The line of direction of the force in a saber thrust should coincide with the extended arm and pass in this right line prolonged direct to the saber's point, otherwise at the saber's point there will be a resolution of the force into two components, one tending to force the blade into the adversary's body, the other tending to revolve the saber around the hand; whereas both, in a true saber thrust, should tend to force the blade home. In other words there should be no such resolution. If the point is in the same right line with the arm for the same force applied it makes no difference whether the saber is held with the edge up or down, to the right or left. But it will be found in actual practice that when a thrust is made with the edge to the right, and the saber is held naturally, the point will be to the left of the line of force, there will be a resolution and the saber tend to revolve toward the adversary; in like manner when the edge is held to the left the point is deflected to the right of the line of direction of the force; with the edge down the point will be deflected up. and the additional factor enters that flexion at the elbow is almost sure to take place; with the edge up, point to the front, the point can be more easily directed and stands a far better chance, due to the saber's curve, of reaching the adversary's body. In this department the "tierce point" is now made with a twist so that at the completion of the third motion the edge shall be to the right and not up as the Tactics require. Undoubtedly the easiest and in a great many cases the proper way of making thrusts is to make the wrist twist, e. g., in "right point," "rear point;" this, however, is on account of the relation existing between the pronator, supinator, flexor and extensor muscles of the forearm and wrist. If a tierce thrust were made to the right, edge up, the elbow would be partially flexed; but by making the hand supine the elbow is fully extended, and the edge falls to the front. This objection, however, does not apply to the tierce point to the front.

Now then, as regards the offensive and defensive comparisons of the two ways of executing "tierce point":

One of the great advantages of a successful saber thrust is the wound that is produced; as soon as the saber is withdrawn the wound closes externally and suppurates internally, thereby causing the trooper's disablement, which of course is what we want to attain; be the deflection ever so slight, as when made with a thrust, the

wound will be more of the nature of an open gash, no suppuration, and rapid healing.

2d. Another very important point is the parrying of the thrust by the adversary which is rendered very much easier than when the edge is up, due to the saber's curve: the adversary's blade need be scarcely moved at all, thereby maintaining an almost uninterrupted guard in front of the center of the body.

3d. If the saber is held naturally, the point falling slightly to the left in tierce, the blow will not be so forcible due to the resolution, nor will the reach be as great as when the edge is up; this latter point can be well illustrated by taking the third position of tierce point opposite a wall and allowing the point just to touch the wall, then without moving the point, let the saber revolve around it to the position with the edge to the right, the arm is constrained; to make matters right the point must be moved slightly to the left, thereby shortening the reach.

Let us now look at the saber exercise as laid down in Tactics. The horse and the saber are the two distinguishing features of a cavalryman. The former we are getting to understand fairly well, as likewise the proper method of making men fearless riders; but how sadly has that other cavalry symbol been neglected.

It is a most just though harsh criticism to say that in our cavalry regiments there are very few officers and very, very few enlisted men who understand the thorough use of the cavalry saber as an offensive and defensive weapon. The enlisted men are not to blame, but officers, who are responsible for their instruction, are. The pernicious system of our Tactics concerning the saber exercise must be the cause of the decline in the attention paid to the proper instruction of soldiers in its use as a weapon. What do we learn from them? Merely how to go through a great many exercises, not wholly useless, of course, for they tend to render the wrist supple, and yet the book can merely point out the path for us. We should follow it to the very end—success. The only object that troop commanders have had in view, was teaching the men these exercises so that they could execute them in a beautiful manner before the inspector; they never once thought of a practical application; and as regards pitting one man against another to exemplify the different exercises, too absurd for anything.

The saber is surely of sufficient importance to make each troop commander desire to have his men taught its use so as to prepare them for actual warfare. Let us teach a man how to defend himself and how to disable his adversary. Officers should be adepts in the

art, in the first place, and they should be able to impart their knowledge of skill and dexterity to the men.

The sabre drill needs reformation more than the manual of arms, for target practice has prevented men from losing sight of the primary object of the carbine and rifle. Not so, however, with the saber; there is not a single redeeming feature in the useless drill to which enlisted men have been subjected for the past two decades. The men are bewildered by the immense number of different commands to attain practically the same end. They are first taught the "tierce" and "quarte points;" then follow elaborate descriptions of how to execute the thrust in case the enemy is to your front, right, left, rear, on the ground on either side and to the front. Why not limit all the points to two, the "tierce" and "quarte;" point always toward the enemy, back of the hand up in tierce, down in quarte. In like manner, three cuts are all that are necessary; one to the front, one to the left and one to the right, made according to the enemy's position, edge always striking towards him. In like manner, the "tierce and quarte parries" for the thrusts; and the parry edge up, hand moving in different positions for all the cuts, also prime and seconde parries, should be introduced. The moulinets should be retained on account of wrist development.

The senseless saber exercise on foot should be wholly relegated to oblivion. The idea of telling a man on foot that he must place his right foot two feet from his left, his left hand in the position of the bridle hand, and that special reference must be had to its application when mounted! To this end recruits are not to lean to one side, which would derange their seats on horseback, nor direct the blade so as to strike the head or haunches of the horse or knees of the rider. Why not tell the poor fellow that he must imagine himself mounted all the time; that at regular intervals he should jump up and down as though his mount were trotting, and then sway back and forth as though he were galloping?

It would be much more sensible to make each man mount a sawbuck and go through his drill on that, and, moreover, he could press his legs and imagine himself truly mounted. Did those who originated the Tactics have special reference to their application in actual warfare? A paragraph tells us so; and would a dismounted trooper take this position, feet two feet apart, etc., in case he had an adversary? If he did, and made the thrusts, cuts and parries as laid down in Tactics, would he be a combatant long if he had an enemy that understood the first thing about a saber? I think not. Let us then do away with dismounted saber exercise and substitute therefor

fencing exercise, dismounted. If we have anything to teach a man on foot let us teach him what he will have to use when he fights dismounted, and reserve for our mounted teaching what he will use when mounted.

With the exception of two points, three cuts and six parries (two not in Tactics), there isn't a single one of all the exercises that would be used by one dismounted man against another. There isn't a single one that ever would be made from a guard, feet on same line and two feet apart, as it violates the principles of an effective control of the center of gravity in the body during the different movements the adversaries would make. There isn't a single point or cut and there are not more than two parries that ever would be made as the Tactics require. Why, then, teach the men all this useless drill, useless as regards efficiency in conflict? Why not teach enlisted men a sane method of offense and defense? How many men in all our cavalry regiments would remain unpunctured if they stood up before a man who understood his business; and right here I may say that one of the best arguments that can be brought to bear against the tierce point being executed with the twist, is that no fencing master ever does it or teaches it that way; with the straight sword or foil the twist might make no difference, but with the curved saber the point of distinction at once makes its appearance.

If, therefore, the object of the Cavalry Tactics is to confine itself to whatever will find practical application in war, the first thing as regards the saber exercise is to do away with it entirely, and in its place teach the fencing exercise on foot and mounted; and if the men have been properly taught dismounted, and have a proper control over their horses, very little modification will be necessary when mounted fencing is resorted to. The advance sheets of the new Cavalry Tactics contain almost all that is necessary for a thorough course in fencing.

To teach this exercise on foot, the winter months should be utilized; a proper hall, with a properly sanded floor, should be set aside, and each troop drilled at least twice a week, and always each man with an adversary, never any man going through the motions alone. Wooden sabers, weighted by lead, and made exactly like the service saber, center of gravity in same place, basket hilt and identical curve, and even improved as far as silvering the wood, padded masks, thick buckskin gloves and padded jackets.

All these articles should be purchased for each post from the canteen fund; a suitable officer should be detailed as instructor for the whole post, and he should be responsible for the fencing property.

Each troop should be made to attend twice each week during the winter months, and the drill should be one hour in duration. For instance, for a post of six troops such as Custer, drills would be arranged as follows: Men going in blouses and barrack shoes; on days when there are but two drills, one will be from 9:30 to 10:30 A. M., and the other from 2 to 3 P. M. When there are three drills, the hour from 10:30 to 11:30 will be used. Drills every day except Saturdays and Sundays:

Monday.—"A" Troop, 9:30 to 10:30; "B" Troop, 2:00 to 3:00.

Tuesday.—"D" Troop, 9:30 to 10:30; "E" Troop, 10:30 to 11:30; "K" Troop, 2:00 to 3:00.

Wednesday.—"G" Troop, 9:30 to 10:30; "A" Troop, 2:00 to 3:00.

Thursday.—"B" Troop, 9:30 to 10:30; "D" Troop, 10:30 to 11:30; "E" Troop, 2:00 to 3:00.

Friday.—"K" Troop, 9:30 to 10:30; "G" Troop, 2:00 to 3:00.

The instructor should be excused from all other duty, and there should be a time set apart for the instruction of officers.

This scheme is certainly not visionary, and will be productive of the greatest good. The enlisted men have eyes, and they are very quick to take hold, if only the officers will set them the example. Let us have no more of these dismounted saber drills in barracks during the winter. Every officer knows it is the biggest farce that is perpetrated to see men arrayed on either side of a squad-room hitting bunks, tables, lamps, and stoves in vain endeavors to execute the different cuts, thrusts and parries. Let us use some common sense and send the men to a fencing hall where all will be taught skill and uniformity.

The enlisted men of Troop "A," First Cavalry, who have been taught the fencing exercises during the past winter, have shown wonderful aptitude in this direction, and if their work is to be taken as a standard, I venture to say that two winters' practice will make a most remarkable change throughout the army as regards the feeling both officers and men will have with reference to the utility of this weapon both offensive and defensive; the dead and now useless saber will be brought to life, and it will take its proper place as the *arme blanche*.

One very important point concerning our tactics is the fact that they are right-handed tactics made only for right-handed men; the weapon (saber) must be used in the right hand. Suppose the saber hand or arm should become strained or punctured, what then? Why the man becomes a non-combatant, although he have a strong left arm, but one that is inexperienced. This suggests the thought

that men should be exercised with the saber in the left hand as well as in the right.

There will come a time when some ambidextrous officer will assist in getting up the Tactics; then there will be a few disciples, and throughout the army men will be working left-handed as well as right-handed.

That colonel of the United States army will have the regiment *par excellence* whose men will be able to use the saber in such a manner, that whether they are on foot or on horseback, whether they have the saber in the right or left hand they will fear no man with whom they come in hostile contact, be he cavalryman or infantryman.

Unfortunately we are given too much to carrying out the letter of things without yielding to the spirit. Let us start a reform, and good must come of it. Fortunately it will be a reform that will take a good deal of useless drill out of the life of the cavalryman, replacing it by a healthy, just, and powerful substitute, and which will enable him to comprehend how to use a weapon against which there have been too many slurs and slings cast, but which must eventually, if properly employed, rise to a position second to none.

The weapon is not at fault: we are the ones who, through our inefficiency, have come near sounding the death knell of the "emblem of our corps."

I desire here to express my thanks to my troop commander, Captain P. S. Bomus, First Cavalry, for the extensive opportunities permitted me, to pursue my ideas, with his troop, concerning the physical development of the recruit (of which I shall say more later) and the fencing exercises.

PETER E. TRAUB,
Second Lieutenant, First Cavalry.

Fort Custer, Montana, May 15, 1891.

LETTERS ON CAVALRY, BY PRINCE KRAFT ZU HOHENLOHE-INGELFINGEN.

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

EIGHTEENTH LETTER.—THE CAVALRY IN COMBINATION WITH INFANTRY.

* * * * * * * *

IF, as I have asserted in my earlier letters, cavalry will have to attack cavalry ten times to once that it attacks the other arms, (provided always, that it is properly led and applied on both sides) it should not be a matter of surprise that the writings and discussions concerning it are mainly taken up with how it is to conduct itself when operating against its own arm of the service. It can be strongly maintained, that, in so operating, the cavalry performs the most valuable service for the army that it is capable of effecting; for if the enemy's cavalry is defeated, destroyed, or driven from the field, then our cavalry can secure to our army that strategical superiority which it obtained in 1870.

It would be a mistake to admit as a consequent conclusion that, therefore, our cavalry should be exercised only in division formations and that it should be exercised only in the manner of meeting the enemy's cavalry. It must not be forgotten that the overcoming of the enemy's cavalry is the first step towards a great purpose, and that the course of action leading directly to this great purpose can only begin after the enemy's cavalry has been defeated. This course of action consists in supporting the infantry. It can be in condition to render this service only when it constantly acts upon the preconceived idea that it is there solely for the infantry—that it is an auxiliary arm to the infantry. It must know the characteristics, capabilities, and deficiencies of the infantry and must be exercised in common with it often and intimately. This intimate acquaintance is equally important for the infantry, whose leaders must learn the characteristics of the cavalry in order to know what they may expect and demand of it. In war, they usually either fail to make full use of the cavalry under their command or they ruin it by excessive demands, expect and call for impossibilities (as he who ordered the Uhlans to lie down in order to secure protection from the enemy's infantry fire). This is a very weighty reason for the most intimate union between the cavalry and infantry in peace, and speaks volumes against isolating the cavalry in special cavalry divisions. For this reason there exists a necessity that the cavalry, and *all* the cavalry, should annually take part in connection with the infantry in the maneuvers of commands composed of all arms.

You may perhaps laugh, and say that I have said a very good thing, but nothing new. Yet we see that that cavalry which maneuvers in cavalry division organizations, as a rule, takes no part during that same year in the maneuvers of the other arms. I think that is a great mistake. I have already explained my ideas in an earlier letter, as to how they could accomplish both requirements of the cavalry if the men were retained under the colors until the first of November, and their term of actual service were increased to the full three years.

The opinion has become wide-spread that false impressions would be created if all the cavalry participated in those maneuvers which are executed on the narrow frame work of an infantry division; also if a division of from twelve to thirteen battalions be accompanied by from ten to fifteen squadrons, which would not correspond to the condition of actual service, for the division of from twelve to thirteen battalions disposes of but four squadrons of cavalry in time of war. The misuse of the cavalry arises from the fact that, in time of peace, demands are made upon it and become customary, that cannot be complied with during war.

It cannot be denied that at the maneuvers in peace the cavalry is frequently too numerous, and it is frequently applied in a manner that would not be possible during war. The extravagance that is shown in officers' patrols I have already mentioned in one of my earlier letters. But does not that occur with all arms? How many attacks must not the same troops make on the same day? Attacks of such importance that a single one in actual war would have rendered those troops incapable of further action for that day. We employ the few days allotted to field maneuvers in such a way as to secure the greatest amount of experience and instruction in field work or battle tactics. Besides, it is entirely within the power of the commander of the maneuver to limit the strength of the cavalry assigned to act with the infantry. An army corps, in which five cavalry regiments

of five squadrons each, to take part in the maneuvers can assign four squadrons to each division (one regiment of four squadrons and four fifth squadrons), and then form a cavalry division of four regiments of four squadrons each, which is held in hand and may be assigned to the contending sides in turn.

But it is of much greater importance that all the cavalry should exercise annually in connection with the infantry, as much for the purpose of giving them practice in reconnoitering and screening duty in connection with a real concrete object, as for giving them all possible opportunities to make attacks upon infantry and artillery. Otherwise, owing to the constantly increasing cry about the destructive effects of long-range fire-arms, the cavalry runs the risk of considering any and all attacks upon other arms as impossible, and that as soon as they make their appearance the cavalryman must seriously consider how he can avoid the danger zone.

It must not be expected that the Prussian military spirit will protect us from this. As the troops are taught in peace, so they will act in war, at least at the beginning of it, and no one will dispute the great effect that the result of the first great battle of a war exerts. In former times it was customary at maneuvers to order the artillery to withdraw when it found itself under fire of the infantry. This way of withdrawing before the fire of the infantry became so habitual, that once during the war a battery withdrew with the explanation that it was under infantry fire; proof, a sheep that they had not intended to slaughter until they reached their bivouac for the night, had been struck by a stray infantry rifle ball.

It was only in our last war that our cavalry succeeded in breaking away from this old method of acting according to routine, and without due consideration of existing conditions.

Besides at maneuvers the cavalry will suffer at the hands of the umpire however superior it may be. If each and every attack of cavalry upon infantry is declared unsuccessful; if it is always sent to the rear when infantry fire or a cannon shot is heard, before determining whether it was the target aimed at or not, it is natural that the cavalry should lose the desire to let itself be seen. It withdraws as far as possible from the infantry and holds itself almost detached, inactive, until finally the enemy's cavalry, which has been likewise discouraged and neglected, affords an opportunity for small purposeless cavalry actions. If cavalry is to be declared hors-de-combat after the boldest and best ridden attack, in which it, regardless of hedges and ditches, has come up to the enemy in compact order, simply because it has fallen upon intact infantry (and at maneuvers

the infantry is always intact), then, the cavalry commander cannot be blamed for losing all desire to act with the infantry, to make himself and his command a source of amusement to the witnesses and to allow the feelings and pride of his troops to be injured. Besides, being placed hors-de-combat is much more painful to mounted troops, and touches their honor more than that of foot troops, because, as an evidence of their misfortune, the mounted troops must dismount, and being dismounted inside the zone of action is generally considered a punishment.

True, the difficulty presents itself to the umpire that if he should declare the cavalry attack successful, he must declare the infantry upon which the attack fell, destroyed, and he, upon that view of the case, cannot, and should not give birth to an idea in the infantry, that it is possible to overthrow it by an attack of cavalry, however compact and well executed, if the men will only preserve their coolness and stand firm. By so doing he would create in the infantry a fear of the cavalry which would be without foundation, and which might have the most disastrous effect during war.

I have found a way by which it is possible to escape this dilemma without injuring the self-confidence of either of the arms. Let the umpire, after the cavalry has executed a correct and fine attack against infantry, which has maintained itself properly, grant that each of the parties would have won a victory in case they had not belonged to the same army, and then decide which party must fall back according to the demands of the general situation, having it distinctly understood that this is done only in order to separate the troops, and is voluntary, and there must be no pursuit until the action interval is again established. After such a decision each arm will maintain its confidence and the desire for new activity. By such a decision many disagreeable enmities would be avoided which often arise between the leaders, and even entire commands, when one has caused the other to be placed hors-de-combat.

It is mainly the being placed hors-de-combat at maneuvers, which is done sometimes with marked liberality, that extinguishes the desire to take part in them; takes away all pleasure in the exercises, and stifles independent initiative on the part of subordinate commanders. If a body of troops is going to be placed hors-de-combat by falling into an unfortunate position, or through having made an unsuccessful attack, then the commanders will not willingly run the risk of losing their calling at a maneuver, but they will, on the contrary, become skillful in avoiding dangers rather than accustomed to finding pleasure in real danger. This applies to the cav-

alry in a greater degree when it is placed hors-de-combat because it attacked intact infantry. Who can see whether the enemy's infantry is intact or not at the great distance at which the decision to attack must now be made?

In war evidence of the breaking up of the cohesion of the enemy's masses is given by the many dead and wounded to be seen lying about. But it can not always be determined with certainty, and if too much time is taken for consideration the supreme moment may be lost. In peace all signs are wanting, and it is only after the attack that the umpire declares whether the infantry was broken or intact. Besides the regulations treat of the manner in which unbroken infantry is to be attacked by cavalry. If the cavalry does so it is placed hors-de-combat. Further, in war the cavalry knows by the falling shells and shot whether the enemy has observed it, and is firing upon it; in peace the cavalry remains in doubt whether the artillery is firing at it or at some other object, in which latter case, it might be taken or attacked by surprise. The placing hors-de-combat at maneuvers should be resorted to just as seldom as possible. This measure is a very hard punishment. That it should not be so considered is true, and the regulations of maneuvers do not so describe it. But it is a punishment, nevertheless, and is so considered by the troops. A body of infantry which stacks its arms, or a mounted corps which is dismounted and must remain for an hour inactive in that condition, is sensibly condemned before the other troops. I have always found that the maneuvers were much more instructive, and that the troops had much more interest and love for them, when the corps were very rarely placed hors-de-combat, and when such a course of action was applied as a punishment for carelessness and want of attention; for example, when dismounted cavalry allowed itself to be attacked by infantry, or marching infantry or artillery should be fallen upon by cavalry before they had opened fire upon it, etc.

It is very necessary that the commanding officers of infantry brigades, regiments, and battalions should be exercised in connection with cavalry, not only with so much, or so little cavalry as may be attached to a division during war, but also with great masses, in order to gain a correct idea of the room and time in which cavalry can move and form up, and of the relation in which the infantry stands thereto, as well towards our own cavalry as to that of the enemy. Something can also be done in estimating numbers. But during war there is no time for calculations. After one has repeatedly seen such masses, how they move and form in the terrain, within what time he can and must expect it at this or that place, one knows by a sort of intuitive feeling.

It is only by such maneuvers in close connection with infantry divisions that the cavalry will learn how they can properly attack them in actual war. It is true that the actions, as depicted at the maneuvers, are very different from those of actual war, but they come nearer the truth than mere theoretical speculation, and many things concerning which we were unable to come to a decision, and concerning which there existed different opinions, are decided by the first sight of the troops located on the terrain. I recall that on one occasion one of our most renowned cavalrymen, a brigade commander, was confidently of the opinion that he was able to enter the action with the infantry if he first led the brigade in squadron columns through the intervals of our engaged infantry, and after passing our own infantry, brought them into line and rushed to the attack.

I furnished him the opportunity to try it at the next maneuver, and sent him word to attack when the artillery and infantry action had reached its height. The brigade came from the rear up to the engaged infantry line and wished to be permitted to pass. But in the awful uproar of the rapid fire, which chained the eyes of the infantry upon the enemy, they heard and saw nothing that was passing in their rear, and the cavalry would have been under the necessity of riding over some of our own infantry that lay under the cover of rifle pits, before they could have gotten through. They had therefore to wheel off and gallop around one flank before they attacked. The impossibility of breaking through between the engaged infantry becomes more apparent when it is considered that the ground behind the infantry is constantly swept by the passing shots of the enemy, for which the advancing cavalry would form a "ball-catch;" and further that there exists behind every line of engaged infantry a constant business in re-supplying ammunition, transporting wounded to the rear, field hospitals, etc., all of which must be passed by the cavalry. If the cavalry learned nothing else in the whole autumnal maneuver of the year of which I have spoken, they at least gained the conviction that a cavalry attack of a brigade or regiment, can participate in the action in an effective manner only by passing around one of the flanks, and that they must let the infantry have time to make its fire felt before they make their attack; and this single piece of information fully rewarded the cavalry for their part in the maneuvers of that year. But the infantry must learn in these exercises how they are to conduct themselves in cases where attacks are made by larger masses of cavalry in their vicinity, and within their zone of fire.

Who has not observed at maneuvers, and even in war, that, as soon as the cavalry attacked the infantry became passive spectators as though another had taken up their role and they might rest. Is not the moment in which our infantry is masked, and cannot shoot, and in which the charge home of the cavalry has drawn the fire of the enemy upon it, the favorable opportunity for the command "Auf! March, March! Hurrah!" in order to gain as much ground as possible to the front for the purpose of aiding the cavalry, and to secure the ground gained? How often, at maneuvers, for the purpose of presenting this idea, have I ridden personally into the ranks of the infantry and given this command myself in order to give them a practical representation of a general action of the two arms. Such unity of action must be practiced, and made to become the custom if it is to be adopted in war.

The divisional cavalry is almost indispensable to the infantry during an action; no company makes a reconnaissance of a small place without being accompanied by one or two cavalrymen for the purpose of carrying dispatches, and of performing patrol duty. I have already mentioned the use that is made of the cavalry in quickly locating the positions of the enemy in battle. I could introduce numerous examples, even at the storming of a village (Bourget) of how mounted patrols were sent out in front of the infantry in order to determine whether this or that part of the place was occupied or not by the enemy, and of how concerted action between the infantry and artillery was secured by means of mounted men boldly riding across the open field which was raked by a violent fire of both artillery and infantry. But this is carrying coals to Newcastle. With us it is nowhere disputed that the necessity exists that a cavalry regiment in its entirety must be given to each division, and there is no danger of our adopting the organization that the French had in 1870, in which the infantry divisions had no cavalry, but all the cavalry of a corps was united in a brigade or division under the immediate direction of the corps commander.

All my considerations come to the same result. I would change nothing in the heretofore peace-organization of our cavalry. I only consider it extremely desirable that *all* the cavalry should *annually* take part, not only in the exercises in combination with other arms (field maneuvers and evolutions of mixed commands) but also in divisional maneuvers of cavalry.

PROFESSIONAL NOTES.

A CONVENIENT METHOD OF ORIENTATION.

In the instruction of May 9, 1885, upon the Field Service of Infantry, in the second part of the first chapter some brief directions regarding the use of various methods of orientation by means of compass, the sun and the pole star are given.

These instructions are not complete; especially is no mention made of the assistance which an officer may, at times, derive from the use of his watch, which, if well regulated, may entirely replace the compass.

We know that at noon the sun is in the south: if then, at this instant the XII mark be directed to the south the line XII–VI will coincide with the south-north line.

In practice, in order to avoid the difficulty of fixing the sun, the watch should be inclined so as to bring, by slight oscillations, the small luminous point projected upon the dial just over the VI.

But, apparently, the sun is not stationary: it seems to describe in twenty-four hours a circle around the earth which might be easily indicated upon a watch face had this face twenty-four divisions instead of only twelve, which is equivalent to saying that upon the watch face the sun moves over one hour in two and one-half minutes. It is only at noon that the number VI will indicate, under the conditions above described, the due north. Let us now suppose that it is X A. M., the sun will consequently be reflected upon the number V.

Suppose again that it is VI P. M.; at noon the sun would touch VI; since then it has passed over four and one-half times two and one-half minutes and must therefore, strike VIII.

In practice it will suffice to direct the prolongation of the line bisecting the angle formed by the hour and minute hands towards the sun; the watch will then be oriented; the line XII-VI indicating the direction south-north. This observation authorizes the employment of another method. Suppose the watch face to be divided into twenty-four instead of twelve spaces, 1, 2, 3, etc., I will then correspond to 2, II to 4, III to VI to 12, etc. Holding the watch horizontally place a vertical (a pencil, pin or straw) above the Arabic numeral corresponding to the present (actual) time, that is above the 4 if it is IV o'clock; then turn the watch around until the shadow of the vertical placed upon the dial passes through the

pivot of the hands; the watch will be properly oriented, the line XII-VI pointing south-north.

The same methods are applicable to orientation by means of the moon. At full moon, the earth, its satellite and the sun are all disposed upon the same axis. The situation of the sun and moon respectively, in reference to the earth, differs by twelve hours: the moon will then be found one hour after midnight where the sun was at one hour after noon. In her first quarter she is six hours behind the sun; at midnight she is visible at the point where the sun was at 6 P. M., that is in the west. In her last quarter she is six hours in advance of the sun; at midnight she will be found at the point where the sun will appear at 6 A. M.—the east.

To distinguish the first quarter of the moon from the last, remember that in the former the crescent is D shaped and in the latter like C.

As the watch may occasionally be used as a compass, so this latter may be employed to find the hour.

We know that the sun is in the east at 6 A. M. The sun is in the south at noon. The sun is in the west at 6 P. M.

Let us now consider the semi-circumference of the compass. E., S., W., E., corresponding to 6 A. M. S. to noon, and W. to 6 P. M.

Numbers from S. to W.; S. 12; 1, 2, 3, 4, 5, 6, (W).

Numbers from S. to E.; S. 12, 11, 10, 9, 8, 7, 6, (E).

To determine the hour orient the compass by bringing the S, over the No. 12, and then read the number upon a sight in the direction the sun strikes; if it be 8 P. M. the sight will pass over the numeral 3, the sun being in the S. W., at 3 P. M. The operation may be facilitated by using a vertical placed upon the pivot of the needle.—*From the Revue du Cercle Militaire, August 9, 1891.*

NOTE BY THE EDITOR.—Bisect the angle between the hour hand and XII, point the bisecting line towards the sun, and the watch is oriented: the line XII—VI being South—North

New Cavalry Drill Regulations.

EXPERIMENTS IN NIGHT FIRING BY RUSSIAN TROOPS.

Night firing of the Chasseur Detachment of the Eighty-fifth Regiment of Infantry (each battalion has its Chasseur detachment consisting of the strongest, most skillful and athletic men—generally volunteers. The duties are essentially those of foot scouts).

The regulations require all classes of troops to be acquainted with night firing. It is known that with special facilities one can fire as well by night as by day. All these facilities are especially adapted for the defense of a position from which various distances have been measured; but the guns must not be changed. It is also known that night firing without special advantages is very difficult, on a dark night almost impossible; the results are simply accidental. Pasting a piece of white paper on the sight, smearing it with a substance that burns, helps materially. Better yet is always to hold the head

and hands the same way and to wear the same clothes and equipment that will be worn at night. It is necessary to observe how the cheek is placed on the rifle, the position of the shoulder, etc. If the target be seen at night, however little, then success may be reckoned upon. The chasseurs taking part in the night firing were very much interested in the trials which took place on the regimental firing grounds. The targets were placed as follows: At 800 steps (28 inches), two targets, six figures each; at 500 steps, two targets three figures each; at 300 steps, six targets (head to waist) on the top of a ridge; at 200 steps, six targets (head to waist), also six targets (heads and shoulders); at 200 steps, behind intrenchments, six head targets, at which practice was had the following day also. Each man had fifteen cartridges and was in full field costume. The firing was connected with a tactical problem. The enemy, consisting of a company of infantry, were fortified in the redoubt; in case of success to pursue the enemy. The command first sent out a patrol; it was about three versts to the position of the enemy; in passing the railway the patrols reported that in the darkness they had observed targets. The command halted and the chasseurs of the First and Second battalions were at once sent out as skirmishers. The others constituted the reserve. Advancing toward the position of the enemy about 800 steps, the chasseurs were ordered to fire two volleys at the right six targets. The third battalion of chasseurs were called out of the reserve and ordered to fire two volleys at the left six targets. Each of these had the night sight on his gun. On advancing to 500 steps the signal men quickly lighted the combustible material and ran out of the intrenchments. The targets of three men each were fired at by single fire. Then the entire chain having advanced by running 300 steps, fired at the waist targets. Finally, having run to the last position, (200 steps from the enemy) the chasseurs opened individual fire at the waist and head targets until joined by the reserves, when a general attack was made with the bayonet. The following shows the results:

Number of Chasseurs.	*Distance, Steps, 28 in.*	*Elevation of Sight.*	*Targets.*	*Number of Shots Fired.*	*Number of Hits.*	*Per Cent. of Hits.*
32	800	800	6	64	9	14
16	800	800	6	32	12	34
32	500	500	3	64	11	17
16	500	500	3	32	10	31
32	300	fixed	waist	64	5	8*
16	300	fixed	waist	32	5	16*
32	300	fixed	waist	64	4	6†
16	300	fixed	waist	32	3	9†
32	200	fixed	waist	64	6	9
16	200	fixed	waist	32	4	13
32	200	fixed	head	64	5	8
16	200	fixed	head	32	3	9
65	200	fixed	head	196	7	4

*Targets lighted by fire.
†Targets placed on the crest of the entrenchment.

At the time of the firing, thirty-two men fired without any appliances, sixteen men with night sights.

THE VIRGINIA MILITARY INSTITUTE, LEXINGTON, VA.

