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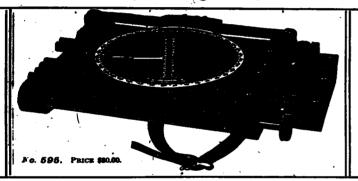
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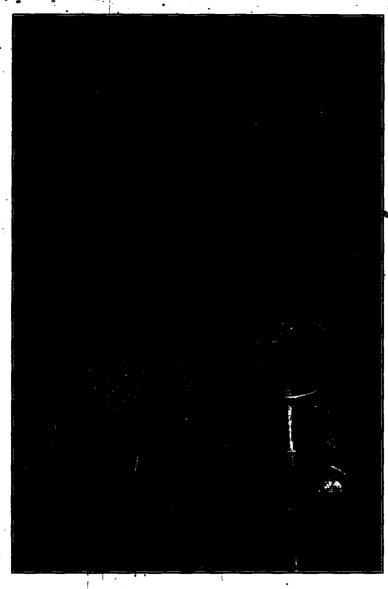
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JULY, 1910.

No. 79

THE BATTLE OF KELLY'S FORD.

BY MAJOR JOHN BIGELOW, JR. U. S. ARMY RETIRED.

A BOUT the 14th of March, Hooker gave Averell an order to take 3,000 cavalry and six pieces of artillery, and with that force to attack and rout or destroy "the callry forces of the enemy reported to be in the vicinity of culpeper Court House."*

The 17th of March, 1863, was a red-letter day for the cavalry of the Army of the Potomac; for on this day was fought at Kelley's Ford the first purely cavalry fight east of the Mississippi River in which more than one battalion was engaged on each side. In preparation for the event, Averell, the Federal commander, had instructed his men to have their sabers sharpened, and to use them. He promised them a victory.† Pursuant to Hooker's order, he left the main body of the army about 8 a. m. on the 16th of March with portions of the 1st and 2d brigades of his division and of the reserve brigade, ag-

^{*}The text of the order cannot be found. The gist of it is given as above in Averell's report of March 20 (W. R., 39, p. 47) and in Hooker's letter of May 13, transmitting it to Kelton (ib., p. 1073).

[†] Captain D. M. Gilmore, 3d Cavalry, in Glimpses of the Nation's Struggle, 2d Series, pp. 38-44.

Note: Besides the maps accompanying the text of this article, the reader should have a general map of the country between Culpeper Court House and the Potomac.

gregating about 3000 men, and provided with four days' rations and one day's forage. About dark he arrived at Morrisville, 16 miles from camp. Here he bivouacked for the night, and, about 11 p. m., was joined by Martin's 6-gun battery of horse artillery, commanded by Lieutenant Browne, from the artillery camp near Aquia Creek.

His orders were accompanied by reports of operations of the Confederate cavalry in the vicinity of Brentsville, in which the number of the enemy was represented as from 250 to 1000 men. As a precaution he requested that a regiment of cavalry be sent to Catlett's Station, which he regarded as the keypoint to the "middle" fords of the Rappahannock, to throw out pickets in the direction of Warrenton, Greenwich, and Brentsville; but as this request was not granted, he detailed the 1st Mass, and the greater part of the 4th Pa., together about 900 men, to guard the fords and observe the enemy on the north side of the Rappahannock. It is hard to justify this weakening of his active force. He had no train or depot between himself and the Army of the Potomac. There was nothing to be guarded in his rear except his line of retreat, and that he should have been able to open, if any force which the enemy could spare from his front had presumed to close it. He may have apprehended a movement in some force against his rear from the direction of the Shenandoah Valley. In that case he should, it seems, have contented himself with communicating his apprehensions to Hooker, leaving it to him to provide such protection as might be necessary.

Captain Hart of the 4th N. Y., with 100 picked men taken partly from that regiment and partly from the 5th U. S. Regulars, was ordered to proceed to Kelley's Ford as an advance-guard, and at the first glimpse of dawn on the 17th to dash across the river and capture the pickets on the south bank. His command was to be supported by the remainder of the 4th N. Y. In the course of the evening this regiment and the detachment of the 5th U. S. took position near the river. The advance was thus formed almost wholly of the 4th N. Y. (first New York German regiment). The reader may ask why Averell selected for so dangerous, difficult, and important a service, a command which bore, to say the least, an unenviable

reputation as to fighting, and which disgraced itself in the action at Hartwood Church only about three weeks before

About 11 a. m. on the 16th, Fitzhugh Lee, at Culpeper Court-House, received a telegram from R. E. Lee informing him that "a large body of cavalry had left the Federal army, and was marching up the Rappahannock."* By 6 p. m. his scouts had located this force at Morrisville, and reported the fact to him, but they left him in doubt as to whether the Federals would cross Kelley's Ford or at Rappahannock Ford, or pursue their march toward Warrenton. He reinforced his picket of 20 sharpshooters at Kelley's Ford with 40 more, and ordered the remainder of his sharpshooters to be stationed at daylight where the road to the ford leave the railroad and held ready to move to either crossing. About 4 a. m. on the 17th Averell started from Morrisville with the following command:

	MEN
1st brigade, Second Division (4th N. Y., 6th O., 1st F. I.), Colonel Duffié	775
2d brigade, Second Division (3d Pa., two squadrons the 4th Pa., 16th Pa.), Colonel McIntosh	of \565
Reserve brigade (1st U. S. and three squadrons of 5 U. S.†), Captain Renot.	th / 760
6th N. Y. Battery, First Division, Lieutenant Browne (spieces.	100
Total	2,200

The force left behind—1st Mass. and four squadrons of the 4th Pa.—took post along the railroad between Bealeton and Catlett's Stations, with a reserve at Morrisville, and pickets at the fords and beyond the railroad.

The Confederate force available to oppose Averell's consisted of Fitzhugh Lee's brigade of cavalry and Breathed's battery of horse artillery (four pieces): The brigade comprised at this time the 1st, 2d. 3d, 4th, and 5th regiments of Virginia Cavalry. There were thus five regiments to oppose to Averell's 6 5-6 regiments; and four pieces to oppose to his six. The Confederate regiments, however, were not as strong

^{*}Fitzhugh Lee's report, W. R., 39, p. 61.

[†]Companies C, E, G, H, I, K.

[‡]Who commanded a battalion of the 7th U. S. Cavalry at the Custer massacre, 1876.

as the Federal. The author hesitates to state the numerical strength of the Confederates, there being a wide disagreement among authorities who have expressed themselves regarding it. Fitzhugh Lee does not give it in his official report, but in his Chancellorsville Address he says that he had less than 800 men in the saddle, and "less than 800" is the expression used by Stuart in his report to R. E. Lee for the number of men in action.* The Comte de Paris says that Fitzhugh Lee could not put more than 1000 sabers in line.† Major D. A. Grimsley, 6th Va. Cavalry, says, "Lee's brigade numbered perhaps 1200 in all," but he refers to it as occupying Culpeper Court-House and encamped in the vicinity of Brandy Station and Stevensburg, and does not state how much of it was assembled for this engagement. Major Frank W. Hess, 3d Artillery, who was a captain in the 3d Pa. Cavalry, calculates Fitzhugh Lee's force as about 1500 sabers. Rev. Frederic Denison, the historian of the 1st R. I. Cavalry, says that Lee's five regiments and horse artillery must have given him about 3000 effective men.± D. M. Gilmore, late captain of the 3d Pa. Cavalry and a participant in the action, says: "The forces were nearly equal, about 3500 men and a battery on each side."** The correct number will probably be found between that of the Comte de Paris and that of Major Grimsley. Let us assume that, including the artillery (which did not arrive until the action was about half over) and the men at the ford, Fitzhugh Lee's force aggregated 1100, or half as many as Averell's.

Averell selected Kelley's Ford as the place of crossing because the country beyord it was better known to him than that beyond any other crossing, and it afforded the shortest route to the enemy's camp. When his column arrived near the ford, the cracking of carbines told that the passage of the river by the advance under Hart had not been effected. The head

of the main column reached the ford about 6 a. m.* The river at this point was about 100 yards wide, four feet deep, and running swiftly. The approach on both banks was obstructed by abatis. The southern bank was manned by the detachment of Fitzhugh Lee's sharp-shooters under Captain Breckinridge of the 2d Va. Cavalry and Company K of the 4th Va. Cavalry, commanded by Captain Moss, the latter having come up this morning.† These troops were in rifle-pits or in a dry mill-race, which in the present instance may be regarded and referred to as a rifle-pit. Deduction being made for horse-holders, Captain Breckinridge's command numbered about 45 and Captain Moss' about 85 men, or the two together about 130 men.

Averell was indignant at finding that the surprise of the enemy's picket had not been attempted. The left bank of the river was traversed here for a short distance by a road which had been worn down to the depth of about three feet by long usage. Under cover- afforded by this road. Hart's command was firing at Moss' men in the rifle-pits.

On catching sight of the Federal column, Captain Breck-inridge, commanding the remainder of the Confederate force, had mounted his men, and marched them to the rear to place his horses in a safe place. The first thing that suggested itself to Averell was to detach a small force to steal a passage above or below the ford, and take the enemy in rear. This he accordingly did, directing the movement below the ford. Major Chamberlain of the 1st Mass. Cavalry, his chief of staff, dashed down in the meantime to Captain Hart's command, and ordered it, including the main body of the 4th N. Y., to mount, form

[•]W. R., 39, p. 59.

[†]History of the Civil War in America, V, 25, 26.

[§]Battles in Culpeper Gounty, Virginia, by D. A. Grimsley, p. 7.

The First Battle of Kelley's Ford, Main Bugle, 1893.

[‡]Sabres and Spurs, by F. Denison, p. 213.

^{**}Glimpses of the Nation's Struggle, 2d Series. p 42.

^{*}Averell gives the hour as 8 a. m. (W. R., 39, p. 48); Lieutenant Browne as 6:30 a. m.; Colonel McIntosh as 6 a. m.; General Fitzhugh Lee as about 5 a. m. (W. R., 39, pp. 48-61), and Frederic Denison as about daylight (Sabres and Spurs, p. 208).

[†]General Fitzhugh Lee in his official report (W. R., 39, p. 61) makes no mention of Captain Moss' company, and says regarding Breckinridge's men: "Only about 11 or 12 of them got into the rifle-pits in time for the attack of the enemy (owing to an unnecessary delay in carrying their horses to the rear), which commenced about 5 a. m." But see the letter of Captain Moss in The Battle of Kelley's Ford, by J. B. Cooke, published by the Soldiers' and Sailors' Historical Society of Rhode Island.

in column of fours, and follow him across the river. On reaching the river's bank he was arrested by the abatis and his command overwhelmed with fire. His horse was shot in three places and he himself in the face. His men recoiled and retreated rapidly up the bank. Sending to Averell for pioneers, he obtained twenty men of the 16th Pa. with axes, whom he put to work cutting away the abatis. Two dismounted squadrons were placed by Averell in the sunken road to cover the axemen with their fire. By this time a couple of fieldpieces were unlimbered and it would have been easy with their fire to demolish the enemy's defenses and drive him beyond the range of his carbines. But to do this would have been to announce the point of crossing and the magnitude of the expedition to Fitzhugh Lee. So Averell contented himself with keeping up the fire of his two squadrons, numbering 100 men, with a view to preventing the enemy from trising to take aim. Under cover of this fire Major Chamberlain again ordered the 4th N. Y. to follow him, and dashed at the river. The trees had been only partially removed, for the fire from the sunken road had not sufficed to protect the Federal axemen; and the fire from the enemy's rifle-pits had driven them from their work. It proved too hot for the men of the 4th N. Y. and they returned at breakneck speed.

General Averell had placed himself on a little knoll to the left of the approach to the ford, and from this point over-looked and directed operations. His division stood in column of fours stretched out along the road, eagerly and anxiously looking for a chance to "mix in." The force detached to try a crossing below the ford had returned baffled by the depth and swiftness of the water and the precipitous character of the banks. There was nothing left to do but to force a crossing in the face of the enemy at the ford.

It was impossible to get into or out of the river until the abatis was removed, and the work of cutting it away had to be done under the fire of the enemy's carbines or rifles at the very short range of from 50 to 100 vards.

Major Chamberlain again showed himself the man for the occasion. Giving his valuables to a staff officer, he rode up to the main column and called for volunteers to carry the cross-

ing, offering the first opportunity to the regiment at the head of the column, the 1st R. I. The whole regiment replied by moving to the front. The nearest platoon, which was commanded by Lieutenant S. A. Browne, was selected and made ready for the dash. The fire from the sunken road was now keeping down that from the pits, and under its protection the axemen resumed their work, and made some progress toward opening the approach to the ford. They now ceased working and formed mounted in rear of Browne's platoon. The main body of the 1st R. I. and the 6th O. were moved up in support. The first dash was to be made by Browne with his eighteen troopers. Major Chamberlain placed himself at the post of danger and honor in front of Browne. The signal was given, and away they went. As soon as they entered the road they were subjected to a withering fire. Browne's men broke, and came back in confusion. Major Chamberlain's horse was mortally wounded just as it reached the water, and at the same moment the major himself received a second wound. A ball struck him in the left cheek and ranged down through the neck, the shock throwing him from his horse. He was dragged up the bank by the pioneers. There, sitting on the ground partially blinded with blood, he emptied the chambers of his revolver, firing first, it is said, at the fleeing Rhode Islanders, and then at the enemy on the opposite side of the river. The, men, however, were soon rallied and brought back. With a cheer they went forward again, and dashed into the ice-cold water. Close behind them went the mounted axemen. The latter had left their carbines behind, and had their sabers fastened to their saddles to facilitate mounting and dismounting. As they pushed forward, intermingling with Browne's men, their axes shining and glittering above their heads, the ford and its passages presented a singularly picturesque scene suggestive of mediæval men-at-arms with their battle-axes. This party was followed by the remainder of the 1st R. I. and the 6th O.

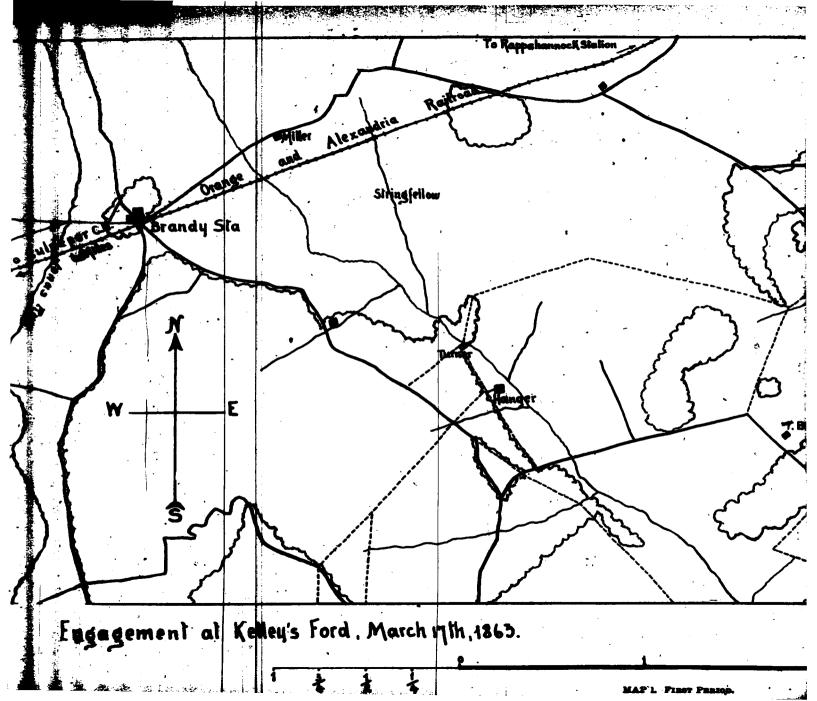
Fortunately for Browne, the enemy was not altogether ready for him. Breckinridge had gone with his 60 men so far to the rear that he could not get more than about a dozen of them back into the rifle-pits by the time the assailants took to

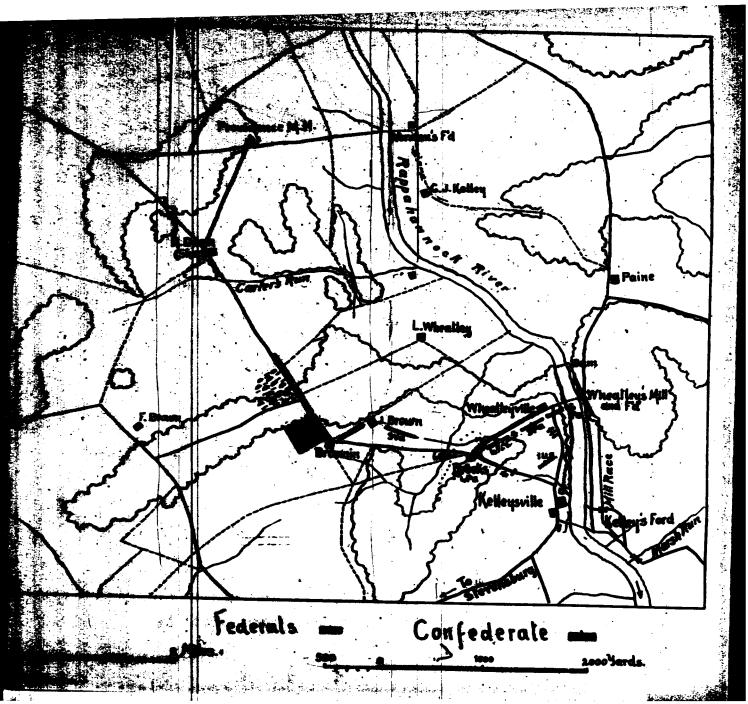
the water. His handful of men, being short of ammunition, did not fire. Moss' 85 carbines divided their fire between Browne's little band and the two dismounted squadrons in the sunken road. As soon as Browne's men and the pioneers began to approach the south shore the Federal fire from the sunken road had to be suspended, which gave the enemy an opportunity to increase his. Captain Moss directed all the fire he could upon the gray horse ridden by the gallant young Federal commander whom he saw plowing the surging waters at the head of his column. The horse was a larger mark than its rider, and he knew that the horse being disabled, the rider would be also. Besides, the rider had won his admiration by his courageous bearing. The axemen, on arriving about in the middle of the stream, inclined to the right, going up-stream. some of their horses swimming. They landed above the road, and coming down to it, went to work with a will at the obstruction. Of the eighteen men of Browne's platoon who entered the ford with him, but three came out with him on the enemy's side, all the rest being either killed or wounded or having their horses disabled. The actual loss amounted to two men killed, three officers and five men wounded, and fifteen horses killed or rendered permanently unserviceable.* The axemen suffered little. The loss fell principally upon Browne's horses. Browne rode up the bank and fired a shot among the enemy in the rifle-pits now below him. turning toward the ford, he waved his sword to the main. body of his regiment, and called on it to come on. A few of the leading men arrived, and broke through or over the obstructions. In the meantime the enemy in the rifle-pit, perceiving their inability to hold their position, commenced retiring toward their horses. Being afoot and pursued by mounted men, it was well for them that they started early. As it was, twenty-five of them were made prisoners. They were found to be armed with new English revolvers—Kerr's patent -and provided with ammunition recently made in Connecticut.

The Federal advance formed close column of squadrons, throwing out pickets on the roads radiating from the ford.

^{*}Maine Bugle, October, 1893, p. 13.

[†]History of the 1st Mass. Cavalry, by D. H. L. Gleason, p. 117.





About two hours were spent in removing the obstructions on the south bank and getting the remainder of the force across. The ammunition for the artillery was taken out of the limbers and carried over by a squadron of cavalry in nose-bags, which was necessary in order to prevent its being wet. This precaution would be unnecessary with the fixed ammunition of the present day. The guns were dragged through the water. which came up to the tops of the limber-boxes. The division was formed up so as to meet the enemy in any direction. The horses were watered. On account of the narrowness of the ford this had to be done by squadrons, which caused considerable delay. In the meantime General Averell galloped to the front with a detachment, and made a hasty reconnaissance, which satisfied him that the proper place for the expected battle was an open field which he could see about three-fourths of a mile from the river. From what he had learned about Lee's position, and what he knew of him personally, he was confident that he would not await an attack in his camp, but would come out and attack Averell wherever he might be. So, about 10:10 a. m., everything being ready, Averell put his whole command in motion toward the forementioned field. The column marched through the hamlet of Kellevsville, consisting of six houses and a grist-mill, which the Confederates kept constantly employed; and took the road leading northwestward past R. Dean's to the railroad (Map 1*). The advance was formed of Duffié's brigade, the 6th O. being deployed as skirmishers, the 4th N. Y. and 1st R. I. following as supports. The movement was conducted with caution and as slowly as if made with infantry, the ground scouts dismounting to search the woods. A squadron was left at the ford as picket, or rearguard.

While Averell was crossing the river, Fitzhugh Lee was at Culpeper Court-House, awaiting news from the front. A report of the attack at the ford was sent to him, but failed to

^{*}This map is based, in its main features, upon the Geological Survey map and in its details upon maps published in the Rebellion Records and other war time maps.

The detachment of the 5th U. S. Cavalry, not shown on the map, was broken up into separate squadrons.

reach him.* The first intimation he received of an attempt to cross was at 7:30 a. m., to the effect that the enemy had succeeded in crossing, capturing 25 of his men who were unable to reach their horses.† Fitzhugh Lee at once moved his brigade at a rapid trot to the road junction about a mile and a half northeast of Brandy Station, ordering his wagons and disabled horses back to Rapidan Station.

Some time having elapsed, and the enemy not appearing, he pushed on rapidly toward the ford. About 12 m., as the Federal skirmishers emerged from a belt of timber about a mile from the ford, they received a volley from a dismounted-squadron which Lee, thinking he had to do only with an advance-guard, had posted behind a stone fence a short distance from the wood. Averell at once deployed the 4th N. Y. dismounted on the right of the road, the 4th Pa. on the left, placed a section of artillery between them, and ordered the line to advance "to the edge of the woods and use carbines." The two dismounted regiments exhibited some unsteadiness; it required the exertions of General Averell and his staff to bring them under the carbine fire which was now sweeping the woods. But they soon regained their firmness, and opened an effective fire in return.

Averell ordered McIntosh to deploy his two regiments on the right, and Reno to send three squadrons to act as reserve for the right wing (McIntosh's command), and one squadron up the road to support the left (4th N. Y., 4th Pa., and 1st R. I.); he also ordered a section of artillery to operate with the right wing. The remainder of Reno's command, consisting of the greater part of the 1st and 5th U. S., he retained as a general reserve (Map 1).

As the 4th N. Y. and 4th Pa. advanced with a cheer against the stone fence, about 100 dismounted men of the 16th Pa., who were smelling powder for the first time, double-timed through the woods on the right, and came in the rear of the stone fence, causing the force that occupied it to beat a hasty retreat. The 4th Pa. and the 4th N. Y. established themselves behind the stone fence. The Confederates were seen advancing covered by mounted skirmishers, whose fire soon made itself felt. But Lee was not going to content himself with mounted skirmishing. At the head of his main column was the 3d Va. This regiment threw down a rail fence about 100 vards below Brannin's House, and moved to near J. Brown's House to form. Here Lee ordered it to charge. It did so in column of fours, directing the movement against the stone fence. Underestimating Averell's force and the extent of his front, Lee meant that this regiment should gain the right flank or rear of the Federal line. The Confederate troopers, finding that they were heading into a line of men firing dismounted with carbines, veered to their left, across the front of the Federal line, looking in vain for an opening, discharging their pistols with little or no effect, and receiving a withering fire from the Federal carbines. As they came opposite the Federal right they were joined by the 5th Va. The two regiments tried to gain the cover of the Wheatley house (Wheatleyville) to strike from there against the Federal right and rear, and cut the force off from the ford. But McIntosh, commanding Averell's brigade, was too quick for them. He had the building occupied by dismounted men of the 16th Pa., who with their carbine fire compelled them to fall back. Among the losses sustained by the enemy was John Pelham, the "Boy Major," Stuart's young and capable chief of artillery, killed by a piece of shell.*

^{*}This statement is made on the authority of Fitzhugh Lee, who makes it in his report (W. R., 39, p. 61). It implies that the dispatch was delivered to the bearer or courier before the rifle-pits were abandoned. If this was the case and the courier started promptly on his mission, he could hardly have been captured. It cannot be supposed that he lost his way, for the route which he had to travel must have been generally known and easy to find or ascertain. He must have been exceedingly derelict.

f"This occasion as well as many others demonstrated the fact that the horse-holders in a cavalry fight should be the coolest and bravest men in the company. 'Number Four' has no right to be exempt from the perils of the battle. He holds the horses of his comrades only in order that they may more efficiently fight on foot; and he should always be near at hand to give whatever aid the occasion demands. In the present instance several brave men were captured simply because their horses were so far distant." (The Campaigns of Stuart's Cavalry, by H. B. McClellan, pp. 207, 208.)

[‡]W. R., 39, p. 49; Hist. of the 3d Pa. Cavalry, by the Regimental Association, p. 208.

^{*}His body was borne to the rear on the bow of the saddle of a fleeing Confederate trooper (The Life and Campaigns of Major J. E. B. Stuart, by

The 3rd and 5th Va. were badly shaken up, and should have been charged as they retired, but General Averell had no troops in position from which an effective charge could be made; besides, Lee's strength had not yet been developed, and the charging force might, he thought, be exposed to a destructive counter-attack. About this time Colonel Duffié, on the Federal left, started on his own responsibility to lead his bria gade out in front of Averell's line as an invitation to the enemy to advance. The colonel was a Frenchman, formerly an officer of the 4th Chasseurs d'Afrique. He was a good swordsman, believing in the efficacy of the saber and the mounted charge, and had imbued his command with his own dashing spirit. Duffié was hurrying his regiment (1st R. I.) 4"front into line" on the head of his column, when a line of sabers was seen flashing along the edge of the woods immediately in his front. It was the 1st, 2d and 4th Va. regiments, which, requiring no invitation, were advancing in three lines under Lee at a trot. The Federals awaited at a halt their approach to within 50 or 100 yards, when the 1st R. I. dashed forward to the charge, followed on its right by the 6th O. and the two squadrons of the 4th Pa., and on its left by two squadrons of the 5th U. S. At the same time the 3d Pa., clearing the ground lately covered by the 3d and 5th Va., threatened to take Lee's lines in flank and rear. There were thus nearly four Federal regiments in action against the three Confederate. The former were not only numerically stronger and in better condition than the latter, but, with their broader front had a better formation for attack. The Confederates, perceiving the hopeless disadvantage at which they were placed, fired a few shots with their pistols, wheeled rather irregularly by fours and platoons to the right, and immediately repeating the maneuver, made off in haste, pursued principally by the 1st R. I. Among the prisoners taken by the latter was Major Breckinridge, a cousin of the Vice President of the Confederacy. A portion of the 1st R. I. carried the pursuit too far. A fresh squadron of the enemy

being thrown into the running fight, two officers and eighteen men of the Federals were captured. This squadron of the enemy was met by a charge of two squadrons of the 5th Regulars. Lieutenant Nathaniel Bowditch, of the 1st Mass. Cavalry, an assistant adjutant-general on Duffie's staff, was mortally wounded after having cut down three men. A squadron of the 3d Pa. on the right spontaneously rushed forward to join in the pursuit, but was promptly recalled. Averell then and there issued a very emphatic order, that troops once assigned a position in line should under no circumstances leave it without orders from himself or some one designated by him as competent to give such orders. Such an order is prohibitive of effective cavalry action.

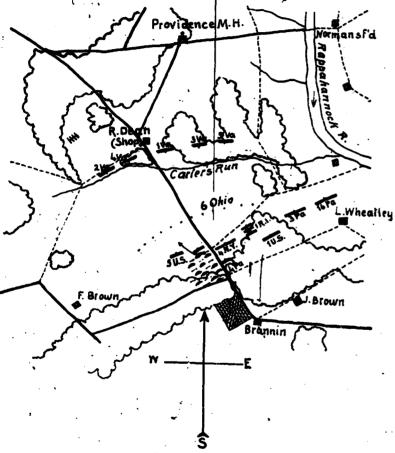
The 3d Pa. crossed the field in echelon of squadrons at a walk, annoying the retreating enemy with volleys from the saddle, and as it neared the next wood, formed "front into line" at the trot. The 16th Pa. accompanied this movement on the extreme right. The 1st U. S. was, for the greater part, still in reserve under Reno.

Prisoners taken in the last charge stated that Stuart himself, with his chief of artillery, was on the field, from which Averell apprehended that more than Fitzhugh Lee's brigade would soon be before him. Stuart's chief of artillery, as already stated, had fallen. Stuart was indeed on the field, but he had brought no troops with him. He and Pelham, happening to be at Culpeper Court-House on court-martial duty, had simply come out with Fitzhugh Lee to see the fight.

Being driven at every point, Lee withdrew about a mile, rallied his command, and formed line across the road on the north side of Carter's Run, with mounted skirmishers in front (Map 2). Behind his right wing stood a battery of four guns, which had not been able to come up in time to take part in the first encounter. Averell spent a half-hour or more preparing to advance. He marched in line of columns. His left, formed of the 1st R. I. and 6th O., rested its left on the road, the ground on the left of the road being impracticable. The scattered sections of artillery were assembled, and the battery advanced with the cavalry to the further edge of the next strip of wood, where it formed in battery to receive the enemy, who

Major H. B. McClellan, p. 217). In his purse was found, folded away, a slip of paper on which was written by a Federal officer, once his companion and friend: "After long absence I write,—'God bless you, dear Pelham; I am proud of your success'" (New York Times, May 3, 1863).

was expected to make a charge. Here two of the pieces were sent to the rear, their ammunition being nearly exhausted. After an appreciable delay the battery advanced in column of pieces, following and overtaking the cavalry. The latter in



MAP 2. SECOND PERIOD. (Scale same as Map 3.)

the meantime had come under the fire of the enemy's battery. Emerging from the strip of wood, and discovering the enemy, the Federal cavalry halted and formed line. The two lines were separated by an open field about 600 yards wide, sloping

gently down from each side toward Carter's Run. The ground beyond the Federal left was now practicable, it was necessary to extend the line in that direction. This was done by the 5th U.S. under a heavy fire of artillery and small arms (Map 2). In his present position Averell again waited to be attacked. 'Again the enemy accommodated him. Lee ordered his whole brigade to charge. From his left, the 1st, 3d and 5th Va. regiments steered for the center of the Federal right. Crossing Carter's Run and reforming, they directed their course on three squadrons of the 3d Pa. Cavalry, which had been posted on the outer edge of a small wood. In the Federal squadrons the front rank had advanced carbines, and the rear rank drawn sabers.* The enemy was impeded by the soft ground, and a scattering fire from several squadrons of the 16th Pa., on the right of the 3d Pa. He was not within 100 yards of his objective, but his line was commencing to sift to pieces. More than half of the men had halted or were proceeding in a half hearted way. A few only of the most daring spirits on the best horses arrived within from twenty-five to fifty yards of the Federal line. The Sharp's breech-loading carbines in the front rank of the 3d Pa. were now brought to an aim, and volley after volley was delivered with effect. The assailants pulled up, turned about, and retired in small squads to reform on the ground whence they started. As soon as General Averell perceived that it was the purpose of the enemy to charge on this part of the line, he hurried up Reno's command, the 1st U. S. Cavalry, and placed it in position about 100 vards to the left and slightly in advance of the 3d Pa., with the intention of making a countercharge on the right flank of the advancing line as soon as the latter had made contact with the 3d Pa. But as the charge terminated in the air, Reno could not execute this counterattack, and he was prohibited by Averell's forementioned order from pursuing. The 3d Pa., too, was prevented by the same order from rushing at once on the disorganized enemy. But

^{*}The Federal cavalry was formed at that time, as most European cavalry is today, in double rank, which formation has been totally discarded in the U. S. cavalry since the war.

despite the order, individual officers and men rode out from both sides and engaged in hand-to-hand contests.*

Not until after the shattered squadrons had in a measure recovered their spirits and formation did the order come for the 3d Pa. to charge. Carbines were dropped, and sabers drawn; the regiment dashed forward and drove the enemy from the field.

Lee's right, consisting of the 2d and 4th Va., made an attack on the Federal left, aiming apparently at the supports of the battery, the four pieces of which had just come into action. The Confederate formation was column of squadrons. Starting at a trot, and passing to a gallop, and then to a charge, the yelling and cheering lines, firing an occasional shot from a pistol or carbine, swept on toward the ranks of motionless figures with drawn sabers silently awaiting them. The battery opened on them with shell at 1500 yards, with shrapnel at about 1000 yards, and with double-shotted canister at about 400 yards. The leading squadron had begun to waver, files were breaking off from its right and left. Simultaneously with the first belch of canister rang out the command—"Charge!" The expectant horsemen, giving sudden vent to their pent-up feelings and energy, shot forward. The enemy could not stand up to the impending shocks. The Federal force comprised the 1st R. I. and parts of the 5th U. S., 6th O., and 1st U. S.† Lee's dashing horse-men had again to give way before Averell's: superior numbers. They broke and ran in disorder leaving a number of dead, wounded, and prisoners. The pursuit was conducted by Reno. He did not return to the line, but halted about a mile in advance of it, or about on the ground vacated by the enemy, where he was joined by the rest of the Federal cavalry. The Confederate cavalry halted about half a mile in rear of their late position, where it was

concealed for the greater part by woods or swells in the ground. The artillery on both sides remained in its late position (Map 3). For a considerable time there was not a formed body of Confederate cavalry on the field. The Confederate battery was engaged with the Federal battery. All that Averell had to do to rid the country of Fitzhugh Lee's cavalry was to launch his own after it, reckless of everything but speed, to pulverize the fragments of Lee's shattered regiments, and scatter the particles far and wide. But he did not attempt it. About this time he heard that infantry had been seen at a distance on his right moving toward his rear, and he himself heard cars running on the railroad in rear of the enemy, which he supposed, were bringing reinforcements. As a matter of fact there was no infantry nearer his opponent than the Confederate army about Fredericksburg; and the cars which he heard were moving back and forth by Fitzhugh Lee's order to discourage the Federals, and perhaps to encourage his own men. Averell got the idea that the enemy's line was covered with earthworks; it had no protection but what was afforded by the terrain. He says in his report:

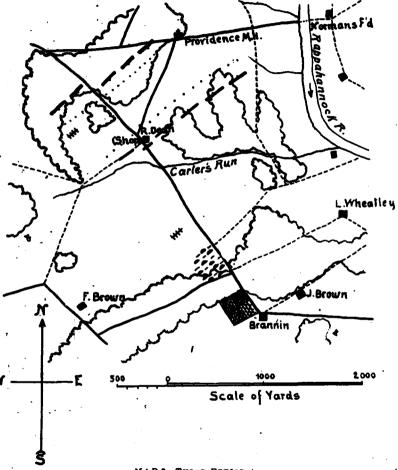
"It was 5:30 p. m., and it was necessary to advance my cavalry upon their intrenched positions, to make a direct and desperate attack, or to withdraw across the river. Either operation would be attended with immediate hazard. My horses were very much exhausted. We had been successful thus far. I deemed it proper to withdraw."

Detachments of cavalry were deployed in front of the artillery, and the division commenced its return march. Captain Reno, with the 1st and 5th U. S., covered the rear. His task was anything but an easy one, the battery having almost exhausted its ammunition, and having therefore to fire very slowly. The enemy, taking advantage of this fact, followed it up with the fire of his battery. Once or twice Reno halted to allow him to come up, but the latter contented himself with long-range firing. The enemy's object was to drive away the cavalry escort with artillery fire, and then charge the battery. The Federal cavalry had therefore to stand this fire, and stay with the battery. To have left it would have been to surrender it to the enemy. The battery lost heavily in horses, but, under the protection of its gallant escort, brought off all its

^{*&}quot;Since the crossing of the river there had been many personal encounters—single horsemen dashing at each other with full speed, and cutting and slashing with their sabers until one or the other was disabled. The wounds received by both friends and foes in these single combats were frightful—such as I trust never to see again" (New York Times, March 20, 1863).

Battle of Kelly's Ford, by J. B. Cooke, p. 28; History of the 3d Pa. Cavalry, by Committee, p 213.

guns. The sound of the artillery firing reached the ears of the Federal troops celebrating St. Patrick's day in their camps about Falmouth.*



MAP 8. THIRD PERIOD.

The Federal cavalry had crossed the river about 2200 strong, with supplies for four days and orders to rout or destroy an enemy about half as numerous as itself. About twelve hours later it returned; it had advanced but about two

and one-half miles (to R. Dean's Shop), or less than one-fourth of the distance to the enemy's camp (Culpeper Court-House), and had done him no serious injury.

Averell says in his report:

The principal result achieved by this expedition has been that our cavalry has been brought to feel their superiority in battle; they have learned the value of discipline and the use of their arms. At the first view I must confess that two regiments [4th N. Y., 4th Pa.] wavered, but they did not lose their senses, and a few energetic remarks brought them to a sense of their duty. After that the feeling became stronger throughout the day that it was our fight, and the maneuvers were performed with a precision which the enemy did not fail to observe.

Averell's claim that the action elevated the morale of his command was undoubtedly well founded.* But it was not for this that he had been given 3000 troopers and four days' rations and ordered across the Rappahannock. He was to rout or destroy the enemy. As it was, the gain of his force in morale was probably offset by that of the enemy. For Fitzhugh Lee and his command felt that it was they and not the Federals who carried off the honors of the day. And it could hardly have been otherwise, unless they had been driven to their camp and captured or at least run out of it. The fight seems to have demonstrated that the Federal regiments were at least well drilled and disciplined as the Confederate, but that Averell had not the aggressiveness essential to the effective command of cavalry. His plan of action was based upon what he expected the enemy to do, rather than upon what he himself was ordered or determined to do. When he met the enemy, instead of proceeding to attack him, he took up a position and awaited his attack. This he did three times. In his third position neither side attacked, and he decided to withdraw. He did not make a single general attack.

To attain his object, he would have been justified in sacri-

^{*}New York Times, March 22, 1863.

^{*&}quot;The cavalry are in good spirits over their affair. . . . The enemy are not inclined to talk about it, and no slurs or insinuations come from their pickets" (New York Herald, March 20). "Rebel officers who have since met our own under the flag of truce seem to be very sore about the affair, and express astonishment at the splendid fighting of our cavalry. Fully one third of our wounded show marks of the saber, so close was the contest. The effect of the fight upon the tone of our entire army has been admirable" (New York Tribune, March 21).

ficing half of his command. How much of a loss did he incur? According to his own report, fifty-six in killed and wounded, and twenty-two in captured and missing. Lee claims to have captured twenty-nine. Accepting the latter number, we have a total of eighty-five, which is less than four per cent. of the force with which he crossed the river. Although on the offensive, he suffered less absolutely and proportionately than the enemy. Fitzhugh Lee gives his killed and wounded as ninety-nine, and his loss by capture as thirty-four. Averell claims to have captured forty-seven. Accepting the latter number, we have for Lee's total loss 146, or more than eleven per cent of his force

Averell's order depriving his subordinates of all initiative appears to have been caused by injudicious aggression on the part of Duffiè and other officers, which would show that the Federal officers were deficient in instruction and discipline. While Averell erred from excess of caution. Fitzhugh Lee may be criticised for excess of daring. His attacks were practically all directed against the enemy's front. This was just what Averell expected and wanted. Had Lee known Averell's tactical temperament as well as Averell knew his, or knowing it, taken advantage of it to make proper reconnaisances and execute flanking and turning movements, he might have struck Averell a disastrous blow. As it was, he did not strike an effective one. His every attack was followed, or might have been, by an advance of his adversary. It is hardly unjust to Lee or to Averell to say that Averell gave Lee a victory by retiring when he should not have done so.

The result of the contest was communicated to R. E. Lee by the following dispatches:

"Headquarters, Two miles from Kelley's Ford, "March 17, 1863, 7 p. m.

General R. E. Lee, Richmond, Va.:

"Enemy is retiring. We are after him. His dead men and horses strew the roads.

J. E. B. STUART, Major-General. "Headquarters, Culpeper, March 18, 1863. "General R. E. Lee, Richmond, Va.:

"I telegraphed you last night enemy had retired (to) north bank of Rappaharinock. From the best information it was Averell's division, 3,000 in the saddle. Pork and hard bread packed in boxes. He was very badly hurt, and left a hospital on this side. It was undoubtedly intended as a great expedition, but, thanks to the superior conduct of General Fitzhugh Lee and his noble brigade, it has failed.

"J. E. B. STUART."*

The following congratulatory orders were issued from Stuart's and Fitzhugh Lee's headquarters:

Stuart

"The series of fierce contests in which Brig. Gen. Fitz Lee's brigade was engaged on the 17th instant, with the enemy greatly superior in numbers, resulting in entire success to us, reflects the highest credit on its commander, its officers, and its men. On no occasion have I seen more instances of individual prowess—never such heroic firmness in the presence of danger the most appalling. The enemy, afraid to contest the palm as cavalry, preferred to rely upon his artillery, ensconcing his cavalry, dismounted, behind stone fences and other barriers, which alone saved him from capture or annihilation, thus converting the long-vaunted raid, which was 'to break the backbone of the rebellion' with preparations complete for an extensive expedition, into a feeble advance and a defensive operation."