The dedication of a monument to General "STONEWALL" JACKSON, at Lexington, in July last, brought out a great deal of novel information in regard to the Virginia Military Institute, its professors and élèves, much of which is worthy of preservation for the enlightment of the future students of the history of the Civil War, and for the encouragement of the students in the various State Colleges in which army officers are detailed as instructors in the art and science of war.

"One-tenth of the Confederate armies were commanded by the élèves of this school, embracing three major-generals, thirty brigadier-generals, sixty colonels, fifty lieutenant-colonels, thirty majors, one hundred and twenty-five captains, over two hundred lieutenants, and the results of the battles, numbering one hundred and twenty-five of these among the killed, in addition to a large number of maimed and wounded, show that the élèves of the Institute met the call of their country with an earnestness of devotion which places them in most honorable distinction for their heroic defense of what they believed to be right.

The names of RODES, MAHONE, GARLAND, MUNFORD, HUMES, LANE, WESTON, TITUS WILLIAMS, TERRILL, ECHOLS, MCCAUSLAND, the PATTONS, CRUTCHFIELD, CUTSHAW, PAYNE, CARTER, MINCHER, CHENOWITH, LATIMER, the ALLENS, BOTTS, CUMMINGS, LINDSAY WALKER, JAMES S. WALKER, TERRY, DUKE, WHARTON, W. W. GORDON, the MAYOS, NEFF, PENDLETON, STUART, STRANGE, MARSHALL, PENN, LACKLAND, LEE, MASSIE, FLORENCE, WATTIE TAYLOR, TRUEHART, the BRECKINRIDGES, CARPENTER, the OTEYS, and a long line of others of equal fame, have rendered memorable for all time the annals of the military institute.

In 1864 the buildings, library, the chemical apparatus and the philosophical instruments used by JACKSON in the instruction of cadets were destroyed by command of General DAVID HUNTER, U. S. A. Through the untiring energy of General F. H. SMITH, superintendent, the ruin and ravages of war were repaired, and the Institute is actively prosecuting its work as a military, scientific and technical school. In the article on military schools in the American Supplement of the Encyclopedia Britannica Major-General O. O. HOWARD, U. S. A., says: "Among the most notable military schools in the United States is the Virginia Military Institute. It ranks next to that at West Point. The Federal government, whose highest interest it is to foster and encourage such institutions, should make good the loss which at the time it thought to its interest to inflict, and thus supply the means for the work already planned, but which the poverty of the State renders it unable to pay."—*Baltimore Sun, July 22, 1891.*

THE RURAL GUARDS OF MEXICO.

The review of troops in front of the Palace was one of the most picturesque military sights you can see outside of a great war. The 15,000 troops were massed in a grand column at whose head was the general-in-chief and his staff. This column contained the cavalry and the infantry to the number of 10,000, and all the armament and machinery of warfare were represented in it. There were the hospital ambulances, the cannon and ammunition wagons, the mules carrying their kegs of water. The music to which the whole marched was played by mounted bands. I do not know of such bands anywhere else in the world. The Mexican is a born musician; and if he were not a born horseman as well he could never handle a big brass trombone and a half-tamed mustang at the same time.

The most wonderful part of the parade, however, was that division of the army known as the Rurales or the Rural Guards of Mexico. These are the President's favorite troops and they are among the finest soldiers of the world. I have seen the best troops of the Sultan of Turkey on their Arabian horses, as they accompanied him in a great army on his way across Constantinople to kiss the mantle of MAHOMET, and I have witnessed some of the great reviews of Europe, but I have nowhere seen such wonderful horsemen and such picturesque troops as the *Rurales* of Mexico. The gay costumes of the Turkish soldiers with their gold braid and their turbans do not compare with those of these Mexican Centaurs. They ride in battalions on the finest of fiery horses and each battalion has horses of the same color. They ride so well that horse and man are as one, and it is hard to tell where the horse ends and the man begins. Both horse and man are gorgeous in their silver and leather decorations. The men wear suits of terra-cotta leather, consisting of pantaloons laced down the legs with silver cords winding about big silver buttons. Their coats are something like a loose roundabout with a vest in front, and both coat and vest are profusely embroidered with gold and silver which shine out under the sun against this dark red leather background. The boots of the *Rurales* are of the finest leather, and great silver spurs stick out from under gorgeous saddles, which adorn every one of their horses. Their hats are the most gorgeous of sombreros; a fuzzy natural felt of a pearl gray color. The brims of each stand out about eight inches on each side of the dark faces of the soldiers, while the crowns rise in the shape of a sugar loaf at least a foot above their heads. Around each hat is a silver cord an inch thick, and silver tassels hang from the end of this out to the edge of the great brim. They wear bright red sashes about their waists, and their saddles are as gorgeous as themselves. They are of white leather embroidered with silver, with great stirrups and with bridles to which are fastened silver bits. Behind each saddle there is a coiled lasso, and these men are adepts in the use of the rope. They begin to learn its use as babies while lassoing chickens; and it is said that the rope in their hands is more dangerous than the rifle bullet or the saber blow. Each *Rurale* carries a small armament along with him. There is a Remington rifle across his back, his belt is full of great pistols and a saber hangs by his side. Take this combination of arms, horses and men, dress them in your mind's eye in this gorgeous costume, make the bands play, the sun shine, face a square park with a great palace, a vast cathedral and with long lines of arcaded bazars,

let the walls of these be gay with flags and their windows and roofs be a mass of gaily dressed humanity, let there be tens of thousands of the Mexican peasants on the plaza, among the trees, and in the wide streets, surrounding this let there be thousands upon thousands of the gorgeously dressed Mexican troops, and you have some idea of the grand review on the Mexican Fourth of July.

After looking it all over, however, you will find your eyes coming back again and again to the *Rurales*, and you do not wonder that President DIAZ is proud of them. It was through them that he turned Mexico from a land of brigands into a land of peace and order. These men were themselves, in many cases, the brigands of Mexico. They were the bandits of the mountains, who robbed stages and made themselves famous as the PAUL CLIFFORDS of Mexico. General DIAZ sent for the leaders and asked them how much brigandage paid on the average. The leaders said that it was worth to each brigand something less than $40.00 a month, and DIAZ—so the story goes—thereupon offered them steady wages at that rate to form a part of his army. They accepted, and the result is that they make the best troops in the world. DIAZ is both loved and respected by them, and they gave him a banquet the night before the last Fifth of May. These men form the working force of the Mexican army. They have cleared the mountains of robbers, and it is now as safe to travel in most parts of the interior of Mexico as in the back districts of New York or Pennsylvania. These soldiers form the guards at the stations all over Mexico, and when any of the trains require an escort it is a company of the *Rurales* who are detailed to go with it. In Mexico the army means much more than in the United States. It is through the army that a party or a president remains in power, and revolutions are too recent in Mexico to allow the army to grow discontented. The result is that the soldiers are very well treated. President DIAZ, it is said, made not long ago the remark that of the expenses of the government, the army must be paid first; after that the other expenses, such as the salaries of the civil officers, the foreign loans and the subsidies might come in, but not before. Prior to this the payment of the army has not been the first consideration, and one of the strong points in the present government is the absolute faithfulness which it preserves in the payment of its troops. The army of Mexico now numbers about 35,000 men. Twenty-two hundred of these are *Rurales* and there is a cavalry force of more than 6,000. Every Mexican able to bear arms is liable for military service from his twentieth to his fiftieth year, and the country has very fair military schools.—*Frank G. Carpenter, in Buffalo Express of July 4, 1891.*

THE EFFECT OF SMALL CALIBER BULLETS.

At the moment of writing we hear of rather a startling incident which occurred at Chatham, this week, in connection with experiments which were being made with Mark II, (the new rifle). The incident has nothing to do with the merits or demerits of the weapon, but simply with the "stopping" powers of the diminutive bullet; an unfortunate pig was one of the objects fired at, and it was not until it had been the receptacle for nine shots that it was "stopped." R. I. P.—*Broad Arrow of August 2, 1891.*

UMPIRING THE CAVALRY OUT OF EXISTENCE.

To one accustomed to the ordinary platitudes enunciated in our English text-books as to the relative value of cavalry and infantry, the attitude of the German authorities must appear at first sight most perplexing. We do not, of course, refer merely to the opinions of such cavalry enthusiasts as the late Generals von SCHMIDT and KOEHLER. They were both so thoroughly imbued with the spirit of SEIDLITZ and ZIETHEN that one is not surprised at the importance they claimed for their own arm. But it is when one finds the same ideas, not only in the writings of men of the other arms—as, for instance, HOHENLOHE and VON SCHERFF—but also in the Cavalry Instructions, that one begins to feel that the English solution of this question, judging by the decisions of umpires, is perhaps not so final as it might be. The invariable rule in these engagements—certainly until lately—has been that the umpires have decided against the cavalry, no matter how suddenly or cleverly the charge may have been made. Squadrons of Hussars have not unfrequently come down so unexpectedly on an extended line of skirmishers—who lost time by trying to form groups—that only one single shot was fired before the horses were pulled up at the very muzzles of the rifles. A couple of batteries whilst coming into position have been attacked by a whole regiment of Hussars, who rode into them and through them before they had succeeded in bringing more than one gun into action. Yet on both occasions the decision has been given against the horsemen. What could be expected from men who were always having the lesson dinned into their ears that, though ornamental, they were not useful, and that, though their appearance added picturesqueness to a review, as far as real work was concerned they had better have remained in barracks? That this prejudice against them was felt and most bitterly resented by both men and officers, will not be denied by any one acquainted with them. How should it not be so, if it is remembered that the trooper as a rule takes a much keener interest in his profession than the ordinary line soldier, and that, though the officers are both drawn from the same class of society practically, the rapidity and excitement of cavalry drill tends as a rule to bring out the martial ambition of a young officer much more than that of his less fortunate comrade on foot? It is generally accepted in Prussia as a fact that it was owing to a similar system of umpiring previous to 1870 that the German cavalry did not render more brilliant services in the campaign of that year. Even infantry officers admit that, had it not been for the fixed idea in every man's head that cavalry could not charge unshaken infantry, the success of BREDOW's charge might have been tenfold greater than it actually was. The first proposal for this charge was actually made

by a young lieutenant of foot, and was at once pooh-poohed; but after a moment's reflection, the General saw that his young galloper was right, and sent him off to call on the cavalry to charge. But even the leader of the cavalry ridiculed the idea at first, and with the same old formula,—"Cavalry cannot charge unshaken infantry." It was only on receiving a direct order from the Chief of the Staff of the army corps to which he was attached that BREDOW turned to his trumpeter with the order, "Sound the 'trot,'" and, without an attempt to form either a second line or reserve, rode right at the lines of "unshaken" infantry and artillery with results that are well known, but which the want of the "last closed squadron" rendered only temporary. According to the map of the battle showing the position of the troops at that moment, there was a large body of horse hidden away in a fold of the ground some few hundred yards distant. Had it not been for that miserable old formula, "Cavalry cannot," etc., the emergency would have been faced coolly, and supports provided. This error will, however, not be made in the German army again; for, whilst admitting the truth of what the Infantry Field Exercise says as to the frontal defensive power of steady infantry, the Cavalry Regulation points out that, till the experiment has been tried, who can tell whether the infantry is in fact steady or unshaken, or not? The cavalry must be prepared to accept the risk and charge when called upon. Now, when this subject is discussed in England it is always from the old "square" point of view, the fact that the square is no longer a fighting (European) formation being conveniently ignored. Only the other day, for instance, an English critic of VON SCHMIDT'S "instructions" began gravely discussing the merits of the latter's plan of attack against a single-battalion square, such an idea having probably never entered into the gallant German's head, it being hardly likely to do so after his experience of modern warfare. As a matter of fact, the mark to be charged will almost invariably be a more or less dense line of skirmishers, generally excited, and shooting in the anyhow fashion which results from such excitement; or if a square is formed by any chance, the mere fact of its having been considered necessary to form it points it out as an almost certain prey for the cavalry. Let us consider the defensive power of such a line compared with that of the old six-deep square of the Seven Years' War, or of NAPOLEON'S time. The old square presented a solid, unbroken front, well in the hands of the officers; there were no distances to be judged and sights to be adjusted. For every twenty inches of front there were six 13-bore muskets available (which muskets, in the hands of FREDERIC'S grenadiers, fired five rounds a minute), and whatever those 13-bore bullets hit they dropped pretty dead, a point which has generally been forgotten. No man out tiger shooting would take a Martini-Henry, still less a Martini-Enfield, 42-caliber hardened bullet, if he could get a 12-bore rifle; yet the object is much the same in both cases, viz: to stop a charging beast. It cannot be too often or too strenuously insisted on that the heavy losses which even successful cavalry attacks produce are due to the subsequent retreat which want of support has invariably and inevitably brought about. Even repeating rifles will not change this. If anything, they will make the task easier for the cavalry. With every increase in the rapidity of the fire, an additional call is made on the man's mind to resist the temptation to fire too fast, a tendency which will never be overcome in young soldiers of the Latin races. It is these, or the utterly uneducated, half-disciplined moujiks of Russia, that the German army will have to encounter; and it is on these practical data, and not on theoretical schemes based on the possible performances of ideal troops, that the German drill book is based. As far as concerns our own army, let any one look up the history of the Sikh campaigns and ask himself whether we are ever likely to meet a braver, better-drilled or more determined enemy than the old Khalsa infantry; yet it is not on record that British cavalry ever failed against them, either in line, square or even behind entrenchments.—*Army and Navy Gazette, London, Sept. 19, 1891.*

BOOK NOTICES AND EXCHANGES.

GREAT CAPTAINS: HANNIBAL. By Colonel Theodore Ayrault Dodge, U. S. A. Houghton, Mifflin & Co.*

For the story of Hannibal we are confined chiefly to the narratives of Polybius and Livy—the former incomplete, the latter a copyist, and both are writers of Roman history. There is, however, a considerable literature that pretends to chronicle the career of the great Carthaginian, and some three hundred treatises have been written upon the passage of the Alps alone. These historians of Hannibal appear to have missed, until now, the most important part of their task, which was to study his campaigns on the very ground with the distinct idea of reconciling the ancient accounts, and of filling the gaps where they exist. This is a point that Colonel Dodge has grasped most thoroughly. Aided by modern conveniences of travel, and fortified by a critical military knowledge, he has repeatedly visited the scenes of the Punic Captain's achievements, and what he describes is from a diligent study of the authorities on the ground. The result is a clearer and better account than can be found elsewhere, even in the gorgeous pages of Livy himself.

The maps throughout the volume are excellent, numerous, and such as should be found in a narrative of military operations. Although the author disclaims the writing of a "text book," he makes his "history" acceptable to the military student. Other requisites for a readable book, namely, convenient size and large type, are fulfilled.

It is as a cavalryman that the great son of Hamilcar first engages our attention, attracts our wonder, and deserves our study. We would wish that the author had been able to extract more information from the meager accounts of the times to clear up what is obscure about cavalry. Hannibal appears as chief of cavalry of the army of Spain at the age of twenty-five years. At the age of twenty-eight he commanded the entire army. These were positions that he certainly won by deeds in the field. We are given a vivid word-pic-

*Other books by Colonel Dodge which, through the kindness of the author, have been added to the growing library of the Association:

"Patroclus and Penelope; A Chat in the Saddle." 16 mo, $1.25.

"The Campaign of Chancellorsville." 8 vo, $3.00.

"A Bird's Eye View of Our Civil War." 8 vo, $3.00.

"Great Captains." 8 vo, $2.00.

"Alexander," Vol. I, Great Captains Series. 8 vo, $5.00. Houghton, Mufflin & Co., Boston and New York.

ture of a glorious youth, full of fire and enthusiasm and all the qualities to make him a leader of men, but unfortunately we must guess at the marvelous system by which he made his barbarian horse the most terrible instrument of war that any general ever used. With it he slaughtered the armies of Rome, ravaged the country up to the very gates of the Eternal City, gathered provisions from the midst of surrounding armies, and forced the proud legions to stick to their entrenched camps. Even after he commanded the entire army he often appeared at the head of his cavalry, and his dashing brothers, Mago and Hanno, were both cavalrymen.

Colonel Dodge credits the Numidian horseman with sword, spear and casting darts. Were it not for this positive statement we might have doubted that the sword was used by these bare-back, bridleless riders, any more than it is used to-day. That they handled their missiles with a dexterity that has not been surpassed since, except by the equally terrible cavalry of the Scythians, seems highly probable. Advocates of a missile in the hands of cavalry will doubtless claim that the Numidians illustrated their theory to perfection. After much bitter experience, we are told, the Romans added casting darts and a twelve foot spear to the cavalry armament; but these improvements were lost in the darkness of the centuries that produced no good soldiers.

The characters of some of the greatest soldiers are obscured by vice, folly, and human weakness, but the fame of Hannibal stands well the test of time, and the assaults of his enemies, who were his only biographers. Other men have forsaken wealth, love, and the comfortable employments of peace, to lead a life of peril and the camp, but few have joined high aims with such a masterful genius as this man had. The labors of the author have added to our knowledge of a truly great man; the book will be read and studied in preference to other writings on the same subject. E. S.

THE WAR AS WE SEE IT NOW. By John C. Ropes.

The Cavalry Association is deeply interested in the able paper by Mr. John C. Ropes, entitled "THE WAR AS WE SEE IT NOW." This interest is due in largest measure to the value of the paper as a critical study of the great struggle, but also, in no small part, to the extended reputation of Mr. Ropes as a military critic, and our pride in the fact that our roll of honorary membership includes the name of the distinguished author. For these reasons it is the purpose of the "JOURNAL," at an early date, to devote the space and time necessary to a proper discussion of the conclusions reached in the paper before us. At present, however, our object is merely to acknowledge our share of the debt of gratitude due from the military profession to the author of so many valuable contributions to military literature.

J. B. Babcock.

TACTICAL DEDUCTIONS FROM THE WAR OF 1870–71. By Boguslawski. Spooner's Military Library, Leavenworth, Kansas, pp. 202. Price $1.00.

A clear, readable reprint of an exceedingly valuable work, which can be obtained only with great difficulty as originally published.

FIELD WORKS AND TECHNICAL CONSTRUCTIONS USED IN WAR. Translated from the German, by direction of Colonel E. F. Townsend, Twelfth Infantry, Commandant of the U. S. Infantry and Cavalry School; by Lieutenant Richard H. Wilson, Eighth U. S. Infantry. Illustrated with twenty-seven full page blue prints. Printed at the School.

THE PRINCIPLES OF STRATEGY. Illustrated mainly from American campaigns. By John Bigelow, jr., First Lieutenant Tenth Cavalry, U. S. Army, author of "Mars La Tour and Gravelotte." With illustrations and maps. New York: G. P. Putnam's Sons. London: T. Fisher Unwin. 1891. Quarto. pp. 200.

Received too late for review in present number of JOURNAL.

MILITAER WOCHENBLATT. Series of 1891.

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Henry Dodge, Colonel First Dragoons. The History of a Flag.

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THE WESTERN SOLDIER. June, July, August and September, 1891.

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THE INVENTIVE AGE. Weekly. Washington, D. C.

HUDSON'S ARMY AND NAVY LIST. August, 1891.

PRINTER'S INK. Weekly. New York.

JOURNAL

OF THE

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THE HORSE.*

ANYTHING relating to the horse, is of paramount interest to the cavalryman. We propose in this paper to give a history of his origin, as far as it is known, his development into the perfect animal of to-day, a description of the various points of excellence as attained by this development; and a description of the points which constitute a perfect cavalry horse, adapted to the various exigencies and requirements of the service.

Among the domestic animals, we find none more useful to man than the horse. His physical constitution is such that he readily adapts himself to all climatic conditions; and consequently his distribution may be almost as universal as that of the human race. Some parts of his anatomy are analagous to those of man, and many of his diseases are similar.

The records of man do not go back to the time when the horse was first made his servant, and gloomy antiquity hides this event as it does many others of great importance in the development of our race.

The earliest positive mention of the horse, that we are aware of, is in the death-bed scene of JACOB. That he was domesticated in Egypt in considerable numbers is evidenced from the fact that it is

*Lecture delivered at the University of California.

C. C. C. Carr. Editor.

written that when the Israelites made their escape under MOSES, "all the horses and chariots under PHARAOH, and his horsemen and his army, overtook them, encamping by the sea." This was about 1591 years before CHRIST.

The habitat of the quagga, the zebra, and several other congeners of the horse, is in the region of Central Africa; and it is conjectured that the great plains of the Dark Continent produced him, and that he would naturally find his way into Egypt and thence through Arabia into Persia, Tartary and Greece.

There is a theory based upon philological grounds that he was domesticated by the great Aryan race in Central Asia; and at their dispersion, about 3000 years ago, he was distributed over India and Europe by this aggressive and warlike people.

The first horse was represented upon Egyptian monuments about 1800 B. C., or 200 years before the death of JACOB.

We know the Greek horse from its detailed and thorough description by XENOPHON. Its counterpart is not unfrequently seen in our day.

The Roman horse was inferior to that of the Greek; in fact it was inferior to that of all the neighboring nations. In the days of CÆSAR the Roman soldier was the best in the world; but if we are permitted to form a judgment upon the merits of the horse, by the defeat and destruction of CRASSUS' army, we would say that the Asiatic horse was superior to the European as early as 53 years B. C.

The proof that there were no horses in Arabia in the time of JACOB is of a negative character; the name is not mentioned by any of the Israelites who dwelt in that country. Eight hundred years later SOLOMON sent to that country for gold and silver, but he obtained his cavalry mounts in Egypt. Even as late as the days of the prophet MOHAMMED, 1600 years after SOLOMON, horses were not plentiful in the country.

In accounting for the superior excellence of the modern horse, the Arabs divide his history into four different epochs:

1. From ADAM to ISHMAEL.
2. From ISHMAEL to SOLOMON.
3. From SOLOMON to the prophet MOHAMMED.
4. From MOHAMMED to the present time.

This is, in fact, a history of the Arabian people. From ADAM to the days of ABRAHAM the Arabs did not exist—it was the age of a pastoral people. There were no wars of a serious nature, no pillage, no quick surprises, or raiding expeditions. The great qualities of the horse, speed and endurance, were unknown.

But in the second epoch, beginning with ISHMAEL, his field of employment was enlarged and changed altogether.

ISHMAEL, the bastard son of ABRAHAM and the Egyptian slave, HAGAR, is disinherited and abandoned in the desert. He is a wild man, and his hand is against every man and every man's hand is against him. ISHMAEL is not only the beginning, but he is also the personification of the Arabian people. The Arab is a nomad by nature, roaming over immense territories, and the horse is a necessity to him as a means of conveyance across the sands from one place to another. This constant companionship and reliance upon the horse, create a love and confidence between the horse and his rider which are unknown to the dwellers in the city. It is by the aid of the horse that he raids upon and plunders the richly laden caravans that venture into his territories. The horse makes his master the king of the desert. But finally they are pressed to the eastward by the King of Abyssinia, and to the north by their cousins, the Israelites; half of them are destroyed by these great struggles, and the other half, shut into their arid peninsula, naturally degenerate, and their horses suffer and deteriorate with them.

We now come to the third epoch, the beginning of which is clothed with a beautiful legend, which the quick and fertile imagination of a nomadic people so fondly cherishes. The legend relates that some Arabs of the Azed tribe went up to Jerusalem to congratulate SOLOMON upon his marriage with the Queen of Sheba, and, having accomplished their mission, they told him that they were far from their homes and out of provisions. They asked him to furnish them with sufficient supplies to last them on their journey. SOLOMON gave orders to bring from his stables and give to them a stallion of the Ishmael blood, the breed of which had been preserved in all its primitive purity. He told them when hunger assailed them to light a fire, and place their best rider, armed with a stout lance, upon the horse; that hardly would they have gathered the fuel and lighted the flame before they would see the hunter return, laden with the spoil of the chase. They took their departure and at the first halt they did as SOLOMON had directed; and neither zebra, nor gazelle nor ostrich could escape. Thus they learned the value of the animal presented to them by the son of DAVID, and upon their return they devoted him to foal-getting, and by a careful selection of the dams, at length obtained the breed whose high renown spread at a later period throughout the whole world.

The care and affection which had been bestowed on the horse for his usefulness in the war and chase, were, in the fourth epoch, im-

posed upon the Arab as a religious duty. The prophet MOHAMMED said, "Whoso maintaineth a horse for the triumph of religion maketh a magnificent loan to ALLAH." "Evil spirits enter not into a tent where there is a thoroughbred horse." "Whoso maketh a sacrifice in order to train a horse for the holy war, shall be treated in the next world as a martyr." "Martyrs of the holy war will find in Paradise horses of rubies, furnished with wings, which shall fly whithersoever their riders may desire." These are but examples of many of the Prophet's utterances upon the same subject; and the result of his teaching is, that love for the horse has passed into the very blood and marrow of the Arab.

As soon as the foal is dropped, a bystander takes it up in his arms, and walks around with it sometime in the midst of a terrific uproar. It is the first lesson, and makes the colt accustomed to horrible sounds. From the time it sees the light it becomes a member of the family, and is accustomed from its earliest recollections to the tender care of the women and children of the tent. The nobler the mare the sooner is the colt weaned. The sixth or seventh month is the usual weaning age. Some Arabs are of the opinion that protracted suckling makes a bad disposition and hardens the mouth. The real training of the colt begins when he is about eighteen months old; he is saddled when about two years of age, then he is taught to stand still when mounted and to remain in place when dismounted and the reins are passed over his head and rest upon the ground. At the age of three years he is subjected to the use of the spur, and at about four years of age he is taught to start at a full gallop from the halt, to rush at a precipice or some great obstacle and to halt suddenly, to wheel around quickly, to leap, to race, to caracol, to fight an enemy, etc.

They have three varieties of the gallop:

1st. A short gallop or canter for pleasure riding.

2d. A strong and regular gallop, used in war and hunting.

3d. A gallop at full speed, used in races, and in fleeing for one's life. This is not too freely indulged in.

They unmercifully fatigue the colt from two to three years old, but spare him from three to four. The theory is that sustained work at an early age strengthens the chest, muscles and joints, and at the same time imparts a docility to the animal that will remain with it till death. They say that after these rude trials have been endured, his constitution should be developed by rest and care, and an abundant diet until he is four years of age; and after this new stage of life, he

will show that he is good or bad. If good they keep him, and if bad they invariably get rid of him.

The Arabs water their horses but once in twenty-four hours—about 3 o'clock in the afternoon in summer, and about 1 o'clock in the winter season. They feed barley but once a day—about sunset. When barley is not to be had, or after a horse has undergone a great exertion, they feed him camel's milk, which they claim strengthens the brain and tendons, and does away with fat, which relaxes them and which is the great enemy of the war-horse. They never groom their horses, but wipe them down with woolen cloths, or with the nose-bag, which is made of hair. In winter, the covering is kept on day and night; and in summer it is kept on until 3 o'clock in the afternoon, when it is removed; but is put on again at 8 o'clock. The drink, the diet and the exercise, are all graduated and proportioned to age, place, and season, with the greatest care.

The Arabian thoroughbred is probably the most perfect horse upon the earth, if used as a means of animal locomotion. His powers of endurance excite the admiration if not the incredulity, of a people not accustomed to the habits of the desert. A horse sound in every limb, that eats as much barley as his stomach will contain, can go fifty miles a day, for four months, without lying by a single day. If in condition, a horse can go 150 miles in twenty-four hours, and after a few hours rest, can make half as much more, and that without injuring him. During their raids entire commands have often been kept on the gallop for five and six hours at a stretch; and then entered the combat comparatively fresh. There are recorded instances where the horse has carried his armed rider 200 miles in twenty-four hours. The Arabs of the Sahara say that a perfect horse can carry a full grown man, his arms and a change of clothing, food for both rider and himself, a flag, even on a windy day, and, if necessary, drag a dead body after him, and keep up at a good pace the whole day through, without giving out for want of food, water, or rest. In judging a horse they measure from the middle of the withers to the end of the dock; and again they measure from the middle of the withers along the neck between the ears, to the end of the skin on the upper lip. If these measurements be equal, the horse is only good and of ordinary speed; if the distance to the dock be greater than the distance to the end of the skin on the upper lip, the horse is of no value—he has no go in him; but, if the distance to the end of the skin on the upper lip is greater than the distance to the dock, the horse has speed and bottom, and the greator the difference the better the horse.

The fleetest horses in the world trace their origin to the Arab stock.

It is claimed with much appearance of truth that the great French draught horse—the grey Percheron—is of Arabic origin. Experience has shown that the small Arab horse crossed with a mare of fair size, and good physical development, will produce a horse of larger size than either parent, provided the colt be generously fed, and well cared for until maturity; there being a tendency in the Arabian blood to resume an aboriginal condition, unfavorable to great physical development which it had lost through influences bearing upon it for ages.

It might be instructive as well as gratifying to an inquiring mind to learn whether or not the horse of Central Asia has degenerated since the time of ZINGIS KHAN and TAMERLANE.

ZINGIS successfully reduced the hordes of the desert, and the Mogul Emperor became the monarch of the nomadic world. Seven hundred thousand Moguls and Tartars are said to have marched under the leadership of the conqueror. From 1210 to 1214 he overran the northern part of China and conquered it, driving the sovereign to the south of the Yellow River. From 1218 to 1224 he conquered the countries from the Caspian Sea to the Persian Gulf and the Indus. It was near this stream that his richly laden and wealthy horsemen murmured against a further advance, and ZINGIS, like ALEXANDER the Macedonian, nearly 1500 years before, reluctantly retraced his footsteps. After he had recrossed the Oxus and Jaxartes, he was joined by the two generals whom he had detached to operate with 30,000 horsemen against the western provinces of Persia. This cavalry had vanquished the enemies opposed to them, penetrated through the gates of Durbend, traversed the Volga and the desert, and made the circuit of the Caspian Sea—a feat in cavalry raiding that had never before been attempted, and has never since been repeated.

OCTAI, the son and successor of ZINGIS, mustered 1,500,000 men. He gave his nephew, BATOU, 500,000 of these, with which to conquer Europe, and such was the ardor, zeal and speed of his innumerable squadrons, that in six years they had traversed ninety degrees of longitude, or one quarter of the circumference of the globe. The great rivers of Europe and Asia, the Volga and Kama, the Don and Dnieper, the Vistula and Danube, they either swam with their horses or crossed on the ice.

Nearly 200 years later, TIMUR, commonly called TAMERLANE, after escaping from a dungeon and leading the life of an outlaw for several months, collected around him the boldest spirits of the tribes, and after some of the vicissitudes of war, he became the master of the Transoxiana. His squadrons swept over Persia and Tartary like

the hurricane. When he had attained the eastern bank of the Hyphasis, on the edge of the desert, where ALEXANDER wept and where ZINGIS turned back, the great TAMERLANE crossed the desert, swept down the Ganges, stormed Delhi, and the wealth of India was at his command. Whilst on the banks of the Ganges he learned of the revolt of the Christians and the disturbances which had arisen on the confines of Georgia and Anatolia. A return across the continent of Asia, a massacre of the Christians, the destruction of Aleppo, Damascus and Bagdad, and finally, the battle of Angora, won Anatolia and delivered the Turkish Sultan into his power. MIRZA, his eldest grandson, was dispatched from Angora to Boursa with 30,000 horsemen, and such was the speed of this young soldier that in five days he marched 230 miles. From Boursa the grandson of TAMERLANE marched to Nice. Europe was now open to conquest, but the Bosphorus and the Hellespont were insuperable obstacles. The commander of these myriads of horsemen was not the master of a single vessel, and the conqueror of Asia and India retired to his capital at Samarcand, where two years later (1405) he organized a powerful army for the conquest of China. The old horseman crossed the Syr Darya on the ice and had advanced 300 miles towards the frontiers of China, when death put an end to his devastating career. Many of the descendants of these horsemen roam as nomads over the vast territories conquered by ZINGIS and TAMERLANE. Their horses of today have about the same qualities as those which bore their ancestors to the conquest of Asia, India and a part of Europe.

The breeds which we will mention are the Argamak, the Kirghiz, the Turkman and the Bashkir. The Argamak breed is symmetrical in form, very active and fleet, impetuous, but rather delicate and liable to take cold. It bears a close resemblance to the Arab.

The Kirghiz horse is better fitted by its rough training to climatic changes. It has extraordinary muscular development, but is of slow growth and attains its form slowly, not reaching its maturity much before it is seven years of age. It is generally broken to the saddle in the third or fourth year and then it is returned to the herd until eight and even nine years old. It is not very well shaped as a rule, but has a good memory and is capable of covering long distances without food, water or rest. It is on record that a Kirghiz chief—a very heavy man—galloped with a Cossack escort, using two horses, two hundred miles in twenty-four hours; the horses' legs gave out, but they recovered without requiring any treatment. Lieutenant-Colonel VOJAK in his description of the Kirghiz horse, says that he sent a Chobar, with two horses, from Ara Chi to Fort Uralsk and

return, a distance of about two hundred and seventy miles. The journey was accomplished in about a day and a half.

The best strain of the Kirghiz horse, is known as the Adef. This animal is of good size and shape. Next comes the Tchiklin which has a well developed frame, is very strong and well adapted for rapid and continuous galloping for many hours at a time.

The horses of the Siberian strain are distinguished for their good size, but yield to a superiority in speed and endurance to the Adef and Tchiklin.

The crossing of an Argamak horse with a good Kirghiz or Turkestan mare, produces an excellent strain known as the Karabair. This cross possesses the qualities of the Argamak with the strength and endurance of the Kirghiz horse. As this strain is rather rare, they are held at so high a price that only the more wealthy can possess them.

The Bashkir horses are similar in size, but more impetuous and not so patient of fatigue as the Kirghiz. Neither the Bashkir nor the Kirghiz horses attain a height of more than fourteen and a half hands, and consequently they are not in favor as troop horses, as a line composed of them can not have the required force in the shock of a cavalry charge. The Ural and Orenberg Cossack horses, consist generally of crosses of the Bashkir and Kirghiz breeds with the Russians.

The above are the principal breeds of horses in that immense territory east of the Ural River and the Caspian Sea; between the southern frontiers of western Siberia, north-west China, the branches of the Tin Shan Mountains, Samarkand and Khiva.

The most highly esteemed of the Persian breeds is the Khorassan, but its excellence is attributed to its strong admixture of the Arabian blood.

In the vast territories of India the only superior horses were produced by the studs of the native princes who were mainly dependent upon imported Arabs and Persians. Since the English occupation of the country the English thoroughbred has been introduced, but sufficient time has not elapsed, nor has he been introduced in sufficient numbers to have, as yet, a marked influence upon the various native breeds.

The Chinese, Siamese, Burmahn and Javanese horses are very small, seldom higher than thirteen hands.

When the horse was introduced into the British Islands, is not known, but the Britons were a riding people when CÆSAR invaded the island, 55 B. C. After the occupation of the country by the Romans, the horses of the cavalry were crossed with the native mares

and there was infused into the breed new blood, consisting of strains from every quarter from which the Roman remounts were procured. Of the result we are quite uncertain, for down to the close of the Anglo-Saxon period the horse is but seldom mentioned.

The period of the Norman conquest marks an important era in the history of the English horse. WILLIAM THE CONQUEROR'S own horse was of Spanish blood, and his barons introduced the same strain upon their estates. Spain had been successively conquered or partially conquered by the Suevi, the Alani and the Vandals. In the fifth century the Goths, an enterprising and warlike people, which in most remote times had circled the Euxine Sea, and ravaged the provinces of Asia Minor, invaded and conquered most of the country and occupied it uninterruptedly for almost two centuries. Each of these various peoples introduced and affected the strain of horses in the country. But undoubtedly the excellence of the Spanish breed in WILLIAM'S time was owing to the strain of Arabic blood, introduced by the followers of the Prophet, 711 A. D. The Arabs conquered and occupied Spain from the Rock of Gibraltar to the foot-hills of the northern provinces, for seven hundred years. The Arabic strain intermingled with the native breeds, gave the Spanish horse of the eleventh century its high reputation.

King JOHN imported one hundred Flemish stallions for the improvement of the horse for agricultural purposes.

EDWARD III. imported Spanish horses and forbade the exportation of horses from his kingdom.

HENRY VII. continued the enactment against exportation but relaxed it regarding mares over two years of age. There was a uniformity of effort during all the reigns to improve the breed of horses, but the reign of WILLIAM III. is the era from which to date the origin of the modern English horse (thoroughbred) whose lineage can be traced to one of the great horses:

1. The Byerly Turk, ridden by Captain BYERLY during WILLIAM'S Irish wars.
2. The Darley Arabian.
3. The Godolphin Arabian or Barb.

The cross of these horses with the native mares is the basis of the modern thoroughbred. The mares give the large frame and the long stride which characterize the English race horse, whilst the powers of endurance and elegant shape are no doubt inherited from eastern progenitors, most of which were of a low stature, between fourteen and fifteen hands high.

The English hunter is commonly a half-breed horse, a good speci-

men of which may be described as a fine horse for universal use. He may have nineteen-twentieths of pure blood in him and still be called technically a half-bred horse. Perhaps seven-eighths is the average strain of the high class hunter. Many thoroughbreds that fail in the training stables are turned out as hunters, but the average hunter is the produce of a thoroughbred or nearly thoroughbred horse and a common mare. Such a cross makes a fine carriage or cavalry horse.

As far as historic knowledge extends the horse was not on this hemisphere at the time of its discovery in 1492. The earliest traces of his existence on the globe are found as fossils in North America, but the mutations of time seem to have completely removed the living animal from the continents of the New World.

According to Spanish authority a few were shipped to South America in 1535, and in 1537 several were taken to Paraguay. From these and others subsequently introduced by the Spaniards, have been bred the numberless herds of wild horses that have spread over the whole of South America and passing the Isthmus of Panama, have wandered into Mexico and the great plains north of the Rio Grande. It is very probable that the Indian appropriated him and materially assisted his northern migration and distribution.

The Indian pony is the mustang of the prairies partially domesticated. The Indians pay no attention to the laws of breeding; on the contrary, their warlike habits and their entire dependence on the success of the chase for subsistence, require not only a silent animal but also the fleetest horse of the herd; and it is their practice to castrate the best formed and most promising male colts. They let the ill favored run entire with the herd for the purpose of foal getting.

Before the Civil War many herds of mustang ponies were driven through and sold in the States of Texas, Arkansas, Missouri, Iowa and Wisconsin, Minnesota and Illinois. These were found always to be wild, vicious, and unreliable in harness, yet they had immense powers of endurance, were of good wind and sound in limbs and feet. They have undoubtedly had some influence upon the horses in those States, but the horses in general use throughout the United States are the representatives of the importations from Europe.

The American thoroughbred is of the same stock as the English horse. The difference is such as is caused by the climate, forage and local surroundings. Prior to the War of the Revolution there were probably less than twenty thoroughbred horses imported from England. The colonists of Maryland and Virginia soon developed a love for racing, which spread into North and South Carolina. As Tennessee and Kentucky became settled their people manifested such a fondness for the sport that they were placed among the most prominent patrons of the turf. The Kentucky farms have produced some of the finest specimens of the American thoroughbred.

New York did not show much love for the turf until the beginning of the present century, and puritanical New England has never shown much fondness for it, even to the present time. Since the Civil War the love of racing has greatly increased, and the thoroughbred is reared in nearly every State in the Union.

The trot is a gait developed in this country to an extent unequaled in any other part of the world; in fact Russia is about the only other country that systematically cultivates the gait. The first time a horse trotted in public for a stake, in this country, was in 1818, and that was a match against time for $1,000. The bet was that no horse could be produced that could trot a mile in three minutes. The bet was won easily by Boston Blue, a rat-tailed, iron grey gelding, sixteen hands high, with no pedigree.

The founder of all our great trotting families, with a few exceptions, was the imported stallion Messenger. He was foaled in 1780, and died in 1808. He was imported on account of his racing qualities. He is described as a gray, fifteen hands three inches high, of stout build, upright in the shoulders and low in the withers, with a short straight neck and large bony head. His loins and quarters were wonderfully muscular. His windpipe and nostrils were unusually large, and his limbs were of medium size, but flat and clean.

Trotting was not practiced much in those days, and none of his colts were ever trained to trot. He was imported in 1788, and some of his colts were the best race horses of the day. It was the second generation of Messenger, his grand colts, that attracted attention by their trotting speed. The sons of Messenger, to which nearly all the great trotters trace their lineage, were Plato, Engineer, Commander, Why-Not, Mount Holly, Mambrino and Hambletonian. Abdallah was a son of Mambrino and his dam was a daughter of Messenger, called Amazonia. Thus we see that Abdallah was closely inbred. Many of Messenger's colts from common mares bred fine trotters; in fact, the American horses not descended from Messenger, that have contributed to establish the reputation of our trotters, are few in number and of but little influence. The trotting quality seems to run out of all of them in a few generations, if not crossed with the Messenger blood.

We will notice one other family of trotters, not so much for its speed, but on account of its usefulness and great distribution throughout the United States.

Mr. JUSTIN MORGAN, a Vermont school-master, became the owner of a horse whose descendants are scattered all over New England, the Middle States and the Mississippi Valley. He is said to be the get of True Briton, a horse that was stolen and whose pedigree is doubtful. But from the evidence in the case it is inferred that the Morgan horse was a half-bred animal. His descendants are noted for their honesty, pluck and endurance. They are much sought after as buggy horses, and they would make good cavalry horses for our frontier service. Morgan is described as about fourteen hands high and weighing about 950 pounds. He was a dark bay with black legs, mane and tail, mane and tail coarse and heavy. His head was lean and bony, face straight, forehead broad, ears small and set rather far apart. His nostrils were very large, muzzle small and lips close and firm. His back was very short; the shoulder blades and thigh bones were very long and the former were very oblique. The loins were exceedingly broad and muscular. His legs were short and thin, but very broad and free from meat. His feet were small and well shaped. He was a very fast walker. The strain is noted for its hardy constitution. He had a smooth, even trot, but not remarkable for its speed. From him are descended Black Hawk, Ethan Allen, American Eagle, and many others, all noted for bottom and hardiness of constitution.

Much attention has been paid to the breeding of the draught horse in the United States since the Civil War. Many Norman and Percheron stallions have been imported, but the Clydesdale, an English horse, seems to be the most popular. This horse attains seventeen hands in stature and often reaches 2,000 pounds in weight. Probably his average weight is from 1,500 to 1,700 pounds. The half bred Clydesdale is now thought to be too heavy for farm work, and the quarter bred is preferred.

The States of Kansas, Missouri, Iowa, Illinois and North Texas, have been the great producing regions for our cavalry remounts since the Civil War, but the introduction of factories and other sources of wealth, have changed the idea of the farmer, and now he tries to secure a heavy draught horse to do his heavy work, and if he can afford it, he rears a trotter to drive to the market and to parade at the county fair. It may be remarked that all those who rear horses, do not breed what we know as blood animals, that is animals of a breed having a recorded pedigree. For the United States are overrun with cold blooded stock. Of late years the farmer pays more attention to the selection of the dam and sire with the view of securing the best type of animal for the work in hand. For his ordinary uses, he wants the heavy necked, broad chested, stout, heavy limbed, straight shouldered draught horse, and if he is not well enough off to pay for the services of the pure Clydesdale with his common mare, he does the best he can, and crosses her with an itinerant scrub that comes up to his ideal as nearly as he can get it with the least expense. The farmers who are higher up in the scale of wealth, want a team to drive to a road wagon or buggy, and they seek a trotting type. They patronize a pedigreed stallion if they can afford it; but the services of such stallions are held at so high rates that most of them cannot bear the expense, and the experiment with the itinerant stallion is repeated.

The care and expense necessary to the production of the thoroughbred, are a considerable tax upon the producer, and consequently they are ranked among the luxuries of modern times.

In former times, before the construction of so many railroads, the people of the United States rode upon horse-back much more than they do at the present time, and in proportion to the population, saddle horses were more numerous. The introduction of the light wagon and buggy has almost supplanted the equestrian, and as the population becomes more dense, the type of horses used for the saddle will become more rare. The Middle and Western States have instituted county fairs which are held every year, and the prizes offered are, among other things, for the best trotting horses reared in the vicinity. This encourages the production of a type of horse from which we will have to obtain our cavalry mounts in the future. This brings us to a consideration of the points which a horse should have to adapt him to the requirements of our service. Opinions regarding the degree of excellence required of the horses in our service, are various, but the points possessed by a horse which denote his superiority for certain particular uses have been arbitrarily decided by centuries of experience, and are now fixed and invariable. As for example, the short, thick-necked, heavy-limbed, big flat-footed horse is at once classed as a draught horse, not as a galloper.

Beginning with the head of the animal, experience teaches that a horse wide between the eyes is more intelligent than one more narrow, although the rule is not without its exceptions. The horse cannot breathe through his mouth, and since the nostrils are the only passages whereby he receives the air to supply the lungs with oxygen to purify the blood, they should be wide and thin when distended.

The bony part of the nostrils, which extends from immediately below the eyes to near the muzzle should also be large, and for beauty, this portion should be straight, giving the horse what is called the Grecian nose. If the bony nostrils should present an exterior surface that is convex, it is called a Roman nose. This is not beautiful but it has great capacity; and generally a horse with a Roman nose has more bottom than another, all other things being equal. If the bony nostril should be concave or dished, the capacity is not so great and the horse has but little bottom unless his lower face is very wide, viewed from the front, and consequently very ugly. The lower jaws up next to the throat, should flare out underneath and not be parallel. They should be very wide at the upper extremity—the wider the better. This enables the head to be bent nicely upon the neck, and the horse will easily give way to the bit and be sensitive to the will of the rider as communicated by the bridle hand.

The head should be set firmly upon the neck, the ears should be rather wide apart at the base, the tips closer together, and perpetually in motion. The eyes should be full but not prominent, clear, full of life and of equal size.

The neck should come out of the shoulders full and muscular, gradually diminishing in depth until it runs into the head.

A very material point of consideration in the saddle horse, is the length and slope of the shoulder blade. Generally speaking the longer this bone is, the more slope it will have. When the muscles attached to the blade bring the arm nearly in line with the axis of the blade, the forearm in the oblique shoulder will be raised and thrust forward much more than could occur if the blade were more perpendicular. A sloping shoulder blade indicates speed as well as activity. When the true arm is not proportional to the blade, but is short and upright and the elbow stands under or a little behind the point of the blade, the horse is deficient in action. If the elbow should be tied in or press the ribs so closely that the finger can with difficulty be passed between them, the horse is apt to turn his toes out. A contrary formation causes him to turn his toes in or walk pigeon toed. Pigeon toes and turned out elbows often indicate rheumatism of the shoulder. A long and muscular forearm must accompany fine *action* and is very desirable in the saddle horse. The knee should be broad and when seen from the front, should look almost square—the longer sides running up and down; it should look larger than the leg both above and below it; it should taper off to a thin edge in rear. The leg immediately below the knee should be as large as any other part and not cut away or tied in. Broad cannon bones

free of meat, accompanied by large suspensory ligaments, with strong free back sinews make a faultless leg. The fetlock joint should be large and free from meat and the pastern should set into the foot, forming an angle with the ground of between forty-five and sixty degrees. The foot of the saddle horse must be proportional to his general structure—if anything it should look small. The front foot should be oval in shape, the long axis parallel to the line of the forehead above the eyes. The hind foot should be somewhat oval, but the long axis should be perpendicular to that of the front foot. In each, the line formed at the top of the foot where the hair and the hoof meet, must be at about a right angle with the front line of the hoof and the pastern, so that the heels will not be too high and the foot boxy, nor too low and thereby flat and spongy. The sole of the foot should be well arched, the frog large and wedge shaped.

Extremely high withers are always objectionable in the saddle horse, and more particularly is this the case if they stand up like a razor without muscle on them. If the horse should have upright short shoulder blades, together with high withers, the saddle will move forward on the latter in spite of all precautions.

The volume of the chest is the measure of the capacity of the lungs and also of the large organs of digestion; and unless there is a middle piece of proper size, the wind is seldom good and the stamina of the animal is not sufficient to bear hard riding; but there is a limit to the development of this part of the horse that is required for speed and action when weight is a great object, for if the saddle horse had the heavy body of the dray horse, his legs would give way with the first severe gallop. A wide chest interferes with the free action of the shoulders and arms as they glide over the ribs, and is nearly always fatal to speed. The saddle horse must obtain his chest capacity by depth rather than width, and the ribs must therefore be long and well rounded. The lung capacity is measured at the girth, which, in saddle horses, should look deep. This massive appearance of the forehand is increased by the pectoral muscles, which clothe the bottom of the chest at the girth and extend up between the legs, thus giving the axis of the barrel its downward inclination as it approaches the forehand. The extraordinary development of this muscle, together with the depth of chest and withers, gives the race horse his rakish, greyhound appearance.

A short back is the ideal of the horseman, but the measurement from the point of the shoulder to the back of the quarter must be greater than the height at the withers or the action will be confined, and the quarter will interfere with the free swing of the hind legs,

especially in the gallop. The upper line of the back should sink a little behind the withers, and then swell out slightly to the junction with the loins which must be wide and muscular. A slightly arched loin is essential to a weight carrier, but highly arched loins, or hog back, give uneasy action to the rider on account of its want of elasticity.

The saddle horse should have plenty of length in the two bones which unite to form the stifle joint, otherwise his stride will be too limited in extent. To determine where the upper end of the thigh bone may be found, measure around from the prominence at the root of the tail to the projection of the hip bone or haunch. A third of this distance, starting from the prominence at the tail, will give the hip joint or upper end of the femur. The other end is quite well represented by the notch at the stifle joint. All horses of the same height have about the same length of upper or true thigh, but the lower thigh of the draught horse is much shorter, and the horse stands with a much straighter leg, and consequently his hocks make but a slight angle. The lower thigh of the saddle horse should more nearly approach the length of that of the race horse. The hock should be clean and flat without thoroughpin, and with a clear point standing out from the rest of the joint. The seat of curb and the point where spavin occurs should be free from enlargement. The thigh should be of such a length as to let the hock well down and thus secure a short cannon bone, which, with the pasterns and feet, should be as described above. Viewed from behind, the quarters should look muscular and of great volume, coming so close together that below the anus, there may be no hollow, the presence of which tells of a bad constitution and lack of power.

To sum up: the saddle horse should have four points broad—the forehead, the chest, the croup and the legs; four points long—the neck, the upper parts of the legs, the belly and the haunches; four points short—the loins, the pasterns, the ears and the tail.

The nearer these joints are proportional the better, and the more nearly will the animal approximate the true formation.

The horses in our cavalry service should be between fifteen and sixteen hands high. The best weight carriers are found generally between fifteen hands and fifteen and a quarter to fifteen and a half hands in height.

By wind we understand the breathing capacity of a horse. A horse such as has been described, when in good health and standing quietly, breathes about nine times a minute, and his heart will beat about thirty-six times a minute. Moderate exercise will increase both

the pulse and the respiration, but still this ratio will be fairly maintained. A marked departure from this ratio of one to four, such for example as a breathing rate of fifteen to a pulse rate of forty, when the horse is quiet, indicates disease. The ribs on each side should expand freely and equally when the horse breathes; if they do not it indicates that one lung is unsound and the other one has to do the major part of the work, and of course the breathing capacity is diminished.

A horse is at his best at from seven to twelve years of age, but the horses suitable for cavalry in this country, are worked at a much earlier period of their lives, and if they are broken to the harness, muscles are developed that are not required by the saddle horse, and he is liable to attain a general set of frame that is not adapted to cavalry purposes. For these reasons we favor the purchase of cavalry horses with the maximum age fixed at five years. The troop commander can always save his young horses now-a-days, and give them one year's training before putting them into the ranks.

A. E. WOOD,
Captain, Fourth Cavalry, U. S. Army.

PRESIDIO OF SAN FRANCISCO,
January 10, 1891.

SOME THOUGHTS ON MILITARY SETTING-UP AND GYMNASTIC EXERCISES.

THERE is a perceptible movement on foot, to introduce military gymnastic exercises as a requirement of the enlisted men at all military posts; this ripple is the advance of the wave of athletic craze that is now passing, more especially, over the United States.

There are two ways in which our army may be inspired with enthusiasm: one, through an impulse from within; the other, through an impetus from without. The target practice craze well illustrates the former; here, there was nothing to guide us, and it was only after a number of years of experience that the present system was evolved.

With the athletic impetus it should be different; we can profit by the vast experience of the civilian world, and the important instruction, imparted at the gymnasium of the Military Academy at West Point.

There are two classes of human beings: 1st. Those who are healthy and require physical exercise as an important adjunct to health. 2d. Those who are sick, diseased, or disabled, and with whom physical exercise is a true therapeutic agent.

The physical exercise of the former, constitutes our modern athletics; that of the latter, the purely medical science of *mechanico-therapeutics*, wherein the physician alone is interested; hence we shall consider the former only.

Athletics, then, concern the physical development of the human body for the purpose of getting and maintaining it in the best possible condition.

There are two kinds of athletes, the professional and the amateur; the line of demarcation is very distinctly drawn: the one makes a slave of his body and, as a rule, devotes his time to one particular development; the other has, or should have, for his ideal, physical perfection; the former works for gold, the latter for the sport and the success his development enables him to attain.

This ideal (physical perfection) is the one we should try to inculcate in the minds of our soldiers, and, that they may the sooner attain to it, we should endeavor to enable them, in the pursuit thereof, to obtain pleasure and sport.

The Greeks were the originators of athletic sports—the Romans elaborated them; the system of hand-to-hand fighting amongst these nations, and those of Asia, tended to foster these exercises; ponderous physique and muscle were striven after, as on these, almost entirely, depended success; their lives were ones of continual preparation; they understood the use of their hand weapons from boyhood and they practiced them to the grave; throughout the Age of Chivalry this state of affairs continued more or less, and it was only necessary for a feudal chief to call his vassals together and sally forth. Then came a change; the Feudal System was overthrown and standing armies came in vogue; they were recruited from classes who tilled the soil and engaged in other pursuits, and it became necessary to bring them up to a certain physical standard, and to instruct these recruits in their new profession which, ages before, had been every man's business.

Thus arose the necessity for our present system of recruit instruction, and, in it, holding the first and foremost place, is physical exercise.

The whole tendency of modern athletics, as distinguished from ancient practices, has been to teach scientific agility: the execution of extremely rapid movements, with the least possible expenditure of energy and the maintenance throughout of a perfect control over the human body. In fact, it is only very recently that the heavy punching bag has given way to the empty one suspended between floor and ceiling, and, that the light weight club has superseded the more weighty one. Our instruction of the enlisted man should be in accordance with these modern ideas.

The obstacles that have stood in the way of our getting military gymnasiums at all our posts are, expense, lack of system, and want of competent teachers.

Any young officer by study, observation and practice, should become a good instructor. Below will be found a system, based on scientific principles and the requirements of the soldier, that will prove ample; the objection on account of cost is founded on delusion; the immense amount of apparatus we behold in modern gymnasiums is entirely unnecessary for full physical development; the real good that a multiplicity of appliances accomplishes is in developing and

retaining the interest of the men—they merely represent a great many ways of doing the same thing—they are not all necessary.

This question of interest is, however, a consideration of the utmost importance. No man's interest is ever more developed than when he is pitted against a fellow man as an antagonist; then the desire to excel makes itself felt in a marked degree, and success, resulting from a mental and physical activity in the endeavor to gain the better of his rival, brings with it a consciousness of ability to repeat that success, which must be of incalculable value to the morale of the soldier. This is true interest; by which we mean that nerve stimulus which, increasing with man's brain power, enables him to do things that under ordinary circumstances might prove well nigh impossible: it is one and the same with that indescribable energy that enables soldiers to withstand hardships when on a hot trail, and hunters to cover miles and miles when in pursuit of game; it is this quality that we must develop in every man before he can do his level best: and we know that if we get a soldier interested, success is assured; hence no amount of care, study and patience should be spared by the instructor, who should, if possible, be selected for his fitness for this kind of work; and to further this object the gymnasium should be well lighted and warmed and the apparatus should be substantial and good.

In order to devise a system that will fully develop the soldier's body, certain things are absolutely necessary. 1st. A knowledge of the bony and muscular systems of the body. 2d. A thorough appreciation of the soldier's duty, so that his development will be in accordance therewith. 3d. The detail of a board which, understanding these two things broadly, will be given the proper latitude to devise such a system for use at all posts.

A few thoughts on these three points may not be amiss.

What we want is a general system applicable to all troops of the line, a system which, taking the unsophisticated recruit, will, when gone through with, properly develop his physique so that he can withstand the hardships attendant on a long march or campaign, and so that he can overcome an assailant under all circumstances whatsoever.

When a system fulfills these objects, it is well nigh perfect. We must set up an ideal, otherwise we never shall have anything of value to look forward to.

To attain the ascendant over an assailant under all circumstances whatsoever, requires of course an efficient use of rifle, carbine, pistol and saber. In the two former we are ahead of every other

nation; in the two latter, if we are ahead, we are certainly far behind what we ought to be. Concerning the weapons then, we will say nothing, but will limit ourselves to the true physical development whereon their efficient use depends.

In the first place we must develop the muscles of the recruit equally on both sides of the body as far as may be possible, without employing any extraneous resistance to motion (e. g. weights in hand). This will be accomplished excellently by the setting-up exercises of the new drill regulations, which at present constitute the only authorized course of development in the army. These exercises, founded on a scientific basis and tested by practice, form the preliminary or transition stage between civilian and soldier; but it must be borne in mind that they are not sufficient to *fully* develop all the muscles of the body. For the great difference between them and all sorts of gymnastic exercises is that in the former the only means used for development are the muscles themselves in moving some portion of the body itself; whereas, in the latter, there is always an additional resistance offered to the muscle, which makes it do more work than ordinarily; e. g., rowing, club swinging, etc.

Muscular development is directly proportional to the amount of beneficial work done by the muscle; and the beneficial work done is directly proportional to the beneficial resistance it has to overcome; hence, a slight increase in resistance will be beneficial to and tend to develop the muscle, and so on up to a certain limit. Hence, military setting-up exercises, while they are excellent as far as they go, do not go far enough. To develop muscles properly and efficiently they must overcome a resistance, which, after they have become accustomed to, should be gradually increased: hence the advisability of not overtaxing the muscle; some believe that as long as they feel utterly worn out and fatigued after exercise, it has done them the greatest good possible; the reverse is the case. Violent exercise, causing overwork of the muscles, tends to produce a degeneration rather than a development. We likewise see the necessity of adapting the exercise to the physical condition of the man; an old soldier or rheumatic one cannot be made to endure the same exercises that a young, healthy recruit should be put through.

The Plebs at West Point are, I believe, the only soldiers in the service, who are properly taught and who properly perform the military exercises; and they consequently profit immensely by them, being made broad shouldered, erect and flexible *yearlings*, out of a somewhat puny lot of candidates. The enlisted men have no such advantage in training, nor any such ambition to implicitly obey in

structions, hence the effect is not nearly so good; they are needed to do guard duty and groom horses, and their instruction is restricted accordingly.

It is known at the Academy that calisthenic exercises, although elaborately taught, are not sufficient for complete muscular development; they form merely an excellent foundation for the gymnastic exercises. If this is the case with the cadets, how much more so with the enlisted men, whose training has been slipshod.

The setting-up exercises include, in addition to the individual development of the trunk and extremities, the coördinate control of the center of gravity in the body; in other words, the proper balancing and carrying of the body in moving at quick and double time; this one principle, of the control of the center of gravity in the body, should form the guide for the execution of a great many tactical movements in the individual instruction of the soldier; the reason for the execution of a great many movements may be explained thereby, and others shown to be faulty on account of neglecting this principle.

The human body, so far as ninety-nine one-hundredths of the human race are concerned, may be divided into two unequal working parts; the right half does nine-tenths of the work, and the left half, acting as a poise or support for the right, does only about one-tenth of the actual work.

It is on account of this tendency in the human body to be right-handed, that our drill regulations, in everything that relates to the soldier and his handling of his weapons, are right-handed drill regulations. A soldier's tactical body is as a door on its hinges; only one end is free and swings, the other performs a merely passive service to enable the door to do its actual work; why not have the axis of motion run straight through the middle of the soldier's body so that both halves would be equally developed?

Take the facings in UPTON's tactics; both the right and left face are executed on the left heel, and the door swings to the right or left on the same old hinge—this movement is faulty as regards the location of the center of gravity and accounts for the awkwardness in execution; there is no reason why it should not always be between the feet, so that in executing right face, the movement would be executed by both the ball of the right foot and heel of the left; and left face, by ball of left and heel of right. In movements by the right and left flanks and to the rear, the center of gravity is under proper control.

The unconscious control of the center of gravity, is of the utmost importance with man and all animals; and when, through sickness

or disease, this control is lost, support and locomotion without mishap are impossible. It is the cerebellum that regulates the coördinate control of the muscles, and it is to this portion of the brain that the graceful and erect position and locomotion of the soldier, are due. Were this center extirpated, we would flounder hopelessly about, one leg one way, one another, and the arms, head and trunk, would act in a correspondingly uncontrollable manner; we would not lose the use of our muscles, but their coördinate action would be destroyed.

Now this unconscious coördinate action consists in unthinkingly controlling the center of gravity: shifting it from foot to foot in walking, running, dancing, etc.; this principle accounts for the ungainly walk of many civilians, who, stoop-shouldered, are compelled to shuffle from foot to foot; it accounts for the duck's waddle from side to side, due to his feet being far apart; so that, when he raises one foot in locomotion, he must shift the center of gravity to the other foot, and then again throw the whole weight of his body on to the former, thus causing his ungainly gait; owing to the wide hips of women, they have an almost imperceptible waddle to their walk, (some more than others), which men do not possess.

As I have before stated, the left half of the body in ninety-nine out of every one hundred persons, acts merely as a support for the right, which does nine-tenths of the work; this unequal use of the two halves causes an unequal muscular development; the muscles and their bony attachments of the right half, are larger than those of the left; and since the spine is a flexible column, we might expect that the unequal muscular tugging would produce some effect; this it does, and the spine of the skeleton of the right-handed man, will show a slight curve to the right; there has been a giving way to the unusual muscular action of the right side, without a counterbalancing action on the left. In left handed men, the curve is to the left side, showing the truth of the principle.

There is no doubt that a soldier who can use his carbine, pistol, and saber in his left-hand as well as in his right, is far better as a soldier than one who can use them in his right hand only.

Take the carbine for instance; one of the great inconveniences in battle, after firing a great many rounds of ammunition, is the intense soreness due to the recoil. A man that could shift his carbine to his left shoulder and fire well, would still be valuable, when otherwise he might prove worse than useless.