Fitzhugh Lee

"The general commanding the brigade announces to his command his high gratification and proud appreciation of their heroic achievements upon the ever-memorable 17th instant. The enemy crossed the Rappahannock at Kelley's Ford with a force of certainly not less than 3,000 cavalry and a battery of artillery. Confident in numbers and equipments, it was their purpose to penetrate the interior, to destroy our railroads,

^{*}W. R., 108, p. 865. For similar dispatch see Richmond Enquirer, March 19, 1863.

^{*}W. R., 108, p. 686.

depredations upon the property of our peaceful citizens. Soldiers of the brigade! you have been taught a lesson, and the enemy have also profited. . . . Rebel cavalry have been taught that a determined rush upon the foe is the part of sound policy as it is the part of true courage. Rebel cavalry have taught an insolent enemy that, notwithstanding they may possess advantages of chosen position, superiority in numbers and weapons, they cannot overwhelm soldiers fighting for the holiest cause that ever nerved the arm of a freeman or fired the breast of a patriot. . . . You have repeatedly charged an enemy sheltered by stone fences and impassable ditches, in the face of his artillery and volleys from thousands of his carbines. You checked his triumphant advance, and caused a precipitate retreat, with the legacy of his dead and wounded. "

Averell's congratulatory order, if he issued one is not to be found. Colonel Duffié, whose brigade may be said to have decided the first encounter, congratulated his command as follows:

"Again we have met the enemy, and beaten him at all points. . . . the enemy appeared in force, with their boasted 4th Virginia Cavalry in advance at a charge, supported in their flank and rear by three full regiments. Here was an opportunity—so long sought for—of meeting the rebel cavalry in a fair and square fight in an open field.

"The Rhode Island squadron dashed at their column, broke the head of it in a moment, and sent the whole body back to their reserves, capturing nearly all the charging regiment with its commander. Again the enemy came thundering down, and these squadrons, nobly supported by the 6th Ohio, again showed the chivalrous sons of the 'sacred soil' that on an open field they were no match for the hated Yankees. Although they were five to our one, a third time the lines were formed and this time by their famous Stuart, who had determined, if possible, to retrieve his evil fortune. On they came. And then took place that terrible hand-to-hand fight—man to man—

horse to horse—saber to saber—which ended in their utter defeat and our most glorious victory. . . . "*

Butterfield wrote to the commanders of the I, XI, and XII Corps:

"I send, for your information, the following synopsis of Averell's affair:

"He sent in a large number of prisoners (about 80), including one major. Captain Moore, of General Hooker's staff, who accompanied him, reports it as a brilliant and splendid fight—the best cavalry fight of the war—lasting five hours, charging and recharging on both sides, our men using their sabers handsomely and with effect, driving the enemy three miles into cover of earthworks and heavy guns. Forces about equal."

Hooker's judgment of the affair was decidedly different. He remarked:

. . After the brigadier-general commanding had permitted one-third of his force to remain on the north bank of the Rappahannock, his passage of the river with the residue of his force appears to have been eminently soldierlike, and his dispositions for engaging and following the enemy, up to the time of his recrossing the river, were made with skill and judgment; and had he followed his instructions and persevered in his success, he could easily have routed the enemy, fallen upon his camp, and inflicted a severe blow upon him. The enemy was inferior to the command he had in hand in all respects. The reason assigned—that he heard cars arriving at Culpeper, and not knowing but that they might be bringing reenforcements to the enemy-is very unsatisfactory, and should have had no influence in determining the line of that officer's conduct. He was sent to perform a certain duty, and failed to accomplish it from imaginary apprehensions."*

That Averell's generalship on this occasion was satisfac-

^{*}Sabres and Spurs, by F. Denison, pp. 315, 316.

^{*}W. R., 39, p. 1073.

tory to the powers at Washington was forcibly, if not elegantly, attested by the following communication from Stanton:
"Major-General Hooker:

"I congratulate you upon the success of General Averell's expedition. It is good for the first lick. You have drawn the first blood, and I hope now soon to see 'the boys up and at them.' Give my compliments and thanks to Averell and his command."

How the conduct of Fitzhugh Lee's command was regarded by R. E. Lee is shown in the following letter of March 27 from Lee to Stuart:

"... I am much gratified at the noble conduct of the officers and men in repulsing a greatly superior force of the enemy, and compelling him to give up the attempt to strike a blow at our line of communication. The reports have been forwarded for the information of the Department, and as an evidence of the merit and gallantry of Fitz Lee and his brigade. I regret with you the loss of our noble dead, and concur in your commendations of the living."

So it would seem that everybody was satisfied except Hooker, and he was perhaps too severe in his criticism of Averell.†

WATERING, FEEDING, GROOMING, ETC.

By VETERINARIAN COLEMAN NOCKOLDS, FIRST CAVALRY.

THE subject which Veterinarian Vans Agnew, 5th Cavalry, so ably advocates, would seem extraordinary, in that it should be the chief aim of a mounted organization to make its horses "fit," in traveling condition, but for the naked truth, that this is impossible under the present system of feeding and handling.

The reason for such short sightedness on our part is hard to comprehend. I venture to say, that any six average horses that are fed three times a day and properly looked after, taken from the shafts of a peddler's wagon, the race track, a livery barn or any horses that are used by civilians to do their regular work every day, would beat to a finish a similar number of troop or government animals in an endurance race under like conditions.

Doctor Vans Agnew calls attention to several things in connection with the bad treatment received by army horses. It must be admitted that it is not long and forced marches, raids, or the constant irregular employment of our animals that can be given as an excuse for what is literally the starving of animals for so many hours at a time.

He points out the physiological reasons why a horse should be fed and watered at least three times each day, and shows that racing-men, farmers, merchants and others that depend upon the horse for their living have learned by experience, handed down by generations, that they can only obtain the best results by keeping their animals in condition.

To have our horses "fit," so as to be able to undertake the severe exertions that might become necessary on short notice, such as long and fast marches, carrying a heavy weight or drawing loads, ought to be the object of every man in the

[†]For a defense of Averell's generalship, see History of the 3d Pa. Cav., by Committee, pp. 216-225.

mounted branch of the service and others that have to do with animals.

The anatomical arrangement of the digestive system of the horse requires food that is wholesome, abundant, clean and sweet, the hours of feeding regular and the quantity given proportional.

As hay passes out of the stomach more rapidly, it should be given first, followed by the oats. To horses that are to be used soon after feeding, food of a concentrated kind should be given an hour or so before going out, and bulky food like hay withheld. The smallness of the stomach of the horse explains the golden rule of experience, "watering before feeding." At the same time it should be understood that the capacity of the stomach for water is exceptional. The proportion of water in the blood is 750 parts in 1,000, and an enormous quantity is required for the secretion of the gastric juice. The amount of this digestive fluid secreted daily necessary for digestive purposes, is 10 to 20 gallons, 99% of which is composed of water. During the twenty-four hours, the digestion demands for the formation of the gastric juice, double or treble as much water as there is blood in the whole body. Water passes with extreme rapidity from the stomach, being mostly absorbed by the structures on the internal surface, and passes directly into the blood, and not, as is commonly thought, into the intestines. This has been proved by repeated experiments. Substances dissolved in water taken in are found almost immediately after in the urine.

Always allow a horse to drink as much water as he wants, except immediately after feeding. In cases where the animal has been without water for an extra long period, caution should be used to see that the secretions that are necessary to the process of digestion are not checked. If the animal drinks more than is necessary for the digestive process, the excess is quickly got rid of by the kidneys, skin and lungs without doing much harm. If the animal is watered at or after feeding, digestive disturbances occur, perhaps followed by colic or even rupture of the stomach, either through the dilution of the gastric juice, which would stop its action, or because of the water crowding food that should be digested in the stomach into the

intestines undigested, where it acts as a foreign body. Even when a horse is heated it is better to let him drink a fair quantity, than to wait until the system has begun to flag, as the water is more quickly absorbed and the danger of a chill less.

It is quite safe to give one gallon of water to a horse immediately after the most violent exercise; another gallon may be given in five or six minutes, if the animal is very thirsty. Stinting a horse with water just before exercise, however see vere, affects his wind, by the blood becoming thickened, thus failing to circulate through the lungs with requisite freedom.

Severe exertion cannot be performed on a full stomach, because of the pressure on the diaphragm, which interferes with proper breathing, and the liability to cause digestive disturbances.

The fermentable nature of the food shows the necessity of due mastication, and proper mixture of saliva; the almost total inability of the horse to vomit points to the great danger to which the animal is exposed, should direct derangement of the stomach occur. A horse should not fast more than three hours at a time. After a prolonged abstinence, feeding in small quantities should be practiced. Three meals each day is the least number that a horse should have, four would be better. Bulk is necessary to intestinal digestion, but it must be introduced gradually. It is not possible to keep up condition and vigor on concentrated foods alone. Without roughness, the horse soon becomes tucked up and hollow in the flanks. One of the most common causes of sore backs on the march is the sudden alteration in the shape of the horse, not because he started out fat, or thin, but that he was not in condition.

A horse can live twenty-five days on water without food, but only eleven days with neither.

Grooming is almost as essential for the conditioning of horses, that are required to work, as feeding and watering; all being adjuncts that determine the degree of fitness of the animal.

Theoretically, the skin of a horse that has to do work of a kind that is likely to tax his utmost capabilities, has to be kept in a healthy state, to induce a like condition of the stomach, intestines and air passages, because the mucous membrane which lines these organs is a continuation of the skin, which it will be noticed becomes dull and unthrifty when the animal is suffering from any derangement of these organs. Return to health will be marked by an improvement in the appearance of the coat. Likewise, in most skin diseases the animal suffers from more or less digestive disturbances.

The skin of the horse is made up of two layers. The inner, or true skin, is tough and elastic, and is provided with nerves and blood vessels; in it exists a vast number of narrow, minute depressions, hair follicles, which secrete the hair that covers the body, and also an innumerable number of sweat-glands, and oil-glands, both of which possess minute tubes, which convey their respective secretions to the surface. The oil-glands are specially connected with the hair, as their tubes open either into the hair-follicles or close to the hairs. The action of the oil is to keep the skin and hair soft and pliable, and also to protect the skin from chill, that of the watery fluid is chiefly employed in carrying off by evaporation any excess of heat beyond the standard temperature of health.

The sweat of the horse is composed of a mixture of these two secretions, the former giving it a greasy character when he is fat, the preponderance of the latter a watery condition when he is thin or "drawn fine." The effect of friction applied to the skin is to draw to the surface an increased amount of blood, from which the glands in question obtain materials for forming their respective fluids.

The outer skin is secreted by the inner, or true skin, in the form of scales, more or less glued together, according to their distance from the surface. It lines the openings of the oil and sweat tubes, and surrounds each hair, its presence affords protection to the true skin and checks the outpouring of the oil and perspiration.

For this reason, horses that are turned out, without adequate clothing, should not be groomed, which process is intended to remove as much of the outer, or scraf-skin as possible, and by friction to stimulate the secretion of oil and perspiration.

The oil protects the skin from the injurious action of water, and also assists in maintaining the internal temperature

of the body, by rendering the coat bright and glossy, a condition which checks the radiation as well as the absorption of heat. A horse with a polished skin will not be as liable to be chilled by wet or cold, nor to be as unduly heated by the rays of the sun, as he would were his coat dull; this immunity, however, will only last for a few hours, or until the weather affects the hair. The skin acts as an assistant to the lungs in giving off carbonic acid gas, and thus helps to purify the blood. The coolness produced by the evaporation of perspiration materially aids in lowering the temperature of the body to its normal degree, when it has been raised beyond it by exercise.

The skin of a well groomed animal is in the best condition to play its allotted part, when the system is called upon to perform violent exercise, but not to resist the continued effect of cold during a period of inactivity. Animals not at work should be provided with an adequate supply of warm clothing, to make up for the loss of protection which is afforded by the scaly part of the outer skin, and by the increased amount of hair possessed in an ungroomed state.

The objects of grooming to carry out the theory are as follows: (1) To remove the scaly part of the skin in order to allow of ready exit to the fluids that flow from the oil and sweat glands. (2) To stimulate these glands by friction to increased activity. (3) To remove all superfluous hair, the presence of which would check evaporation from the skin. (4) To induce a healthy state to the skin itself, in which the mucous membranes of the digestive and respiratory organs will participate.

In practice the objects of grooming are to get rid of the dust, dirt, and the superficial layers of the skin which are being constantly cast off; to obtain a glossy coat, to stimulate the action of the skin by the process of friction, and to restore tone by massaging the muscular structures underlying the skin. Neglect grooming, and diseases of the skin are produced, particularly the parasitic forms caused by Pediculi and Acari. The brush should be used with and across the hair; it should have long bristles. The brushes used in the service, especially when they become a little worn, have too short and soft bristles to

make good grooming brushes. Brushing should be performed by at first applying the brush lightly, so as to avoid hurting the skin, and the pressure increased towards the finish of the stroke.

Few men are willing to expend the time and energy required in grooming a horse properly; elbow grease is usually lacking, and not enough weight thrown on the brush. It is generally applied in such a manner that superficial and not deep seated dirt is removed. This is markedly noticeable among horses belonging to mounted outfits. Horses that leave the lines apparently groomed to a finish, become covered with stuff resembling mud, immediately that they become a bit warmed up, instead of which, if the horses were properly cleaned, the sweat upon drying would leave their coats a natural color, with, perhaps, some of the hairs stuck together by the moisture. Of course, upon days when there is lots of dust flying it adheres to the sweaty coat.

The curry-comb, if used at all, except to clean the brush, should be applied very gently and neatly, and its sole use upon the animal should be to loosen hair which has become matted, with sweat and dirt, and to remove splashes of mud, thus preparing the way for the brush.

Thorough cleaning of the mane and tail are important points; the dirt shows here the quickest, for the exfoliation of epithelium is here the most rapid. The hair should be separated in small bunches, and the brush applied with considerable force, care being taken to commence at the ends and work upwards, as each kink or knot becomes opened out, then the hairs should be brushed from their roots downwards so as to remove all dandruff. Wetting the hair of the mane and tail will make it grow faster. If the mane does not hang down properly, it should be daily wetted and plaited, and small weights attached to it, or a paste made of flour and water and applied to it. Holding it in place by tying it down with a cloth will make the hair in a few days lie flat:

Legs should not be washed, unless it is certain they will be properly dried before the animal is left. Wetting the legs is the most common cause of cracked heels. If the horse comes in with muddy legs, it is better to leave them to dry before

cleaning. They should be put in bandages, if there is the slightest sign of moisture or dampness remaining. A brush with long, fairly stiff vegetable bristles, commonly called a "Dandy" brush, is the best for cleaning the mane, tail and legs.

Washing the feet is to be condemned, as it renders them soft and weak, on account of the capillary attraction exerted by the fibers of the horn on any liquid with which it may come in contact. It is noticeable that horses bred and reared in dry climates have strong feet. No benefit can be obtained from the use of hoof ointment or dressing, except, perhaps, to those parts of the crust from which the hard and varnished covering of the wall have been rasped away by an ignorant or careless shoeing-smith. The growth of the horn of the hoof can alone be hastened by stimulating the coronet which secretes it; any material applied to the hoof itself is useless. It is a well known fact that greasy applications, that have been applied to the hoof and discontinued, cause brittle feet. At each groothing the feet should be examined, cleaned, and picked. Feet should not be "stopped" by any of the preparations made for that purpose, as they induce thrush, and soften and weaken the sole. frog, and crust.

The eyes, nostrils, and anus should be cleaned with a sponge or damp cloth.

The sheath is a portion often neglected, with the result that the secretions of this part accumulate, and in many cases the penis cannot be protruded. In certain parts of the country, where screw-worms and maggots exist, they cause considerable suffering before they are noticed, because of neglect in this matter. Cleansing of the sheath and penis should be insisted upon at least once each month. Some animals require it to be done every two weeks. Plenty of warm water and soap are all that is required for this purpose.

Finishing touches should be given by smoothing the coat with a chamois-skin or cotton cloth, care being taken to rub it in the same direction that the hair lies, beginning at the head and finishing at the legs and tail.

Washing horses as a rule is injurious, and should not be tolerated; it is a plea for laziness. A horse whose coat is washed never possesses the glossy appearance of the well

groomed animal. It not only removes the natural oil from the skin, thereby rendering the coat dull, but also is liable to produce chill, which is the fruitful source of many equine ailments. A man that is lazy enough to make a practice of washing his horse is certainly not energetic enough to thoroughly dry him.

When a horse comes in from work with a wet skin, he should be attended to at once. A good plan is to walk him quietly about until the coat dries and breathing settles down, or that he be rubbed vigorously with wisps of straw, principally against and across the hair. The space between the iaws should be dried carefully with a cloth, and hand-rubbing used, beginning at the ears, which should be pulled gently between the fingers several times, and ending at the legs. When hand-rubbing, the stroke should be commenced by bringing the flat of the hand (each one to be used alternately) well under the belly, down the forehand, thigh, gaskin or between the forelegs, as the case may be; it should then be drawn upwards with steady pressure. As the hand is raised, the elbow should be turned out, and the under part of the forearm be brought into play against the grain of the coat. In doing this the weight of the body and strength of the arm must be utilized. Wisping down takes about ten minutes: the hand rubbing somewhat longer.

Hand rubbing the legs is perhaps the most beneficial of all grooming for stabled horses. It prevents stagnation of blood in the legs and feet; by the pressure exerted it promotes the absorption of any effusion that may be present about the back tendons and suspensory ligaments, and it helps to guard the horse against that form of inflammation known as "cracked heels" and "mud fever."

The mane may be evened and trimmed by pulling out the longest locks, a little at a time, having previously twisted them around the forefinger or a stick. A space of about an inch and a half broad should be cut out of the mane, just behind the ears, for the passage of the headstall or the bridle.

If it can be so managed, a horse ought not to be groomed when he is shedding, as it exposes the hair follicles to the air, and, consequently, the growth of the hair is stimulated by the cold, which will cause the new coat to be rougher than it ought to be, and more or less spoil its appearance.

Tapotement is a form of massage practiced in France and England. It is done with broad circular pads, each one of which is about nine inches in diameter and three inches thick. They are stuffed with horse hair and covered with leather and a strap is fastened at the back to admit the hand, placed flatwise. They are used one in each hand; and are brought down in quick succession, with the whole force of the arm, on the spot intended to be shampooed. The neck, shoulders and hindquarters are gone over on each side of the animal. The loins and flanks are avoided. The usual method is to strike first with the left hand, then with the right, and again with the left, and then to bring the pads sharply together so as to knock out the dust. Tapotement has an excellent effect on the coat, and is much relished by the horse, when he has bescome accustomed to it. If practiced it should be performed immediately after grooming.

The efficiency of the horse, that is used for military purposes, provided his conformation is suitable, depends upon two things: Condition or "fitness." and being in hand "mise en main."

The former is brought about by the use of an intelligent system of feeding, watering, grooming and exercise. The latter is accomplished by properly training the horse, so that he understands at once what is demanded of him; by a correct combination of the seat, hands, legs, body and voice; without condition, this cannot be exacted to its utmost utility.

The forage allowance of 12 pounds of grain and 14 pounds of hay is a very liberal one, quite sufficient for horses doing the hardest duty, and of course should be cut down when animals are not working or doing very light duty. Fed three times each day, horses would receive more benefit, and a great deal less would be wasted. A horse of 14 hands needs little more than half the quantity of food that a full sized horse gets.

The quality of grain and bulk forage is important. Oats to be good should be over a year old, plump, short, hard, about the same size, and rattle when poured into the manger; pressed with the nail there should remain no mark, and they should

chip when bitten rather than tear. The smell earthy and the taste slightly sweet. Oats is the grain par excellence for horses; the principles necessary for nutrition exist in the best balanced condition in them. The nitrogenous matters are double the fatty, and a larger amount is absorbed into the system than from any other grain, and it is most readily digested.

New oats are under a year old; they are indigestible, and when fed cause a horse to fall off in condition. The husk of new oats is shiny and bright, they are soft, and have an excessively earthy smell.

Old oats have lost the earthy smell, the husks are dull and dark, the flour feels dry in the mouth and is not easily moistened, taste bitter.

Kiln dried oats; oats that have been wet, or are too young to sell as good oats, are dried by artificial heat. These are dangerous to use.