A right-handed man, who had his right hand or arm hurt would be *hors de combat*, whereas one who could use both hands in the first

place, might still be an active combatant; moreover, the *morale* of the men would be much improved thereby, and there would be no such thing as being intensely afraid of an enemy getting at your left rear; he would feel nonplussed by a change of saber hands, and the rear thrust from the left; and the very first step towards accomplishing this object is a thorough application of the setting-up exercises tending to develop equally the muscles on both sides of the body.

As the drill regulations well say, the importance of the setting-up exercises cannot be overestimated; they are the foundation for everything else, and when improperly taught, go the way of all poor foundations.

Next we come to the gymnastic exercises; here as elsewhere the equal development of both halves of the body should be made the primary factor. The course that should be pursued will differ naturally and materially for the two sets of extremities of the human body so as to agree with the uses to which those members are put.

By the term extremity is meant one of those four, long, jointed appendages of the body, commonly known as arms and legs, which are connected with the trunk at one end, and which are free in the rest of their extent.

The upper pair are connected with the chest by means of the shoulder, and are mainly used for prehension and protection; that is, grasping things and making use of them, when in the hand, and warding off and delivering blows; this is their use, and their development should be followed out on the same lines, viz: to develop their grasping and holding power and their offensive and defensive use of the hand and weapons held by them.

The lower pair are connected with the pelvis by means of the hip, and are intended for the support and locomotion of the body, and their development should be worked out on these lines, viz: supporting the body in every position and effecting its locomotion under different circumstances.

In addition to the extremities, we have the trunk, head and neck. All these, but especially the trunk, have received attention in the new exercises. The spine and its muscles, and the cartilage discs between the vertebræ, together with the abdominal muscles, play a most important part in muscular movements of the body, but we shall devote our attention mainly to the extremities themselves, merely calling attention to the fact, that all the muscles that move the shoulder and hip joints, and some that move the knee and elbow joints, are connected with the trunk.

Having then developed the various muscles as far as possible by

means of the setting-up exercises, we proceed to the gymnastic exercises, and, taking into consideration the preceding points we have the following course of instruction:

1. To develop the upper extremity, neck, chest and back, we now require an increased and increasing resistance to movements in the muscles and joints. For a pure developer of the shoulder, elbow and wrist-joints and the muscles producing their numerous motions, nothing excels the Indian club.

For a developer of offensive and defensive agility, nothing can compare with the light punching bag suspended between floor and ceiling.

2. To develop the lower extremity, abdomen and back, we again require an increased and increasing resistance, but as they are connected only with locomotion and support so must this development be connected therewith; and consequently, with carrying increased weights and increasing the rapidity of movement, we attain their individual development; in other words, by exercise in walking, running and jumping under different circumstances.

3. Lastly we come to the climax, the coördinate development of the whole human body. Every muscle, every joint, the eye, every sense in fact, and the brain all working in unity to outdo the adversary, or accomplish some great feat. Boxing, wrestling and fencing are *the* exercises at this stage.

This system is ample to fully develop the human body; and when, to this development you add an efficient, practical knowledge of saber, pistol, carbine, rifle, and in case of cavalry, the horse, there isn't anything but discipline that you can teach a soldier who has mastered them; he has learned the complete octave of his army tune, and practice is all that is necessary to keep up his efficiency.

To more thoroughly understand the foundation for the development of the extremities, it will perhaps be best to devote a little time to the consideration of some elements in the human body, viz: bones, muscles, and joints—leaving out of consideration the nerves, without which of course there would be no motion.

Bone is a very important consideration; it constitutes the lever whereby muscles are enabled to act and produce motion; its constitution and construction likewise bear an important ratio to agility; for in the young, where rendered elastic by organic matter, it will stand much more of a strain than when brittle as in old age, as may be seen in the careful walk of the aged and the romp of the child.

The bones indicate by their size and shape what they are intended for; the long ones, as in arm and leg, afford levers for prehension

and locomotion; the short ones afford strength and compactness and slight motion, as in the wrist and foot; others we find are expanded, as in the skull, to protect cavities and to afford extensive muscular attachment.

The leg of an animal consists of a bone surrounded by so-called meat, in which run the nutrient vessels; this meat is the red common, voluntary muscle of that particular portion of the animal; at first sight it appears as a single piece surrounding the bone, but on a closer inspection we find it is in reality made up of a number of muscles, in fact of all the flexor and extensor muscles of the leg, each of which glides in its own sheath, has its own special attachment to bone or cartilage, and has its own motor nerve.

There is something remarkable about the muscles, they are always attached to the short arm of the lever; take the biceps, which causes flexion at the elbow joint; it is attached below but very close to the elbow, instead of near the wrist, where the lever arm would be so much longer and expenditure of force so much less; the reason, however, is very obvious.

A muscle terminates, in almost every instance, in white, glistening, inelastic cords, called tendons, whereby they act on the bones, to produce various motions. So that each muscle consists of the true muscle or elastic part and a *non*-elastic tendon; this is an important point. In youth, the muscular element is greatly in preponderance, and gives suppleness; as the person matures and finally passes beyond the adult stage, the elastic element is gradually encroached upon by the inelastic or tendonal element, hence the stiffness of old age. It is, accordingly, very important that we recognize the fact that a man of forty cannot be expected to do what a young man of twenty-three can readily accomplish; his bones are more rigid, and his muscles are gradually losing their elasticity; it is of the utmost importance that what little muscular fibre is left be rendered as elastic as possible. In some old men, who have almost constantly kept up their exercise, we have something approaching agility—a smartness in step and appearance.

Muscular development means merely a regular tension and relaxation of the elastic portion of the muscle, which, being frequently indulged in, gives a larger range of action and more power, without fatigue.

For a specific motion, nature provides a specific muscle or set of muscles; and, when a complex motion is required, involving this specific motion, that muscle or set will be brought into action.

In other words, a muscle always does a certain thing and nothing

else. This is so true, that in fractures and dislocations, where muscles act on the broken or displaced bone, the surgeon can tell precisely what has happened and to what extent, from the appearance of an injury, though the skin be unbroken; and he depends on the principle of muscular action for a foundation of his diagnosis.

In accordance with the different motions that muscles exert on portions of the body, they have been classified:

A bending of the arm or leg is called flexion, and muscles that do this are called flexor muscles.

A straightening of the arm or leg is called extension, and such muscles are called extensors.

In the upper extremities, the flexors are in front, and extensors behind; in the lower extremities, flexors behind and extensors in front.

Adductors are muscles that bring the arm or leg near the body, and fingers or toes near the middle one.

Abductors do the reverse. Adductors are on the inside of the arm, leg, fingers, and toes; Abductors outside.

There are others also, but these are the principal ones.

Every muscle is attached at both ends; we may consider either end as fixed, and, when the muscle contracts, the other end as moving toward the fixed end, or vice versa; hence we may have several entirely different ways of exercising the same muscle. For instance, there are certain muscles which bring the arm to the side after it has been elevated (abducted); these same muscles would be exercised by bringing the side to the arm, (which is supposed fixed) as in climbing trees. The same may be said of almost all the muscles of the body. Hence in a gymnasium, a multiplicity of appliances, tending in a different way to develop the muscles, will very much relieve the tedium and excite that peculiar nerve stimulus known as "interest in recreation," which is so essential to all physical development.

Last and most important come the joints; without them, nothing would be possible; with them we become the highest prehensile, locomotive animal. It is from the study of the joints, the motions they permit, and a thorough understanding of what muscles produce these motions, that a system of scientific gymnastic exercises can be developed.

As has been remarked, the upper and lower extremities are attached to the trunk through the intervention of shoulder and pelvis respectively.

The shoulder consists of two bones—the shoulder blade and the collar bone. The former receives the upper end of the arm bone or

humerus; they are made to fit into each other in ball and socket fashion, thus permitting freedom of motion. The shoulder blade being completely surrounded by muscles, is not in contact with any bone of the trunk except the outer end of the collar bone.

The upper extremity is hinged therefore to the breast bone by the inner end of the collar bone, which is the center about which it revolves; and this fact together with the looseness of the shoulder joint and the suspension of the shoulder blades amongst muscles, and their separation behind by an interval of about four inches, accounts for the mobility and variety of motion in the arm and shoulders. This of course has been attained through use.

In animals such as the horse, dog, cow, etc., we can see the upper extremity from which our arm has been evolved.

In these animals it is used mainly for support, locomotion being accomplished principally by the hind legs, which correspond to our lower extremities; the forelegs are accustomed mainly to a to-and-fro motion, and it is only when, as in the case of the monkey they are used for prehension, that we have a full development of the shoulder joint. Beyond the shadow of a doubt the hind legs are constructed for propelling the body—and horse and dog are so much swifter than man on account of the structure of their leg; their hock corresponding to our ankle, and their hoof to the end of our toes: a horse or dog tiptoes it, all the time we are footing it, and a gradual development to our present condition and needs has brought the hock to the ground and contracted the foot in size.

From the difference in use of these two sets of extremities in man, we see their structure has differed. They present certain analogies however; for instance, in the lower extremity we have the hip, thigh, leg and foot, corresponding to shoulder, arm, fore-arm and hand; these portions are united to one another by what are called joints, and we have the hip, knee and ankle joint corresponding to the shoulder, elbow and wrist joint; now these six joints are practically the only ones we need to consider in studying the muscular development. We know precisely the motions that are possible in these joints; we likewise know precisely what muscles produce these motions; hence we can so regulate our exercises that all the muscles will be fully developed and needless repetition be avoided. It is on this same principle that we can examine the setting-up exercises of both UPTON'S tactics and the new drill regulations, see wherein they differ, and whether those about to be adopted will fulfill the object intended, viz: to develop all the muscles and joints as far as can be, without resorting to the gymnasium.

The old UPTON tactics recognized the necessity for developing the shoulder joint, but quite neglected the knee, ankle, wrist, elbow, and to some extent the hip, the spine and the finger joints; and consequently they did not thoroughly develop the muscles that produce motion in those joints. In the seventeen exercises of the new drill regulations all these joints except the wrist, are duly exercised in detail and then in combination as far as possible. Some of the omissions in the setting-up exercises of UPTON'S tactics were rendered nil by means of exercising in the double and balance step.

In a joint, mechanical friction is reduced to a minimum, by means of a closed synovial sac, secreting a synovial liquid which lubricates; this sac is placed between the ends of the bones that form the joint, which ends are enlarged for better approximation and muscular attachment. The muscles, in combination with ligaments, keep the bones in place.

As I have before said we have to consider merely six joints—the shoulder and hip being almost perfect types of ball and socket joints, the elbow, knee, ankle and wrist being mainly hinge joints.

We can compare the relative mobility of the different joints from the following summary:

The shoulder joint admits of motion in every direction: Forward, backward, abduction (elevation), adduction (depression), circumduction (circular motion about shoulders as a fixed center), rotation (about axis of humerus).

The hip joint admits of the same motions as the shoulder joint, but they are very much more limited in extent, and nature has taken more care in its construction owing to its use, so that there is less danger of the hip getting out of joint. The thigh bone fits the cavity of the hip bone and is connected with it directly by a ligament in the cavity, whereas, in the shoulder, the whole arrangement is very loose, thereby permitting greater motion.

In other words, considering these two joints, the course for muscular development should include these six motions, singly, to the full extent of the limb, and then their combination.

The elbow joint admits of flexion and extension, and likewise controls the prone and supine position of the hand, and a better development could not be obtained than the new drill regulations will impart in the exercise: 1. Forearms horizontal, 2. Raise, 3. Front, 4. Rear.

The knee joint admits of flexion and extension, with slight rotation; this joint is thoroughly developed in the leg exercises.

The wrist joint admits of all motions but rotation, and here is an exercise that might profitably have been introduced: Circumduction of the wrist.

The ankle joint admits of flexion and extension; this joint is fully developed in the foot and leg exercises. Notice the difference in motion in all these joints, as illustrative of the difference in use of the two extremities.

By a study of the above we can readily discard the consideration of the numerous muscles with their long names, remembering always that they are the motors of the joints.

From this discussion then, we can get some idea of the bony and muscular systems, and the office performed by the joints in the body; we see the scientific principles employed in the new setting-up exercises in developing each and every joint, and consequently each and every muscle of the body; then the additional factor of an increased and increasing resistance enters, giving rise to the gymnastic exercises; the principles, however, remain unchanged; we merely must accommodate the exercise to the use to which the extremity is to be put.

Physical development should never be left to chance or caprice. System founded on fact and tested by practice, is absolutely necessary in all exercises to attain the end, physical perfection.

At the close of each season the men should be given an opportunity of showing their prowess; there should be games and competitions, and success should be duly recognized in post orders and by special privileges granted the victors. Competitions between the best teams at different posts should be instituted when the system has had sufficient time to be developed. There is as much reason for its taking place as for the present competitions in rifle and carbine firing.

Hence, in order to carry out the foregoing scheme, time, a good instructor, a properly warmed and lighted building, some mattresses, different weighted Indian clubs, boxing gloves and several punching bags, are all that are necessary at each post for a full, complete, and common sense muscular development of the enlisted men. The question of expense is practically eliminated.

A board composed of line and medical officers should be ordered to formulate some system. They should take into consideration that the exercises must not be limited entirely to a building; that to prepare men for a campaign, they must campaign in peace.

It will be more of a credit to a post and its commander to have enlisted men come out of the winter, with a physique and a desire for work, than to be full of lethargy, induced by a pulpy, hibernating muscular system.

A medical officer at every post should be required to keep a schedule of measurements of the extremities and trunk of every man at the beginning of his winter's work and at the end; these will furnish data whereby the worth of the system of development may be demonstrated.

An hour a day should be devoted to the gymnasium which should include, to sum up: 1st. The setting-up exercises. 2d. Exercises in Indian club and punching bag. 3d. Exercises in walking, running and jumping. 4th. The coördinate development of the whole human body in boxing, wrestling, and wherever possible, in rowing, swimming and so forth. The fencing academy should, if possible, be in the same building with the gymnasium and the soldier's entire instruction during the winter months should be limited to, 1st. The gymnasium; 2d. The fencing academy; 3d. (near the end of the season) gallery practice; 4th. In cavalry, the riding school.

Everything depends on the War Department. It should be the source from which officers and enlisted men derive their incentive to mental and physical energy; without its taking the initiative, things will drag along as heretofore; by its ordering a board, the stone will be started rolling and it can trust the officers that the stone will gather no moss.

PETER E. TRAUB,
Second Lieutenant, First Cavalry.

FORT MYER, VA., Nov. 8, 1891.

CAVALRY RAIDS.

SOME authorities believe that the introduction of breech-loading fire-arms has made it impossible for cavalry to be used, to any great extent, in large bodies, on the field of battle. But this contraction in one direction, of the sphere of action, of the cavalry arm, has led to a corresponding expansion of its sphere in other directions — new developments in the use of cavalry which before had received but little attention. Among the most important of these new uses is that of making raids; and there can be no doubt, that in any future campaign, where the cavalry on either side is numerous and well handled, and properly trained, the making of raids into the enemy's country and against his lines of communications, will be one of the most important duties that will fall to the lot of that arm. This use of cavalry, although it has received its greatest development in this century, principally in the American Civil War, dates back to very early times. ALEXANDER THE GREAT, in his wars with the Persians, used bodies of cavalry constantly in making inroads against the tribes on the flanks of his line of march, thus securing the main body of his army from molestation. CAESAR also tells us that VERCINGETOREX, chief of the Gauls, finding himself always beaten in a pitched battle, formed the plan of using his cavalry entirely in making raids to destroy supplies, cut off foraging parties, burn villages, etc., and thus starve the Romans into surrendering; and the plan would no doubt have succeeded had it been carried out as it was begun.

Coming down to the early part of the present century, we find that the Russians were the first to employ cavalry to any great extent in making raids; and it was to the operations of the Russian light cavalry, and not to the burning of Moscow and the severe cold, that were due the disasters which destroyed the French army in that famous retreat. Marshal ST. CYR is quoted by ALISON as saying that the light troops of the Allies, by the manner in which they cut off the foraging parties, and interrupted the communications of the French, did them more injury while on the Elbe, than they sustained in all the pitched battles together. Amongst the most important of these operations may be mentioned the capture of Hamburg by a partisan corps under TETTENBORN, in 1813, and the capture of Cassel, the capital of Westphalia, by CHERNICHEFF, in the same year. In this latter operation CHERNICHEFF had 3,000 Cossack cavalry and four light guns, and the capture was attended by most important results.

After the close of the Napoleonic Wars, no raiding operations of importance are mentioned, till we come to the American Civil War, 1861–65. This war marks an epoch in the history of cavalry; and in no respect are its lessons more valuable than in their application to the subject under discussion.

Raids were freely practiced by both the Union and Confederate cavalry, and the results gained by them had a great and important influence upon the course of the war in the portion of the theatre where these operations took place.

Such operations as those planned and carried out to successful execution by men like MORGAN, FORREST, GRIERSON, STUART, WILSON, SHERIDAN, and many others of less note, are well calculated to develop that spirit of boldness and enterprise which is the life and soul of the cavalry arm.

The war of 1866 adds nothing to the experience gained in our own great struggle; the cavalry on both sides playing only a subordinate rôle. That arm had not yet succeeded in shaking itself free from the traditions of the Revolution.

The admirable manner in which the Prussian cavalry was handled in 1870–71, and the great services it rendered to the army, are well known; but, in spite of the brilliant reputation that this cavalry made for itself, the results it accomplished fell far short of what might justly have been expected of it; fell far short indeed of what had been done five years before by men whom VON MOLTKE had characterized as "Barbarians." We look in vain in the annals of the Franco-German War, for brilliant and dashing achievements, like GRIERSON'S or VAN DORN'S raids, or STUART'S sweeping reconnaissances. Even the successes which the Prussian cavalry gained were undoubtedly due, to a great extent, to the inferiority of the French cavalry.

The Russians alone, of all European powers, seem to have taken to heart the lessons conveyed by the struggle in this country; and if their cavalry in 1877–78 did not accomplish what was expected of and hoped for from it, this was due, in a great degree, to the absence of capable leaders. In one notable instance at least, the

Russian cavalry did good service. GOURKO's first raid across the Balkans in July 1877, will compare favorably with any operation of the kind recorded of any troops, both in the way in which the troops were handled and also in the results obtained.

The campaign in Egypt in 1882, furnishes a good example of what may be accomplished by a small force when led by capable men. This expedition resulted in the capture of Cairo and the surrender of the garrison of 10,000 men. It was held by the cavalry till the arrival of the infantry, and the war was thus practically ended at a single blow.

Having sketched briefly, the history of raids, it may be well to examine them a little more minutely, as to their objects and the results expected to be obtained, the number of men required for such operations, and lastly, how the men should be armed and equipped, trained, supplied, etc., in order to insure success.

In the first place, what is a cavalry raid? As a preliminary answer to this question, I cannot do better than quote TRENCH on the subject. He says: "In general terms a cavalry raid may be described as essentially an act of surprise rather than of force." Its primary aims, as enumerated by the same writer, "are usually to destroy and render useless for a time railroads, telegraph lines, stations, stores and bridges, magazines, etc., to scatter disorder and to excite apprehension in the minds of the enemy, and not to fight unless it becomes necessary to do so. Its secondary objects are to bring back useful information, to make prisoners, to spread false news, etc., etc." Forces operating in this way must traverse long distances, and secrecy and rapidity of movement are usually considered essential elements of success.

In order to understand clearly the variety and scope of these operations, it will be necessary to review briefly some of those which are most famous and which best illustrate the general principles upon which they should be based. The greater part of these examples will be taken from the American Civil War, because it furnishes by far the most striking lessons in the art of making raids. The operations of the Russian light troops in 1812 and 1813, have already been mentioned as one fruitful source of NAPOLEON's disasters in that campaign. Perhaps the most important independent cavalry operation of that period was the capture of Cassel, the capital of Westphalia, by CHERNICHEFF, in the latter part of September, 1813. "Detached with three thousand horse from the Army of the North, this indefatigable leader crossed the Elbe at Dessau, and pushing with great celerity across Germany, reached Cassel, the capital of

the Kingdom of Westphalia, in the end of September. JEROME, with the few troops which the necessities of the Emperor had left him for the defense of his capital, made a precipitate retreat without firing a shot, and CHERNICHEFF immediately made his entry into the city at the head of his Cossacks, amidst the vociferous applause of the people, and proclaimed the dissolution of the Kingdom of Westphalia. Symptoms of insurrection against the French were at once manifested. * * * * * But the Russian commander being destitute of infantry, was unable to maintain the advanced position which he had gained; and, after remaining in the capital a week, he was obliged, by the approach of a considerable body of French troops, to evacuate it and retire across the Elbe. He regained the right bank of that river, however, as he had effected his advance, without losing a man, taking with him in triumph, the stores of the arsenal, the royal horses and carriages, and an immense store of booty beneath the saddles of his Cossacks." But the moral effect of this blow far exceeded the actual physical effects; for the brother of NAPOLEON had been forced to fly from his capital, and the spirit in which the Russians were received by the people, showed but too plainly that French influence in Germany would be swept away as soon as the power which upheld it was removed. The capture of Cassel, by a few partisans, gave a great impulsion to the movement, which soon ended in the French being driven out of Germany and beyond the Rhine.

Taking the operations of the Civil War in America in about the order in which they occurred, we find General MORGAN bringing himself into prominent notice by the boldness and success of his partisan campaigns. His raids were undertaken for the general purpose of destroying government supplies of every kind, tearing up railroads and telegraph lines, taking prisoners, dispersing Home Guards, spreading false intelligence, and carrying disorder and apprehension into the enemy's country. As illustrations of partisan operations, MORGAN's raids are unique. An example will be sufficient to show what he accomplished. In General MORGAN's report of a raid which he made into Kentucky in July, 1862, he says: "I left Knoxville on the 4th day of the month with about 900 men and returned to Livingstone on the 28th with nearly 1200 men, having been absent just twenty-four days, during which time I have traveled over 1000 miles, captured seventeen towns, destroyed all the government supplies and ammunition in them, dispersed nearly 1500 Home Guards and paroled nearly 1200 regular troops. I lost in killed, wounded and missing, of the number that I carried into Kentucky, about ninety."

This raid is an example of many that General MORGAN made and in all of them he utilized the fact first recognized by him, it is claimed, that if cavalry be armed with a good weapon and trained to fight on foot, they thus possess the advantages of both infantry and cavalry.

Most of STUART'S raids were made primarily for the purpose of gaining information, but a great deal of damage was done the enemy; cutting railroads, destroying stores of all kinds, and spreading false news, and creating great confusion and apprehension in the enemy's rear. STUART on two occasions made the complete circuit of the Federal army, going by one flank and returning by the other. In June, 1862, he was sent on a raid around McCLELLAN'S army. He set out from Taylorsville and broke through the Federal lines on their right flank, traversed their rear and crossed the Chickahominy on their left flank, and rejoined the Confederate forces in safety, having in his passage destroyed a number of transports on the Pamunkey, together with quantities of supplies of all kinds, torn up the railroad, and above all, obtained accurate information of the enemy's position. The same officer, a few weeks later, August 22, 1862, struck POPE'S rear at Catlett's Station and destroyed several hundred tents, large supply depots, and long wagon trains, and captured, among other things, $500,000.00 in greenbacks and $20,000.00 in gold, together with all of General POPE'S baggage and private and official papers, thus exposing all his plans and the strength and position of his various corps. STUART'S greatest raid was that through Pennsylvania around the Northern army in October, 1862. It fully accomplished the objects with which it had been undertaken. DENISON says of the raid, that "STUART'S loss was trifling, while the information gained, the moral effect secured, and the consternation caused in the Northern forces were of the greatest importance."

General FORREST was another Confederate cavalry officer whose raids are celebrated. He made a great many, the most of them successful. Perhaps the one which had the most important consequences was that undertaken simultaneously with a similar operation by VAN DORN against GRANT'S communications. The following account of the two raids is abridged from F. V. GREENE'S work, "The Mississippi:"

"BRAGG detached FORREST in December, 1862, to operate upon GRANT'S communications with Columbus. At that time the latter was about Oxford. FORREST left Columbia, Tennessee, December 11th, with 2,500 cavalry, and reached his own side of the Tennessee River, January 1, 1863, having in that time destroyed the railroad from point to point from Jackson to Columbus, a distance of sixty miles; and with a loss of less than 400 men, he killed, wounded and captured 2,500 men of his enemy's forces. GRANT'S communications with Columbus and Washington were cut off from the 19th to the 30th of December, and the transportation of supplies was interrupted for a longer period.

"While FORREST was thus operating on the upper part of GRANT'S line, VAN DORN had taken all the cavalry of his army—about 3,500 men—moved northward from Grenada around GRANT'S left flank and struck the same line lower down, at Holly Springs, where he captured 1,500 men and destroyed an enormous quantity of stores forming GRANT'S depot—estimated at $1,500,000.00 in value—and finally reached Grenada in safety by the same route he had followed in going out.

"The two simultaneous raids of FORREST and VAN DORN had a most decisive effect upon the issue of the campaign. VAN DORN destroyed the accumulated supplies and FORREST destroyed the only line by which they could be brought up. The country had been exhausted by the support of two armies subsisting on it in part for several months, and there was no alternative but for GRANT to fall back on Memphis."

Up to the spring of 1863, the Confederate cavalry had, for reasons which it is unnecessary to explain here, enjoyed a practical monopoly of making raids; but from that time on they were met and defeated with their own weapons, which hard experience had taught their adversaries how to use.

About the middle of the year 1863, three great raids were planned by the Federals; one, STONEMAN'S, in the east; the other two, GRIERSON'S and STREIGHT'S, in the west. The two latter were to take place in different parts of the theatre, but simultaneously, so as to create a diversion in favor of the Federal operations already in progress, and thus prevent as much as possible, reinforcements and supplies reaching the enemy at the most critical period of the campaign.

GRIERSON set out from Lagrange, Tenn., April 17, 1863, with about 1,700 men, and went through the heart of the State of Mississippi. He arrived May 2d at Baton Rouge without serious loss, and having inflicted great injury on the enemy. This expedition had very important results. It was timed so as to coöperate with GRANT'S operations against Vicksburg. While GRANT was moving against that city, GRIERSON traversed the whole of the ground occupied by PEMBERTON'S command, destroying the railroads, the telegraph lines, the bridges, the stations and the depots of supply of the army. In all, about sixty miles of railroad and telegraph lines were destroyed, and the utmost confusion was thrown into the Confederate movements." (COMTE DE PARIS, Vol. III, p. 218).

This raid accomplished completely the main object with which it

was sent out, viz: It deprived PEMBERTON of the power of concentrating the forces available for resisting GRANT's attack on Vicksburg.

The raid entrusted to Col. STREIGHT was as completely a failure as GRIERSON's was a success, for his whole force was hunted down and captured by FORREST. The reasons for this failure will be noticed later.

STONEMAN's raid around LEE's army, in May, 1863, although when taken by itself, partially successful, since considerable damage was done to the enemy, yet when looked at in connection with the operations of the main army at the same period, was a failure, and contributed in no small degree to HOOKER's disastrous defeat at Chancellorsville. HOOKER by detaching STONEMAN deprived himself of the means of concealing the movements of his right. DENISON says of this: "STONEMAN's raid is a good example of an ill-advised, and ill-timed adoption of a course of action, which if judiciously employed, might produce important results." COMTE DE PARIS, in discussing the campaign of Chancellorsville, says in substance the same thing.

In the latter part of the war the resources of the Confederacy were almost exhausted, and their cavalry became too weak to make head against that of the enemy, which had continued to grow in strength and efficiency as the war went on. Consequently we find the strength of the bodies of cavalry used in raiding operations steadily increasing, till they really amounted to invading armies. Thus WILSON's raid through Alabama, in March 1865, was made with a force of over 12,000 cavalry, and he found no force in the country able to check his progress. In addition to several towns of minor importance, WILSON captured with his cavalry, the fortified position of Selma, took possession of the city and destroyed the foundries, arsenals, arms, stores and military supplies of every kind found there. Selma was the most important point in the south-west, and its loss was a great blow to the Confederate cause. The success of WILSON's raid was no doubt due, to a great extent, to the exhausted state of the country through which he marched, but for that very reason it was most judiciously timed.

But the crowning work of the cavalry during the Civil War, was that done by the force under SHERIDAN, in the early spring of 1865; and though SHERIDAN's operations were on a far larger scale than those ordinarily known as raids, yet the objects aimed at and the results obtained, were the same in the two cases, and therefore it will be well, before passing on to the next war, to notice briefly, some of SHERIDAN's expeditions. His force varied from about 8,000 men to

12,000 men, and some light artillery. GRANT, who had been south of the James since June, 1864, finding that all his efforts to drive LEE from Richmond were without avail, decided to use SHERIDAN's cavalry to cut LEE's lines of communication with the rest of the Confederacy. These lines were the James River canal on the north side of the river, the Richmond & Danville Railroad to the south, and still further south a road called the South Side Railroad. These lines being destroyed, LEE would be compelled either to evacuate Richmond or submit to being cooped up in it, when his capture would be certain.

SHERIDAN, who was in the Shenandoah Valley, north of the James, and opposed by EARLY, was ordered to press back EARLY, destroy the canal, then, crossing the James, make a raid to the south and cut the two railroads, and finally join SHERMAN in North Carolina. SHERIDAN accomplished the first part of his task without difficulty, for he drove back EARLY, and, pressing on, completely destroyed the canal, but was unable to cross the river on account of its being so swollen. He therefore moved along the north bank, passed Richmond to the north, and finally assembled his force in rear of GRANT's lines. The latter, having a great superiority of men, detached SHERIDAN on the 29th March, 1865, on the series of operations which finally ended with the surrender at Appomattox.

The Russo-Turkish War of 1877–78, furnishes us, as already noted with but a single brilliant example of the use of cavalry in raids, viz: in GOURKO's first passage of the Balkans. GREEN, in his well known history, sums up the results of this raid as follows: "This expedition of GOURKO's was more than a mere cavalry raid; it was an admirably conducted movement of an advanced guard composed of all arms. With 8000 infantry, 4000 cavalry, and thirty-two guns, it had, in no less than a month, gained possession of one of the principal passes of the Balkans, from which the Russians, though terribly attacked, never let go their hold, and which they finally used in January for the passage of a large portion their army. It had carried a panic throughout the whole of Turkey between the Balkans and Constantinople, and its scouting parties had penetrated to within seventy miles of Adrianople, the second city of the empire, and had destroyed the railroad and telegraph on the two principal lines. Finally, it had gathered accurate information concerning the strength and positions of the large Turkish force advancing towards the Balkans." The Russians neglected many good opportunities of using their cavalry effectively, especially during the investment of Plevna. The Turkish

cavalry, also, was very inefficient, and seems to have accomplished but little.

I will close this part of the subject by quoting from commander GOODRICH's "Report of the British Naval and Military Operations in Egypt, 1882," the account of the seizure of Cairo by the British cavalry. The cavalry division crossed the Sweet Water Canal at Tel-el-Kebir, and following the canal bank proceeded with all practicable speed, keeping up a running fight with ARABI's rear guard. It reached Belbeir that night and bivouacked. Making an early start next morning (September 14th), and leaving the cultivated ground a few miles south of Khankah, to strike across the desert intervening, it reached Cairo at 4:45 P. M. The garrison of the city was divided into two parts; one, from 6000 to 7000 strong, at Abbasieh; the other, of from 3000 to 4000 men, at the citadel on a high hill within the city. The former having surrendered at once to General DRURY LOWE, the mounted infantry and two squadrons of the Fourth Dragoon Guards were immediately sent to demand the surrender of the latter. * * * * * The leader of the rebellion (ARABI PASHA) had caught a train at Belbeir the day before, and had gone to Cairo, where he quickly began preparations for the destruction of the city, drawing up an elaborate plan for a repetition of the Alexandria outrage. * * * * The vigor displayed by General DRURY LOWE in this march, and his audacity in exacting the yielding of a force securely placed in positions of immense natural and artificial strength, and many times his own in number, were attended by results of inestimable value. ARABI's plan of revenge was defeated, and Cairo saved from ruin, and he himself lodged in prison, and the only body of his followers from whom serious harm could have been anticipated were hurrying to their villages in all possible directions, glad of a return to peaceful and congenial occupations."

Hundreds of other examples might be brought forward to illustrate this subject, but those already considered are sufficient for the present purpose.

We will now consider briefly the number of men to be used for making a raid. This number will depend upon the nature of the task. Some raids will depend for their success upon secrecy of movement, and, since the smaller the force the easier it will be to conceal its march, the detachment, under that condition should be as small as is consistent with the chances of success. The number of men is also limited by the requirement of mobility, and, therefore, beyond a certain strength, any increase in the numbers would only tend to delay the march. Leaving out two or three cases where very large

forces were used almost all the raids of importance varied in strength from 1,000 to 3,500 men. Thus MORGAN's raid into Kentucky, in 1862, was made with 900 men. STUART generally took with him 1,500 to 2,500 men. FORREST used about the same number of men as STUART, while VAN DORN's famous raid was made with 3,500 men. The two simultaneous raids of GRIERSON and STREIGHT were each made with about 1,800 men. The expedition under Colonel TOLAND, in July, 1863, to cut the Virginia and East Tennessee Railroad, upon which BRAGG depended for his reinforcements, failed because it was undertaken with too few men—a regiment of cavalry and one of mounted infantry—while AVERELL's raid in November, 1863, against the same line, was brilliantly successful; the traffic on one of the main railroads of the Confederacy being interrupted for two weeks, great depots of supplies destroyed and forces four times his own strength kept on the move to intercept him. AVERELL had four regiments of cavalry and two of infantry with a few guns. During the latter part of the war the Federal cavalry had become very numerous and their operations were on a correspondingly large scale. It is not probable that such strong forces will ever be used in any future war for strictly raiding purposes—they lack the mobility which is essential to success.

In GOURKO's operations across the Balkans his cavalry force was about 4,000 strong, and after gaining Shipka Pass, July 19, 1870, the town of Eski-Zagra, a point of immense importance to GOURKO, was seized by about 650 Cossacks. From Shipka and Kazanlyk, GOURKO sent out raiding parties of from 700 to 850 men to destroy railroads, telegraph lines, stations, bridges, etc., and to gain all the information possible as to the position, strength, etc., of the Turks. The capture of Cairo was made with about 1,500 men.

Before deciding upon the number of men to be employed we must see that it fulfills two conditions; it must be strong enough to brush away any small detachments that attempt to bar its progress and it must possess great mobility so as to be able to march long distances in very short periods of time.

Having settled as to what we are to do and how many men we will need for the purposes, there still remains for us to consider, the question of arms and equipments, supplies, the training of the men, etc. In other words the question arises, how are the details upon which the success of any military operation depends, to be carried out? To answer these questions it will again be necessary to consult the practice of famous leaders.

MORGAN made the most careful preparations for his raids, and

selected both his horses and his men with the greatest care. He had companies of scouts, selected from amongst the most daring and intelligent men in his command. Some fifteen or twenty days before he intended to start on a raid, he would send one or two companies of these scouts into the country he intended to traverse. These men, disguised in various ways, spread themselves through the country and obtained all the information possible that would be of use to their commander; as to the strength of the enemy, his positions and plans, magazines, the position of forces and bridges on rivers, the least known roads by which columns could march, etc. The scouts remained in the country till the arrival of the main body and they then acted as guides. MORGAN had no train when he started on a raid, and the horses carried nothing except the rider, his arms, saddle, bridle, blanket and 100 cartridges. At night, they bivouacked in the open. The men were armed with carbine and bayonet, and one or more revolvers. The only men who carried sabers were two companies who were always told off to remain mounted. The usual rate of march was about four miles an hour, and sixty to seventy miles per day were frequently made, and on occasions, a great deal more. Of course, such marches were very exhausting to both men and horses, and fresh horses had frequently to be obtained. MORGAN carried out the duties of scouting and reconnoitering with the greatest care, and he is said to have originated the practice of sending out scouting parties a day's march or so ahead of the main body. He always marched on a single road, and when compelled to fight, he attacked with great spirit, so as to produce a great impression, but as soon as possible, he avoided all conflict. MORGAN'S men did almost all of their fighting on foot. One man generally held from four to eight horses. He generally took some artillery, but did not depend on it. FORREST prepared his raids in the same manner as MORGAN—by sending out scouts a week or so in advance. He generally had a small train carrying supplies of provisions, and the tools necessary for the destruction of railways, roads, bridges, etc. His men were armed with a saber attached to the saddle, a revolver and a carbine. He marched from thirty to forty miles per day, and on a single route. The pace used, was the alternate walk and trot. He took the usual precautions of advanced guard, and flankers to guard against surprise, but his main dependence was in his companies of scouts sent out a day's march or so ahead. FORREST trained his men to fight either mounted or dismounted, but the attacks were generally made on foot. He had two light guns to each brigade —they kept up with the column, and went into action as soon as

possible. In destroying railroads, fires were built on the rails, and these were then bent so as to be useless. Half an hour was sufficient for 100 men to destroy one mile of railroad.

STUART, in his operations, had a regular supply train, and his men were furnished with tents. At first they were armed only with saber and revolver, but experience soon taught them the necessity of having a carbine, and consequently, in the latter part of the war, STUART'S men were expert in fighting on foot.

The men whom GRIERSON took with him on his raid through Mississippi, were well qualified for the work they had to do; they were accustomed to all the hardships and privations incident to a cavalry soldier's life; both the men and the horses were in good condition to make long marches, and the two years' previous training had made them veterans in service. GRIERSON was given great freedom of movement, GRANT'S instructions being to cut up the railroads and destroy the depots in PEMBERTON'S rear. He started on the 18th of April, 1863, from the vicinity of New Albany, and entered the open country of the enemy; and in order to carry out his instructions thoroughly, he sought the enemy's weak points while avoiding any serious engagement. Every morning, when he did not fear the enemy, he divided his force into various small columns, which he dispatched in several directions, so as to cover as much ground as possible, and mislead the enemy in regard to his movements. GRIERSON'S men were armed with the carbine, and trained to fight on foot. His march was so skillfully made that he was able to avoid any serious fighting.

Colonel STREIGHT'S raid which has already been referred to in connection with GRIERSON'S, failed completely for want of careful preparations. He was ordered to traverse long distances through an enemy's country, and the importance of the object demanded that his force should be well mounted and trained to the use of the horse. He was sent out, however, with men who knew nothing of the use or care of horses, and they were mounted on old, broken down horses and mules. Under these circumstances, failure was a foregone conclusion. He was pursued by FORREST, and finally his whole force, with the exceptions of about 250 men who had been detached, was captured.

We have already seen how unfortunate it was for HOOKER that STONEMAN had been detached just before the battle of Chancellorsville. STONEMAN made matters worse by scattering his force, and waging a sort of guerilla warfare, instead of keeping it concentrated so as to act effectively against LEE'S communications.

Passing on to SHERIDAN's operations we find that general keeping constantly in his pay a number of special spies. These would penetrate into the enemy's lines and in this way obtain information of all kinds that would be of use to their chief. In addition to this SHERIDAN always exercised the greatest caution in regard to his movements and intentions. His men were armed with the saber attached to the saddle, the revolver, and breech-loading carbines. Whenever infantry was to be dealt with or it became necessary to take the offensive the men dismounted and fought on foot. The whole force generally marched on one road, as when they marched on several parallel routes it was scarcely ever possible to bring them together when wanted. The most careful precautions were taken, by means of advanced guards and flankers, to avoid being taken by surprise. The pace at which the column marched was the walk, and seventeen to eighteen miles was an ordinary march, though much longer marches were sometimes made. Each man carried on his horse four days' rations, two days' oats, a piece of shelter-tent, cloak and blanket, and the wagon train carried but little besides ammunition. SHERIDAN had at first a considerable body of artillery, but finding it hampered the mobility of his column too much, he discarded it all except one battery.

With regard to the Russians, GOURKO in his passage of the Balkans in 1877, after leaving Tirnova, took with him a pack train carrying five days' rations (hard bread), and three days' forage; but the men and horses were to live off the country as much as possible so as to save their rations for an emergency. The Russian cavalry at this time were armed for the most part with the saber, Berdan rifle and revolver or lance; and in this campaign the troops frequently fought on foot against both infantry and cavalry. When GOURKO was compelled to retreat the cavalry protected his rear. The Russians, since 1877 have adopted as a part of the training of their cavalry the practice of making raids after the American fashion, so that when the time comes to act, the troops will fully understand all the details of the work they may have to do.

Guided by the experience bearing on the subject gained from our own wars and the wars of other nations, we may safely deduce the following general principles in regard to cavalry raids: Mobility being essential to success, the force should be small enough to make long and rapid marches, but at the same time strong enough to be able to brush away any small detachments of the enemy, say 2,000 to 2,500 men.

The column should march on a single road so as to be in the hands of the leader in case of need.

The success of the movement being generally proportionate to the suddenness of the blow, the greatest rapidity of movement consistent with the endurance of men and horses, should be sought to be attained. One of the principal factors of success in making raids lies undoubtedly in the physical endurance of the men and horses, and it is just here that previous training will tell most conspicuously. After months of continuous field service, if men and horses have not been exhausted by overwork, they will naturally become inured to fatigue and privations and equal to almost anything—witness the astonishing marches performed by the cavalry on both sides during the Civil War. But it is during peace time or during seasons of rest in time of war that the efficiency of a command needs to be looked after. A little extra work and care during peace time will keep a cavalry command constantly in such a state of efficiency that they are at any time equal to making forced marches that would disable horses and men without such preparation. The preparation which can be had at every post and camp where there is cavalry is by drilling frequently at the increased gaits and making practice marches from time to time, such as will enable the commander to gauge the capabilities of his command. An excellent example of the value of the training I advocate is afforded by the case of the Ninth Cavalry in the late Sioux campaign, two accounts of which will be found in the JOURNAL OF THE U. S. CAVALRY ASSOCIATION for March, 1891, written, the one by Major HENRY and the other by Lieutenant PERRY. I would like to quote Major HENRY's article but space forbids. He had what he calls hardening drills, in all kinds of weather, and the results were eminently satisfactory. And one other point: "Not only should every cavalry force have a pack train but the mules should be hardened in the same manner as the horses. Major HENRY says on this point: "A complete pack train is a necessary adjunct to an efficient cavalry force. Mules should be kept with each troop and regular drives and marches required. No cavalry can pursue Indians with wagons, hence the successful troops are those with the best pack trains, not raised at a moment, but the result of careful drill and marching for months." What applies to Indian warfare applies with even more force to cavalry raids.

The cavalry should be carefully trained to fight on foot; and, since whatever they do must be done quickly, I think they ought by all means to be armed with a magazine arm.

No raid should be attempted without knowing exactly where to

strike. To obtain the necessary information scouts are necessary. The practice of cavalry leaders in the Civil War, of having special scouts, chosen for their intelligence and aptitude for this particular duty, who were sent ahead to get information, seems all that can be desired.

Judging from the experience of famous leaders, artillery is rather a hindrance than otherwise, and if used at all it would probably be best to employ machine guns or mountain cannon.

In the foregoing pages, I have endeavored to show, by means of examples taken from the history of wars, how cavalry raids should be conducted, in order to be successful. It is a subject worthy of the closest study; for there is no doubt that if these operations are skillfully conducted, the most important results can be accomplished with a comparatively small force. And not the least important of all, it fosters and develops that spirit of daring and enterprise that should ever characterize good cavalry.

W. H. HAY,
Second Lieutenant, Third Cavalry.

In preparing this paper, I have consulted the following works:

ALISON'S History of Europe.
GREEN'S Russian Campaigns in Turkey.
SCRIBNER'S Campaigns of the Civil War.
DENISON'S History of Cavalry.
TRENCH'S Cavalry in Modern War.
COMTE DE PARIS: The History of the Civil War in America.
Report of the British Naval and Military Operations in Egypt.
PLUTARCH'S Lives.
Also, a few Magazine Articles.

THE ENLISTED MEN OF THE UNITED STATES ARMY.

[Extract from an address by Captain GEORGE S. WILSON, Twelfth U.S. Infantry, before the Union Veteran Legion, of Columbus, Ohio, on the death of Comrade WILLIAM H. JONES, who had served twenty-three years in the ranks of the regular army and was discharged with character certificate of "a good man and an excellent soldier," and who for twenty-five years subsequently to his discharge sustained the reputation of an upright business man and a good citizen.]

* * * * * * * * * *

COMRADE JONES first enlisted at the age of thirteen, in 1843, and received his final discharge in 1866. In other words we may say that so far as the moulding of character is concerned, he was raised in the army, and whatever was good or bad in his surroundings from the tender age of thirteen to mature manhood must have impressed themselves on his character, and it is of those influences and those surroundings * * * * that I shall speak. * * * For they are of a public nature and in them we, as good citizens, should be more interested than in the worth or worthlessness of any mere individual. And as a sort of text for what I shall say allow me to read a paragraph from the columns of the *Saint Louis Republic* of recent date:

"At present only the lowest and most worthless class among the white people of the country offers recruits for the ranks. These, army discipline will do something to elevate. It will have the same effect on the lowest class of negroes and Indians, and it is well enough that the army is being used as a school of correction for them. But no one who is fit for citizenship, who can govern himself without such despotic discipline as must be enforced in an army, should ever enter the standing army in time of peace."

Were this the utterance of an individual merely, it would serve no good purpose to bring it to notice; but I must reluctantly admit that this cruel and false language of one of our daily papers has its foundation in general belief. That it is wrong many may believe, and some of us may know, yet I fear that most of those who think at all of the regular army, think as this editor writes. I hope to show you, had this editor given the subject intelligent study and investigation, he would not have written as he did.

The enlisted men are and always have been loyal to our country. Many forget, what all should remember, that when the clouds were gathering for the storm of rebellion which burst upon us in 1861, when all was doubt and darkness, when cabinet officers and congressmen, and army and navy officers by the score, were hurrying to the standard of rebellion, I say, many forget that in that hour of trial, when no one knew in whom to trust, there was one body of men which stood as one man, firmly, unconditionally, for the Government. That body was composed of the *enlisted men of the regular army;* no matter of what birth, native or foreign, northern or southern, they had taken an oath to defend the Government "against all its enemies or opposers whomsoever," and not one faltered. When, in Texas and New Mexico, the traitor TWIGGS basely tried to turn over to the enemy the forces entrusted to him as department commander, and when whole companies and battalions were deserted by their officers, who were of southern birth, the enlisted men refused to follow those officers, and, amidst hardships and danger, made their way north and reported for duty. And from that time on, every battle from Virginia to Texas, lessened their numbers; and not one fell in defense of any flag but the stars and stripes. Gentlemen, honor, not slander, is the due of such devotion to duty. * * *

But let us keep to the subject,—the social, the moral character, of the enlisted men of the army. Had the Saint Louis editor chosen to investigate the subject on which he wrote, he could have gained much information at Jefferson Barracks, within cannon sound of his editorial rooms. There he might have been assisted in his investigations by the commanding officer,* a man of soldierly bearing, one who would have attracted his attention and admiration at any time and place. He would have found this man kind, courteous and sensible, and anyone could have told him that in his private life he was the very soul of honor, and that for a quarter of a century he had been known all over the army for brains and bravery, and that he had helped win battles for his country all the way from one ocean to the other. After that the editor might have been surprised to learn that this officer had served *seven years* in the ranks before he got his first commission. I have in mind another specimen of splendid manhood, a lieutenant-colonel in the regular army,† of whom I can speak equally high. A short time ago I saw him and Mr. JONES meet after many years' separation. I expressed surprise that they had ever met, and the Colonel said: "JONES and I were friends and first sergeants

*Major REUBEN F. BERNARD, Eighth Cavalry, Brevet Colonel, U. S. Army.
†Lieutenant-Colonel JOHN GREEN, U. S. Army, retired.

together long before you were old enough to be a soldier." This officer served *nine years* in the ranks before he came into a commission. So I could name scores, some with shoulder straps, some wearing chevrons. But let me speak of those whom you all know. Remember when our lamented comrade joined the army he was a mere child of thirteen, his character and habits not formed. In his first enlistment he beat the drum to a fife blown by a boy of his own age, and the two boys formed a friendship which lasted through life. That other boy served *ten years* in the ranks, and when the war came he held high command in the volunteer service, and subsequently served your State in Congress and as governor. I refer to the late General THOMAS L. YOUNG.

But let us come still nearer home. There are two gentlemen in this city engaged in honorable business, each of whom has been entrusted with important public office under the State or city, and both of whom are members of this encampment of the Union Veteran Legion by virtue of service in the ranks of the regular army. One of these we made our first commander, and the other succeeded him in that position. Gentlemen, "the lowest and most worthless," those not "fit for citizenship," hold not in their ranks such men as I have described, and the hundreds of others of whom they are examples. Nor can the baneful influences of such grasp and envelop boys at the age of thirteen, and hold them for years and years, and then give them back to society fit for congressmen and governors. The trade of soldier is honorable, and honorable men serve as soldiers. The ranks of the army are not recruited from the "scum of the earth;" but rather from those walks in life which have given to this country GARFIELD, and to the world LINCOLN.*

I know it is so, that the sentiment of the English-speaking people is opposed to standing armies. But our little force of 400 soldiers to each million of inhabitants is not a standing army in the sense that it could be a menace to liberty, and that is the traditional objection which is father to the present disfavor in which such armies are held. Then are the people wise in withholding encouragement from the army, by holding up the occupation of soldier to contempt? The regular army of the United States is the conservator of the art of war and the keeper of military traditions. And it keeps that art and those traditions abreast of the times, that the experiences of the past may benefit the future. We may not have realized it, comrades, that when we marched out in 1861–2 to help put down a mighty

*For some time past over seventy per cent. of enlistments have been native born, largely from the rural districts.

rebellion by force of arms, we marched and camped and regulated our daily life and duties (and boiled our beans) after the manner which the experiences of the enlisted men of the regular army had proved to be the best. And the generals who led our great armies to battle and to victory had but the day before been the lieutenants and captains of these same enlisted men. In this way comrades, we who went to make up the great volunteer hosts which crushed the rebellion were the sooner moulded into soldiers, by using the experiences of our dead comrade and those with whom he served. I speak to veterans this evening; veterans by reason of long service and many battles—for of such only is our order composed—and I have no fear of being misunderstood when I say that the nearer we volunteers of the war approached the lines on which the regulars worked, and the more nearly we attained to their drill and discipline, the more effective we were, until finally, when it was all over, when we had completed our work, and had done it so thoroughly that all, both friends and foes, could go home under the folds of the flag of one great and glorious country, we who had been mustered in as *volunteers*, were discharged—in all but name—as *regulars*. So, in the time of need there is a mutual interest and dependence between the regulars and the volunteers.

"O, but there will be no more war," some say. In the first century of our national existence we devoted one year in six to organized war, to say nothing of Indian troubles. It is now twenty-six years since we last sheathed the sword, and thirty-one years is the longest continuous peace period we have ever enjoyed. Do these figures from the past hold no warning for the future?

A fool can say, "to-day we have peace," but no man is wise enough to answer for to-morrow.

* * * * * * * *

THE PROPER RELATIVE PROPORTIONS OF THE THREE BRANCHES OF THE SERVICE.

OCCUPYING from east to west the broad expanse of a vast continent, stretching north and south from arctic cold to tropic heat, possessing fertile soil, boundless forests, inexhaustible mineral resources, and peopled by a race unexcelled for energy and inventive genius, the United States has no rival.

Separated as they are from all other great countries, war is looked upon as almost beyond the range of possibility.

While all Europe groans with the burden of immense standing armies, which, even in these piping times of peace, shake the continent with their martial tread, the United States rests secure.

But is this security real or apparent? Canada is fast becoming a country, which, if a foe, would be worthy of our steel; Mexico keeps a larger standing army than our own; questions of great moment remain unsolved; the demon of unrest is abroad in the land, and a feverish uncertainty exists.

Who can tell what moment a storm may burst which will call into play the whole strength of our great nation.

Assuming then that the possibility of war does exist—and who after careful thought will deny it—it becomes the duty of the United States to be ready in the hour of trial.

A failure to be thus ready can result only in untold expenditure of blood and treasure.

Experience shows that time is necessary for the organization of an army, and that many months must elapse before a raw recruit can be transformed into an efficient soldier.

Organization must, therefore, at all times exist; and its form should be such as to provide the greatest possible security consistent with wise economy.

The United States has an organization in which all the necessary branches are represented. The internal organization of some of them is susceptible of great improvement; as, for example, the substitution

of a three battalion organization of infantry for the present one battalion regiment, the proposed change producing a system admitting of great augmentation in case of war, and forming battalions of convenient size for handling on the battle-field.

It is not my purpose, however, to consider the internal organization of the various branches, but to discuss the proper proportion of troops that should be allotted to each of them in making up our small army.

My remarks will be limited to the infantry, cavalry and artillery; the discussion of the staff corps and its important duties, the magnitude of which are almost beyond realization, not coming within the scope of this paper.

Before proceeding to the discussion of the proper proportion of troops in the three arms mentioned, it may be well to consider some of their characteristics and their relative importance.

From the days of Cressy and Agincourt when the English, armed with the long-bow, gained great victories, infantry has steadily increased in importance and has become the mainstay of an army, both as regards numbers and its action on the field of battle.

The introduction of fire arms has contributed largely to this result and as the infantry weapon has increased in range, precision and rapidity of fire, so has the infantry increased in importance.

Upon the infantry falls the brunt of the fighting and upon infantry tactics *the whole superstructure of military operations is based.*

The other arms act as auxiliaries, prepare the way, confirm victory or arrest pursuit. Thus it comes about that in no tactical action is any arm of the service complete without the others.

Owing to improved weapons a higher education of the individual soldier is now more necessary than formerly, because lines of battle have become widely extended and the individual must therefore be taught to rely largely upon himself, and at the same time be able to act as a part of a great body and in unison with it.

CLAUSEWITZ says that artillery being the most powerful arm for destruction the question should be asked how much artillery should an army have.

Certain it is that the breech-loader has given infantry such great power of resistance that it cannot be turned out of position except by greatly superior forces, until thoroughly shaken by artillery and its *morale* destroyed.

The number of guns that can be used with profit seems to be limited only by the questions of maneuver and the capabilities of the position.

The chief function of artillery on the battle-field is to pave the way for the attack, and in order that its full value may be had, it is necessary for it to come into action much sooner than formerly, remain in action longer, and to move about far less frequently, such requirements being made necessary by reason of the greatly improved guns now in use.

Troops acting on the defensive will invariably make use of such shelter as can be found or readily constructed, such as woods, houses, walls and intrenchments. It becomes the duty of the artillery to drive the enemy from such shelter, and to shake him so thoroughly that the infantry can advance.

A heavy cross-fire of artillery produces a most demoralizing effect upon the enemy, and would shake the best troops.

We have many instances on record, as for example, FLANVILLE and COINCY at the battle of Noisseville, where the enemy was driven entirely from his position by artillery fire so that the infantry had only to advance and occupy it.

It has now become a matter of necessity to send artillery well to the front, and modern battles are usually opened by an artillery duel, the object being to discover the enemy's plans and strength, to cause the enemy as much loss as possible, to cover the advance and deployment of the infantry, and to draw the fire of the opposing batteries.

The artillery of the defense would likewise be employed in an advanced position, to cover the reconnaissance made to discover the force and intentions of the enemy, and when the heads of the advancing columns come within range, would open fire upon them in order to force an early deployment.

Later the artillery of the main position would open fire upon the same objects, and for the same purpose, until itself fired upon by the enemy's artillery, when the latter fire would be replied to.

During the remainder of the engagement the artillery would direct its fire upon that arm which is for the time being, most important in the attack.

NAPOLEON says that a good infantry is doubtless the nerve of an army, but if it has to struggle for any length of time against a superior artillery, it gets demoralized, and will be destroyed.

The necessity for infantry and artillery is never questioned, but the introduction of rapid firing arms of precision, seems to have produced a popular impression that cavalry has lost much of its importance, and is of little value in modern war.

An examination of this important subject shows such an idea to be a delusion, and that on the contrary the duties and importance of

cavalry have been wonderfully increased; its former characteristics being largely retained while new ones have been added.

Its ability to fight on foot, in consequence of its being armed with the carbine, gives it a power never before possessed, and according to some writers, it has reached almost perfect independence, whether in attack or defense, in motion or at rest.

SHERIDAN'S cavalry in 1864 certainly possessed a great degree of independence, for it successfully fought mounted or dismounted, against infantry, cavalry and artillery.

At the breaking out of the late Rebellion both sides acted largely upon the then prevalent idea that cavalry was of little use against infantry fire-arms, but experience soon pointed out their error, and the mounted service was rapidly increased, until at the close of the war the North alone had a force of 80,000 men in that branch of the service.

In 1866 the Germans tested their army which had been undergoing careful training for years, and all eyes were turned toward them to see what changes they would make in its organization as a result of that experience. One of the first things they did was to largely increase their cavalry force, thus showing their belief in its necessity, notwithstanding the introduction of the breech-loader.

HOME says that "modern events have clearly shown that there is no arm from the correct management of which the army can reap more benefit, and that if its action be paralyzed from any cause there is none the want of which will be more severely felt."

That cavalry still has a place on the actual battle-field is shown by the action of that arm at Mars-la-Tour on August 16th, where less than 800 cavalry cut their way through two lines of French infantry, put the batteries in their rear to flight and then fought their way back again, having lost, it is true, nearly half their whole number, but producing results affecting the course of the whole campaign.

SHAW says, that although the introduction of arms of precision has had the effect of limiting the action of cavalry in large masses on the battle-field, it has, on the other hand, increased the opportunities for attack by smaller bodies upon infantry in dispersed formations.

It is not upon the battle-field, however, that cavalry has its greatest usefulness, but rather in advance of the army where it makes reconnaissances and explorations of large tracts of country in order to find and keep touch of the enemy, and at the same time to conceal the movements of the troops in its rear.

The knowledge of using cavalry in this capacity was greatly developed in our late war. The Germans took to heart the lessons so taught, and although they failed to make use of them to any great extent in the war of 1866, they were prepared at the breaking out of the Franco-German War to put in practice the knowledge thus gained.

The French on the contrary had failed to profit by the experience of the two previous wars, and the action of the cavalry of the opposing forces in the struggle of 1870–71 was in marked contrast. The Germans understood how to gain touch of the enemy as well as how to keep it; watching his movements and reporting upon them, yielding to pressure but never losing touch, thus producing a feeling of uncertainty in the enemy's ranks bordering on demoralization.

The action of the Prussian cavalry in watching, feeling, and hanging on to the French troops retreating from Wörth on Chalons, is a good example of the manner in which this duty was performed.

Colonel BONIE, speaking of this retreat, says: "From that moment until we reached Luneville their scouts watched us unceasingly. Linked to their army by horsemen, they gave an exact account of our positions, of our halts, of our movements; and as they watched us from some little distance, incessantly appearing and disappearing, they spread uneasiness. In place of acting in a similar way, we kept our cavalry in masses difficult to move, which did not protect the army, and rendered no service whatever."

Another duty of cavalry which has only in recent wars come into prominence, is that of raiding.

"A raid is defined as an act of surprise rather than of force, its primary aims being to destroy or render useless for a time, railways, telegraph lines, stations, stores, bridges, magazines, etc., to produce disorder and excite apprehension in the minds of the enemy. Its secondary objects are to bring back useful information, to make prisoners, to spread false news, etc." (TRENCH).

Although raiding was made use of to some extent during the Napoleonic wars, it was left to such leaders as SHERIDAN, WILSON, MORGAN, FORREST and STUART to show to the world the capabilities of the cavalry arm in that direction.

STUART'S raids in 1862 are brilliant examples. The first around MCCLELLAN'S army in June, was made with a force of 2,500 cavalry and two pieces of artillery. During this raid STUART'S troops burnt enormous qantities of stores, captured many prisoners and animals, and spread much consternation throughout the Federal army.

Among the duties of cavalry not already mentioned are the general performance of outpost duties, the repulse of the enemy's cavalry

where he may attempt to advance, hindering and checking, where possible, the mobilization of isolated portions of the enemy's army, and anticipating the enemy in gaining possession of special positions.

There can be no doubt that an efficient cavalry is more necessary than ever before for the success and safety of an army in the field.

While no attempt has been made to enumerate all the duties of each of the three arms of the service, enough has been said to show the necessity for all of them, and we will now pass to the determination of the question of their proper relative proportions.

This question does not admit of exact mathematical demonstration, and we must therefore be guided by the experience of those whose successes entitle them to our consideration.

NAPOLEON, whose military achievements challenge the admiration of the whole world, says that if infantry be taken as unity, cavalry should be one-fourth and artillery one-eighth.

The characteristics of the different arms have changed somewhat since then, but the change in their relative proportions has not been remarkably great, the cavalry being somewhat reduced while the artillery has been slightly increased.

The German army is frequently looked upon as a model of military excellence. *An examination of their organization shows the* proportions in their army corps to be, taking infantry as unity, cavalry one-sixth and artillery one-seventh.

The above proportions also applied to the Second German army in the war of 1870–71, except that the cavalry was slightly increased, being between one-fifth and one-sixth of the strength of the infantry.

We, therefore, arrive at the conclusion that if infantry be taken as unity, cavalry should be one-sixth and artillery one-seventh. This rule, however, is not absolute, but general, governing the case under normal conditions.

The proportions in any campaign depend largely upon the nature of the enemy and the character of the country.

In a hilly, difficult country, the cavalry and artillery would be diminished, while in an open region they would be correspondingly increased.

It is also to be remembered that the proportions named are those desirable during a state of war; but as our normal condition is peace and not war, we must inquire into the way in which these proportions are affected by a state of peace.

A standing army is maintained that a country may in any emergency preserve peace within its borders, compel the respect of other nations, defend its honor, or repel an invading foe.

But as no country could bear the burden of an army kept constantly at war strength during peace, the army is of necessity reduced. How this reduction shall be made is therefore a question of great importance, but the answer is at once suggested—*cut down those branches which can be most quickly replaced when required.*

As European nations are more liable to be suddenly plunged into war than ourselves, they naturally study with greater care all military questions, and we may therefore with reason consider their action to be the result of mature deliberation, and worthy of our careful study.

An examination of the German army shows that the cavalry corps are maintained during time of peace very nearly at war strength, the difference between their peace and war establishments being much less than in the other branches of the service.

Not only is the cavalry kept up to about war strength, but measures have been taken so that the cavalry can be mobilized in about half the time required for the other branches, which enables it to first take the field and cover the concentration of the other forces.