They are told by their color, which is reddish, and the ends of their husks have a loose, shriveled appearance. They are often mixed with good oats to hide their smell, and bleached to destroy the color.

Foxy oats are those that have become damp and have fermented. They are red in color, have a peculiar smell and bitter taste. When fed they cause kidney troubles.

Funnigated oats are artificially colored by exposure to sulphuric acid gas to improve their appearance, get rid of red color and increase their value; when rubbed in the hand the smell of sulphur is detected.

Bad oats are those that have become damaged at harvest, musty, mixed with dirt, or damaged by insects, rain, frost, etc. They have a disagreeable smell, have a bad color and bitter taste. Fed they produce diabetes.

Oats should weigh 40 to 44 pounds per bushel, inferior kinds as low as 32 lbs.

Barley should be given crushed or parched. Good barley has a thin, clean and wrinkled husk, closely adherent to the kernel, and should weigh 53 to 58 pounds to the bushel. If not free from awns it irritates the intestines.

Corn will fatten a horse and improve the look of his coat,

but he will lose energy and sweat easily. It should be fed only to animals used for slow work.

Bran should have a pleasant odor, be of yellowish tint and free from dust and dirt. Sawdust and sand are the principal adulterations. By putting the bran into water the sand will fall to the bottom. When rubbed between the hands it should slightly whiten them from the flour which it contains. If a horse gets "foul" and "loose" from too much grain, nothing is better than to keep him on dry bran and grass for a few days.

Bran mashes should be fed at least weekly. The laxative effect is probably more due to the mechanical irritation than anything else.

To make a bran mash properly, a stable bucket should be scalded with boiling water; then put into it about three pounds of bran and one ounce of salt, and pour in as much boiling water as the bran will take up. The mash should be well covered, so as to keep in the steam, and should be left to stand for a quarter of an hour. Dry bran has a binding effect, a bran mash is a laxative.

Good hay has always a greenish color; it is hard and long, clean and fresh, and possesses a well-known aroma and sweet taste. It should be at least one year old; an infusion should be of a good brown tint, in the bale the flowers partly retain their color.

Hay of medium quality, if old, is tasteless, brittle and dusty; it may be short and fine, or coarse and dark in color, aroma altered, taste pungent.

Bad hay is mouldy, brittle, offensive smelling, innutritious and perhaps nearly black in color; many kinds of weeds are found in bad hay.

Good and medium hay may be fed, but never bad.

Oat and wheat hay is cut about the time the grain is just losing its milkiness, and the green stalk is beginning to turn in color; the object being to get as much flour in the grain as possible, without allowing the stalk to become hard and dry. Although not to be compared with good timothy hay for conditioning, yet necessity compels the use of this forage in some parts of the country, and it has most of the essentials of bulk food.

Horses should never be without a supply of salt, a piece of salt placed where they can get at it at all times is best; the allowance of ordinary salt is two ounces each day.

Grass in its natural state should not be used to supplant dry forage. There is no doubt a horse is very fond of it, and a little does no harm, but it does not possess the necessary nour-ishment for horses that perform active exercise. Green grass relaxes the bowels, and possesses diuretic properties. Work animals fed on grass at the expense of grain rations become "soft" and unfit for labor.



THE HORSE SUPPLY OF RUSSIA AND THEIR REMOUNT SYSTEM.

BY AN OFFICER APROAD.

THE NUMBER OF HORSES.

T is often claimed that Russia is the richest country in horses. This may be just in as far as quantity is concerned, as statistics for 1906 prove that there are more than 30,000,000 horses in both European and Asiatic Russia. But as regards quality there arise some doubts.

Statistics for 1905, dealing with 16 provinces of only European Russia, show that the general total of 9,154,697 is composed as follows:

Stallions	2,846,405
Mares	2,959,672
Total of working age, 5 years and over	
Foals	
Young horses (under 4 years)	1,747,297
4-year-olds	549,817

Of these 89.8 per cent are owned by the peasant communities, 8.8 per cent by landowners and inhabitants of the country, and 1.4 per cent by inhabitants of towns.

These figures show that about 500,000 horses attain the age of 5 in any one year and this should be quite sufficient to meet military requirements if they were all suitable; nevertheless, the Russian Government has great difficulty even in peace time in supplying remounts. Col. G. Gusev, President of the Remount District of the Astrahan district, states in his articles published in military papers in 1907 that great difficulty is experienced in obtaining the 10,000-11,000 young remounts required annually for the cavalry, artillery and frontier guards,

and points out how much more difficult it would be to provide the 570,000 horses required in case of general mobilization.

A study of the list of various types of horses bred in Russia, which is given below and for the detail of which I am indebted to a publication of Col. Gulkevich, which renders it easier to understand how the difficulty arises and will show that in spite of the exceptional advantages which the Empire enjoys for breeding purposes, well-regulated assistance and careful supervision are necessary to secure a regular supply of animals suited to meet military requirements.

For some years past the budget has shown an annual increase in the grants for state-aided studs, numerous regulations have been issued to maintain the supply of horses in the Cossack communities and legislation is being considered to provide fresh suitable ground for private breeders when they are ousted from their present lands by change of conditions or by termination of leases.

THE IMPERIAL STUDS, STALLION DEPOT AND PRIVATE STUDS.

There are six imperial studs for breeding stallions to supply forty stallion depots, distributed over different parts of the Empire, with sires, the main object being to improve the horses of the country and especially those of the Don region. Five of the Imperial studs are situated in central Russia and the sixth in Poland. The Kryenovski stud provides draught-horse sires; that at Streletz sires of Arab blood; the Derkulski and Lanovski (Poland) studs provide thoroughbred English sires, and those at Novo-Alexandrov and Limarev half-bred sires.

The stallion depots in European Russia have a total establishment of about 4,400 stallions. Taking the total number of horses in European Russia at about 22,000,000, the proportion works out to one government stallion to over 5.000 horses. This proportion is considered too small and is held to account for about 90 per cent of the horses being weak and not higher than fourteen and a half hands. It is intended, therefore, to form eight new depots and to double the strength of the four existing ones. This year a new depot is to be formed in Astrahan of 100 stallions (75 of these to be purchased abroad) and in

the Viatka province the number of stallions is being increased from 50 to 100.

In the Don country there are numerous private studs for breeding the "Don" horse. The principal ones are: Mihailikov, 800 brood mares and 3,000 horses; Bezuglov, 400 brood mares and 1,500 horses; Pachapaev, 700 brood mares and 3,000 horses; and those at Pichvanov, Shronov and Korokov.

Outside of the Don country there are many private studs at which thoroughbreds are reared, of which the best are found in Poland. The Don country and the Caucasus provide more than half of the horses for the army, from 7,000 to 8,000 a year.

As a rule the horses are brought up in complete liberty, running free on the steppes under the supervision of guards.

VARIOUS TYPES OF RUSSIAN HORSES.

- 1. The Peasant Horse.—The majority of the horses (18,-000,000) at least, can be classed as the peasant horses. The type varies according to local conditions of the area. It is descended from the steppe horse and is very small, its height being only from 13 to 14 hands. Many are still smaller and probably only about one-sixth of the total number exceed 14 hands. It is used for agriculture and subsists in summer by grazing, whilst in winter it is given straw and hay as fodder. It is not suited for military purposes except for occasional use as transport, and then only in local carts to which it is accustomed.
- 2. The Russian Cart-Horse (bitiug).—The "bitiug" is the result of cross-breeding between the peasant mares and Dutch or Danish sires, started at the time of Peter the Great in the province of Voronesh. Further crossing with the peasant horse has caused the term "bitiug" to be less distinctive and the genuine bitiug is said to have been almost extinct in 1882. The name is still applied to cart-horses of good bone, while the less satisfactory animals are simply termed "heavy cart horses." The principal centers of cart-horse breeding are still Voronesh and Tambov, the best known being the peasant stud at the village of Shukavka, in the former district. The deterioration of the heavy draft horse is attributed to the peasants lacking sufficient pasture ground as well as to the need of fresh blood.

The biting averages 15.3 to 16 hands and can draw 5,400 lbs. or more. They are sometimes as high as 16.2 1-2. The peasants of Voronesh, Tambov and Penza have lately been taking active measures to improve the breed of cart-horses, stallions of the Clydesiale type being preferred. The Government stud authorities are also paying particular attention to assisting them by providing suitable draught-horse sires to travel these districts.

- 3. The Orlov Trotter or Russian Race-Horse.—In Russia the trotter is considered a distinctive Russian product. The breed was originated by Count Orlov Chsmenski by crossing Arab sires with English, Dutch and Danish mares. The horses run from 15.1 to 16.3 hands in height and are spoken of as belonging to the light or heavy type, the former being used for racing. Among the Imperial studs trotters are chiefly bred at that of Hrenov in the Voronesh province. The private studs prefer the light trotter, as it commands the best price.
- 4. The Orlov & Rostopchin Saddle Horse.—The former is descended from carefully selected Arab and English sires, the latter from a crossing of Arab sires with English thoroughbred mares. Specially selected sires and mares of the Orlov stud are placed aside to preserve the distinctive breed, whilst the others are used for crossing with the Rostopchin breed and with horses of English blood bred in Russia. Measures such as entering them in a stud-book have been taken to preserve the Orlov-Rostopchin breed of saddle-horses. It is considered particularly good for reproducing the characteristics of its stock in cross-breeding.
- 5. The Don Horse.—The "old type" was the result of crossing of local breeds, that is of the Tartar and the Caucasian horse. Although only from 14 to 14.3 hands in height, these horses are noted for their endurance, but the "old type" is disappearing and the "new type" becoming prevalent owing to the continued crossing of the local horse with thoroughbred and halfbred stallions of Arab and English blood. The result is an increase in height, 14.3 to 16 hands, but, it is said, a possible diminution in staying power. Besides providing the horses for the Don Cossacks, the Don studs provide annually 3.000 to 4,000 remounts, and consequently form one of the principal sources for mounting the cavalry.

- 6. The Half-Bred Saddle Horse.—This horse is the result of crossing the local mare with Arab or English stallions. Height up to 16.2 1-2 hands. They are bred in the Imperial studs of Novo-Alandrov, Streletz and Limarev. Of the private studs those of the Don are the most developed for rearing half-bred horses, but others are scattered over the vast extent of New Russia, Little Russia and the southwestern and southern parts of Great Russia.
- 7. The Streletz Horse.—Bred in the Streletz Government stud. As a rule this stud does not produce pure-bred Arabs, but Arab blood greatly preponderates. The typical Streletz horse has been produced by the crossing of Arab or Eastern blood with English or Olov-Rostopchin blood. In appearance it resembles a three-fourths Arab and is a good stayer. Average height, 15 hands. Prevalent color, grey.
- 8. The Pure-Bred Arab.—The pure Arab is bred only at the Derkulski Imperial stud in the province of Harkov, also at some private studs to provide sires for their own cross-breeding purposes. Height, 14 to 15.1 hands. A Russian stud-book is kept for Arabs. They are liked for the little attention they need when young, and are considered, with a good selection of mares, to produce suitable cavalry and even draught horses.
- 9. The English Thoroughbred.—The sire of pure English blood is considered the best for stud purposes and they are now bred in the Imperial studs of Derkulski in the Harkov province and Lanovski in the Siedletz province, also in private studs for the purpose of crossing with other breeds, more especially in Poland and the South of Russia. Height, from 14.3 to 16.3.
- 10. The Jmudz Horse.—A distinctive type of small northern horse, strong and hardy; height from 13 to 14.3. Prevalent color, chestnut with white mane and tail. They originate from crossing the local horses with the "kleppe." (pony) of the Baltic provinces. They are practically confined to the province of Kovno and number about 100,000.
- 11. The Baltic or Esthonian Klepper (pony).—A hardy and strong animal bred in Esthonia and on the islands of Dago and Oesel. The breed is descended from the crossing of local mares with Arab sires brought by German crusaders to Germany

and thence to Livonia. Ordinary height, 13 to 13.2. Those that are higher than 14 hands are called double kleppers. The Government subsidizes two studs to preserve the breed, the principal one is on the island of Oesel, where there are about 16,000 horses. Some people advocate the use of this breed for the improvement of the peasant horse.

- 12. The Finnish Horse.—The Finnish horse is probably only a variety of the Baltic klepper, but is somewhat taller, 14 to 15.1 hands. It is used chiefly for agricultural work and for vehicles for hire in the towns. It is not fit for cavalry and consequently of little use to the army.
- 13. The Viatka Horse.—Average height, 13 hands. It is the result of crossing the local horse with the Baltic province pony in the time of Peter the Great and in later times with Finnish blood.
- 14. The Kirghiz Horse.—It js of Mongolian origin, having been brought to Siberia by the Kirghiz amongst the hordes of Chenghiz-Han. They are ugly, but inured to every hardship and in spite of being poorly fed will cover about 70 miles at a stretch at a rate of from five to ten miles an hour. They are not fully developed till 8 or 9 years, but it is common for them to be still working at 20. Height, 12.3 to 14 hands, occasionally 14.2 1-2. They are used chiefly as saddle horses by the Kirghiz themselves and by the Orenburg and Ural Cossacks. They are bred on the steppes of the Turgay, Orenburg, Akmolinsk, Semipalatinsk and Semirechensk provinces, and number about 7,000,000.
- 15. The Kalmyk Horse.—Is bred on the Kalmyk steppes to the northwest of the Caspian sea. Owing to the scarcity of forage it is not so numerous as the Kirghiz, but is strong, a good stayer and a good doer. Height, 14.1 to 15, a few of them reaching 15.3. The nomad Kalmyks in the province of Astrahan possess about 108,000 of these horses and they are used for both the regular and irregular cavalry.
- 16. The Bashkir-Horse.—Is bred in the northern part of the Orenburg province and in those of Ufa, Samara and Kazan; it is descended from the Kirghiz horse, but the type has slightly changed owing to local conditions. The highland bred Bashkir

averages 12.3 to 14, and the lowland Bashkir 13 to 14.1 1-2 hands. They are chiefly used for harness work, but the highland breed is very compact and makes an excellent pack animal.

17. The Ural Horse.—There are two varieties, the "Uralian Kirghiz" and the "Uralian Cossack." The former does not differ from the Kirghiz horse, but the latter has been improved by a more careful selection of sires, and averages in height from 13.2 to 14.2, a considerable number reaching 15 hands.

THE CAUCASUS.

- 1. The Nogay Horse.—A variety of the Caucasian breed possessed by the nomad tribes, numbering about 20,000 souls, along the shores of the Caspian sea. Average height, 14 hands. Bred for centuries free on the steppes, they are inured to extreme heat and cold and have remarkable staying power. The Karanonogay horse-breeders possess about 14,000 horses, but they are not much bought for the army, for it is said that with change of food they lose their good qualities, grow lazy and do not acclimatize well.
- 2. The Karabakh Horse.—A variety of the Caucasian horse; it resembles a well-bred Arabian or Persian horse and is probably a descendant from these crossed with the Turcoman horse. Height, 14 to 14.3 hands. There are few thoroughbred Karabakh horses left, but they are still bred at a few private studs in the province of Elisavetpol. They are delicate and not acclimatized easily, and are therefore only used for the army when crossed with English blood.
- 3. The Kabarda Horse.—A variety of the Caucasian horse. Height, 13 to 14 hands. Excellent for mountain work and a cross with English blood would probably produce a good cavalry horse. There are many other varieties of the Caucasian horse, but the Kabarda is the most distinctive and the most widely spread. They are bought for the Caucasian brigades of the frontier guards, for the mountain artillery and for the Kuban and Terek Cossacks.

TURKESTAN.

- 1. The Turcoman-Teke Horse.—Descends from the old Turcoman and Arabian stock and resembles more an English horse. Height, from 14.3 to 16 hands. It is bred in the Tedjent, Mrev and Ashabad districts of Trans-Caspia and is stabled and clothed from its youth, an unusual thing for Russian horses. It is an excellent mount over the sandy steppes, but is considered not to stand well sudden changes in temperature and is therefore bought only for the cavalry of the South.
- 2. The Turcoman-Yumud Horse.—Bred in small droves by the Yumud tribe in southwest Trans-Caspia. It more resembles the Arabian type. Height, from 14 to 15.1 hands. Prevalent color, grey.
- 3. The Karabair Horse.—The result of cross-breeding between Kirghiz mares and Turcoman and Arabian sires. It is bred in large numbers all along the southwestern part of the Syr-Daria, Samarkand and Buhara provinces and is mainly used locally. Height, 14.1 to 15 hands.
- 4. The Kirghiz Mountain Horse.—Bred in droves of about 3,000 near the center of the Syr-Daria river, along the slopes of the Alexander mountains, and in the province of Semirechia. Maximum height, 14.2 1-2 hands. Hardy and good stayers.

SIBERIA.

- 1. The Tomsk Horse.—The result of cross-breeding of Russian with Kirghiz and Kalmyk horses. Uglv, but strong. Height, 14.3 to 15.1, a few reaching 16 hands. It is useful for artillery, but unsuited for cavalry remounts.
- 2. The Urman Horse.—Bred in the forest district of Urmani in the province of Tomsk, it has a good bone and short legs and is probably the best Siberian draught horse.
- 3. The Charish Horse.—Bred by peasants along the Charish river, it is the result of crossing the Tomsk horse with the Kirghiz and Kalmyk breeds. Height, 13 to 14.3. There are many similar types in Siberia and they are used for mountain artillery, baggage animals, mounted infantry detachments

of volunteers and orderlies, and for the frontier guards of Siberia.

- 4. The Altay Highland Horse.—Bred in the droves of the nomadic Kalmyks, who roam the valleys of the Altay mountains. They are ugly and coarse, but strong and good stayers. Inured to hardship and scanty food, they can cover long distances in all weathers and are good for mountain artillery, baggage, mounted infantry. Average height, 14 hands.
- 5. The Amur Horse.—Bred by the Amur Cossacks in droves of 10 and 20, they resemble the Manchurian horse, whose descendants they probably are. Though their average height is only 13.2, they are capital little beasts for a journey. A Cossack officer, Lieut. Peshkov, rode his Amur horse "Serko," from the town of Blagoveschensk to St. Petersburg, a distance of 5,492 miles, in 193 days. "Serko," whose height is only 13 hands, arrived perfectly fit and sound and is now in the Imperial stables at Tsarskoe Selo.

THE PURCHASE OF REMOUNTS FOR THE CAVALRY.

The Government study do not supply remounts direct to the army, but they retain sufficient of the best stallions and brood mares that have attained the age of 3 to 4 years for their own stock and send the remainder of the stallions to the different depots all over the country at which private owners may on payment have their mares covered. The horses and mares not required as above are sold at public auction and many of these are acquired by the army for remounts. A Lieutenant-General holds the office of "Inspector of remounts and cavalry depots," and has a staff of two Major-Generals, an Adjutant and eleven Colonels, these last being the Presidents of the cavalry remount commissions for purchase of horses in the districts of Warsaw, Kiev, Elisaveigrad, Poltava. Harkov, Astrahan, Tambov, Westtern Don steppes, Eastern Don steppes, Nishne-Novgorod and northern Caucasus. The Commissions purchase the remounts at the latter end of September and beginning of October and may average the following prices:

Well bred saddle horses for cavalry and artillery\$	199.00
Well bred draught horses for artillery	
Trained steppe horses (saddle, draught and pack)	
Unbroken Don and Kalmyk horses for cavalry and ar-	
tillery	70.00
Unbroken Astrahan and steppe horses for cavalry and	
artillery	90.00

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In Siberia saddle and draught horses for artillery average \$105, and pack horses for mountain artillery, \$65.

As soon as purchased the horses are sent to the cavalry depots and are allotted to squadrons according to color.

THE CAVALRY DEPOT SYSTEM.

For each regiment of regular cavalry there is a cavalry depot squadron which in peace partially trains remounts for it, and in war forms a depot for the regiment in the field. These 65 squadrons are in peace kept quite separate from the active regiments, 61 of them are grouped into nine depot regiments, three into the Caucasian division and one (20th Finland Dragoons) is left independent.

The Guard depot regiment of ten squadrons is not brigaded, the remaining eight (one of nine squadrons and seven of six squadrons) are further grouped into three brigades.

In round figures each depot counts from 70 to 80 duty men, of whom about half are second term soldiers and half are young soldiers. The squadron has sixteen cadre horses and prepares annually about 90 young horses for work in the active regiment. In time of war each depot squadron expands by receiving reservists and requisitioned horses into two marching squadrons, each of five officers, 180 combatant and eleven noncombatant N. C. O.'s men and 211 horses. These marching squadrons are sent after their corresponding regiments as soon as possible. A dismounted detachment of 180 men remains, and subsequent drafts of reserve men and horses are sent to join as required. It will be seen that to form all these marching squadrons is no light undertaking, for they require at least 700 officers and 35,000 men from the reserve and about 30,000 requisitioned horses. The system as regards the preparation of young horses in peace time has been criticised as costly, the depot cavalry costing about \$1,200,000 a year.