The Austrian cavalry can also be put in the field much sooner than the other branches of the service, the regiments, except the depot cadre, being always maintained at war strength. Both these nations also have complete arrangements for the organization and equipment of the reserve cavalry.

We naturally ask the question, why should the cavalry branch of the service, which is well known to be far the most expensive, be maintained at anything like war strength during time of peace, while the less expensive branches are cut down? *We answer, simply because the cavalry is first needed and would necessitate a much longer time for its creation than would the other branches.*

So difficult is it to train a cavalry soldier and so long does it require, that the Germans offer special inducements to cavalrymen to extend their length of service from three to four years.

Not only must the cavalryman be taught the duties of a soldier, including the manner of using three different weapons, but he must also train his horse and learn to care for him.

It is only by months of constant training and practice that the rider can gain the power of managing his horse properly—that is, almost mechanically, so that his whole attention may be concentrated upon the use of his weapons.

It is also true that artillerymen must be taught the care of horses, but the same excellence of individual training is not necessary, for artillery usually fights at long range, and is consequently free, to a

great extent, from the confusion that naturally exists in the other branches of the service upon coming in close contact with the enemy. Furthermore their fighting is done dismounted, and consequently, while mounted they can devote their whole attention to the management of their horses.

TRENCH says: "It is now universally acknowledged that of all arms cavalry is the one that is required to be in the most constant state of preparation for war, since it is generally a matter of vital importance for it to be pushed to the front at once, or in our own case to be present on the theater of war in strong force at the very beginning of the campaign. It is the recognition of this necessity which reconciles the great military powers to the endurance of the heavy burden of keeping up vast hosts of cavalry at their full strength during long years of peace, in order to be ready for instant action on the outbreak of war."

While the above remarks, showing the desirability of always *maintaining the cavalry force at approximate war strength*, apply to all nations, certain conditions exist in the United States which serve to emphasize them. Before applying the general rule for the proper relative proportion of the three branches of the service to the United States army, it will be necessary to examine into the said conditions as they now exist.

As before stated the United States are separated from all other great countries, and we are not therefore under the necessity of maintaining as large a standing army as do the countries of the Old World. No country or combination of countries could in a short space of time oppose to us so large a force as the nations of Europe do to each other.

But with the large number of ocean steamers kept constantly subject to England's call, backed by her powerful navy, we might find our country invaded by a considerable force which, in our present condition, we would be powerless to resist before great devastation had been wrought.

The treaty of 1817 regulating the number of men-of-war to be kept on the Great Lakes is wholly one-sided in character, inasmuch as England has control of canals by which her war ships, drawing not more than fourteen feet of water, can readily pass from the ocean to the lakes. As England has more than 100 such ships her superiority becomes at once apparent.

In case of war with England, not only would our sea-coast be defenceless, but the great cities on the lakes would be completely at

the mercy of the enemy unless we could advance with sufficient force to seize and destroy the canals before the passage of such war ships.

Our standing army is small, scattered and insufficient. We must therefore look elsewhere for assistance when an emergency arises.

The only organized force outside of the standing army is the militia of the different States, which aggregates more than 109,000 men, and is increasing from year to year. These men are uniformed, equipped and drilled to a certain degree of proficiency. It is sometimes remarked that militia would be of little use in actual war, but this is most certainly an erroneous idea.

The militia has greatly improved during the last few years, and its proficiency in certain States may be judged by opinions expressed on the Pennsylvania militia, at their last annual encampment at Mount Gretna.

President HARRISON said: "If at the breaking out of the Rebellion we had possessed a force in the principal northern States equal to this Pennsylvania National Guard, the first disaster at Bull Run would not have occurred; and no man can estimate the influence which such a force would have exerted upon the events of the war. All suffered and many died, while we were learning what the Pennsylvania Guardsmen have acquired — how to take care of themselves in camp and on the march. The Pennsylvania Guardsmen are not only accomplished in this particular; they give unmistakable evidence of being well drilled and under excellent discipline."

General SCHOFIELD, on the same occasion, remarked: "The Pennsylvania Guard is a splendid organization. There is no fancy business about it either in action or in dress, and any military man who could have seen it to-day would naturally associate it with regular troops. I would not hesitate to depend upon that division in any emergency."

Secretary PROCTOR said: "All that seems to be needed by that division for actual service is forty rounds of ammunition and three days' rations."

Still more recently General HOWARD expressed similar views of the New York militia. Although Pennsylvania militia is doubtless in the lead, that of certain other States approximates to it in excellence.

The following facts gleaned from the reports of the adjutant generals of the various States may be interesting.

As regards numbers, New York heads the list, having 13,532 men of all arms; following which come Pennsylvania with 8,351;

Ohio, 5,627; Massachusetts, 5,162; South Carolina, 5,305, and so on down to Arkansas, from which State none is reported.

The greater part of the militia is infantry; the other branches of the service in the above named States being as follows:

State.	*Cavalry Force.*	*Artillery Force.*
New York	102 cavalrymen	393 artillerymen.
Pennsylvania	3 troops	3 batteries.
Ohio	1 troop	8 batteries.
Massachusetts	3 troops	3 batteries.
Georgia	13 troops	3 batteries.
Illinois	— troops	2 batteries.
New Jersey	— troops	— batteries.
California	1 troop	2 light batteries. 11 heavy batteries.

Out of an aggregate of 109,000 organized militia there are approximately sixty-eight troops of cavalry, numbering 3,800 men, and seventy-six batteries of artillery, numbering about 4,500 men.

The militia cavalry force is mostly to be found in the southern States, while the other branches are much more evenly distributed among all the States.

The militia infantry, generally, is armed with the improved Springfield breech-loading rifle, calibre .45, although some States use the old style calibre .50, and New York retains the Remington breech-loading rifle, calibre .50.

Although at present the militia cavalry and artillery have a varied assortment of equipments and guns, the War Department is endeavoring to supply all the militia artillery with the 3-inch rifled guns or the latest model 3.2-inch B. L. rifled guns of steel. Batteries of the latter guns are now in the hands of the States of New York and Vermont, and Rhode Island will receive a battery of the same guns as soon as the regular batteries have been supplied. Thus we see the militia infantry is approximately as well armed as the regular troops, and the militia artillery is fast becoming so.

If the militia were to be called into service, an application of the general rule for the proper relative proportions of the three branches of the service would show it to be deficient in both cavalry and artillery, but especially in the former, which would require an addition of about 12,000 men to bring it up to its proper proportional strength.

While militia infantry can be successfully organized and maintained, there are few communities willing and able to organize and mount a cavalry force because of the expense connected therewith.

This being the case, in order that the greatest benefit may be derived from the organized militia, it becomes the duty of the United States to maintain a cavalry force sufficiently large to supplement the militia organization, and thus make a complete working force of the whole.

Viewed in this light it would undoubtedly be a measure of economy to the government, inasmuch as it would tend to render a large force complete and available at a comparatively small cost.

The necessity for maintaining a relatively large cavalry force becomes more apparent when the material from which an army can be recruited is taken into consideration.

So long a time has elapsed since the close of the late war that few men educated in that school of experience are available.

Fortunately, however, military schools have sprung up on every hand, and through their instrumentality a military spirit is being fostered and a military knowledge imparted which will be of great benefit to the United States in case of war.

Of such schools there are more than 150 scattered about through the States, each of which annually sends forth its quota of young men, conversant with military terms, drilled more or less perfectly, and educated to some extent, in the art of war.

It may be interesting to know that every high school in Massachusetts is also a military school, military science being a portion of the prescribed course of study. The students are trained in infantry drill, and different schools are combined annually for battalion and brigade drills.

Other States encourage military education in various ways; for example, Missouri does so by appointing about 180 cadets to the State University who are uniformed and otherwise favored at the expense of the State.

Virginia alone has thirteen military schools, with from 1,200 to 1,500 students. Many military schools throughout the country are of a high order, being closely modeled on West Point.

All of the 150 schools mentioned give practical instruction in infantry drill, to which many of them add artillery drill, while only one or two give any instruction in cavalry drill.

The three branches of the service are represented in the regular army by twenty-five regiments of infantry, numbering about 12,000 men; ten regiments of cavalry, 6,000 men, and five regiments of artillery, 3,000 men. These numbers are only approximate, depending upon the facility with which recruits are secured.

Our officers are sufficiently numerous to command double the above force, and in a few weeks the army might be so increased, providing recruits could be secured.

Assuming that recruits could be secured, (a matter, by the way, of much doubt, as the volunteer service would probably present greater attractions) the regular army would then number about 25,000 infantry, 12,000 cavalry, and 5,000 artillery, thus making our available force in round numbers, including the militia, 123,000 infantry, 15,800 cavalry, and 11,500 artillery.

But according to the general rule deduced above, the cavalry force should be one-sixth of the strength of the infantry or 20,500 men, while the artillery should be 17,500 men.

Because cavalry is first needed but is slowest of creation, it should certainly be kept up to its proper proportional strength of the available peace organization. This would require the addition of at least four more regiments of cavalry to our present organization.

If we take into consideration the large number of men required in modern war, and the consequent fact that our armies must be largely composed of volunteers, not forgetting that cavalry from its very nature is slowest of creation, we at once recognize the desirability of a still greater increase of cavalry than that above recommended.

This would also correspond with the practice of European nations who have grown wise through experience.

If war suddenly come upon us, we have available material in the country for the rapid organization of a large infantry force, while long months must elapse before a corresponding cavalry force can be made ready.

An article in the November number of the *Military Service Institution*, for 1890, entitled "Our Northern Frontier" sets forth in a forcible manner the disadvantages under which the United States would be placed in case of war with England.

Although in that article our militia is underrated as regards numbers, equipment and efficiency, and although the whole article is doubtless too strongly pessimistic, yet the conditions unfavorable to the United States become so manifest that they must create anxiety in the minds of the most conservative.

If we turn to the reports of our high officials for words of assurance, we meet with bitter disappointment, for there too is found portrayed, in vivid colors, our defenseless condition.

A false economy has allowed our navy to fall behind the navies of other countries, until it has ceased to command their respect. Our standing army has been reduced to 25,000 men.

Every American must experience a feeling of humiliation when he considers the necessity of the United States acceding to any demand that England may make, or of going to war under most embarrassing circumstances. The building of a navy under present conditions, is a work of years—a work fortunately already begun.

In the meanwhile the army should be sufficiently increased to meet any emergency in which it may be called upon to act. In making such increase the militia should be taken into consideration, for it now has a real value, and will render great and efficient service if called upon.

The militia, for the most part, is as well armed as the regular troops, and to look upon it as a mob is to forget the progress of the past few years. Combined with the regular army, it should be a complete working organization, and therefore its deficiency in cavalry and artillery should be supplied by the regular army.

Like the air we breathe, the water we drink, and the powder we burn, the United States army will be best fitted to fulfill the demands made upon it, when the elements of which it is composed, are combined in their proper relative proportions.

W. A. HOLBROOK,
First Lieutenant, First Cavalry.

CAVALRY OUTPOST DUTY: BY F. DE BRACK, GENERAL OF CAVALRY, COMMANDER OF THE IMPERIAL ORDER OF THE LEGION OF HONOR, ETC.

TRANSLATED FROM THE THIRD EDITION, 1863,
BY MAJOR C. C. C. CARR, EIGHTH CAVALRY, U. S. ARMY.

PREFACE TO THE THIRD EDITION.

THE author of this book had been one of the most brilliant cavalry officers of the Empire. A pupil of LASALLE, of MONTBRUN, of COLBERT, of PAJOL, he appeared destined to the highest military honors, when the disaster of Waterloo overtook the Grand Army. In spite of his youth, his tastes, his instincts, his experience, and the prospects of a brilliant military career, DE BRACK sheathed his sword.

Although withdrawn from the army he was, however, no stranger to its progress and labors.

After fifteen years' absence Lieutenant-Colonel DE BRACK resumed his place at the head of our squadrons.

From 1815 to 1830 our military organization had been as much modified as the regimental manners and customs. The adoption of the new regulations had brought into high favor theoretical instruction, and DE BRACK, who returned with his ideas of war, was struck with the importance which had been given to theory over practice in the ranks of the cavalry.

It was believed that war was about to recommence. The Colonel wished to prepare his officers and men for the approaching campaign, in which, as the commander of a body of light cavalry, his place would be at the outposts.

So this work was conceived, and written in haste, as though the regiment were already under orders to pass the frontier; for it should be said that this book was intended only for the squadrons commanded by DE BRACK.

This haste was indeed a fortunate thing. The author not having had time to ransack treatises and consult books, simply reproduced

his recollections of the great cavalry heroes, SEIDLITZ, LASALLE, MURAT and BESSIÈRES, and from memory repeated the practical lessons given by the colonels and captains who had raised the reputation of the cavalry to so high a pitch.

Written with an intelligence vast and active, with a glowing heart, in an observing and delicate spirit, with a rare love for the soldier, this book, almost improvised, is a charming little masterpiece. At once witty and profound, the author, laying aside all prejudice, shows himself so original that certain parts, without ceasing to be true, have a perfume of poetry which charms the military reader.

DE BRACK never loses sight of the *morale* of the soldier; he speaks of honor, of courage, of devotion, and his language makes one thrill. The style moves on at a cavalry pace, which is well adapted to the subject.

A modern philosopher, M. COUSIN, has said: "War is above all an art which requires for its practice the greatest genius combined with indomitable courage." DE BRACK had anticipated this thought, which might well serve as a motto for his book.

More than thirty years have passed away since the first publication of this work, and during those thirty years the French army has made war in Africa, in Belgium, in the Crimea, in China, in Italy; the flag yet flies in Cochin China and in Mexico.

DE BRACK's book is as true, as good and as useful as on the day of its first publication.

The late wars have been enriched by scientific discoveries and much material progress. The cannon ball, the bullet and bayonet strike at a greater distance and more accurately. Some new processes have taken rise in the particular character of such or such a war, but the general principles of tactics, of strategy, have remained unaltered. They will always be those which FREDERIC, TURENNE, and NAPOLÉON made them.

Methodical warfare, for which the book of DE BRACK is intended to prepare the reader, will forever be the only one employed by instructed generals and disciplined armies.

We had intended to modify the form of DE BRACK's work by fusing together the questions and answers, by devoting a new chapter to artillery, by completing it, as it were, by the addition of the modern inventions; would these additions have improved the work? We think not. It might have lost its original appearance, its seal of improvisation,—its cavalry swing,—all charming things in such a subject.

It was better, then, to reprint the work unchanged; respecting thus the thoughts and memory of DE BRACK.

In issuing this new edition we desire to repeat on the very first page some imperishable truths: First, that the great principles of war are eternal, as the First NAPOLEON declared, and that well conducted wars are always methodical; second, that the cavalry has lost nothing of its importance by the advancement of the other arms. The lessons General DE BRACK gave thirty years ago are the lessons of Jena, Friedland, Wagram and Eylau. Those lessons came from the great FREDERIC, from GUSTAVUS ADOLPHUS, from CHARLES XII; NAPOLEON completed, perfected, and gloriously applied them. Beyond that all would be illusion and vanity.

1863. A GENERAL OF CAVALRY.

"General STEINGEL, an Alsatian, was an excellent hussar officer; he had served under DUMOURIEZ in the northern campaigns, and was a clever, intelligent and extremely vigilant man. To all the characteristics of youth he joined those of mature years; he was an ideal outpost general. Two or three days before his death he was the first one to enter Lèzegno: the French general who arrived a few hours later found that all his wants had been anticipated and everything prepared for his future operations.

"The fords and defiles had been reconnoitered, guides employed, the curé and postmaster interrogated, friendly relations established with the inhabitants, spies sent out in various directions, the letters in the post office seized, and all those containing military information had been translated and abstracts of their contents made, and all necessary measures taken to establish magazines of supplies for the subsistence of the army."—NAPOLEON, *Italian Campaigns*.

DÔLE, MAY 5, 1831.

To the Officers and Non-Commissioned Officers of the Eighth Hussars:

MY COMPANIONS:—Upon reëntering the service after an absence of fifteen years, to compare the present condition of the service with my recollections of the former, has been for me a curious and interesting study. I have recognized on the whole some important improvements, but I freely confess I have not found the cavalry prepared for war, and I have observed, even with pain, that the traditions concerning details, useful and indispensable as they are, have been dangerously neglected.

During fifteen years much has been written, but only to make books. They have unfolded the history of the war; have recalled it to general officers; but the instruction of the trooper in campaign duties has been but little benefited by their study.

I except from these a small number of works; among others, those of General LA ROCHE AYMON, a model light cavalryman, who has very materially added to the instructions of FREDERIC. It is a pity that this general officer, whose works are only a resumé of his judicious observations upon the field itself, had not arranged a complete elementary system prescribing the duties of the cavalryman in

campaign; a system which might have become a guide and a standard work, that would thus have filled the gap which each commander seeks, in this the day of need, to fill as best he can.

While awaiting this work, so ardently desired, pressed by the war which seems to be advancing with the stride of a giant, taking as a basis that which you have learned in time of peace, then referring to my memoranda, which LA ROCHE AYMON's manual often shows me how to classify, I shall collect hastily, and in the easiest form and simplest to retain in the memory (not that of an essay, but rather of a conversation), the results of the principles I expressed before you at the time of our class-room instruction.

The very small number among you who have seen active service will judge me while recalling your experiences; the remainder will learn that of which they are now ignorant; and will make use of this knowledge as a reminder which will, on occasion, recall to them that which they may have forgotten and will, I believe, remove some difficulties from their path.

The spirit of order which has governed you for fifteen years has done you all the good possible; it has prepared the ground to receive the seed which must now be sown. The strictness and multiplicity of the duties which it has imposed upon you have produced action rather than reflection. In war, reflection the most sustained ought to go hand in hand with action. Pure machines, however perfect they may be, may become useless as soon as the regularity of their movement becomes deranged. The occurrence of anything unforeseen arrests at once their action. In war almost everything is unforeseen; in light cavalry where the soldier has often to depend upon himself, every action ought to be the result of careful thought.

The fault of theories is their dryness; the "why" would appear not to belong to them, yet the "why" is the soul of our action. It is of this "why" that we shall talk to-day, in order that the examples which action will present to us may not be lost for the present or future.

In peace you have seen *how* things are done, now you are going to learn *why* they are done.

War alone teaches war. The school exercises from which we have just freed ourselves are only a theory more or less perfect, to which an application will be wanting until we shall enter on a campaign.

War multiplies situations, and almost always instantaneously and in an unexpected manner; especially for light cavalry, it presents the same events under a thousand different aspects. It is not so much

a question of directing beforehand the mind upon such or such a point, as training it to perceive and judge clearly; not to be surprised, and to adopt promptly the best methods under all circumstances.

One must be born a light cavalryman. No other position requires so much natural aptitude, such innate genius for war as that of an officer of that arm. The qualities which make the superior man, intelligence, will, force, should be found united in him. Constantly left dependent on himself, exposed to frequent combats, responsible not only for his own command, but as well for that which he protects and guards, the employment of his physical and moral powers is continuous. The profession which he practices is a rude one, but the opportunities of distinguishing himself are presented daily—glorious compensation which the more richly rewards his labors by enabling his true worth to become the sooner known.

I have often mentioned to you General CURÉLY, lieutenant with me in 1807; he became a general in 1813. But in 1806 while twenty leagues in advance of our army, and at the head of twenty men of the Seventh Hussars, he struck terror into Leipsic, where 3,000 Prussians were stationed. In 1809, while fifteen leagues in advance of the division to which he belonged, and at the head of 100 men of the Seventh Chasseurs and Ninth Hussars, he passed unperceived through the Austro-Italian army, which it was his object to reconnoiter, and penetrated as far as the headquarters of the Arch Duke, the General-in-Chief.

In 1812, at Pultusk, with 100 men of the Twentieth Chasseurs he captured from the enemy twenty-four pieces of artillery, and took the General-in-Chief of the Russian army a prisoner.

Well, this man so valiant, so intrepid, so skillful, so strong willed, so prompt, so careful in his dashing enterprises, was, when he commanded a detachment, at the same time its surgeon, veterinary surgeon, saddler, shoemaker, cook, baker and farrier, until encountering the enemy, when he showed himself the most remarkable soldier of the Grand Army. Whenever he went into action the men of his command were fresher and better prepared for fighting than those of any other, and their conduct showed it.

Was it such a man as this that one could measure by the common standard and keep under the level which rival mediocrities or superiors in rank support always so heavily on their distinguished heads? After CURÉLY had served fifteen years, all in actual war, he received his promotion to the grade of lieutenant. Why was it so long delayed? Because those who were in a position to demand it were not

generous enough to acknowledge his ability. He simply vegetated until a colonel, a man of a nature similar to his own, rightly judged him and removed the barriers which obstructed his path to promotion. His rapid advancement was only an act of strict justice; for it was solely the fault of others that it had been previously so slow.

If I dwell upon this fact it is for an example and a warning. Nowhere, more than in the army, ought one to study conscientiously his subordinates, and avail himself of their special qualifications. Nor anywhere should the justice rendered them be more perfect, more devoid of the petty jealousies born of self-love—unworthy of a noble heart—which may become a serious, and often, irreparable wrong, when they basely trammel true genius and deprive the country of services which might have benefited it. Seniority has a claim, and doubtless a very respectable one—but not of the first importance. The armies in which it has been given too much weight, have always been defeated, while those where merit has not been invariably subjected to its unreasonable demands, have always been victorious. Merit being equal, seniority should turn the scale.

In 1815 CURÉLY withdrew from the army. His soul was not one of those that know how to submit; it was wounded, sick; it consumed his life and took its flight a few years ago, to reunite with those of his noble brothers in arms who died upon the battle-fields of the Empire, or upon the scaffolds of the Restoration. A wooden cross marks the spot where his body rests in the cemetery of the little village which he had quitted thirty years before as a simple volunteer soldier. Why could not death delay a while? He would have shaken the dust from the flag concealed under his humble bed, and on a field of battle on the day of victory, with a standard taken from the enemy, would have found the only tomb and winding sheet worthy of him.

CURÉLY was my ideal of a light cavalryman. For three years I fought by his side, and his counsels and example will remain graven upon my memory and in my heart forever. It is in studying them that I have learned to know what qualities are necessary to make a distinguished officer of light cavalry; and, if at a later date, left to myself, I have had some slight, fortunate affairs, I have often owed them to the study and remembrance of the instructions which he left to me.

To be a good officer of the advanced guard it is not enough to be brave and to command well under fire; one must bring to the place of action the greatest number of men and have them in the best condition for exerting the greatest power. This second part of our instruction, indispensable as it is, though not the most brilliant, is

undoubtedly the most important. It is dependent upon a number of things, and cannot be learned in garrison.

A habit of judging the health of men and horses, an acquaintance with the ready remedies applicable in certain cases, a daily and scrupulous inspection of the trappings, knowledge of the repairs that should be made, inspection of the equipments, and the repairs which they need, supplying all that may be useful to man and beast without overloading the horse, packing well understood, regularity of gaits in the columns on the march, good position of the bivouacs, continuous watchfulness in it of all that may affect the health of the horses, indication of the means of temporarily dispensing with the farrier, instructions for the employment of the instruments contained in the surgical case, the art of eating and sleeping seasonably, study of the character of the men under our orders, the maintenance of a discipline which will prevent the troopers arguing when they have no longer the guard house or prison to fear, a constant superintendence which will prevent the useless waste of the horse's strength, to set a personal example in every situation,—all the more carefully as the conditions become more toilsome and difficult,—to inspire the troops with entire confidence, devotion and enthusiasm,—those are what the theoretical instructions of peaceful times do not teach; those are what, joined to courage, the military coup d' œil, to promptness of judgment on the field of battle, make the truly distinguished officer.

Peace has taught you many things; the various exercises to which it has subjected you will not be lost upon you because they will not all find their application. You will retain, above all, from your laborious school exercises, which have brought under control your minds and bodies, the spirit of discipline and individual address in handling your arms and horses—the very foundation of all tactics. For the rest we shall select what is indispensable from what is less useful, and we shall again concentrate our whole attention, to-day occupied with many details, upon the principal objects which should engage it exclusively.

"War is," said General Lasalle to me one day, "to him who has not yet been beyond the garrison, what the world is to the young man just leaving the school-room; that is, what practice is to theory."

Peace has produced in the light cavalryman some habits which it will be necessary for him to rid himself of. The ease, the obligation even, of sending articles of clothing, of equipment and armament to the shops of workmen for the slightest repairs, the messing

by squadron, the ridiculous custom of allowing barbers in the squadrons, etc., prevent the man learning to depend upon himself alone.

The great quantity of useless articles which he possesses; the regulation pantaloons which he wears in cold weather when dismounted; those of duck for summer; this profusion of clothing, which is only good to make him careless of his sunburnt pantaloons, and necessitates the employment of an enormous valise, which breaks his horse's back, will be left, without doubt, at the depot at the first sound of the cannon.

To-day, the equipment of a chasseur or hussar seems conceived only to serve in a general movement from garrison to garrison. I cannot refrain, I admit it, from setting myself against the unmilitary idea which has for several years exercised control in this matter.*

The cavalry officer who has seen service in war, knows only too well that a large valise is soon emptied during a campaign, not by the use of the effects it contains, but by their prompt disappearance. If the valise remained empty afterwards, it would be only a partial evil, for it would be only a simple question of money and the chief of the corps would be relieved by it of an ugly burden; but it is not so, the trooper always replaces the useless articles which he has thrown away by all the tattered clothes he finds, which he would not have thought of picking up if he had not had some place in which to put them.

A light cavalryman's valise which will contain more than two shirts, a housewife and, under its flap, an extra pair of boots, is not only useless but even dangerous. The fewer effects the trooper has the better he cares for them, the cleaner he is, and the more ready he is. The chasseurs of the Imperial Guard, have made, under my own eyes, the Russian campaign of 1812 with a dolman and a single pair of pantaloons of Hungarian cloth.

One of the evils peculiar to the times of peace is, that neither the horse nor the arms of the trooper are his own.

The dismounted men of a regiment, of which the number is large, depending upon borrowing for the means of instruction, soil the accoutrements and arms, injure the horses, and thus destroy the interest, the strong feeling of ownership, which all men have for that which is handled only by themselves. In the old army I have often

*Would it not be a thousand times better if it is insisted upon that a soldier should possess so extensive a wardrobe, in time of peace, to have chests that could follow the regiment at the time of its changing station, in which could be put only the effects which a trooper is allowed to transport. The transportation of these chests would cost only a trifle, and would avoid the double necessity of injuring the horse, of breaking him down uselessly, and of forcing parcels into cases entirely unsuited to the purpose for which they are used.

known troopers to refuse furloughs lest their absence should authorize other persons to mount their horses and use their arms.

From this sense of proprietorship result the most useful and commendable effects; in time of war it is entire; nothing may offend or attack it. The trooper is the only master of what has been entrusted to him on his departure from the garrison; his horse and arms make a part of himself; only death or an offence entailing disgraceful punishment can deprive him of their possession. If I had had the good fortune to command you in time of war as I have in peace, I would have religiously observed the sacred right of each one to that consideration, and the latest recruit who had had the care of his horse, should not have been dismounted by any one, not even by the most valuable officer of the regiment, had he lost his own.

It is to prepare you for the practical knowledge of outpost duty that I have recorded for you these recollections—this species of manual that I offer you; which I have preceded by these reflections forming, in a manner, their preface.

During the nine months I have had the honor of commanding you, or rather, of being the head of our family, our common efforts have been crowned with success, since the regiment, destroyed by the transfer of the old soldiers into another corps, counts to-day nine hundred men prepared for active service in the field. These results are the fruits of your zealous labors. Those who do so well in time of peace ought to be the glory of the army in time of war.

I cannot copy this manuscript a hundred times so that a copy may be furnished to each one of you; I shall have it printed in order to avoid that labor. As to its composition, that is left open to criticism. I have not attempted to write a fine book, but to be clear and instructive. Moreover, I have believed that promptitude of composition would add to the usefulness of precept; and I have thrown hastily on paper my recollections as they have recurred in my memory.

Again, I repeat it, these pages are not a theory, a report of that which I have heard from others, but rather a recital of what I have seen—a conversation which ought to be consulted rather than learned; which, above all, is not intended for repetition word for word. In my opinion this would not be well; it is a practice useful only in the recitation room. Beyond that it is the practice of inferior minds who always find it more convenient to exercise their memory than their judgment.

Several points may appear to you too minutely treated, or perhaps, repeated; that is possible. If I have committed either fault I shall console myself for it with the thought that, in giving instruction it

is better to say too much than not enough. Anyhow you can await the application of it before reaching a final conclusion; then, perhaps, you will reproach me for the contrary fault.

Study is the arsenal from which you will draw your arms for the day of action. To study carefully assists us to think and act quickly, and to do this is the secret of success as a model officer. Nowhere so much as in the light cavalry does one recognize the complete application of this saying of a distinguished officer: "*Promptitude (quickness of decision and action) is genius.*"

Theoretical instruction is given coupled only with trammels which reverse the action of war. The cold method which it necessitates, cramps and confines the brilliant dreams of the youthful imagination inspired with enthusiasm for our profession, which has perceived from afar only an action upon the field of battle. Often also this young man who, later will be the honor of our outposts, placed at his entrance under the heavy rod of every species of petty tyranny, which does not consider the why or the wherefore of things, is disgusted because he finds no echo of his fiery thoughts, and perceives only a formula, where any other would make him recognize a deed. Let him always learn patiently whatever is shown him; later he will find its application. At the first sound of the cannon he will have full swing; he will shake off the dust of the riding school and the mess, his chest will fully expand, his sight will be no longer limited by a horizon. But the theories learned will govern the movements made possible only by their precepts. This future is, perhaps, near him to-day; let him recall the leaden sole attached to the buskin of the Roman recruit.

In the matter of instruction one is rich on the day of application only when he has an excess of it. When this great day has arrived it is too late to learn; it is time to choose the best and forget the useless. Moreover, war presents so many varying opportunities, becomes so complicated by different situations, that the reserve of our knowledge may also find its unexpected application, and if this application can be made only once in our lifetime it repays a year of labor.

When the men of my time arrived in bivouac they knew nothing, and our studies at the military school making of us only foot soldiers, we made our exit from it a sad lot of troopers. Our education was received amidst saber blows, which often decimated our ignorant and awkward ranks. Our good will, our enthusiasm did not avail us. At every step we were checked by this fatal ignorance. We were wanting in that which you have—the theory. By dint of

hard labor we became better cavalrymen than you are now, but perhaps not better than you shall be. We had over you the advantage of the glorious days of Jena, Friedland, Wagram, Eylau and Mojaisk, which hardened our bodies and trained our judgments. Soldiers of the Great Captain, actors in the most sublime of dramas, we have been able to judge practically of the reasons for victory or defeat.

Some great days will also dawn for you. Let us hope that you will study them only in the book of victory.

Your friend,

F. DE BRACK,
Lieutenant-Colonel, Commanding Regiment.

THE DUTIES OF LIGHT CAVALRY.

Q. What is the duty of light cavalry in campaign?

A. To clear the way for the army and protect its march.

Q. How does it accomplish this object?

A. By preceding our columns, scouting their flanks, surrounding and concealing them with a bold and vigilant curtain; following the enemy step by step, harassing and annoying him, discovering his designs, exhausting his forces in detail, destroying his magazines, capturing his convoys, and, finally, forcing him to expend in defensive operations, the strength from which he might otherwise have reaped the greatest advantage.