Cossack cavalry depots do not exist in time of peace, but on mobilization there is formed for each group or "chain" of three regiments of the 1st, 2nd and 3d category, a depot squadron of three officers. 224 men and 222 horses, which makes good losses in men and horses in all the regiments affiliated to it. The number of squadrons formed would be eighteen Don, eleven Kuban, four Terek, one Astrahan, six Orenburg, three Siberian, one Semirechensk and two trans-Baikal and three Ural. A recent order directs that the depot squadrons or reserve sotnia will also form horse reserve detachments to receive and train horses to make good wastage in war.

THE TRAINING OF THE REMOUNT.

The depot squadrons receive the newly purchased remounts in the autumn of each year. Few of them have ever been stabled or had hard food, so they are much more backward in their development than would be English horses of a like age. The following autumn they are sent from the depot squadrons to the active regiments and are considered only partially trained but ready to begin lessons at the canter. The regiments continue the training in the manege during the long Russian winter, and they are first put into the ranks for the troop training when the regiments proceed to camp in May, that is at least eighteen months after their purchase. During their first summer's camp training they may still be excused long days and maneuvers. The period of a horse's service is considered to be about ten years, therefore, regiments are permitted to cast annually ten per cent. Horses are not kept after twelve years' service, and the cast horses may be purchased by officers of other arms for prices varying from \$10 to \$25.

The Officers' Cavalry School at St. Petersburg receives annually 6 Guard, 32 Line, 23 Cossack Cavalry officers. and 32 N. C. O.'s and men. The course is for two years, and the instruction in the training of horses has for the last ten years been confided to Mr. Fillis. It is unnecessary to allude to his system here, for it is fully explained in his book on horse training, which is to be procured in an English version. Mr. Fillis' engagement terminated in 1908, but no doubt his system will be continued. Lately a few Russian officers have been sent to attend the French Cavalry School at Saumur.

A CRITICISM OF OUR CAVALRY DRILL REGULATIONS.*

By H. H. SARGENT, MAJOR SECOND CAVALRY.

THE greatest fault of our "Cavalry Drill Regulations" is that no system, no principle, seems to have been followed in the writing of the commands. If we wish to deploy a squadron from line into a line of skirmishers the commands are, 1. As skirmishers, 2. On (such) troop, 3. MARCH. (684). But if, after deployment, we wish to assemble on a designated troop the commands are not, 1. Assemble, 2. On (such) troop, 3. MARCH, but are, 1. On (such) troop, 2. Assemble, 3. MARCH. (691).

If we wish to assemble the skirmishers by platoons the commands are, 1. Assemble by platoons, 2. MARCH. (565). But if by troops the commands are not, 1. Assemble by troops, 2. MARCH, but are, 1. Troops, 2. Assemble, 3. MARCH. (692). And if we wish to assemble the squadron the commands are not, 1. Assemble, 2. On (such) troop, 3. MARCH, but are, 1. On (such) troop, 2. Assemble, 3. MARCH. (691).

If we wish to form column of platoons from line of platoon columns the commands are, 1. Column of platoons, 2. First (or Fourth) troop, 3. Forward, 4. MARCH. (661). But if we wish to form column of fours from mass the commands are not, 1. Column of fours, 2. First (or Fourth) troop, 3. Forward, 4. MARCH, but are, 1. Column of fours on first (or fourth) troop, 2. MARCH. (637).

Or if we wish to form column of platoons from line of platoon columns in a direction parallel to the front of the line the commands are, 1. Column of platoons, 2. First (or Fourth) troop, 3. Forward, 4. Column right (or left), 5. MARCH.

(661). But if we wish to form column of fours from mass parallel to the front of the mass the commands are not, I. Column of fours, 2. First (or Fourth) troop, 3. Forward, 4. Column right (or left), 5. MARCH, but are, I. Column of fours, 2. First (or Fourth) troop, 3. Column right (or left), 4. MARCH. (637).

If the regiment is in line of platoon columns and we wish to march in column of platoons the commands are: 1. Column of Platoons, 2. First (or Fourth) troop, (first or third) squadron, 3. Forward, 4. MARCH. (798). But if the regiment is in line or column of masses and we wish to form column of fours the commands are not, 1. Column of fours, 2. First (or fourth) troop, First (or third) squadron. 3. Forward, 4. MARCH. but are, 1. Column of fours, 2. On first (or fourth) troop, first (or third) squadron, 3. MARCH. (784)

If the regiment is in line of masses and we wish to form line of fours the commands are, 1. Line of fours, 2. On (such) troop, (such) squadron, 3. MARCH. (787). But if the squadron is in mass and we wish to form line of fours the commands are not, 1. Line of fours, 2. On (such) troop, 3. MARCH, but are, 1. On (such) troop, 2. Line of fours.

3. MARCH. (629).

If in the squadron we wish to form line of platoon columns to the right from column of platoons the commands are. 1. Line of platoon columns to the right, 2. MARCH. (654). But if we wish to form them on the right the commands are not, 1. Line of platoon columns on the right, 2. MARCH, but are, 1. On right into line of platoon columns, 2. MARCH. (655). And if we wish to form them to the right front the commands are not, 1. Line of platoons columns right front, 2. MARCH, but are, 1: Right front into line of platoon columns, 2. MARCH. (656).

If the squadron is in column of fours and we wish to form mass to the right the commands are, 1. Mass to the right, 2. MARCH. (636) But if we wish to form mass on the right the commands are not, 1. Mass on the right.

2. MARCH, but are, 1. On right into mass, 2. MARCH. (634). Or if we wish to form mass to the right front the commands are not, 1. Mass right front, 2. MARCH, but are, 1. Right

^{*}Numbers in parenthesis refer to paragraphs of the Cavalry Drill Regulations, 1909.

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front into mass, 2. MARCH. (631). Or if we wish to form line of fours on the right from column of fours the commands are not, 1. Line of fours on the right, 2. MARCH, but are, 1. On right into line of fours, 2. MARCH. (635). Or if we wish to form platoon columns of fours on the right from column of fours the commands are not, 1. Platoon columns of fours on the right, 2. MARCH, but are, 1. On right into line, 2. Platoon columns of fours, 3. MARCH. (635).

Again, if we wish to form line of fours on the right from column of fours the commands are. I. On right into line of fours, 2. MARCH. (635). But if we wish to form platoon columns of fours on the right from columns of fours the commands are not, I. On right into line of platoon columns of fours, 2. MARCH, but are, I. On right into line, 2. Platoon columns of fours, 3. MARCH. (635).

If the squadron is in line of platoon columns and we wish to form echelon the commands are, 1. Form echelon, 2. On (such) troop, 3. MARCH. (668, 666 and 516). But if the squadron is in line of platoon columns and we wish to extend intervals the commands are not. 1. Extend intervals, 2. On (such) troop, 3. MARCH, but are, 1. On (such) troop, 2. Extend intervals, 3. MARCH. (659).

If the squadron is in mass and we wish to form column of fours perpendicular to the front of the mass the commands are, 1. Column of fours on first (or fourth) troop, 2. MARCH. (637). But if we wish to form column of fours parallel to the front of the mass the commands are not, 1. Column of fours on first (or fourth) troop, 2. Column right (or left), 3. MARCH, but are, 1. Column of fours, 2. First (or Fourth) troop, 3. Column right (or left), 4. MARCH. (637). Yes, we must remember to put in the "on" in one case and to omit it in the other, and we must also remember to leave the "forward" out in both cases, although the captain of the troop in question is himself required to put it in, and although we ourselves are required to put it in in an almost exactly similar case, namely, when we form column of platoons from line of platoon columns. (661). In passing, it should perhaps be remarked that the word "on" in the above command (637) is incorrectly used. The column of fours is not made on the

"first (or fourth) troop"; it is made, in part, by the "first (or fourth) troop. In the commands, 1. Line of fours, 2. On (such) troop, (such) squadron, 3. MARCH, (787), the "on" is correctly used.

In paragraphs 631 to 636, inclusive, the following commands are given for forming mass, line of fours, or platoon columns of fours, from column of fours.

- (1) 1. Right front into mass, 2. MARCH.
- (2) 1. Right front into line of fours, 2. MARCH.
- (3) 1. Right front into line, 2. Platoon columns of fours, 3. MARCH.
- (4) 1. On right into mass, 2. MARCH.
 - (5) 1. On right into line of fours, 2. MARCH.
- (6) 1. On right into line, 2. Platoon columns of fours, 3. MARCH.
 - (7) 1. Mass to the right, 2. MARCH.

Examining these seven commands we find that 1, 2, 4 and 5, follow one system, that 3 and 6 follow another system and that 7 follows still another system. If the first system mentioned had been followed throughout, the seven commands would have been written as follows:

- (1) 1. Right front into mass, 2. MARCH.
- (2) I. Right front into line of fours, 2. MARCH.
- (3) 1. Right front into line of platoon columns of fours, 2. MARCH.
 - (4) 1. On right into mass, 2. MARCH.
 - (5) 1. On right into line of fours, 2. MARCH.
- (6) 1. On right into line of platoon columns of fours.
 2. MARCH.
 - (7) 1. To the right into mass, 2. MARCH.

If the second system mentioned had been followed throughout, the seven commands would have been written as follows:

- (1) 1. Right front into, 2. Mass, 3. MARCH.
- (2) 1. Right front into, 2. Line of fours, 3. MARCH.
- (3) 1. Right front into line, 2. Platoon columns of fours, 3. MARCII.
 - (4) 1. On right into, 2. Mass, 3. MARCH.
 - (5) 1. On right into, 2. Line of fours, 3. MARCH.

(6) 1. On right into line, 2. Platoon columns of fours. 3. MARCH.

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(T) 1. To right into, 2. Mass, 3. MARCH.

If the third system mentioned had been followed throughout, the seven commands would have been written as follows:

- (1) 1. Mass to the right front, 2. MARCH.
- (2) 1. Line of fours to the right front, 2. MARCH.
- (3) 1. Line of platoon columns to the right front. 2. MARCH.
- (4) 1. Mass on the right, 2. MARCH.
- (5) 1. Line of fours on the right, 2. MARCH.
- (6) 1. Line of platoon columns on the right, 2. MARCH.
- (7) 1. Mass to the right, 2. MARCH.

From the Cavalry Drill Regulations many other examples might be cited showing a lack of system in the written commands, but the above are sufficient to illustrate the point we are attempting to make.

Referring again to the above mentioned seven commands, as written in the Drill Regulations, we would call attention to the fact that the first six tell us how to execute certain movements before telling us what the movements are that are to be executed. That is to say, they tell us the manner or method of doing a thing before telling us what is to be done. For instance, in number 1. (631), the thing to be done is expressed in the word "mass," and the manner of doing it in the words, "Right front into." But in number 7. (636), as written in the Drill Regulations, the thing to be done comes first and the manner of doing it secondly. This latter way of giving commands is the simplest and most logical; for a command which begins with a statement of what is to be done, and is followed by a statement of how to do it, is always more easily understood by the officers receiving it and more easily remembered by the officer giving it than if the reverse process is followed. Moreover, this is the natural process which we follow in the giving of orders in our every day experiences. We first tell the person what he is to do; then, if necessary, explain to him the manner of doing it. Knowing first what is to be done, he is then free to concentrate his entire mind on the method of doing it.

Now it may be laid down as a general principle, applicable to all commands consisting of three parts, or which should consist of three parts, that the first part should tell what is to be done and the second how to do it. If this principle were followed in our Drill Regulations, the commands would be more easily and quickly comprehended by the subordinate officers, and be-more easily remembered by the regimental or squadron commander, for he would not then have to burden his mind with remembering in each case which part of the command should be uttered first. If he wished to throw his command into lines of fours he would not have to hesitate and try to remember whether he should say, "I. Line of fours, 2. On (such) troop," or, 1. "On (such) troop, 2. Line of fours." He would begin with "Line of fours" in all cases, thus telling first what was to be done, and follow it with, "On (such) troop," thus telling secondly the method of doing it.

Again, in our Cavalry Drill Regulations the number of commands applicable to a single movement seem to be regulated in many cases by no system whatever. Take for instance, the commands, 1. Mass to the right, 2. MARCH. (636), and the commands 1. Column of platoons, 2. First troop, 3. Forward, 4. Column right, 5. MARCH. (661). In the first example we have two commands, the preparatory command and the command of execution. In this case the preparatory command not only tells us what to do, but how to do it. In the second example we have five commands, four preparatory commands and one command of execution. In this case the first command tells us what to do, and the next three commands how to do it. In other words, it takes but one command to tell the whole story in one case and three commands to tell half the story in the other case.

Compare also, 1. Column of fours on first troop, 2. MARCH. (637) with 1. Column of platoons, 2. First troop, 3. Forward, 4. MARCH. (661). Here we find in the first example two commands and in the second four, although both movements are similarly executed.

Properly written these commands would be as follows:

- (1) 1. Mass, 2. To the right, 3. MARCH. (See 636.)
- (2) 1. Column of platoons, 2. First troop column right, 3. MARCH. (See 661.)
- (3) 1. Column of fours, 2. First troop forward, 3. MARCH. (See 637.)
- (4) 1. Column of platoons, 2. First troop forward. 3. MARCH. (See 661.)

In the second of these four examples the "forward" is omitted after "first troop" because it is superfluous and entirely unnecessary. Even in the troop drill the "forward" is not at all necessary, for it is always included in the "column right." Indeed "column right" from a halt is a better command than "forward column right" because it is briefer and just as expressive.

Applying the principle here set forth, we find that the correct forms of the commands mentioned in this article would be as follows:

- 1. As skirmishers, 2. On (such) troop, 3. MARCH. (See 684).
 - 1. Assemble, 2. On (such) troop, 3. MARCH. (See 691).
 - 1. Assemble, 2. By platoons, 3. MARCH. (See 565).
 - 1. Assemble, 2. By troops, 3. MARCH. (See-692).
 - 1. Assemble, 2. On (such) troop; 3. MARCH. (See 691)
- 1. Column of platoons, 2. First (or Fourth) troop forward, 3. MARCH. (See 661).
- 1. Column of fours, 2. First (or Fourth) troop forward, 3. MARCH. (See 637).
- 1. Column of platoons, 2. First (or Fourth) troop column right) or left, 3. MARCH. (See 661).
- 1. Column of fours, 2. First (or Fourth) troop column right (or left), 3. MARCH. (See 637).
- 1. Column of platoons, 2. First (or Fourth), troop first (or third) squadron, forward, 3. MARCH. (See 798).
- 1. Column of fours, 2. First (or Fourth) troop, first (or third) squadron forward, 3. MARCH. (See 784).
- 1. Line of fours, 2. On (such) troop (such) squadron, 3. MARCH. (787).
 - 1. Line of fours, 2. On (such) troop, 3. MARCH. (See 629).

- 1. Line of platoon columns, 2. To the right (or left, 3. MARCH. (See 654).
 - 1. Line of platoon columns, 2. On the right (or left),
- 3. MARCH. (See 655).
- 1. Line of platoon columns, 2. Right (or left) front, 3. MARCH. (See 656).
 - r. Mass, 2. To the right (or left) 3. MARCH. (See 636).
- 1. Mass, 2. On the right (or left) 3. MARCH. (See 634).
 - 1. Mass, 2. Right (or left) front, 3. MARCH. (See 631).
- 1. Line of fours, 2. On the right (or left), 3. MARCH. (See 635).
- 1. Platoon columns of fours, 2. On the right (or left), 3. MARCH. (See 635),
- 1. Echelon, 2. On first (or such) troop, 3. MARCH. (See 668, 666 and 516).
- 1. Close intervals, 2. On second (or such) troop, 3. MARCH. (See 659).
- 1. Extend intervals, 2. On second (or such) troop, 3. MARCH. (See 659).

It may well be noted here that only two of the twentyfour corrected commands in the above list stand exactly as they are written in the "Cavalry Drill Regulations."

It may also be noted that in such commands as, 1. Mass. 2. To the right, 3. MARCH, and, 1. Mass. 2. On the right, 3. MARCH, there would be little or no probability of mistaking the "To" for "On," or the reverse, as there would be if the commands were written, 1. Mass to the right, 2. MARCH, and, 1. Mass on the right, 2. MARCH, for the reason that the squadron commander would most naturally pause after uttering the first command, "Mass," and to most naturally emphasize the "To" or "On" at the beginning of the second command, "To the right" or "On the right."

A number of other just criticisms could easily be made on our "Cavalry Drill Regulations," but it is believed that they would all be of small moment compared to the great fault herein pointed out.

HOW MAY THE EFFECTIVENESS OF THE ENLISTED MAN BE INCREASED?

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THERE can be but little doubt but that the importance of using every effort to increase the effectiveness of our enlisted personnel is a question which claims the attention of all the earnest officers of the military service, and has in the past, as it will in the future, create animated discussion as to the best methods by which this result may be attained.

There is some divergence in the opinions entertained as to the means of accomplishing the end in view, whereas the successful reconcilement and adoption of all suggestions that is best calculated to bring about the desired object is the aim of everybody, it matters not what minor differences of opinion may exist as to the most expedient manner of accomplishment.

It may be taken as an assumed fact that in a regular army the size of ours to the population—a maximum in time of peace of 100,000 men to an estimated 100,000,000 inhabitants—that each man should be an adept in all lines of his profession from the latest recruit to the commanding general—a picked man in every sense of the word in order to reach and maintain that degree of excellence that is essential to secure when opportunity offers the best results obtainable from such a comparatively small armed force.

It is of the greatest importance that each, man may be instructed and rendered proficient in his profession to the highest possible degree in every particular, provided that this army is to be converted into the most efficient fighting machine in the world—for nothing less than this goal should be the primacle of attainment which every military student must incessantly strive for, and to reach which no stone should be left unturned.

It is apparent that the brunt of the attack in the case of an invasion by a hostile foreign foe must be borne by our regular

armed forces; equally is it true that to it the nation looks for initial success in the event of a conflict being inaugurated by an invasion with our own forces of a foreign land.

That victory may crown the operations of the regular armed forces, it presumes that our fighting machine must possess in every detail the nicety of perfection and all measures that will conduce to this end should be carefully considered, and, if deemed feasible, practicable and beneficial, adopted in times of peace.

In our present military organization relating to enlisted men, there exist defects obvious to any officer of experience and observation, which are perfectly susceptible of remedy or of complete elimination; it is therefore highly desirable to adopt such new measures as would remedy or eliminate some of the present objectionable features of our military system, since this course would result in betterment to the army at large, to the government and increased effectiveness in the enlisted man must be a natural consequence.

A summary of the defects of the system noted, together with the suggested remedies proposed for adoption, by means of which it is believed a great improvement would result, will be presented for consideration and discussion in the following order:

- = 1. Change in the enlistment period.
- 2. Elimination of "double time" and shortening of time in which to retire.
 - 3. Marksmanship.
- 4. Detention and re-enlistment of experienced non-com-
 - 5. Abatement of avoidable diseases amongst enlisted men.
 - 6. Establishment of an Army Service Corps.
 - 7. Other proposed measures.

One of the serious defects now existing in the army is fairly traceable to the existing three year enlistment period, and a return to the former term of enlistment of five years would prove most beneficial to the service in many respects. In the first place, it is thought that just as many young men would enlist for a period of five as for three years—at least,

if not as many, then more energetic recruiting would result in obtaining all the men that were necessary; at present recruits are retained at depots for from six months to a year before they are despatched to their organizations; upon arrival at posts, they must (in the cavalry) be carefully trained in the rudiments of the mounted soldier, which requires from six weeks to two months' time; after this they are taken up for duty with their troops; they are then further drilled, instructed and trained to perfect them, with the result that by the time they enter the last year of their enlistment period, they have become fairly well conversant with the duties of the cavalryman, and the government—after great expense and time spent upon them—has the benefit of their knowledge and service for about a year; after this, the majority of these men take their discharge and disappear, whereupon the same old routine must be followed with other recruits.

Suppose that the enlistment period were five instead of three years, the government would be deriving the benefit of these men's training about the time that they are now discharged, and for two years thereafter; this would be a much more equitable return for the money that has been invested in and expended upon them than at present. Moreover, instead of having a new set of green men constantly in organizations, and a continual school of primary instruction always in progress, there would result a much better body of trained men, who having fully grasped and been taught all the rudimentary principles of the soldier, could receive in the last years of their enlistment period more comprehensive inculcation in the various roles of the cavalrymen, which it is now an utter impossibility, for lack of time, to impart to them.

Such a course, carefuly pursued and carried to completion. would inevitably result in a far more efficient, better trained force than the one now in existence. Besides, men who have served for five years with an organization in which they have been well treated and have formed many pleasant associations and friendships, are far more liable to acquire a taste for soldiering and apt to re-enlist in their old troops, than is now the almost universal practice of taking their discharges and going elsewhere to re-enlist, if, in fact, they ever do rejoin the army.

There is another potent factor which is influential in causing men to forsake their old organizations, and this is due to the "double time" given for service beyond the continental limits of the United States, or as it is commonly called, "foreign service." No doubt the intention of the government in instituting this feature was for the betterment of the condition of the individual soldier, as well as to recompense him for severe service in tropical lands, or in countries where he was more or less isolated. There can be no gainsaying the fact that its effect on the other hand has been pernicious, so far as the interests of the government itself and the service is concerned, since it leads to a destruction of that esprit de corps which to a marked degree formerly obtained as to a man's troop and regiment; there is a resultant deterioration in the benefit that the government receives from such service—the troop or regiment no longer appeals to the man-with him it becomes simply a question of serving in lands where he may "get in his double time" in any organization that may be serving there.

In consequence men are continually transferring from one organization to another so as to accomplish this end. It is believed that a far better method would be to abolish altogether the double time feature in tropical lands or beyond the continental limits of the United States proper; in lieu thereof the period in which to retire might well be shortened to twenty years instead of thirty, the incentive then would be taken away to leave one's old organization in self-interest. Officers are not given the benefit of double time towards retirement, when serving beyond the continental limits of the United States,—and so far as enlisted men are concerned, this feature could be well climinated so as to place them on the same status, especially if the number of years in which to retire were shortened to twenty instead of thirty years, without any material damage to the interests of the enlisted men.

Such men when retired after twenty years' service could be transferred to a Reserve Corps of Veterans, wherein their services might be required in case of necessity until they had served in the corps for a period of ten years, after which they should be completely exempt from further military service ex-

cept in so far as they might volunteer in time of war or great need.

The next question to be considered is that of marksmanship. It must be perfectly evident that the prime requisite of an effective soldier in time of war above every other consideration must be his ability as a marksman. The fundamental principles in the firing regulations state that in action "ritle fire must always be the most important factor, and by it will the results of battles be most frequently decided." Moreover, that marksmanship is paramount to every other consideration is shown by the next quotation from this same authority: "As the effect of rifle fire depends upon the number of hits made, not upon the number of shots fired, it follows that troops untrained in fire discipline, fire direction and fire control, and who can not hit what they shoot at, are of little value on the field of battle." In other words, the marksman on the battlefield will hereafter prove the most important factor with his rifle, and men not marksmen or poor marksmen will be practically useless as soldiers,-such has been the record of history in the past,--such will be all the more the case in future conflicts, owing to improved arms and ammunition now in use and the long range of weapons. To the deadly accuracy of the American marksman in the wars of the past, more than to any other one qualification, may well be attributed the very existence of the Republic and its ultimate success in all foreign wars. It was the marksmanship of the American minute man that almost proved disastrous to the entire British army at Bunker Hill; it was the steadiness of the American rifleman and his deadly aim that enabled General Jackson at the Battle of New Orleans with 6,000 raw and untrained troops to meet and defeat 12,000 Veterans of the Beninsular War,—the best soldiers of the British army,—with the unparalleled mortality on the British side of 700 killed and 1,400 wounded, whereas the American loss was the insignificant number of 8 killed and 13 wounded. A more recent instance of the deadliness of well directed fire in our own history is to he found in the destruction of the entire Spanish fleet under Admiral Cervera off the coast of Cuba by our own fleet without any loss whatever, this during the recent Spanish War. Similar instances in our own wars as well as those of

other nations may be quoted to prove that well aimed fire is the most potent factor in deciding all battles. It may therefore be safely assumed that there is no duty more important than in the development of the soldier into a fine marksman; it may be granted equally true that where, after fair trial and careful instruction, a man fails to reach a certain fixed standard in marksmanship, that so far as his shooting ability is concerned, his value as a soldier is nil and that there should be some way devised whereby the government may dispense further with his services in order that a new man may occupy his place who may develop into a fair marksman, thereby repaying the government to a small degree for the amount of money expended in furnishing ammunition and apparatus for target practice, and giving the additional assurance that in case of war the country will receive a good account of his service rendered in the shape of effective execution upon the enemy with his rifle.

It will be found to be the experience that there are a number of men, possibly 20 to 25 per cent. per troop, who, notwithstanding all the instruction, practice and time spent upon them each year, finish the regular course of target firing annually with little or no visible sign of improvement, making third class or at the best just over the line in second class.

When consideration is given to the fact that none of these men fire at distances greater than 600 yards, and that they make less than 40 per cent in hits on targets at that maximum distance under the conditions of rifle firing that exist on the range, it can be readily imagined that the effectiveness of such men's fire in the heat of battle and when working under great excitement would be next to nothing, therefore the damage inflicted by them upon the enemy might just as well be totally disregarded, for it then resolves itself into a case of the number of shots fired and not of the number of hits made, which, we have already seen, is stated upon the authority of our firing regulations to be of little or no value.

True, some of these poorer shots improve as time passes, but the greater portion of them never reach that point which is commensurate with the time and expense devoted to them, and which might more profitably be expended in making another man a better shot than in endeavoring to improve some of these

hopeless ones. Many of these men are sober, industrious and thoroughly good in all other respects, but they are simply impossible so far as shooting, which is the one qualification in which the valuable soldier should excel.

What is the remedy? It is believed that if after a year's careful instruction and practice it becomes evident that a soldier is not able to habitually make at least 50 per cent of hits in the marksman's course that it may be assumed that his shooting ability is below the standard of what would be required to be effective in battle, for which he receives his training, and that the best interests of the government would be subserved if such a man were honorably discharged for the convenience of the government, thus enabling another man to fill this man's place who may be developed into a good shot. Or such men, if good soldiers in all other respects, might be transferred to other branches of the service, where individual excellence in marksmanship is not a prime requisite and qualification; such men might render excellent service in the Coast Artillery, where all firing becomes a matter of science and mathematics rather than depending upon individual ability and effort. Or in case of the establishment of an Army Service Corps, many of these men would render an excellent account of themselves in some capacity as teamsters, laborers, mechanics, etc., hereinafter provided for. In any event, it appears manifest that their services should be dispensed with in the line: that their retention after fair trial and expense has shown their poor qualification as riflemen is not in the interests of the public service.

Whatever method might be adopted for removing them from the line, they should be eliminated without delay, and new men enlisted to take their places for the reasons heretofore given. Were this course decided upon and executed, it could not fail to result in a much higher standard of marksmanship in the army and the perfecting and development of better shots, which time must now be employed in the endeavor to improve poor shots.

That the effectiveness of the line as a fighting force would receive a tremendous impetus through the adoption of this method, and that an army of marksmen would result as a natural consequence can scarcely be questioned.

Another undesirable characteristic of the present military system is the inability to retain our old and experienced non-commissioned officers in our organizations. With a complement of old and thoroughly efficient non-commissioned officers in a troop, it is a relatively easy proposition to train men and to instruct them in all the requirements of discipline and their various duties. It would be far better to have an entire troop of recruits to be initiated into their different duties, provided the non-commissioned officers were thoroughly competent and efficient, than if the troops consisted of part old and hew men to be instructed if in the latter case the non-commissioned officers, to be the instructors, were men of little service or experience and in consequence thereof of mediocre ability.

One of the most prolific sources for producing in a short space of time good soldiers out of otherwise raw material will be found to consist in having a body of non-commissioned officers proficient and well conversant with their respective duties in the troop. These men will be competent to instruct others as well as to impress recruits with their own-soldierly qualities. The ability and good example of excellent non-commissioned officers must necessarily exercise a powerful influence upon the minds of new recruits in the proper direction, which is certain to have a directly opposite effect if these same non-commissioned officers are inefficient, inexperienced or indifferent.

Where recruits have before their eyes constantly an object lesson of model soldiers, who have thoroughly grasped all the intricacies of their duties, men who are soldierly in carriage and in deportment, good shots, with long careers in the military service and of excellent character, it is certain that these same recruits must of necessity be impressed and almost unconsciously moulded into the same type of soldiers. Many of these recruits will gradually acquire under such able instruction and example many of the same characteristics which have been influential in rendering these same non-commissioned officers themselves so valuable.

The task of training new recruits in the military service with energetic officers in command of them and a body of capable and efficient non-commissioned officers for their immediate instructors will be so facilitated that in a relatively short

time these same men under instruction will be found to be very good soldiers so far as relates to discipline and organization. All the instruction and the impressions which these recruits receive may be assumed to be proper ones, and with careful attention to duty, they will acquire under these particularly favorable conditions ideas of discipline and training which it might require months for them to obtain under inferior instructors. and even then their first ideas would not have received the same groundwork that would be the case under the above assumed conditions. It is not difficult to decide which class of men could be expected to give the best account of themselves in action, whether those whose early military training has been received from officers and non-commissioned officers, competent in all respects, or those who are indifferently instructed by noncommissioned officers, more or less ignorant, of little or no experience or service, incapable and inefficient in the exact sense of these words.

It must be self-evident that non-commissioned officers, old in service and proficient in their various duties as soldiers, must ever prove an invaluable asset to an organization, from the possession of which results of incalculable value may be expected; their continued presence in an organization is bound to exert a powerful force and will be displayed in the better morale of the privates of the troop,

The question is, how may such non-commissioned officers be retained with deganizations so that this high standard may not only be reached but indefinitely maintained? It is a well known fact that very few of the old type of sergeants and corporals are to be found in the army to-day as was formerly the case,—men who used to make soldiering a lifetime occupation. It is no uncommon thing nowadays to find corporals, yes, and even sergeants, serving in their first enlistment period, which in times bygone would have been unparalleled and unheard of:

There has been a marked increase in the pay of non-commissioned officers over that which they formerly received. This is certainly a step in the right direction, but there still does not exist that rate of pay which it is natural to expect when the services of experienced and tried men, such as the non-commissioned officers under discussion, are to be obtained and--what is superlatively important—retained in organizations.

Under the existing law privates who re-enlist within three months of the time of their discharge are given a bounty by the government in the shape of a bonus of three months' pay for re-enlisting, but the same rule does not obtain for non-commissioned officers,—they receive no bounty, no bonus,—nothing except that they may be continued upon re-enlistment in the grades which they hold at discharge. If the bonus to privates is an incentive for them to re-enlist and the government thereby retains the services of trained soldiers in preference to green and raw recruits,—if such a policy is best for the interests of the public service, then further application of the system and the law in extending to non-commissioned officers who re-enlist in their same organizations within three months after discharge would be all the better in securing the continued service of these men in an organization who are pre-eminently more valuable than the privates. Such a law would produce excellent results, and many more of these non-commissioned officers would reenlist when discharged than is now the case. The law should be amended so as to grant three months' bonus of pay in their grades to non-commissioned officers upon discharge who re-enlist in the organizations with which they have been serving. As a result, many of these valuable men will be found year by year in the same organization, with much added benefit to the public service on account of the continued presence of these experienced men, to say nothing of the better discipline and esprit de corps that will be aroused and retained therein indefinitely.

The pay of non-commissioned officers should be increased commensurate with their positions and such as the increased value of their knowledge and continued presence in a troop and resulting benefits to the same might naturally expect. There should be a marked distinction between the pay of a private and of the lowest grade of non-commissioned officers, provided the most intelligent, experienced and desirable class of men is to be constantly kept with an organization. The additional cost of the maintenance of the army would be relatively small when compared to the vast benefits that would accrue to the government in possessing throughout the army a high standard of

non-commissioned officers, who would grow better year by year as their service increased, and who would far more than return the insignificant difference of pay involved by rendering material assistance in raising the entire force of enlisted men to a higher plane of discipline and effectiveness. The advisability of adopting other measures, such as separate messes for noncommissioned officers, establishing and maintaining noncommissioned officers' clubs, higher and more complete instruction and education for non-commissioned officers, etc., would no doubt tend to raise the standard of the non-commissioned officers and incidentally the effectiveness of the enlisted man himself, but one of the main defects that should be remedied at once is to provide better pay for the non-commissioned officer, so as to make it a financial object for them to re-enlist in their old organizations. It is not within the province of this essay to branch out further in the consideration of this subject, nor is there time or space to do so,—sufficient to state that all measures which will accomplish the end of keeping constantly in a troop a body of experienced and capable non-commissioned officers, who will remain with the organization throughout their military service, should receive the heartiest support of all the legislators and military students.

There is a question which concerns the effectiveness of the enlisted personnel to a marked degree, and this is the matter of avoidable diseases prevalent in the army. These diseases seem to be increasing from year to year in alarming proportions. Reference is had to the existence of venereal diseases amongst enlisted men. It is by no means an infrequent occurrence to find four or five men in each organization constantly in the hospital for months at a time with some venereal trouble resulting in these men receiving absolutely no military instruction during this period owing to their own misconduct, to say nothing of their share of the labor in the troop being performed by their comrades.

Considering the service alone, these men might as well not be in it for all the benefit or service they render during this sickness, often running into months. All of this time they are charges upon the government while incidentally they receive full pay for which they return nothing in kind or otherwise. Some-

times good men may be unfortunate in contracting venereal diseases, and after one experience seldom do so again or at such long intervals as not to seriously affect their value as soldiers. In other cases men will recover from one attack of this nature only to immediately incur another one, or the disease may assume such chronic form that the greater part of these men's service is spent in the hospital or with their names upon the sick book.

Even presuming that these men were otherwise good soldiers, of what value are they to the service if they are seldom available for duty and instruction? The time that should be employed in perfecting them as soldiers is used in endeavoring to cure them of diseases that have been contracted by them, not in the line of duty, but through their own misconduct and the unbridled exercise of passion and licentiousness.

When compared with numbers of other excellent soldiers who are always present for duty, except when sick from disease contracted in line of duty,—men who attend strictly to their business and are available at all times for instruction and training,—it does not require an astute mind to determine which class of men best serve the government or which are the most valuable and effective in the ranks. This condition, in no ways exaggerated, must be met with constantly in actual service, the only departure or variation that deserves notice being the case where more men are temporarily disabled and absent sick from their organizations than the number given owing to their own utter disregard of the care of their health.

What should be done to change this status and to rectify it?

There is nothing that the average soldier so dislikes as the loss of his pay, whether it be from forfeiture on account of sentence of court-martial or for other causes, such as stoppages, etc. It would therefore not only be feasible but the natural and logical conclusion that while men are sick in hospital or carried on sick report with venereal diseases that during the continuance and existence of the said diseases, their pay should be stopped against them since they give nothing in return for this pay, they perform no labor or duty,—in fact they are an additional expense to the authorities and the army since they

must have medical care and medicines furnished them and hospital attendance as well while the disease is in progress; consequently that the pay of such men should be stopped does not seem to be an unreasonable exaction and the only hardship that would be worked upon any one would be upon the man himself at fault; that the government should continue to reimburse men for services never rendered by them while sick through their own misconduct is preposterous upon the face of it, and is placing a premium upon the contraction of such diseases whereas there should be a penalty imposed instead.

Under present conditions, there is no distinction between the soldier of good habits and of exemplary conduct and the immoral soldier indifferent to his own health or the interests of the government, so far as pay is involved; one may be faithful in the performance of duty throughout the month, the other constantly sick with venereal diseases and unavailable for duty on that account during same period, but each is paid the same sum of money, provided their years of service are equal.

With the rule established that their pay will be stopped during the prevalence of such avoidable disease, a large diminution of such cases is bound to occur. In the case of those men who are so careless of their own health and welfare as to habitually contract this variety of disease at frequent intervals, a more drastic course should be adopted; they should be discharged without honor and without expense to the government, since their condition has arisen and is being continued through their own vicious habits and lewdness, and such service can in no sense be deemed honorable, nor can the retention of such men be desirable or beneficial; the government had far better dispense with such men altogether with a view to replacing them with other men of more moral or at least more careful habits.

For the purpose of detection of this kind of disease, there should be frequent sanitary inspections at posts, which all men (unless married and having their wives with them) should be required to attend,—this in order that the existence of venereal disease can not be concealed by men cognizant of the penalties that might be imposed.

All men should be fully acquainted with and encouraged to take all precautionary measures and disinfectants to prevent venereal diseases, and for this purpose should be rendered every assistance by the medical authorities that may be available, without any disgrace or penalty being attached thereto; it is only where the disease has been contracted, it matters not the reason so long as it is the result of misconduct, that the above course should be followed. That the result would be beneficial upon the service at large may be assumed without argument, and increased individual effectiveness must necessarily follow.

There is another phase of this subject which has already received the support and recommendation of the military authorities many times previously, and measures have been introduced in a number of congresses the purpose of which was to establish in the service an Army Service Corps, but which have so far failed of enactment into law.

Often times recruits are induced to join the army through wrong representation of recruiting sergeants and other members of a recruiting party.—many attractive pictures are depicted to them of delightful service in the tropics,—the tales of travel and adventure appeal to some, to others the fine appearance in full dress uniforms which are always displayed at recruiting stations in the shape of highly colored posters; whatever may be the inducement, it is certain that the brightest possible side of the soldier's life is described to all applicants, seldom, if ever, are they acquainted with the days of almost endless fatigue that must be performed by them with pick and shovel, nor are they informed about cutting grass, or hauling stone or running saw mills or rock crushers or sprinkling lawns or countless other similar tasks that the soldier is called upon to perform in never ending fatigue; again, mechanics, carpenters, painters, clerks, engineers and men of innumerable other trades and occupations frequently to escape leading this selfsame life, inspired by the glamour of the soldier's career, enlist in the army,-of course giving their regular occupations upon demand by the recruiting sergeant,—only to discover upon arriving at their posts in a short time that their dream of soldier life has been a delusion and a snare, for soon they find themselves once more at work at their old trades, as carpenters. painters, mechanics, laborers, etc., on extra or special duty, for which skilled labor they are remunerated as highly as 50c per day in addition to their regular pay; these men enlisted to become soldiers and many times to escape their regular occupation, which has become distasteful or monotonous to them,they actually find that they learn little of the real life of the soldier, they are in fact once more back at the very occupation they sought to avoid by entering the army, only at a wage possibly one-quarter what they would receive for similar work in civil life. Naturally, many men become disgusted with their impressions of the soldier's life, for their own existence is that of continual labor upon tasks utterly at variance with the vocation of the soldier and entirely different from what they supposed or were led to believe would be the case. Is it then surprising if many men change their views in the course of their service and never re-enlist at the expiration of their terms, if they do not desert before their enlistment period has expired? Still, nothing can be done in the military service under present conditions to alleviate this class of necessary work, the seat of the trouble is to be found in the system in vogue.

There is always a vast amount of labor that must of necessity be performed in each garrison which is as diversified as it is possible to conceive; there seems to be an incessant amount of manual and skilled labor that must be carried on,-the services of mechanics, clerks, carpenters and artisans of different trades must be had for the public benefit and since no other source of supply is available or furnished by the government, the contingency is met by requisitioning the services from the ranks of the enlisted men and assuredly those men are selected for the positions who are known to have possessed the necessary knowledge and training before their entry into the army, .--if a good carpenter is desired or the services of a mechanic, then the descriptive lists are consulted and Brown, occupation, carpenter, and Jones, occupation, stationary engineer, are promptly detailed in the interests of the public service. It makes absolutely no difference whether Brown or Jones entered the army through distaste for their respective trades, or because they wished to become soldiers; so long as the services of a

carpenter or a stationary engineer are required, they must occupy those positions, irrespective of the desires of the men themselves, and the better workmen they may be at their regular trades, the longer are they apt to be detailed on extra or special duty and the less are the chances that they will ever acquire the fundamentals of the soldier,—possibly they may be sent out to drill at infrequent intervals or railroaded through the essentials of target practice with the resultant effect that they only delay the instruction of better trained men by ignorance arising through no fault of their own but owing to the fact that they possess technical knowledge obtained in civil life which many of their comrades—(much to their own benefit so far as acquiring knowledge of the soldier's duties is concerned) -do not possess; in target practice, there invariably seems to be a wild rush to get these men back to their "legitimate work" and in consequence what ideas they obtain in this important part of the soldier's education in the short time allotted and available for the purpose, is rapidly jammed into them, and the classification attained by such men in the regular season,—as a general rule poor,—is ample proof that it has not been worth the time and money spent upon them in this highly unsatisfactory method of instruction.