THE CHIEF IN CAMPAIGN—THE OFFICER.

Q. What is the meaning of chief?*

A. Head. Example.

Q. What are the first qualities required in a commander of light cavalry on the day of battle?

A. 1. Clear perception, and cool, mathematical estimation of his own strength and that of the enemy.

2. The sure and rapid glance which recognizes and comprehends the frame of mind of the force which he commands, as well as that of the one he attacks.

3. The glance with which, from whatever side he approaches the field, he takes it in as a whole, and in its minutest details as to distances, accidents, possibilities and impossibilities for attack, defence or retreat.

*The word chief is here used not to designate a grade, but an office. What is said of it applies as well, in a general way, to a cavalry sergeant as to a general officer, whenever the responsibility of command is assumed.—DE BRACK.

4. Quickness of decision and action.

5. The dash which carries everything before it.

6. The firmness which despairs of nothing and retrieves the most desperate situations.

7. The calmness which never changes countenance, and causes his subordinates to see only with his eyes. Add to these qualities the courage which sets the example, the justice which rewards fully, and you have the model commander who, under all circumstances, holds in hand a hundred squadrons as one, leads them on, stops them as a single man, wins or snatches victory, overawes her as though she were a mistress. This combination of qualities is called first, NAPOLÉON, then FREDERICK, MASSENA, SOULT, NEY, KLEBER, DESSAIX, HOCHE, LANNES, MORAND, LASALLE.

The face of a chief is often consulted; he should never forget that, and should allow it to be read only when he especially desires it to be read.

Thus at the time of an expedition of which he alone possesses the secret, if it is necessary that the men should not discover this secret until the arrival of the proper time, the calmness of their chief should prevent any feeling of uneasiness entering their ranks.

Q. Where is the position of the chief in a fight?

A. Always at the place of command.

Q. But suppose there are several such positions?

A. There can be but one for the experienced chief; thus, for example, when the chief upon the battle-field commands several squadrons in echelon, which he is going to launch successively, he ought to restrain his ardor and not put himself at the head of the first, except under peculiar circumstances; it is better to launch the first and take the head of the second; in this manner he can comprehend at a glance the whole affair; he keeps in hand all his force, which he can readily advance in case of success, or use as a reserve in the event of a repulse.

If, under certain circumstances, he believes he ought to march at the head of the leading squadron, he should do so only after having given to the other squadron commanders orders so precise that it will be impossible for any doubt to arise during the onset, no matter what may happen, and as soon as possible he ought to return to the squadrons he has left.

In a retreat, on the contrary, the chief should always accompany the rear guard, being careful to put the advance guard in charge of officers in whom he has the greatest confidence, and to so arrange his march that the prescribed formation and gaits will be maintained.

There is one case in which the chief should precede his command to the attack, that is, when his force has rallied, whether in line or in column; then he leads his troops and is the first to strike; the position being taken, he relinquishes the role of first soldier to retake that of maneuverer.

Q. What should the chief do upon the ground, under fire and before the charge?

A. He should make a moral inspection of his regiment, riding from right to left at a distance of four paces from the line; should speak a few words to the officers and soldiers to cheer and encourage them, make an opportunity for calling the men by their names, and thus prove to them that he neither does nor will lose sight of them.

Upon the field of battle every man's true nature is shown; he has no longer any veil, nor can he use any evasion; his passions are supreme, his soul is clearly unfolded; there he may read who can and will; there intrigue is struck dumb; the gallants of the antechamber, the wise men of the drawing room, the "ZIETHENS of mimic warfare;" "the gallopers of peace times,"* no longer carry high heads; then woe to the face that pales under such or such a hat, to the epaulettes, to the laces, which bend under the wind of the cannon ball, to the one but little in love with his cockade; justice, complete justice is rendered; unfortunate is he who is condemned by the general court, where honor alone presides; he can never retrieve himself. Under fire, equality through courage, then the election of the bravest of the brave, by the brave,—that produces only the blush of enthusiasm and pride.

The chief should so inspire his regiment that his personal movements should rouse or slacken the general action, that his command should become one with himself, that his thoughts should be theirs, and their confidence that which he imparts; and this confidence should be so close, entire, instinctive, as to cause the soldier to say in every situation, "*He is there, that suffices.*"

A chief who does not have entire control of his men and who does not handle them as one man is unworthy of his position. Upon the battle-field is reaped that which the officer has sown; the better his previous service, the better the reputation he has earned for justice, firmness, instinct, courage, instruction of, and care for his men, the more perfectly can he upon the battle-field, gather like a sheaf, the wills of all, to bind them into one, his own.

There must be but one will in the command, that of the chief; that is indispensable under penalty of losing all discipline, and

*LASALLE.

promptly demoralizing the corps. Except having a cowardly commander no greater misfortune can befall a regiment than to have one whose ignorance and laziness are certain to encourage intrigues and improper influences. The chief who imagines that he screens the knowledge of his weakness from his soldiers is a fool. The soldier understands him better than he does himself; let him employ his time then in correcting his faults, not in trying to conceal them. Egotism in a chief is not only a fault, but a vice which tarnishes his most shining qualities, and takes from him three-fourths of his moral power over his subordinates.

The chief who does not persuade himself that he is the regiment and who, in the day of privation or reward, isolates himself to guard only his own interests, will remain isolated and be thereby condemned.

During an engagement, at the moment of greatest danger, the chief ought to calmly single out the bravest of his men. After the battle he should not rest until he has rewarded them.

In bivouac, in the face of the enemy, the chief ought to sleep only one-half as much as his subordinates. The regulations, in allowing him more horses than any other officer, indicate his obligation to exercise greater vigilance and to endure more personal fatigue. During the continuance of the campaign repose is forbidden to him, and he should never be more watchful than when he requires his men to sleep, for his honor is at stake.

After an engagement, if the wounded have been carried to the bivouacs, the chief should place them beside his hut, in order to keep a watchful eye upon the attention which is given to them; if they need straw to give them his own.

As soon as prisoners are taken the chief should give them his especial protection, and endeavor to ameliorate their condition by reassuring words and thoughtful attention; if they have been wounded, to have them attended to at the same time as his own wounded men.

If a detachment of another regiment, cavalry or infantry, joins his, the chief should go some paces in front of it and give it in the presence of his own command some marks of his esteem. The example will be quickly followed and the detachment will soon become a part of the family.

During the campaign of 1809 a battalion of the Seventh Light Infantry was ordered on detached service with the Seventh Hussars, to which I belonged; the infantry was received with open arms by our hussars.

The two regiments conceived for each other so warm a friendship

that afterwards, saying seven and seven make fourteen, the hussars responded to the challenge: "Who goes there?" "The Fourteenth Hussars," and the infantry "The Fourteenth Light Infantry."

An opportunity of proving this friendship was soon found, for we were attacked at a distance of a few leagues from Ratisbon by a very superior force, and would have been obliged to yield had it not been for the mutuality of dash and devotion which it inspired.

Some chiefs who have received the order to go into bivouac neglect to do so at once, and while they thus needlessly consume time and the strength of their horses, other regiments dismount, install themselves and monopolize the forage and provisions; this is a glaring fault on the part of the chief of the regiment deprived of its rights, and one which has great influence upon the minds of the men.

The officer of experience in active service possesses a foresight which enables him to determine perfectly in advance, the halting place for his division, his brigade, and the bivouac which his regiment or detachment will occupy. To install himself quickly or slowly, to place himself a hundred paces to the right or left, near to or distant from a wood, from a stream, and above all from a village, is not a matter of indifference. Upon this choice, in the end, will depend the efficiency of the regiment. Merit being equal, two chiefs of whom one shall select good bivouacs and the other poor ones, at the end of the campaign the first will find under his orders a strong force in good condition, while the second will be followed no longer except by a few broken down horses.

Often in advancing in column against the enemy two regiments cut each other and thus produce a quarrel; this is almost always the fault of the chief; if he is ordered to take the advance, let him go along some column parallel to his own, and if he is obliged to cut it, let him send to forewarn at once the commandant of that column or better still, let him go himself to tell him. All will then be done regularly, and one avoids exciting between regiments, hatreds which produce sad and enduring effects.

The responsibility of a chief of a light corps is a heavy burden for one who appreciates at its just value the importance of his duties. *Often the safety of the entire army is confided to him*, and under all circumstances, the lives of his men, the honor of his standard, are in his hands.

A colonel of light cavalry, on entering on a campaign, should assemble first his officers, then his non-commissioned officers, and remind them of their duties, and of the confidence he has that they will perform them with vigor, intelligence, activity and perfect conscientiousness. He should show them in perspective the rewards which they will earn, and which he will do everything in his power to obtain for them.

Then teach them the general scale of official responsibility, and forewarn them that he will demand of each one the entire fulfillment of his obligations.

The one who, either through neglect or ignorance, does not rise to the full height of his position—since the general safety and the honor of the regiment are at stake—should be immediately deprived of his command and placed in the rank of file-closers, or sent to the rear. This having been done, he will keep his word religiously, making the greatest efforts to obtain the promised rewards, and displaying the inflexibility of iron in the application of punishment.

In presence of the enemy no officer should ever quit the line of battle even to move only a slight distance to the right or left. This obligation is imposed upon him by the needs of the service, and should be dictated to him by that instinct, by that fatalism which every soldier always possesses. I have known officers severely wounded by cannon balls while they were out of their places, and who, after having been ten years retired, said to me with bitterness, 'If I had been in my proper place, this would not have happened." Should they live fifty years longer this idea will pursue them constantly; they will attribute to this fault the greatest misfortune of their lives.

The practices of peace have given some detestable habits to officers; they have been led to believe that when they did not incur arrest for delay in attending calls, that when at drill, they commanded platoons, sometimes well and sometimes badly, they were officers, and that the time of which they were not deprived by the necessity of performing the duties of a corporal they were at liberty to employ, consume, and spend entirely at the club. They have been persuaded to this by the exorbitant privileges which have been granted to rank.

By virtue of this law, which is destructive of all pride, of all desire of improvement, the most ordinary man is sure to excel the best without making the least effort. So, in the regiments to-day, the great thing for an officer is not his zeal and knowledge, not even the *results of the inspections*, but his place upon the army register. War will rudely correct this evil, the outgrowth of a long peace.

One man is born a general, another a corporal: the destiny of both must be accomplished; it is a law of right and justice which the conscience of both will be the first to establish. Such an officer may be a sub-lieutenant and lieutenant of chasseurs, afterwards he should pass into the cuirassiers; another should leave the reserve

cavalry at the earliest moment to take command of a squadron of hussars; another should never be made colonel; another, sub-officer to-day, should skip the intermediate grades, and stop only at the head of a regiment. But as a matter of justice, there must be a pretext, and war alone can furnish it.

Let the officer prepare and instruct himself if he desires to succeed; let him employ every moment in studying his profession in its smallest details; let him learn all that a trooper has to do; in garrison, let his colonel assure himself that he knows how to groom a horse, to clean his arms and equipment; one cannot intelligently order what he is ignorant of himself.

Let him who wishes to be a thorough officer associate with those who can instruct him, instead of wasting his time at the club; let him frequent the different infirmaries during the daily visits of the surgeons and veterinarians; study their practice; converse with distinguished men, with soldiers who have really seen war and are included in the garrison where he belongs; examine carefully, in the shops of the master workmen, how the clothing, arms and equipments are manufactured and repaired; let him, without any false shame, take a hand in the work himself.

This instruction will be of the greatest utility in a campaign: will prevent his ever being embarrassed, and will cause him to be selected to command all the detachments which are separated for a long time from the regiment and operating independently; which should obtain for him honor and well-merited advancement.

If he enjoys the advantage of being stationed in a garrison with troops of other arms, let him, in his spare moments, run to the arsenals; to the works in course of construction by the engineers; to the ordnance yards of the artillery; to the drill ground of the infantry; there only will he learn the relations of the different arms to one another; will estimate the difficulties and possibilities of attack and defence in studying the rapidity of formations, distances, firing, etc. And if upon the frontier or during an armistice he finds strange troops opposite to him, let him visit their outposts, bivouacs, barracks and drill grounds, and let his military coup d'oeil retain faithfully the improvements which he recognizes among them, and with which he may enrich his own service on his return.

Finally, let the officer remember that *facility in acquiring knowledge is a power, and that in spite of everything, power always triumphs.*

One of the greatest pieces of good fortune which an officer should desire to meet with at the beginning of his career is to make a part of a regiment which performs its duty well, and to find himself subject to the orders of a skilled and instructed chief. Let the officer thus happily situated not seek to pass the first grades rapidly. Everything is a study, and a fruitful one too, for him; let him profit by it to instruct himself thoroughly; later he will see that he has not lost his time, for no matter where his fortune and good reputation may conduct him, he will find everything easy; the first lessons have so decided an influence upon our career.

Under any circumstances never censure any one but the chief, for he is responsible for everything; to act otherwise would be to insult the command and to commit an injustice. If a trooper is badly dressed, punish his captain; if poorly instructed, punish the instructor; if he is ignorant of what he should do at such or such a post, punish the chief of that post. Impulsion goes only from the head; therefore it is the head that must be punished. He who does not act thus will create for himself a world of needless annoyances, stop the performance of all duty, destroy discipline, disgust the command, and bring himself into disrepute by proving that he does not know how to perform the duties of his office.

Officers are not equally efficient in all things. One is at his best on the field of battle, the other in managing the details of the regiment; from the latter nothing which is connected with the interior arrangement and organization of the regiment can escape. The really superior officer possesses the ability of both; but as such an officer is very rare, let the chief always confide the specialties to those who are versed in them, without, however, by that action, repressing useful and active men in such a manner as to deprive them of merited promotion, and so that the rest of the officers shall acquire no practical knowledge of that portion of the service trusted to the specialists.

Sometimes a body of officers or non-commissioned officers is weak, destitute of energy, of action, of enthusiasm; almost always it is the fault of the commandant of the regiment, but sometimes also, it may depend on two or three leaders of different grades who have established themselves as the chiefs of cliques whom their comrades recognize as such, who give the cue and lead the fashion.

The chief should discover the source of this evil, destructive of all duty, and later, of all discipline, and remove it at once. One can no more command a regiment destitute of spirit than the most skillful pilot can steer a vessel in the open sea when no wind swells her sails.

One of the evils attached to the office of chief is the restriction which the dignity of the position opposes to the exhibition of intimate friendship for his inferiors, that kindness which would make it

so pleasant, when their merit had been discovered, to place them in their proper positions, to establish between them and himself a complete and brotherly equality, the instant the relief from duty ceased to require the distinction of rank.

Sometimes a good soul who suffers from his isolation permits himself to yield to this weakness so pleasant, and at bottom, so honorable, for it is based upon esteem; the heart is right, the chief is wrong, especially if the inferiors whom he honors with this affection, forget themselves, and often without intending it, thus bring into disrepute their friend in his position of chief. Whoever comports himself familiarly with his inferiors ought to be, above all, strong enough not to be drawn, in any case, by this intimacy into making concessions which would produce a lack of respect for himself.

He ought, so to speak, to regulate the degree of his familiarity by that of his moral superiority, and above all, by the minds and knowledge of life possessed by the inferiors to whom he accords a brotherly confidence. The chief who feels himself superior only by virtue of his rank, and whose mind is narrow and character feeble, ought to avoid similar intimacies; if he does not, his personal dignity and that of his position will surely be promptly compromised.

LETTERS ON CAVALRY, BY PRINCE KRAFT ZU HOHENLOHE-INGELFINGEN.

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

NINETEENTH LETTER—FIGHTING ON FOOT OF THE CAVALRY.

* * * * * * * *

HITHERTO I have scarcely said a word upon one point of the cavalry field of action, which, however, has called forth the most varied views and opposite opinions in the ranks of the cavalry, and concerning which I have hitherto encountered only the vaguest ideas. I refer to fighting on foot.

The demand has been made of the cavalry that, even in action against cavalry, a reserve of a few squadrons should be dismounted in order to hold a defile in rear. In the last war we have seen the dismounted cavalry take villages (although only when held by Mobile Guards or Franctireurs), and an oil painting exists of such an incident. There is a tendency to raise this sort of activity to a principle, and it is often heard from cavalrymen of distinction and authority, "We must be independent;" "We must free ourselves of our dependence upon the infantry." Yes, they go so far that they propose to drill the cavalry in throwing bridges, in order to make them independent of the pontoniers. There came to my notice at one time a regulation that was proposed for the instruction of the cavalry in fighting on foot, according to which the full course of infantry instruction, in all its details and in field service, was required of the cavalry, a proposition which, fortunately, was not adopted.

According to the newspapers one of the most important of our neighboring States has not only reintroduced the dragoons as mounted infantry but has made it the ruling element of its cavalry. In my inspections I found squadron chiefs who, following the general current, had practiced fighting on foot with special zeal, and who followed the course of the infantry regulations. When a part of the

squadron dismounted for this action, the other remained mounted as a reserve; we thus saw a dismounted skirmish line followed by a support on foot, advancing by rushes in two sections, one section of the two always firing. It was imposing! The half squadron produced scarcely thirty carbines; ten of these were held back as supports, and each rush was made by ten hussars. Any result from such an attack was not thinkable. In opposition to this zeal for the foot fighting many very old cavalrymen entirely disapproved of it, never inspected the foot service, and looked down upon it with contempt, as something unworthy of the cavalry, as did the cuirassiers in WALLENSTEIN'S Lager. There is something more than mere prejudice in this disinclination. The true cavalry spirit will receive a severe blow if it is once admitted to be possible that a cavalryman can go into action without his horse. The intimate connection between horse and rider is broken; the love of the man for his horse is weakened.

At the source of power the importance of the cavalry's fighting on foot has been considered of such importance that all the cavalry have been armed with long-range carbines. But no instructions have been issued setting forth under what conditions it is necessary to fight on foot. The regulations content themselves with giving the forms, and say but few words in regard to attack and defense.

The stepmother-like treatment of the subject of fighting on foot indicates that they do not place much value upon this exceptional form of action; on the other hand, through silence, in regard to the conditions in which these regulations are to receive application, the field has been left entirely open for discussion.

Let us now consider the strength of the cavalry in such an action on foot. It is a rare occurrence for a squadron to form with more than eighty files during war. They generally appear with a less number of combatants. But we will take it at sixty full files; every third man remains mounted as a horse holder, and at the highest, eighty carbiniers are dismounted to fight on foot. Granting that each cavalry division of six regiments (or twenty-four cavalry squadrons) has one cuirassier regiment included, this regiment can be kept mounted as a reserve. Even should the cuirassier regiment be armed with carbines, a cuirassier gliding about in the field, in his high top boots and his cuirass, would present such a parody upon light infantry that it would generally be considered preferable to dispense with their services in fighting on foot, unless the extreme emergency of the case rendered it wise to make their carbines available. In addition to the cuirassier regiment, probably about two squadrons of light

cavalry would have to be left mounted for reconnoitering duty, and thus eighteen squadrons at the highest would be applicable for fighting on foot, or 1,440 men. Imagine these 1,440 men applied to the attack on foot. First, no carbine, be it ever so well constructed, will carry as far, or shoot as well, as an infantry rifle, and further, so much time can not be devoted to the instruction of the cavalry in shooting as in the infantry. The latter will always shoot farther and better. It can certainly be safely asserted that a weak infantry battalion of 700 or 800 combatants, in a good defensive position, is able to defend itself against an attack of the dismounted carbineers of an entire cavalry division. Yet these carbineers of the cavalry should make a rush forward according to paragraph 236 of the regulations. How do they thus pass to the action with the saber? When the cavalry commander begged me for an explanation of how they should execute this, I was placed in a dilemma; the man has up to this time held his carbine in his right hand in order to shoot with it, and kept his saber hooked up. Should he now sling his carbine and draw his saber? That cannot be consented to. The most natural thing to do would be to turn the carbine and fight man against man, using the butt as a club. But that cannot be authorized. In any case the dismounted cavalryman must play an unenviable role in a contest with his saber against infantry armed with the rifle and bayonet. Let us also calculate the highest possible supply of cartridges. More than twenty cartridges per man cannot be reckoned upon. True, the regulations set forth "care must be taken for the prompt renewal of the supply of ammunition." But as to how, the regulations are silent. Can the ammunition carts follow the carbineers in their firing line? The problem of re-supplying the firing line with ammunition is still unsolved in the infantry. It can be accomplished in the artillery only by the greatest difficulty and energy. An infantryman has eighty cartridges with him, and yet the greatest economy must be exercised at the opening of attacks in order not to suffer a check through want of ammunition. How soon will the twenty cartridges of the cavalryman be fired? Can we burden the cavalryman with more cartridges? No! Then how and where should he be able to get them? When all these things are taken into consideration the attacks of the dismounted cavalry will be acknowledged as still weaker, and I certainly do not go too far if I assert that 500 good infantry can offer successful resistance to the dismounted carbines of an entire cavalry division.

If a cavalry division encounters the resistance of a weak battalion of the enemy's infantry in a good position, it will do better to avail

itself of its superiority in speed, which is secured to it when mounted, in order to pass quietly around the enemy's position and attack the battalion in the rear, while the artillery of the division occupies the attention of the battalion in front.

The hints given suffice to demonstrate that the cavalry cannot permit itself to undertake an energetic and spirited offensive in fighting on foot. Such an offensive can be justified only in cases when a morally worthless infantry detachment (armed citizens, Francticurs, etc.) appears in front and attempts to prevent a further advance.

Conditions seem to shape themselves more favorably for the cavalry to fight on foot on the defensive, especially if it has had the time to ensconce itself. It accomplishes most in this by deceptions and in gaining time. The advancing enemy that is opened upon by small arms fire from a village, or an unoccupied defile, cannot determine immediately whether he has infantry or dismounted cavalry in front of him. His head of column stops, his march is interrupted. He reconnoiters, he does not consider it advisable to push forward recklessly, he makes his disposition to pass around, forms up for action. When this is all done, the cavalry may have mounted and hastened away, and before the deceived enemy is again put in order of march, hours may have passed; hours, which may have transferred the decision elsewhere, and, have at least greatly fatigued the advancing enemy. Or the enemy may continue in his deception, and believe the position held by the cavalry to be very strong, and strongly held by infantry, and retire and abandon the attack entirely. The cavalry frequently gains possession of important points. It is only necessary to recall to the reader the two squadrons of Lieutenant-Colonel DULAC which delayed the Thirteenth Division upon the Kaninchenberge at Forbach on the 6th of August, 1870, and to the Dragoon Guards at Dieulouard, who, by stealthily throwing a line of skirmishers into the Wimbergen created the belief in the minds of the enemy's infantry, that had just arrived by railroad for the purpose of taking possession of this important defile, that it was already in the possession of our infantry, and they returned by the same railway trains that had brought them up, without having made any serious attack. If the cavalry is supported by horse artillery the deception can be more complete and continued longer, as was the case at Dieulouard. We cannot expect or demand anything more of the cavalry in fighting on foot.

The cavalry can never be made completely independent. The independence of the cavalry can be secured only against entirely

disorganized detachments of the enemy's infantry, against unorganized armed citizens, or against inhabitants who sympathize with the enemy. In the defensive the cavalry can, by fighting on foot, through deception, and under certain circumstances, so delay important masses of the enemy that they will arrive at the decisive point too late; or by being pushed forward rapidly the cavalry may reach important points in time to take possession of them, and hold them long enough to give our infantry time to come up and occupy them. The exercises of the cavalry in fighting on foot should be limited, as a rule, to the methods of occupying villages and positions, and to target practice. To expect and demand more of it would be dangerous.

If more were demanded of it in time of peace, say the entire infantry work in garrison duty, it would be compelled to apply most of its time to these exercises and instructions. Every cavalry officer knows that the cavalry has no unoccupied time now, and that the squadron chief very carefully divides the entire year into periods of instruction, and each day and each hour must be used very reasonably if he expects to succeed in accomplishing and satisfying existing requirements. He also knows how tired every cavalryman is at the end of his day's work during peace under the demands now made upon him, and that an increased demand upon his physical forces in order to instruct him in the skirmish attack on foot, and other exercises of the infantry is not possible. If such exercises are demanded of the cavalry, they must relegate some existing exercises to the background, and their instruction as mounted men must suffer a corresponding sacrifice. It is on this account that many old cavalry officers are opposed to fighting on foot generally, and I have heard these denominate it as "nonsense, dangerous project, etc."

If more is demanded of the cavalry in the way of fighting on foot in time of war than I have cited as the limit of their capabilities, we will fall in danger of using it up in side issues, and of squandering this expensive arm. Let us imagine a case; 1,440 dismounted men of a cavalry division are required to storm a village that is well held by a determined, well-instructed battalion of from 500 to 800 carbineers. If this battalion defends itself skillfully and bravely, after the cavalry has suffered a heavy loss, which can easily reach the strength of a brigade, it will have gained the information that it is not able to force the battalion to yield, or if by good fortune the attack is successful, it will find that it has lost in the fire-action and in the attack with the saber afterwards, so many cavalrymen that

after the action is over it can form little more than the six squadrons that were held in reserve. Is the result worth the cost? Certainly not.

It is still more dangerous to expect more of the cavalry in fighting on foot than is in accordance with their nature. Combinations could be easily founded upon such expectations, that, in their failure when tried, in their tumbling down as a building without a secure foundation, would bring in their wake the failure of a campaign.

It is entirely opposed to the very existence of the cavalry to demand that it should be completely self-sustaining and entirely independent. It is Utopian to believe that it can ever become so.

The infantry is, and must remain "the army." The cavalry is, and must remain, only auxiliary to the infantry. The cavalry can only attain the highest and most deserving service, can only obtain its greatest glory, by remaining constantly conscious that it is there only for the infantry. All its energies should be for this. It may be held as a cavalry division of the army directly under the commanding general, it may appear as divisional cavalry, or it may be attached as patrols, in the smallest and closest unity of a field watch; but let the conditions be as they may, it must always be borne in mind in the employment and application of the cavalry, that it is never fully self-sustaining, but always needs the nearer or more distant reserve, the earlier or later reënforcement of the infantry in order that it may not be sacrificed without purpose, and that the infantry may not be deprived entirely of its most important services later on.

In my opinion, we may look on with peace and comfort, if our great neighbors transform all, or even the greater part of their cavalry into mounted infantry. This new creation, like all such hybrid creatures, will accomplish little, and will fall far short of the most essential requirements of a good cavalry.

PROFESSIONAL NOTES.

THE MODERN CAVALRY DESTROYER AGAIN.

Herewith the readers of the JOURNAL are presented with an official report of a series of carefully conducted experiments in rifle firing, which will afford food for reflection to those who have been led to believe, from the results of a system of target practice bearing no relation whatever to any possible experience in actual war, that infantry fire is at all times of so deadly a nature, that nothing can live within the zone of its operation. It also opens up the interesting question, whether sharpshooters and marksmen, left to their own devices, are as formidable opponents as comparatively untrained men controlled in their firing by officers of skill and experience:

FORT LEAVENWORTH, KAS., December 5, 1891.

To the Secretary, U. S. Infantry and Cavalry School:

SIR:—I have the honor to submit the following abstract of experiments conducted by me in infantry fire:

The ground on which the firing took place was an extensive sand-flat on the bank of the Missouri River, generally level, but marked by slight accidents of surface, sufficient to partially conceal the targets on occasion.

The ranges were unknown, but none were greater than 1,000, or less than 500 yards.

The fire was uncontrolled, the men being allowed to use their own choice of elevation and object, except in the last experiment, when the ranges were given as guessed by the company commander, to whom they were unknown. In order to be sure that this was so, the targets were on this day placed at his own discretion, by a sergeant detailed for that purpose.

A reasonable estimate of the distances would indicate that the average estimate of the firers was from thirty to fifty per cent. too great, which the very small percentages of hits would confirm.

The weather was favorable for good shooting, except on the fourth day, (October 28th) when the wind was driving dust across the range

in sufficient quantities to obscure the targets; but not to an extent equal to that which would result from the smoke of a brisk musketry fire.

Two runs were made on each day, over the same ground, and in each run five halts were made, and four shots fired at each halt. For one of these runs the targets were placed at equal intervals of one yard between centers; for the other they were placed in groups of eight (nine in the flank groups), the total front being the same.

The object of the experiments was three-fold:

First—To find the percentages made by the best instructed men in uncontrolled fire when the ranges were really unknown.

Second—To compare these with those made when the fire was controlled, and the estimates of distance fairly correct.

Third—To compare, as far as possible, the vulnerability of lines of the same front, extended at equal intervals and in small groups.

The results are given in the table hereto attached. It will be observed that the percentages are very small, running from 8.6, the largest, down to 1.27, the smallest.

	1st Experiment, Oct. 24th.*		2d Experiment, Oct. 26th.†		3d Experiment, Oct. 27th.‡		4th Experiment, Oct. 28th.§		5th Experiment, Dec. 2d.¶	
	STANDING FIG.		KNEELING FIG.		KNEELING FIG.		LYING FIG.		LYING FIG.	
	Extended at equal Intervals.	In Groups of Eight.	Extended at equal Intervals.	In Groups of Eight.	Extended at equal Intervals.	In Groups of Eight.	Extended at equal Intervals.	In Groups of Eight.	Extended at equal Intervals.	In Groups of Eight.
Order of Run	1st.	2d.	2d.	1st.	1st.	2d.	1st.	2d.	1st.	2d.
Hits	50	83	29	12	23	53	14	13	35	28
Per Cent.	5.2	8.6	3.09	1.27	2.3	5.4	1.4	1.3	3.57	2.85
No. of men hit	26	32	20	8	16	32	11	12	25	16

*Company forty-eight strong, all sharpshooters or marksmen. Fire uncontrolled. Targets well shown.

†Company forty-seven strong, all sharpshooters or marksmen. Fire uncontrolled. Targets well shown.

‡Company forty-nine strong, about fifty per cent. marksmen. Fire uncontrolled. Targets well shown.

§Company fifty strong, all sharpshooters or marksmen. Fire uncontrolled. Targets obscured by dust blown across the range. Eight down on first run.

¶Company forty-nine strong, thirteen marksmen, fifteen first-class men, twenty-one unclassified men, (of whom ten were recruits). Elevations given as guessed by company commander. Targets partially concealed by ground from part of company at each halt.

The two runs of the same day gave the larger percentage on the groups in two cases, and on the extended order in three. In both the former instances the targets were grouped for the second run of that day, while in two of the latter the greater percentage was made on the first run. Both experiments against the lying figures gave the larger percentage on the extended order.

The greatest contrast is found in the second experiment: Extended order, 3.09; groups, 1.27.

The groups showed the greatest number of men hit in three cases, and the extended order in two. It is to be remarked, however, that in one of the former cases the line of groups contained eight more targets than the extended line, and showed only one more man hit, while the number of hits was actually greater on the extended line, so that this case stands: Extended order, eleven men hit out of forty-two; groups, twelve men hit out of fifty.

The greatest contrast is found in the second experiment: Extended order, twenty men hit; groups, 8.

The influence of an erroneous estimate of distance is indicated by the contrast between the fourth and fifth experiments. In the former a company of the best instructed men made an average of 1.35 per cent., with twenty-three men hit. In the latter a company of thirteen marksmen, fifteen first-class men and twenty-one unclassified men made an average of 3.2 per cent., with forty-one men hit, simply by being compelled to use elevations reasonably well guessed.