The system is radically wrong, for where a man enlists to become a soldier, he should not be expected to master this occupation and be a jack of all trades in addition,—one thing or the other must inevitably suffer in consequence, and,—since the work of garrisons is a routine that must necessarily be carried out day by day.—the result is that the soldier's duty and instruction is subordinated and displaced by other kinds of work entirely foreign to that of the soldier. A soldier should never be required to perform any class of labor that is at variance with or not the logical consequence of his own vocation; the hours and days that are now passed in manual labor or work of a civil technical character should be totally eliminated, performed by others particularly enrolled for the purpose, while the soldier in place thereof should be constantly instructed and trained in his legitimate and proper duties and more thoroughly perfected; that ample subjects might be discovered without undue effort to which the time now otherwise

spent might be profitably devoted can be assumed without comment; the result would be that the soldier's knowledge and ability would be intensified to a vast degree and with marked improvement. There being at all times, say 90 per cent men present for duty and available for drills and instruction, the knowledge imparted would be universal and generally beneficial to the entire organization, instead of the existing case where possibly not 50 per cent of the men are constantly available for the enlisted man's legitimate training as a soldier.

The effect upon the entire enlisted force must be manifestly obvious,—if this class of labor was not required of the soldier, if his duties were limited to and his time were devoted solely to those measures whose only object was to perfect enlisted men as soldiers, the standard of fighting efficiency of the army would be greatly increased as a natural sequence of such a course.

To accomplish and effectuate this idea, it will be necessary to reform the entire present system; while this would result in additional expense to the Nation, the increased effectiveness of its armed forces would far more than recompense the government for all the added cost involved.

By suitable legislation, an Army Service Corps could be easily established in which men could be regularly enlisted as laborers, clerks, mechanics, teamsters, packers and artisans of every description whose services would be required for all kinds of work dissimilar to or not intimately associated with the soldier's work itself, at wages proportioned to the class of labor performed; these men being regularly enlisted would be subject to all the rules and articles of war and discipline as well the same as other soldiers, a vast improvement over the existing status of affairs, where many civilians are employed upon these duties over whom no control or disciplinary measures may be employed beyond a discharge from the service, and in the case of civil service employees, this involves such a roundabout use of "red tape" that it is often impracticable.

By the inauguration of such a system, all duties of a non-military or civil character would gradually be eliminated from the soldier's life and the same performed by the Army Service Corps as the latter were gradually increased, for it would be

impossible to at once initiate a corps adequate to execute all the necessary amount of work, this for the reason that our legislators would by degrees have to be convinced of the expediency. and the benefits to the army at large of such a corps before they would willingly grant the numbers sufficient to carry on all the necessary work at garrisons. Congress could, however, in the course of time be brought to a gradual realization of the efficiency of the system, and thereby induced to constantly increase the numbers of the corps until it would be possible to have all forms of work, not strictly the soldier's own, carried on at posts and in the field as well, by this corps of men, specially fitted for their respective duties; the services of all soldiers of the line thus being no longer required for this class of unmilitary work, they could be dispensed with from time to time, and could then be returned permanently to their respective organizations and the entire time devoted by their officers to familiarizing all of their men in the purely technical duties of the line soldier, much to the contentment of the individuals and the improvement in the knowledge possessed by each man.

A detachment sufficiently large enough to accommodate the needs of a force both in garrison and in the field could be assigned to each post under such regulations as the Chief of the Corps might determine, with the approval of the War Department, as being self-sufficient and expedient, to the infinite betterment and improvement of all classes of work required. As the system were more carefully developed, it might transpire that it would be best for the interests of the service or of the men themselves to transfer some men from the line to the service corps or vice versa; men found to be unsuited for the purposes of the line after trial, but otherwise possessing the necessary qualifications for the performance of duties in the service corps could advantageously be transferred to it; on the other hand, those who it developed were better adapted to the duties of the line soldier could be profitably transferred to that arm of the service for which they were best suited, in each case the efficiency resulting from the adoption of the method could well be conceived to be far in excess of that in existence under the present regime.

It can be imagined that such a corps of enlisted specialists, entitled under the law to all the benefits and emoluments of the enlisted man, would render of themselves a far better account than a class of men who as civilians are simply a throng of camp followers,—that, being subject to the influences of discipline and military control not possible under other conditions, marked excellency must necessarily follow the working of such an organization; moreover, these men themselves being soldiers, would, in time of war, be inspired to perform deeds of heroism and valor upon the field of battle when occasion furnished the opportunity, which ordinarily appeals in no sense to the average civilian in similar situations.

The niceties of the system and the benefits that might accrue are almost endless in number, and a complete discussion of them all would involve in itself a most comprehensive article for which there is neither the time nor space to consider in this discussion.

Sufficient to state that the manifold advantages that would result throughout the entire army by the adoption and institution of such a corps must be apparent without further amplification of the subject,—it must also be admitted as an incontrovertible fact that the standard of enlisted efficiency would be so elevated as to make the adoption of and the establishment of the proposed corps imperative at the earliest practicable date.

There are countless other subjects that might appropriately receive consideration in a discussion of this character but which can not be dealt with in an essay as limited in scope as this one must be; a superficial glance or reference will be devoted to such measures as have occurred to mind, this sufficing to fix the attention upon them without extensive particularization.

Without any degree of improvement in effectiveness being possible, certain requisites must be assumed as existing throughout all organizations, as a matter of course; such, for example, as enthusiasm in the soldier's vocation, contentment, satisfaction with the life, maintenance of a thoroughly good mess, for the great Napoleon himself has most aptly remarked that "An army moves upon its belly"; competent, efficient and energetic officers, who treat all men squarely; who, being themselves reasonable men and enforcing proper discipline, must neverthe-

less, not expect nor require the same line of conduct of their men that they would from a class of Sunday school scholars; soldiers must have ample facilities for their diversion and amusement, also reasonable time in which to divert themselves without infringing upon hours devoted to their proper instruction.

The measures to which it was stated above reference would be had, and which are some of the other measures that would undoubtedly assist in obtaining increased effectiveness in the case of the enlisted man, if adopted, may be briefly enumerated as follows:-the enactment of the Extra Officers' Bill, which would result in a full or nearly full complement of officers being present at all times with each organization; the re-establishment of the Canteen feature of the Post Exchange. where all men could satisfy their desires for beer and light wines, under proper regulations and official supervision, resulting in a marked decrease in the prevalent amount of drunkenness in the army and the number of summary court cases; in addition, the profits of this institution could be employed in the betterment of the men's mess and improvement of their condition in ways not now provided for by the government; the enforcement of more respect by the government for its uniform throughout the land, particularly in the great cities, where frequently theaters and other public institutions refuse admittance to soldiers when in uniform; and with a view to enforcing proper respect for its uniform, the government should purchase at a reasonable figure the uniforms of all men about to be discharged, who do not intend to re-enlist, supplying them in lieu thereof suitable civilian clothing,—the government should also relentlessly prosecute thereafter all persons having or wearing any article of uniform, under the statute already in force (except the organized militia), and upon conviction impose the maximum penalty of the law for its violation. The case of pawn brokers openly displaying articles of the uniform for sale, the practice of disreputable people wearing articles of the uniform and often times bringing disgrace upon it or even the possession of articles of the uniform by people not in the military service would cease; the increased respect for the uniform that would result from the enactment and enforcement of appropriate legislation that would effect the above would become noticeable in a short space of time; there should also be a diminution in the number of summary court cases tried annually, in place thereof forms of labor and extra work specially devised for such cases should be initiated, which, by the way, the soldier should be required to perform in his spare time,—under no circumstances should time devoted to instruction purposes be used for this kind of work.

There should be more publicity upon the subject of desertion and a gradual moulding of the public sentiment, by the enactment of appropriate legislation, into a stern realization of the heinousness of the crime, such for example as the enactment of a law making it a felony and misdemeanor for any one to knowingly harbor, protect or conceal a deserter, or who aids or abers the harboring, protecting or concealing of a deserter at any time, and providing for severe punishment therefor upon conviction; the enactment of a law requiring the communication of immediate information by every one cognizant of or suspicious of the presence of a suspected deserter in the neighborhood, and providing for appropriate and suitable punishment upon conviction for failure of any one to give this timely information to the nearest military or civil authorities. The imposition of more severe penalties and the forfeiture of more rights in the case of deserters should receive attention of the authorities; the institution and enforcement of more rigorous hunting down of deserters should be carefully carried out, so long as people at large are immune from punishment for harboring, concealing and protecting deserters from the army or of failing to give prompt information of their suspected presence in the vicinity to those in authority, just that long will it be impossible to effect any large decrease in the number of yearly desertions from the service, but where by Federal enactments citizens were apt to become criminally liable through doing or through failing to do the things set forth in the law, the number of apprehensions would constantly multiply as the number of desertions would diminish to a large degree; the reward for the apprehension of deserters should be paid to that person through whose efforts the arrest of the deserter was effected, whether that person were an officer of the law or a citizen.

In conclusion it may be stated that the foregoing are measures the adoption of which in whole or in part could not fail to result in a distinct increase in the effectiveness of the enlisted man; they are steps that should be taken towards perfecting the fighting efficiency of the small armed force of the Nation, and which would raise the standard of excellence to that point that it certainly should possess if the Country's future great battles are to be fought and won through its instrumentality.



AN INSTRUCTIVE PRACTICE MARCH.

By EDWARD DAVIS, CAPTAIN THIRTEENTH CAVALRY.

DURING recent years of regular practice marching all of us have observed that there are at least two distinct ways of conducting these marches. One way is to get out on the best road available and plod along that road in dull monotony from breakfast time to camping hour going through the motions of marching in sore and silent harmony with the classical "forty miles a day on beans and hay"—with the forty miles reduced one half. The marching command is restricted entirely in its mental uplift and ginger to the stimulating idea that they "are on the way."

Another method of conducting a practice march is to give the command a mental as well as a physical objective and to so arrange, publish and execute the plan of the march that its "live-wire" element will be felt by every man from front to rear, day in and day out. Where there are neighboring garrisons the 21-day march can be made most instructive by providing for joint maneuvers as a part of the march even though the exercises be of the simplest kind and few in number. Let the command know that it is actually on a man-hunt and that it is in turn being hunted by soldiers who know their business and the ordinary 21-day march is magically transformed. Advance, rear and flank guards, outposts and scouting parties know that they are liable to be seen first and fired upon or captured. A spirit of competition and of organizational pride is sure to be aroused and the execution of every movement will be electrified by a keen desire to outwit and defeat the "enemy."

Such a march could be had, for instance, by directing the bulk of the Fort Leavenworth command to the westward and the Fort Riley command to the eastward, on their 21-day

marches. The opportunity is at once presented for typical cavalry screens, wide-fronted outpost lines, cavalry raids, etc., all being operated and controlled by wireless telegraphy, the buzzer. heliograph and other signal facilities. There need be no destructive deployments or marches across ten-thousand-dollar wheat fields or potato patches, as a great deal of valuable instruction can be gained without actual contact of main bodies. Umpires add to the benefit of such exercises, but they are not absolutely essential and a great deal of instructive work can be done without them.

During the recent occupation of Cuba, it was the writer's good fortune to take part in a practice march which ordinarily would have been the dullest of the dull, but which was saved from such a condition by application of the garrison co-operation method and the expenditure of a few blank cartridges. From my notes, made on that occasion. I have drawn the following account of the march as made by the Second Squadron, 11th Cavalry, Battery "F," 3rd Field Artillery and Company "I" Signal Corps:

The detachment was assumed to be a "Brown Raiding Force" and the whole march as far as practicable was made under war conditions built up around the assumptions found in the following memorandum which is quoted. (The speed required of such a raiding force was not attempted in general, but was in some particular instances.)

Detachment United States Troops of Camp Columbia, Cuba. Camp Columbia, Cuba, November 3, 1908.

Memorandum of Instruction.

GENERAL PROBLEM FOR 21-DAY FIELD OPERATION.

General Situation.

Two foreign armies, Brown and Blue respectively, are contesting for control of Cuba, the Brown army having its base near Havana, the Blue army having landed near Cienfuegos. The sea-power of the opposing forces has been temporarily neutralized by conflicts almost totally destructive. The inhabitants of the country are an almost negligible factor in the contest, but, if anything, they are inclined to be more friendly toward the Blues.

The Blue army, advancing toward Havana, has halted to await re-enforcements and is occupying a strongly intrenched position along the road LA UNION-ALACRANES in Matanzas Province, The Blues have practically no mounted force and their operations have been characterized by extreme

deliberation. The Brown commander has a well balanced force of all arms and has energetically prepared for a dashing offense.

Special Situation.

Brown.

The Brown commander being ready for a general and rapid advance of his whole force, determines to send a raiding column around the Blues' right flank, with a view to diverting the Blues' attention, as well as to destroy or capture any accumulated supplies. He sends this telegram:

Telegram.

Headquarters, Brown Army.

Cerro, 2d November, 1908, 7:30 a. m.

Major General Black,

Commanding First Division, Buena Vista.

In accordance with instructions conveyed to you on Friday, 30th October, you will detach the troops selected by you, viz.: Second Squadron, 11th Cavalry, Battery "F," 3d Field Artillery, and Co. "I." Sig. Corps (Wireless Section), placing the detachment under command of Major H. W. Wheeler, 11th Cavalry, with instructions to march at 7 o'clock morning of 3d November. Give Major Wheeler the confidential information now in your possession and say to him that his detachment will be expected to get well around the Blue right, even as far as Cardenas. The supplies reported as accumulated at Matanzas and Cardenas are undoubtedly intended for the enemy's use. These supplies will be seized and held for our own use. It is reported that Blue detachments already have been sent out to these places to take over and guard the supplies. A few Blue scouts are reported to have been in Guines today. With above exceptions. Blue force still inactive and occupying the line LA Union-Alacranes. Instruct Major Wheeler to attack vigorously any Blue detachments he may encounter. Our general advance on the morning of the 6th instant will be Major Wheeler's best defense. If our general advance is temporarily checked, he can easily take safe position on "Pan de Matanzas" or in "Las Piedras de Camarioca." He will keep in communication with these headquarters by wireless telegraph. His movements after conclusion of the raid will be directed from these headquarters, depending upon results.

Transportation and baggage of the detachment will be in strict accordance with memorandum heretofore issued with regard to this movement.

By command of Lieutenant-General White.

BROWN.

Major General, Chief of Staff.

Note:-The Brown detachment, consisting of 2d Squadron, 11th Cavalry, Battery "F," 3d Field Artillery, and Co. "I," Signal Corps, will be ready to march from Camp Columbia at 7 o'clock a. m., 3d November, 1908, when the problem will begin.

By order of Major Wheeler.

110.

EDWARD DAVIS, (Signed) 1st Lieus, and Sqdn. Adjt. 11th Cav., Adjutant.

In order to give this problem a more realistic touch, the Commanding Officers at Guines, Matanzas and Cardenas were each sent a copy of the "situations," and were asked to take the part of detachments of the "Blue force" with the suggestion that they attack and annoy our column wherever and whenever practicable. This they did and the entire command was much benefited by thus coming in contact with a tangible opposition. Beginning with the second day of the march, there was always the probability of "running into the enemy." After the two sharp brushes with the "enemy" on the day of our entry into Matanzas, marching eastward, there was not a day when advance and rear guard and flanking forces were not conducted with war time alertness and thoroughness. The maneuver in approaching Cardenas and the seizure of the Rio Canimar Ferry especially were very pretty pieces of work, as will appear more fully in the following pages. (The co-operation of the commanding officers above mentioned was very much appreciated, their response to my suggestion making my own march and, doubtless their own operations vastly more beneficial than any ordinary practice march could possibly be.)

The detachment began its march under the following field order, which is quoted:

DETACHMENT. UNITED STATES TROOPS OF CAMP COLUMBIA. CUBA.

("Brown Raiding Force.")

FIELD ORDERS No. 1. Troops.

- (a) Advance Guard. Captain Tompkins. Troop "G," 11th Cavalry. Det. Co. "I," Sig. Corps.
- (b) Main body in order of march: Det. Co. "I," Sig. Corps. Troop "H." 11th Cavalry. Troop "E." 11th Cavalry. Troop "F." 11th Cavalry, less 1 plat. Co. "I," Sig. Corps. Batty. "F," 3d F. A.

Camp Columbia, Cuba, 2d Nov., '08, 11 a. m.

1. The enemy is reported to be in position along the line La Union Alacranes in Matanzas Province. His scouts are reported to be in Guines now, and larger detachments of his force may be moving toward Matanzas and Cardenas.

Our army will begin a general advance on the 6th inst.

2. This "raiding detachment" will march tomorrow, 3d November, to Cuatro Caminos, with a view to reconnoitering toward Guines and La Catalina, preparatory to a rapid march around the enemy's flank.

- (c) Rear Guard.
 Lieut. Jackson.
 1 plat. Troop "F," 11th
 Cavalry.
- 3. The detachment will march at 7 a. m. in the following order, viz.: (1) Second Squadron, 11th Cavalry; (2) Co. "I," Sig. Corps; (3) Wagon train, Co. "I," Sig. Corps; (4) Battery "F," 3d Field Artillery; (5) Wagon train, Battery "F," 3d F. A.; (6) Wagon train, 2d Squadron, 11th Cavalry. This order will be maintained until the detachment passes outside of our lines at Luyano, when the order of troops in the margin will be assumed—and
 - (a) The advance guard will move out on the road to SAN FRANCISCO DE PAULA.
 - (b) The main body will follow the advance guard at about 1,500 yards.
 - (c) The rear guard will follow the main body at distance to be indicated.
- 4. The trains will maintain throughout the day the order of march indicated in paragraph 3.
- 5. The Detachment Commander will be at the head of the column until we reach Luyano, after passing which point he will be found with the leading element of the main body.

By order of Major Wheeler.

(Signed) EDWARD DAVIS, 1st Lieut. and Sqdn. Adjt. 11th Cavalry, Adjutant.

Copies to C. O's. Troop "E," "F," "G" and "H," 11th Cavalry, Battery

Copies to C. O's. Troop "E," "F," "G" and "H," 11th Cavalry, Battery "F," 3d Field Artillery, Co. "I," Signal Corps, and to officers of all organizations and staff.

The field order above quoted represents the order of troops maintained generally throughout the march (advance and rear guard changing daily), the only alteration being to put the battery in front of the signal corps company when contact with the enemy was expected. Other field orders were published as circumstances required, but in most instances the officers of the command were assembled on the evening or morning preceding the particular "problem" to be attempted, and the situations were amounced and directions issued verbally, everything being explained by reference to the map.*

NOVEMBER 3.

The 'command left Camp Columbia at 7 o'clock a. m. marching to Cuatro Caminos via Havana, Luyano and the Guines calzada. Men, animals and transportation were generally in very fit condition and the road was good. During most of the march a heavy rain poured down and the camp that night was one of the wettest possible. Rather than enjoy the doubtful comfort of attempted sleep on a bed of black mud mixed with water and weeds, most of the men remained up all night sitting around camp fires cracking jokes, telling stories and drying off. By reveille, most of the men were dry and quite ready for the second day's rain.

The Signal Corps company had cut in an instrument on the Cuban Government Telegraph lines, in an effort to secure news of the presidential election in the United States, hoping thus to bring added good cheer into camp. Due to rains, leakage was heavy and messages difficult to handle. However, at 9 p. m. and again at 5 a. m. definite news was received.

NOVEMBER 4.

Our march this day had not far progressed when we were overtaken by a driving rain. Though not as acceptable as sunshine, this rain caused little discomfort. About 10 o'clock the advance scouts learned from some of the inhabitants of the country that a force of infantry—about one company—had been seen in the vicinity that morning. It was thought that this must be a tletachment of the "Blue force" (from Guines) and preparations were made to sweep them aside. The advance guard located the "enemy" some 1000 yards in advance—but before dispositions could be made, the lieutenant commanding the "Blue company" withdrew from his excellent position to the calzada. It seems that he had had no opportunity to supply himself with blank cartridges and felt that the problem could scarcely continue longer with any benefit to either side—since his presence had been discovered and, owing to lack of cartridges, he was unable to effect a real simulation of an opposing force. While the first contact with the "Blues" was unsatisfactory to both sides, through lack of a few blank cartridges by which the "enemy" could have indicated his presence

^{*}Owing to its size and cost of reproduction, it is impracticable to publish the map accompanying this article although a valuable adjunct to it.

in war fashion, the incident was of value to the command because it roused them to a sense that the "enemy" was at least not entirely mythical.

The remainder of this day passed without incident, the command making camp at La Catalina.

NOVEMBER 5.

This day was spent in camp at La Catalina. An outpost problem was solved, the assumption being that we had made camp at Catalina after driving an irregular force of the "enemy" toward the east. Cavalry patrols and outposts were maintained while the battery was used to cover the important approaches to our camp.