These experiments are too few and incomplete to warrant any conclusive deduction, but they indicate:

First—That the results now obtained in our skirmish practice would not be obtained in war.

Second—That poor shots, using the right elevation, are more valuable than sharpshooters using the wrong one; and

Third—That between 1,000 and 600 yards a line of small groups is no more vulnerable than a line of the same front extended at equal intervals.

Though these are only indicated, they are highly important. If the results which we now obtain from our skirmish firing are misleading, the effort, at least, should be made to discover the reason why the best instructed men, on unaccustomed ground, with ranges really unknown, should make percentages so very much smaller than those made on the target range. If ignorance of the range can alone cause so great a reduction in the value of the fire, means should be discovered to lessen its effect, either by better instruction in estimating distances or by the use of more than one elevation. If it be true that between 1,000 and 600 yards the vulnerability of infantry is not increased by retaining a formation in small groups, the fact should be ascertained by repeated experiment, clearly and beyond question. Many ideas on the employment of infantry have been based on the belief that individual dispersion becomes a necessary evil at considerable ranges. The disadvantages of such dispersion are acknowledged, and it has been considered inevitable only on account of the supposed excessive vulnerability of groups. If now these groups, admitting of control of movement and of fire, be found no more vulnerable than the extended line, they may be retained up to short ranges, at which, in battle, the junction of the various lines will have reduced the intervals to such an extent that the formation will be practically a closed line, and the losses will depend chiefly on the relative discipline of the opposing troops.

I therefore respectfully suggest, in view of the importance of the subject, and the very considerable expenditure of care, time and

material, which would be necessary for a complete and satisfactory solution, that this report be forwarded to the Adjutant General of the *Army, in the hope that means may be found for more extended work* in this direction. We especially need statistics of vulnerability from the number of men hit, in various positions and formations, which are almost entirely lacking now.

I must respectfully add that, in my opinion, this is not a question for theory, or for deduction from known distance firing, but one which demands most careful experiment, under the conditions of war, as far as they can be reproduced in peace.

JOS. B. BATCHELOR, JR.,
First Lieutenant, Twenty-fourth Infantry.

SOME OF THE EFFECTS OF SCHOOL TRAINING UPON THE INDIANS.

In 1888, my regiment marched from Texas to Dakota. One warm day in June, we camped on a small stream in Indian Territory. Learning that a dance was in progress at a Ponca village about a mile above us, I went up to see it. Soon tiring of the dance I crossed the stream and started to fish down to camp; when just opposite the village, out of the brush sprang an Indian youth about twenty years of age. He was dressed in a calico shirt, breech clout and moccasins, and had a blanket thrown over his shoulders. I gave him the usual frontier salutation to an Indian, "How," when, to my surprise, he said in good English, "How do you do." He was a handsome, well built fellow, and seeing him look longingly towards my tobacco pouch, I handed it to him. He deftly rolled a cigarette and having lighted it, threw himself upon the grass and seemed to be ready for conversation. I followed suit, and began by inquiring where he had learned to speak English so well. At Carlisle, Penn., he said; and then informed me that he was an Osage Indian, and that his village was about sixty miles away. He had come over to the Ponca camp to see his sweetheart, and had hopes of taking her back with him. His horse was tied in a neighboring thicket. As a child he had been taken from his tribe and sent to school at Carlisle, Penn., where he learned to be a tinsmith. On graduating from there, he had returned to his tribe dressed in a good suit of clothes, and filled with ambition for his own advancement and that of his tribe.

His people received him kindly, and listened eagerly while he told them of the wonders of eastern civilization. They all seemed pleased at his knowledge, but laughed at him when he spoke of starting a tin shop. Where would he get his tools and tin? Who would buy his tinware after he made it? Ah, yes! That had not occurred to him. Boys of his own age, who had remained with the tribe, far surpassed him in many things important to the Indian. They could shoot and fish better than he; could follow a trail, and some of them had even distinguished themselves on the war path.

From their standpoint he was a dude, and at first he did try to keep clean. As he had been at school for years and learned nothing of what to them was so important, and yet evidently looked down upon those who considered themselves his superiors, they first despised and then shunned him; the maidens also looked scornfully at him. What could he do towards supporting a wife? His clothes, hat and shoes gradually wore out; having no money to buy others, he took the blanket and shirt furnished by the Interior Department, made his own moccasins and breech clout, and sought in another tribe, the love denied him in his own.

He apparently felt very bitterly towards the Government which had tried to treat him so kindly, as he said, that it took him when a child, from poverty and filth, gave him an education, and what to him were at first luxuries but afterwards necessities; and then sent him back to his people better able to appreciate their degraded condition, but with no means of bettering it. Had he remained with the whites, he would have been of a lower caste; in his tribe he was an outcast; he became desperate; in order to reinstate himself in the good graces of his people he must do something which they could admire. In a state of peace this was impossible, and he therefore thirsted for war—for war with the white people because, in his opinion, through mistaken kindness they had done him a cruel wrong, and were the cause of all his sufferings. In it he hoped to be able to show his ability and take a few scalps from the whites who lived in and near the reservation, and who, he said, were such wretches that the world would be better off without them. He also hoped to steal some horses, blankets and household utensils. By that time the Government would wake up to what was going on and would send reinforcements to the few regular soldiers who would at first be sent against his tribe, but could easily be avoided in such a large unsettled country for awhile, and when it finally became necessary, his people would sue for peace and become "good Indians" with additional rations. By starting such a war he would benefit his tribe, and at its close he would be a rich man and a big brave.

Many times since then have I thought of his conversation. Often have I heard the remark: "I don't understand how the Indian graduates of eastern schools can take up arms against the government," and especially so since PLENTY HORSES, a graduate of Carlisle, Pennsylvania, on January 7, 1891, near Pine Ridge, so foully murdered Lieutenant CASEY, one of the best friends the Indians have ever had. PLENTY HORSES has been tried for this murder and acquitted.

To some of my friends the above has seemed to throw light upon some points of the "Indian problem," and for the information of others I forward it to the JOURNAL.

J. A. GASTON,
First Lieutenant and Adjutant, Eighth Cavalry.

CAVALRY TACTICS.

[Extract from Colonel v. LÖBELL'S Annual Reports upon the Changes and Progress in Military Matters during 1890. Compiled by Colonel HILYARD, for the *Journal of the Royal United Service Institution*, No. 165. November, 1891.

Many writers, and especially French writers, have exaggerated the effect of the employment of small-bore rifles and smokeless powder upon the action of cavalry. The reply to all such exaggerations is that the tasks for the cavalry—and this is the case with all arms—will only be more difficult, and entail greater sacrifices, not more restricted or impossible, and that changes of principle in training and tactics do not appear to be at all necessary. Scouting, in the main, is conducted at distances at which even the best fire-arm can cause no loss. Not from the front, shot at by the enemy, but from the flanks and rear unmolested by hostile fire; not as a target, but carefully hidden and concealed; not within the sphere of the enemy's fire, but from points at a distance that afford good observation, and by means of glasses will the mounted man bring his news. He must not begin to endeavor to gain information after the enemy's position is occupied; he must have seen beforehand what moves into the position; to fix the flanks of the position, that is, the position itself in its entire extent, will not then offer any special difficulties.

For the attack, especially against infantry, careful waiting and a thorough reconnoitering of the opportunity; holding back the closed bodies at long distances and out of the ememy's fire more than hitherto; the habitude of long gallops, so as to arrive at the right time and pass through the fire zone as quickly as possible; the most complete use of ground; the most skillful leading; boundless energy in the collision; all this will allow the cavalryman also to fulfill his task on the battle-field also in the future.

The "*Jahrbücher für die Deutsche Armee und Marine*" (November) points out the great penetration of the new bullet, and argues that the formation in two ranks must be altogether discontinued and be replaced by rank entire, at least for the attack on infantry. But for the attack on infantry, close lines with sufficient depth are especially important. The fear of the increased penetration could be met by riding with intervals, as is provided for in the new Italian regulations.

It should further be a maxim with all cavalries that successful results are possible in appropriate situations, even against infantry in a set battle.

"All the experiences and improvements in fire-arms have done far less harm to cavalry than the misappreciation of its nature in its training and leading. Smokeless powder and magazine rifles can alter nothing in this."

The "*Russian Invalide*" adheres to this view. In its Nos. 76, 77 (Colonel SUCHOTIN) it lays down that the entire training of man and horse have but one object—the attack. The rider must get a real passion for this. During maneuvers each body of cavalry must make at least two attacks daily, one of which against infantry.

These attacks should never be ruled by the umpires to have failed, not even when there has been no prospect of success.

The "*Wajenny Sbornik*" (Nos. 6, 7), in a comparison of the Russian, Austrian and German cavalries, comes to the conclusion that all are unanimous regarding one point, that cavalry attacks against infantry—against unshaken infantry is meant—will have still a good prospect of success if, on account of the losses to be expected, caution be displayed.

Dismounted action is, and remains, a make-shift for some special cases, as, for instance, the defense of cantonments, the temporary occupation of important points until infantry can come up, the defense of defiles with a view to checking a pursuing enemy and covering the retreat, to force a crossing or a passage that it would be too far to turn, under certain circumstances to protect batteries, and, lastly, to disturb an enemy that cannot be attacked.

The "*Militär-Wochenblatt*" (Nos. 10, 13; also translated in the "*Revue de Cavalerie*," December) lays stress on the dangers that the dismounted action of cavalry entails. Each leader, therefore, before he decides to resort to it, must ask himself whether the result to be gained is worth the eventual losses. The loss of one man entails that of a second, who must lead the horse of the man killed. The weakest point is the led horses; a strong mounted reserve should be thought of before everything. Attacks on them, on the other hand, are very paying, and it is of more value to scatter the led horses of an enemy's dismounted cavalry than to cause him material losses by fire. An engagement should never be undertaken in open ground, for here the enemy's cavalry might act destructively. It should never be carried through, but only up to about 650 yards, or remounting, in itself a very dangerous moment, may easily lead to a catastrophe. The breaking off of the engagement should be done by groups, quietly and unremarked, without commands or signals. Sufficient training and exercises in fighting on foot and in firing are indispensable; but all exaggeration is to be avoided.

The necessity for keeping the cavalry together in masses, if results are to be expected in battle, is again referred to. All modern leaders of cavalry, says the "*Russian Invalide*," as General WRANGEL, Prince FREDERIC CHARLES, and General v. SCHMIDT, have all expressed themselves in this sense. It has been admitted to be absolutely necessary to have exercises in large bodies in peace, so as to accustom both men and leaders to fight in masses. And this was done in 1890 by cavalry divisions in all the principal European armies, and in larger combined bodies in several of them, especially in the Russian. These last took the form of opposing forces, the one of fifty squadrons and twenty-four guns, and the other of fifty-four squadrons and thirty-six guns, which operated against one another in Volhynia. It was noticeable that dismounted action, for which Russia has in the past shown a certain partiality, was very little employed, and frequently not used at all in situations adapted to it. The officers' patrols worked satisfactorily, but the general scouting and the main-

tenance of communication were not always sufficient, and consequently numerous surprises occurred. The artillery was not always sufficiently protected by special escorts.

As regards tactical formations, simplicity is again recommended as the first requirement for their application in war, in the rapidly passing phases of the cavalry engagement. The employment of simple movements, known to every individual in the great mass, can alone afford a certain guarantee for good execution, on which success exclusively depends; whatever is complicated is only calculated to cause confusion. In practice, as was shown by the great maneuvers, all are agreed in this; always to employ the same simple evolutions and to form line in the same way. The necessity for other formations, such as are still retained in the regulations, ceases entirely with this agreement. The Director of the last exercises at Châlons, for instance, found fault especially with the commanders of regiments for frequently losing time during the preparatory days with practicing every possible kind of movement contained in the regulations, instead of seeing to the most perfect execution possible of simple formations.

In Germany, the Felddienstordnung of 1887 has undergone some not unimportant changes as regards the cavalry, in consequence principally of the new arm and the new powder, as well as of the new infantry and artillery regulations. The introduction has received an addition regarding the extended sphere of duties of the cavalry officer, in regard to swimming exercises, the execution of demolitions and blowing up of railway lines, and exercises with the telephone and the telegraph. The two cavalry regiments hitherto belonging to the mobilized army corps are to form, in future, the Corps-cavalry Brigade; divisional cavalry has ceased to be an integral portion of the infantry division, and the attaching of cavalry formations to the infantry divisions is to be left, in future, to the corps commander. Thus the two regiments will, in the main, be under a single command, ready for combined action, which should contribute materially towards preventing these regiments being frittered away. Pioneer detachments are, in future to be attached to cavalry divisions as well as to the horse artillery; they will be carried in vehicles belonging to the train, or in requisitioned ones.

In general, the value of night exercises has not been estimated sufficiently highly. In Russia alone almost have they been practiced. But undertakings by night will play an increased *rôle* with cavalry in future; it is therefore of great importance that the troops, both those acting by surprise on the offensive and those surprised, should be made accustomed to the impression of fighting by night, with its confusion and dissolving influences, so as to avoid serious reaction. Patrol duties, particularly, should be thoroughly practiced by night, by which the men's facility in finding their way will be much increased.

The question of arming the cavalry with the lance is by no means generally settled. In France, the front ranks of the dragoon regiments are, in future, to be armed with it. But in Russia the feeling

is very strong that the example of Germany in this respect is not one to be followed. The whole value of cavalry is centered in its offensive spirit, in the desire of each man to get to the closest quarters with his opponent. This, it is argued, can alone be fostered by cavalry being armed with the sword, the offensive weapon *par excellence*, whereas the lance pre-supposes the enemy being engaged at a certain distance and in a way to foster a spirit of self-preservation. History is against the lance, for the best cavalries, those of GUSTAVUS, ADOLPHUS, CHARLES XII, FREDERIC, and NAPOLEON, carried no lances.

A magazine carbine has been introduced in Germany. France and Austria.

In Russia and Germany special value is attributed to swimming exercises.

Everywhere the training of the necessary personnel for the telegraph service is being continued. Last year's reports dwelt on the difficulties experienced in this direction, and it has now been brought more to light that the employment of this technical auxiliary in the first line restricts the high mobility of present warfare, and that its chief value is rather for stationary conditions. But then the telegraph would be less the element of the cavalryman. Even in the peace experiments serious friction has occurred in its working, which would be materially increased by the uncertainty in an enemy's country. Perhaps, therefore, the extended employment and the consequent great use of telegraphs with advanced cavalry, and especially with patrols, should not always be counted on. But there can be no doubt that, under some circumstances, a knowledge of telegraph work may be of use to the cavalry soldier.

THE INDIAN MESSIAH.*

FORT BIDWELL, CALIFORNIA, December 6, 1890.

The recent development of the Messiah craze, which has so much demoralized the Indians all over the West, has produced a great many articles on the subject; all of them more or less correct, but none entirely satisfactory, so far as regards the origin and originators of the creed to which the aboriginal inhabitants of our country have given such belief as to bring us to the verge of a great Indian war, after the Indian question had come to be regarded as practically settled.

All of the articles mentioned have pointed, with more or less definiteness, to Nevada as being the region from which this now wide-spread doctrine has been promulgated. The writer, having recently been placed in a position which has offered singular facilities for an investigation of this matter, has gone very fully into the details of it; has questioned many of the Nevada Indians on the subject, and is now able to give a very correct account of the tenets of the faith.

*From the *American Anthropologist* for April, 1891.

All testimony on the subject is to the effect that the doctrine was first preached in 1869 by a Piute Indian, who lived in Mason's Valley, about sixty miles south of Virginia City, Nevada, and near the Walker Indian reservation. This Indian continued his preaching for two or three years, when he died.

Much talk was caused among the Indians by this man's preaching; but all interest in the matter seems to have ceased from the period of his death until some time in September, 1887, when a new prophet, KOIT-TSÓW by name, took up the matter; and there is no doubt that the revival instituted by him has resulted in the present Indian disturbance, so far, at least, as religion or superstition has anything to do with it.

KOIT-TSÓW, or WO-PO-KÁH-TEE, as he is sometimes called, lives and preaches at Mason's Valley, the scene of the labors of the first prophet, who was KOIT-TSÓW's father, and whose name cannot now be ascertained.

The doctrine, as preached by its original exponent in 1869 and now by KOIT-TSÓW, is substantially as follows:

The Indians of all tribes having lapsed into a state of indifference as to many of their traditional tribal customs and religious ceremonies, which ceremonies consisted largely of certain religious dances and penances, have displeased the Great Spirit, who has therefore allowed them to become destitute, the whites to gain the ascendancy, and the game of all kinds to be destroyed.

This has been the punishment awarded by the Great Spirit to his chosen people (the Indians) for their religious laxation; but he still loves them and will, upon conditions, restore them to the fullest enjoyment of their former rights, powers, and privileges, and the prophet describes the manner in which the reinstatement is to be made.

The conditions are that the Indians shall return to their old habits and customs as far as practicable; that they shall resume and continue religious dances with enthusiasm and devotion; that they shall believe in the power of the Great Spirit to carry out his promises as made by his inspired prophet, and that they shall cast aside the customs of the white men, which are displeasing to the Great Spirit.

When the Indians have manifested their change of heart by their works and by their abandonment of their evil ways, the Great Spirit will come in person and will lift all true believers into the highest mountains; all unbelievers will be petrified and left behind.

The Great Spirit will then send a mighty flood of mud and water to drown all the white people, and to utterly obliterate from the country all traces of their works and occupancy.

During the flood, and while the faithful are on the mountains, the Great Spirit will heal and make whole all the sick, lame, and blind, and the old will be made young.

Upon the subsidence of the flood the land will be revealed in all its original, primitive beauty; the buffaloes in countless thousands will return to their former ranges, and game of all kinds will be more abundant than it ever was before the white people came.

Upon the return of the faithful from the mountains they will find that all the dead Indians have returned in the flesh, the white people will have been destroyed and will never return, and thereafter the Indians only will possess and occupy the whole land, undisturbed by any other race.

KOIT-TSÓW claims that he receives these revelations while in trances, during which he goes to the spirit land and converses freely with the Great Spirit and with the dead Indians.

The prophet preaches his own invulnerability, and says that if soldiers attempt to kill him they will themselves be killed, and that he (KOIT-TSÓW) will still live, even if cut into small pieces, and that the soldiers will become as if they had no bones and will fall to the ground.

The doctrine as preached by KOIT-TSÓW is not at all in the nature of a crusade against the white people, as it is promised that the Great Spirit will perform all these things as a reward of faith; but it is easy to see that the doctrine may readily be perverted by "medicine men" to subserve the purposes of priestcraft, and the Indians be made to believe that the Great Spirit wishes some material human assistance in the extermination of the whites, and that the doctrine may be so perverted as to teach that any believer will be invested with the same invulnerability that the prophet claims for himself.

Many of the Piutes believe this doctrine, but their faith has been much shaken by several failures of the Great Spirit to keep the appointments made for him by his prophet; still, the belief is a comforting one, and to be turned to stone is not desirable; so they hardly dare to disbelieve. The time now set for the fulfillment of the prophecy is next May.

In September, 1889, two delegates from each of twelve different tribes were sent by their tribes to hear KOIT-TSÓW and to carry back reports of his teachings. Some of these delegates were from tribes far to the east; some had traveled for two or three months to reach Mason's Valley; some, probably Arapahoes, conversed by means of the sign language, which few of the Piutes understand, and all of the Northwestern tribes were represented.

One JOHNSON SIDES, a Piute, living near Reno, Nevada, seems to have attained what he considers an unenviable notoriety in connection with this matter, several papers having printed descriptions of him, in which he figures as a claimant to the Messiahship of his people. SIDES is in truth a reasonably sensible and well-informed old coffee-cooler, who claims that KOIT-TSÓW is crazy, and he, together with LEE WINNEMUCCA, who is a brother of SARAH and a son of the original WINNEMUCCA, loses no opportunity to combat what they consider a most pernicious doctrine.

There is every reason to believe that this whole Messiah craze started at Mason's Valley from the teachings of KOIT-TSÓW and his

predecessor, and that the doctrine has been much perverted and distorted in its transmission to the Sioux, Cheyennes, Arapahoes, and other tribes.

Let us hope that the failure of promises will shake their faith as it has shaken that of the Piutes.

NAT. P. PHISTER,
First Lieutenant First Infantry.

NOTE.

FORT LEAVENWORTH, KANSAS, January 9, 1892.

The above article forms the substance of an official report made by the author in November, 1890, to General GIBBON, then commanding the Division of the Pacific. Since the article was written I have heard from Indians things which lead me to believe that KOIT-TSÓW is an epileptic subject. In February, 1891, a party of Sioux and Cheyennes, who were on their way to see the prophet, applied for subsistence to the agent at Pyramid Lake reservation, from which point they proceeded to KOIT-TSÓW's home. KOIT-TSÓW was still preaching as late as May, 1891.

NAT. P. PHISTER.
First Lieutenant, First Infantry.

HORSES IN DANGER.

A wise cavalry officer keeps a sharp eye upon the horses of his command, as the success of the next engagement may depend upon their condition. A sergeant was out of patience with an awkward recruit. "Never approach the horses from behind without speaking," he exclaimed. "If you do they'll kick you in that thick head of yours, and the end of it will be that we shall have nothing but lame horses in the squadron."—*Youths' Companion.*

BOOK NOTICES AND EXCHANGES.

THE MILITARY HISTORY. By an Army Schoolmaster. Gale & Polden, Chatham.

The English are not a humorous people, and it might be justifiable to hold the opinion that a joke would scarcely enter the head of one of the Queen's Anglo-Saxon subjects unless it were fired in with a revolver. An Englishman is never so dismal as when he undertakes to be funny; but he is sometimes exquisitely amusing when he is in sober earnest.

An exemplification of the latter fact is found in "The Military History, by an Army Schoolmaster," published by Gale & Polden. This little manual is evidently intended as an aid in "cramming" for the military examinations. It has all the patriotic virtues expressed by a red cover, and conveys briefly certain historical information of a degree of inaccuracy quite as English as the color of the binding. History must be to an Englishman's taste; it must be agreeable as a prime requisite—accuracy is a secondary consideration. According to English historians in general, an Irishman who loves his isle more than he does the Queen, and an Indian chieftain who prefers independence to the rule of an English viceroy are alike rebels. Corûna, where the British repulsed the French and then abandoned the field, and Niagara, where the Americans defeated the British and afterwards withdrew, are alike British victories—the inconsistency does not affect the English mind. Wellington is the incarnation of genius and goodness, while Napoleon is a charlatan and scamp. The Schleswig-Holstein burglary was a crime, while the bombardment of Alexandria and the occupation of Egypt were altogether christianly acts worthy of a super-religious people who cannot find it in their hearts to countenance the slightest violation of the sancity of a dismal English sabbath.

The "Army Schoolmaster" writes his little book, if not "to the Queen's taste," at least to the taste of her loyal subjects. In the list of "chief battles," we find Bunker's Hill, with the remark, "American colonists defeated," though there is no hint that Gage might, like Pyrrhus after Heraclia, have exclaimed, "Another such victory and we are undone." There is no other mention of battles of the American Revolution, such incidents as Saratoga and Yorktown probably not

being "chief battles" according to the English standard. In another part of the book, however, the Schoolmaster magnanimously announces that General Burgoyne "suffered himself to be hemmed in at Saratoga," and actually concedes that Cornwallis "found himself compelled to surrender with the English forces to the colonists at Yorktown." There is no hint of French troops being engaged in the contest in America at all.

The Schoolmaster devotes six lines to the British disasters in America, and about two pages to the marital experience of Henry VIII. Just what the domestic infelicity of Henry and the woes of his better (but unhappier) halves have to do with *military* history is not at first evident; but, on reflection, we presume that this matter might be classed as civil strife, in which an engagement probably preceded the regular matrimonial battle.

If brevity be the soul of wit the Schoolmaster's account of the War of 1812 is very funny. But its claims to humor are not based merely upon its extreme conciseness. "In 1812 the United States declared war upon England through irritation caused by the Orders in Council. Several naval actions were fought indecisively. American attempts on Canada were failures, and the war was ended by the treaty of Ghent in 1814." *Voilà tout!* If Perry's victory on Lake Erie, the annihilation of Downie's fleet on Lake Champlain, and the capture of the Guerriere, Macedonian, Java, etc., were indecisive, it would be interesting to know what constitutes a decisive action. We Americans have been fond of thinking that when we encountered an opposing naval force and took it back to port with us with the stars and stripes floating over it, we had fought a decisive action; but this it seems is only a Yankee vagary after all.

There is no mention of the battle of New Orleans, an omission for which the Schoolmaster may be pardoned, in view of the modest brevity with which he describes the storming of Badajoz, where the British troops gallantly accomplished what they could not do at New Orleans.

The date of the marriage of Queen Victoria is given as 1848. As the royal heir is now fifty years old, this statement must be somewhat embarrassing to Her Majesty.

The *pièce de resistance* of this delectable historical *menu* is, perhaps, the account of the Boer war, in which it is stated that "in the end the Boers submitted on promise of having self-government, subject only to British suzerainty." This, perhaps, needs no other criticism than a smile. We might, perhaps, say that in 1871 the Germans submitted upon receiving a goodly slice of French territory and an enormous war indemnity.

The little book possesses one marked merit—it costs only "one-and-six." In other words, it does not cost much more than a copy of *Punch*, and it is vastly more amusing.

A. L. W.

INSTRUCTIONS FOR COURTS-MARTIAL, INCLUDING SUMMARY COURTS. Prepared under direction of Brigadier-General Wesley Merritt U. S. Army, by Lieutenant Arthur Murray, First Artillery, late Acting Judge Advocate U. S. Army.

In this handy and conveniently shaped book we have one of the best, if not the very best, manuals on the subjects of which it treats, ever supplied to the army. Captain Murray's well known ability, and painstaking care, are a sufficient guarantee that whatever is found written within the covers of his book, may be depended upon for completeness and accuracy. In addition to the latest information and instruction in regard to summary courts, every form used in the preparation of charges, keeping the records of courts, summoning witnesses, etc., may be found. Captain Murray is to be congratulated upon the value of the memorial he has left of his services as a judge advocate.

THE UNITED STATES ARMY. By Arthur Bresler, Colonel and Commandant of the Ohio Military Academy, Aide-de-Camp to the Governor of Ohio.

In this excellent work, the result of the labors of Colonel Bresler, we have the most accurate and artistic representations of every article of uniform worn by officers and men of our army, that has ever been presented to the public. Whatever is supposed to be made of gold is printed in gold, and the various colors, yellow, red and orange, have a brightness and brilliancy we have never seen before. Every branch of the service has received attention, and even that latest addition to our army—the "Noble Red Man"—stands out in all the glory of his newly acquired uniform. The book, with its plates, has been printed by Moritz Ruhl, of Leipzig, and the text is unfortunately in German, although the Roman characters have been used instead of the Gothic.

ANNUAL REPORT OF MAJOR-GENERAL NELSON A. MILES, U. S. ARMY, Commanding the Department of the Missouri.

Three maps on a large scale, one showing the country in which the operations against the hostile Sioux occurred last winter, another the battle-fields of Wounded Knee, December 29, 1890, and the Mission, December 30, 1890, with positions of troops and Indians clearly shown, accompany the report.

ANNUAL REPORT OF THE INSPECTOR-GENERAL, U. S. ARMY, to the Major-General Commanding.

A very full and valuable report, embracing almost every subject in which the army is interested. One needs to read it to form an idea of what a variety of opinions can be elicited from the officers of the army, upon any subject concerning which they are required to express their views.

A History of the First Regiment of Massachusetts Cavalry. By Colonel Creuenstuold. Lovering-Whild.
To be noticed hereafter.

Through the courtesy of Mr. H. T. Bartlett, of New York—formerly bugler Company "H," First Massachusetts Cavalry—the Association has been presented with a large photograph of a beautiful monument recently erected to commemorate the "Battle of the Haystacks," June 17, 1863, in which the First Massachusetts Cavalry played so conspicuous a part and lost so heavily. The following information accompanied the photo:

"This monument in granite was erected by the First Massachusetts Cavalry Association on the field of Aldie, Loudon County, Virginia, in memory of the killed and wounded in the "Battle of the Haystacks" with Stuart's cavalry, in General Lee's northward movement, which ended in the Battle of Gettysburg. It is the only regimental monument on a Southern battle-field. The names are engraved on the two edges of the stone. A piece of ground, ten feet square, in which the monument stands, was presented to the Association by Mr. Dallas Furr, formerly a Confederate soldier in Mosby's command, and at whose house, near by, our wounded were cared for by his family. The wounded were made prisoners. At the twenty-sixth annual reunion of the Association, October 28, 1891, a testimonial of gratitude for the kindness of himself and family was voted to Mr. Furr. Number of men of regiment engaged, 298; total loss, 196; equal to 66.89 per cent."

H. T. BARTLETT,
Bugler Company "H," First Massachusetts Volunteer Cavalry.

Militär-Wochenblatt.

No. 85: Horse-Shoeing and Care of the Foot. France: Results of Horse-Raising. No. 86: A Russian River Man of War. No. 87: Battle of Wörth. No. 88: Battle of Wörth (continued). England: Forage Cap for Cavalry. Russia: Views on Mounted Firing. No. 89: Battle of Wörth (conclusion). Italy: Reörganization of the Field Artillery. No. 90: Field Artillery of the Future. France: Members of the Legion of Honor. Officers of the Reserve at Military Ceremonies. Austria-Hungary: Shoeing with Tips. No. 91: France: Duties of Retired Officers at Military Schools. No. 92: France: Cavalry School at Saumur. Riding Instructor of the Infantry School. Use of Saddle Blankets. No. 94: East Africa: Special Concentration of the Guard. Cavalry in Camp at Krasnoë Selo. Switzerland: Smokeless Powder. No. 95: The New Italian Cavalry Drill Regulations on Attack. France: Grand Maneuvers of 1892. No. 96: The New Italian Cavalry Drill Regulations on Attack (conclusion). France: Rapid Firing Hotchkiss Cannon. No. 97: Rough Shoeing. No. 98: Military Works, by Von Moltke. Italy: Transport of Troops over a Railway Bridge. Russia: Cartridges with Smokeless Powder. No. 99: The Year's Cavalry Maneuvers in Camp at Châlons. The New Swiss Infantry Rifle. France: Changes in the Organization of the Cavalry. No. 100: France: Marriage of Officers. Educating of Teachers for the Artillery Regiments. Russia: Wooden Scabbards for the Saber. No. 101: England: Army Horses. Austria: One Year Volunteers of the Railroad Regiment. No. 102: Strength of the English Fleet. No. 103: The Autumn Maneuvers on the Eastern Frontier of France. Italy: Purchasing Committees for Stallions. Switzerland: Remounting of the Army. No. 104: Equipment and Clothing of the Infantry. France: Cavalry School at Saumur. Increase of Pay for Mounted Officers. No. 105: Equipment and Clothing of Infantry (conclusion). Statistics of Suicides in the European Armies. France: Buying of Forage. No. 106: Changes in the Organization and Procuring Quarters in Time of Peace for the French Cavalry. Mounted Target Practice of the Russian Cavalry. France: Number of Cavalry Officers. No. 107: Training of the Infantry in Action Under Fire. Russia: Target Practice of Cavalry Mounted. No. 108: Training of the Infantry in Action Under Fire (conclusion). Diary of Events of a Reserve Officer of the Cavalry in the War of 1870-71.

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