That we were getting in touch with the "enemy" became apparent late in the day, when one of our officers who had gone to the railroad station on business intercepted a telegram sent to the local station master by a station master at a small town between Catalina and Matanzas. This telegram inquired pointedly as to whether we would march the next day, as to our numbers, etc. Our "information division" dissected this telegram and its relevant circumstances, made certain deductions as to the designs and the identity of its originators and then filled the confiding station master with "fake" information and strict injunctions "not to tell anybody." On our part, we learned from the intercepted telegram that our movements were being watched by a body of troops operating near Empalme, a small railroad town about 12 miles southwest of Matanzas. Later that night two more telegrams of the same sort were landed in the net of the information division. They confirmed our suspicions that we were being watched by the "enemy" and that his rendezvous was doubtless somewhere in the triangle Empalme-Aguacate-Finca Ingles. The station master was again "stuffed" with bogus information as to our movements, in the confident belief that he would unconsciously make himself our ally.

In the morning of this day, having learned that the road to Madruga was in very bad condition, a patrol, consisting of one cavalry officer and several privates, accompanied by the wagon wireless outfit, was sent in that direction. Their orders

were to go to the neighborhood of Madruga by one road and return by another, making road reports en route by wireless. This was done, and the wireless road reports began to come in at 11:40 a. m., continuing until we had been advised of the patrol's observations all the way to the river at Madruga. By 1 o'clock in the afternoon we knew what kind of a road to expect the following day; just which portions were calzada, which were graded and which were deep mud, etc., etc. The wagon wireless outfit had accompanied the patrol, had been set up quickly when necessary and had sent back to the camp wireless station over 260 words containing the information which they had been sent out to get. In addition to handling this scout information, our headquarters wireless station had maintained communication with Camp Columbia all day.

At night, the officers of the command were assembled, the information gathered during the day was discussed and the field order for the next day's advance was published.

NOVEMBER 6.

The calzada leading eastward from Catalina stretched its smooth, white surface for several miles before it led us to the unfinished road among the hills and then down into the valley beyond where the road became a black and bottomless bog. Here wagons and guns and caissons would neither slide, roll nor float, though ultimately, by employing one or all of these methods, together with considerable lifting and dragging and some verbal encouragement, all carriages were ferried through the mud sea. The cavalry horses floundered through the thick mire, sometimes sinking to their bellies. One section of the wagon train had to be taken off the road and up a steep elevation, along the crest of which a hard trail was found. By means of this hill trail and by passing through the yard and fields of a neighboring "ingenio" these wagons were finally brought around to the passable portion of the main road. Just outside of Madruga the approach to the viaduct entering the town was found to be unfinished, and this necessitated the use of an old road near by which had to be altered somewhat by our labor before the wagons and guns could get through. After this came the pull through the rocky streets of ()

Madruga to our camp on the north side of the town. The streets of Madruga constitute one of the world's most eloquent testimonials to indifference and ignorance. Their flinty, uneven, narrow and tortuous flights made a snappy and impressive climax to a day's road experience which closely resembled a certain historic definition of war in more ways than one.

Although the day's lessons in land transportation were severe and most instructive, the command made its camp at Madruga in fine spirits and with men and animals alive to the tactical necessities of the hour. The advance guard had been pushed well to the front after leaving Catalina, as it was certain that contact with the "Blue forces" was only a matter of a few marches and might come at any time. Discovering nothing cn route, the advance guard had entered Madruga, passed through, outposted our camp site and pushed patrols eastward toward Ceiba Mocha.

In the afternoon an outpost exercise was had, the terrain at Madruga lending itself admirably to this particular phase of instruction. Cur camp was in a cup which at first glance resembled the crater of an extinct volcano. The high hills immediately around the camp afforded a view for miles in every direction, and to the crest of these encircling hills two troops of cavalry were sent and instructed in the general principles of studying terrain and the method of adapting outposts and patrols to the ground.

After this, outposts were established on the road leading towards Matanzas, the line of observation extending beyond a large range of hills called Loma de Gloria. When the nature of the outpost had been thoroughly explained to all of the men, the force was withdrawn to camp. Although intended principally for instruction, it was learned afterwards that this afternoon outpost exercise at Madruga had been of value in the way of security, as its formation and operation had been seen by the "enemy's" scouts and had deterred the "Blue force" from attacking our camp that night, as they had intended until they observed the far-flung line of out-posts.

However, on our part, precaution was taken to provide for just such a night attack. Each organization was assigned a certain zone of activity and a certain particular function,

operative in case of attack. At dusk all the officers were assembled, the night dispositions to repel attack were ordered and explained, and the field order for the next day's march was read. In the meantime the "information division" had been operating upon the local station-master and other "inhabitants of the country" and had ascertained that about two companies of infantry were in camp somewhere near the Finca Ingles, about four miles to the eastward and on our line of march. In order to get more definite information it was decided to send a spy into the "enemy's" camp that night. About 10 o'clock a peasant's saddle, bridle and clothing were obtained and a soldier who could speak Spanish fluently-being a Cuban by birth—was equipped and clothed with these articles and mounted on a pony. An officer in uniform accompanied this spy to the vicinity of Ingles and then sent the bogus "paisano" into the "enemy's" lines. The soldier penetrated. the "enemy's" outposts and located their camp but became separated from the officer and did not return to our camp until after daylight the following morning, the officer having returned about 1:30 a. m. as per arrangement. However, the night's work had been successful as it gave us information that the "enemy" was actually close at hand and, by his actions, apparently looking for trouble.

Shortly after our arrival at Madruga the wireless station was in operation and during the day was in communication with Camp Columbia. Havana, Key West and the transport "Kilpatrick."

NOVEMBER 7.

In the belief that contact with the enemy would certainly be made this morning, it was decided to march the main body by the road Madruga—Ceiba Mocha while Troop "G" 11th Cavalry marched around the south and west sides of the "Loma de Gloria" then following the trail south of and parallel to the route of the main body until a point was reached where it would be possible to approach the enemy's position from the east while the main body attacked him from the west: this was what actually happened. The command left Madruga at 7 a. m. and the advance

scouts of the advance guard were in touch with the enemy just east of Ingles at 8:05 a. m. At 8:30 the advance guard commander, Captain Parker, was ordered to attack but not to push the enemy, as it was desired to keep the enemy about where he then was until Capt. Tompkins had time to approach from the east. At 9:30 a. m. two troops were ordered to join Capt. Parker in pushing the attack and a little later the battery was put in action. Just as the battery joined in the attack, Capt. Tompkins' troop closed in from the east, approaching the rear of the "enemy's" position along two roads. As our plans had worked out with mathematical precision and as the maneuver had reached that close, desperate, point-blank phase of utter fearlessness that characterizes blank-ammunition combats, it was decided to sound-recall:

"Our friend the enemy" then proved to be two companies and the machine gun platoon of the 28th Infantry from Matanzas, in the field for 21 days. The courtesy of the commanding officer at Matanzas and the zeal and interest of his command had resulted in their co-operation with our plans to the extent of this very interesting contact at Ingles.

Our command had been drawing interest, enthusiasm and instruction out of the "enemy's" presence for two days before we actually struck them, so that the fight at Ingles was but a minor part of the benefit. As to the tactical triumph at Ingles, the usual "post-mortems" developed only the inevitable verdict to the effect that the question of victory would remain one of the unsolved questions of history, each side claiming something of superior military genius and splitting even on valor.

As to comment, it may be said that the "Blues" claimed not to have been taken in rear by Capt. Tompkins but in flank, they claiming their line of retreat to have been to the north and not to the east as we had presumed. To answer this, one need only examine the "general situation" of our problem which makes it clear that the line of communications and of retreat of any "Blue detachment" must have been to the cast or southeast and that any withdrawal to the north was relinquishment of communications and suicide. Our dispositions were therefore sound and in accordance with the assumed situations of

the Blue and Brown armies. For the Blues it may be said that their choice of position was excellent and they would have caused our column some delay, before our superior numbers and our attack on their rear would have ousted them from their control of the calzada.

The Signal Corps company had flag and heliograph outfit with the advance guard and with the main body on this day and messages were exchanged by flag just before and during the firing. The distance, however, was too small to make the flag preferable or equal to mounted courier service.

After the action at Ingles the command proceeded along the new calzada to Ceiba Mocha where a stop was made for noon-feeding and rest. That afternoon, owing to a misunderstanding by the battery commander, that officer marched with his battery and the Signal Corps company to Matanzas, preceding the Commanding Officer and the cavalry squadron by about one hour and with no advance scouts so far as known. As a result the battery and Signal Corps company were ambushed in an impossible position between the hills and the San Agustin river, receiving the fire of two companies and the machine gun platoon of the 5th Infantry from Cardenas and one company of the 28th Infantry from Matanzas at close range, with practically no means of self-defense. The affair was unfortunate, but the lesson was a most excellent one and it was administered at just about the right time and in the right place.

The 5th Infantry contingent, who contributed to our operations on this cate and who figured in our plans for more than one week afterwards, added much to our scheme of instruction by adopting the plan of co-operation. They had our thanks for their zeal and military interest.

November 8.

Being Sunday this day was spent in rest, sight seeing and in enjoying the cordial hospitality of the 28th Infantry. The Signal Corps company persisted in their usual enterprise and raised the wireless pole: Communication with Camp Columbia was not established owing to the location of our station on low ground with a neighboring range of high hills interposed between us and Camp Columbia and to the further handicap of

an inadequate ground for the transmitting side of our apparatus, the surface being limestone with almost no earth covering.

NOVEMBER 9.

Leaving Matanzas on the Cidra road, the command marched via Guanabana to the bridge over the Canimar River about 4½ miles west of Limonar, and made camp on the west bank of the river near the bridge. Save the last two miles, the road was splendid all the way. A driving rain kept up during most of our march and became torrential shortly after we had pitched camp.

The tactical exercise of the day was interesting and was very well done. As a force of the "Blues" had been located south of Matanzas on the Cidra Road preparations were made to forestall any hostile action on their part. As the terrain invited attack on our train, the situation seemed to demand a formation for "the defense of convoy." Accordingly the advance guard was operated with an unusually wide front, two guns were marched at the head of the trains and two at the rear, while the wagons were ordered to take double column and to keep moving in case of an attack which did not appear to be by large numbers. The rear guard was also given more cavalry than usual. In this compact but nimble formation the command proceeded, ready for any contingency. The advance work, though executed with absolutely war time thoroughness by Capt. Tompkins, found only one trace of the enemy and that was his trail, 36 hours old, preceding us down the Cidra Road.

Despite the heavy rain in camp the Signal Corps company put up the big pole and heard Camp Columbia plainly but could not make Camp Columbia hear our signals. It appeared almost certain that we would establish communication with Camp Columbia, but the wind increased in velocity and the rain continued at such a rate that the pole, for safety's sake, had to be taken down. The work of the signal corps men in taking down the heavy 100-foot pole, with the wind and rain at almost typhoon rage, was beautifully done.

NOVEMBER 10.

From the Canimar River bridge to Limonar we marched on a fine calzada. After stopping at Limonar to pick up forage which had been shipped there, we marched southeast along the dirt-road which parallels the track of the United Railways of Havana passing through Sumidero and Coliseo and making camp at the Central Sta. Amalia east of Coliseo. This camp was within striking distance of Cardenas and was an essential limit to this day's march owing to the frightful condition of the roads due to the recent heavy rains. Troops passed along without difficulty but for wheel transportation "the hor rors of the road were beyond description," to use the words of the rear guard commander-Capt. Tompkins-who was out all night with the wagons. The difficulty of getting wagons through was due largely to the fact that standing water covered the road to a depth of one or two feet and sometimes for a stretch of a mile at a time. Under the water was a labyrinth of boulders, ruts, mud-holes, brush and every conceivable road evil, but all invisible to the drivers and the animals on account of the water. The deep mud and water also made it difficult for the men on foot to pull out wagons so that much of the pulling out was done by mounted men. Near Sumidero the left hind wheel of an escort wagon collapsed, but by utilizing some broken tongues and reaches a travois was soon constructed by means of which this wagon slid eventually all the way into Cardenas where a new wheel was obtained. The rear section of the wagon train consumed all night in going five miles but the last wagon rolled into camp at 5 a. m., with all concerned triumphantly oblivious to the fatigue involved. Capt. Tompkins and his troop did splendid work in getting the wagons through and reaped a rich harvest of valuable experience, every man getting a lasting object lesson in the sure triumph of ingenuity and hard work over almost any kind of obstacle.

As the main body left Limonar, on this march 2nd Lieut. Jackson, 11th Cavalry, was detached and sent with four men to reconnoiter the projected calzada via Ingenio Triunfo, Bottino and Colonia de Mamey to Esquina de Teja.

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This had been our proposed line of march but the route was reported impassable and Lieut. Jackson's reconnaissance proved that the reports were only too true. According to his reports the projected calzada was at that time impassable for our wheel transportation. Lieut. Jackson marched along the entire route as above indicated and rejoined the command that afternoon in its camp.

As to the main body the only tactical activity was in the well advanced and alert advance guard which carefully searched our front as we passed mile after mile through the boundless cane fields.

NOVEMBER 11.

Having contested successfully on the preceding day with the worst creations of the elements in the way of bad roads and having experienced no opposition from the "enemy." we prepared on the 11th to seize the city of Cardenas. The plan of advance was worked out the night before and explained to the officers of the command shortly after daybreak. Troop "F," under Capt. Parker, was to precede the main body by one hour, seizing the localities Esquina de Teja and Lagunillas, then scouting the roads leading from these two places towards Cardenas and searching the range of hills which commanded our approach. Capt. Vidmer with one troop and one gun was to escort the train via concealed road through San Gabriel tò Esquina de Teja where the transportation must eventually take the calzada. The detachment commander in the meantime was to march the main body to Buena Vista which he could reach regardless of the controlling line of hills and from which point he possessed three or more roads from which to select a line of advance for a flank attack or turning movement, in conjunction with Capt. Parker's screen and demonstration. This plan worked beautifully, the different elements completing their assigned tasks with clock-like precision. Capt. Parker having reported only a handful of the enemy in his front and having seized the main road over the hills, the main body proceeded to this road and along it to Cardenas, Troop "E" (Lieut. Harris) being sent on a parallel road by way of Carmen-Pildero and Lima. On the north slope of the hills overlooking Car-

denas, a commanding artillery position was selected and the battery soon reduced the city. Capt. Parker, with his advance guard, seized the city at 10:40 a.m. Though the victory was bloodless it was a very pretty demonstration of the war-game and every one was particularly satisfied with the happy accord of map-study and practical execution.

NOVEMBER 12.

This day was spent in camp at Cardenas, the command enjoying the cordial hospitality of the 5th Infantry. The Signal Corps company put up the 100-foot pole and also tried the kite. Communication with Camp Columbia was not established. While operating at Cardenas, a loose pony ran into one of the guys at top speed, tearing the guy loose on the opposite side and bringing the pole down with a crash. Three sections were broken at the joints and in repairing the pole ten feet of its length had to be sacrificed. The spirit of this Signal Corps company was again demonstrated by this misfortune. It seemed that the big pole had hardly struck the ground before the signal corps men were all over it starting in with its repair at once.

NOVEMBER 13.

Cardenas being the most easterly point of our march, the return to Camp Columbia was undertaken under conditions in keeping with the problem controlling the general tactical considerations of our 21-day operation. (See General and Special situations, antc). As our "raid" around the "Blue right" had reached the objective originally named, it was assumed that at Cardenas a wireless telegram had been received from the Brown commander directing our immediate return and indicating the advisability of taking a more northerly route to Matanzas on account of information that certain strong detachments of the Blue army were marching from the south toward Matanzas in an effort to cut off our force. With this hypothetical prospect before us we marched from Cardenas toward the northwest-on Friday morning the 13th, and followed a fine road to Camarioca, where we camped.

A well regulated advance guard was our only tactical provision on this march. About 4 miles out from Cardenas the point of the advance guard sent back word that a company of Infantry was advancing toward us on the same road. The advance guard commander (Capt. Parker) warned the main body, drew his troop off the road, took a concealed position and allowed the advancing company to walk into his ambuscade. The completeness of the surprise being equivalent to annihilation of the company-which pertained to the Cardenas garrison-they were allowed to go their way while we resumed our march with advance guard as before. After the command had watered and fed at Camarioca the Commanding Officer took steps to insure the safe and expeditious crossing of his command over the Canimar River then about 11 miles to our front (west) and 7 miles east of Matanzas. This crossing must be undertaken on the following day and it was probable that the "enemy" were already at or near Matanzas. As the points of crossing in our front appeared to be only the rope ferry at San Jose and the ford at Tumbadero,-3 miles south of the ferry-and as our guns, wagons and horses would necessitate at least 12 hours' work in crossing even if we were unopposed, it appeared to be clear that a failure to immediately seize the ford and ferry would likely involve us in disaster. As much of the day was still available, it was determined to send one troop and one gun to seize the ferry and the ford before sunset, the remainder of the command to advance to the crossing at daylight on the following day. Accordingly one troop and one gun-Capt. Tompkins, 11th Cavalry-left camp at 3 o'clock p. m. marching toward the ferry by the road Camarioca-Cuevas de Hoyo Colorado-San Jose. An officer's patrol under 2nd Lieut. C. S. Jackson, 11th Cavalry, preceded Capt. Tompkins' command. In order that Capt. Tompkins might not be unsupported during the night and very early morning, in case of trouble at the ferry, it was decided to put another troop en route for the ferry by a trail which would almost certainly insure its arrival at the Canimar River unmolested. The trail selected was from Camarioca north to the coast, thence west along the coast to Matanzas Bay and thence south along the east bank of the Canimar River. With the ocean on one side and the "Piedras de Camarioca"—an impenetrable thicket of bush, thorns, cactus and sharp stones—on the other side this route was a safe one. Troop "H" (Capt. Vidmer) marched from camp at 3:15 p. m. along the trail above mentioned—with orders to camp at Ipargo that night and join Capt. Tompkins early the next morning. We had therefore flung forward that afternoon along the main route to the ferry a force capable of taking care of its own front and warding off any attack that might come from the south—which was very unlikely east of the river—while its right was protected by the impenetrable "Piedras de Camarioca," and its re-enforcement at the river insured by the troop which had been sent along the protected coast route.

NOVEMBER 14.

The force dispatched on the afternoon of the 13th had successfully accomplished their mission. Lieut. Jackson's patrol reconnoitered the ferry and then the ford during the afternoon; watching both points. At 6 o'clock p. m. Capt. Tompkins had seized the ferry at San Jose, put its western approach under the sweep of his gun, crossed one platoon to the west bank and advanced the outposts and patrols of this platoon along all the trails leading to the ferry. His scouts controlled the ford at Tumbadero that night and crossed it at dawn. At eight o'clock that night Capt. Vidmer had arrived at Ipargo and his scouts were watching the tide-water ford at the mouth of the Canimar River.

On the morning of the 14th Capt. Vidmer joined Capt. Tompkins at the ferry and Troop "H" crossed to the west bauk while Lieut. Elting's platoon of Troop "G." which had crossed the night before, pushed on to within sight of Matanzas. Lieut. Elting established heliograph and flag stations which connected his own station at the Bellamar Caves with his advanced outposts at the edge of Matanzas and with Capt. Vidmer's reserve back at the Canimar River. The force at the Tumbadero ford likewise extended its observation to the west and to the south.

Thus on the morning of the 14th our main body advanced from Camarioca to the Canimar River, our crossing of that stream already made certain and safe by the prompt action

of the preceding afternoon. When the main body arrived at the river tactical considerations of the problem were dispensed with for the day, the timely seizure of the crossings having fulfilled all necessities along this line and given us the victory. In this connection it may be remarked that a neighboring garrison, in a spirit of co-operation had intended to again assume the role of the "Blues" and to oppose our crossing of the Canimar River but had not made allowance for our activity in seizing the crossings of the river on the same day that we marched from Cardenas.

The day had been replete with most interesting incidents pertaining to transportation and ordinary marching. In the first place the road from Camarioca to the river was a marvelous, rock-bottomed, boulder strewn path of successive bumps and jolts. That it is called a "camino" in Spanish illustrates the elasticity of that language and the fine imagination of the people who apply the word, while to adopt the translation of "road," in English, is to confess that one has never traveled over this particular route.

The fact that guns, caissons, wagons and ambulances passed over that route with only two wheels broken—one ambulance and one escort wagon wheel—proves that our wheels as now made will suffice for any roads that they may encounter. That no carriages of any sort were upset or relieved of any load testified to skillful work on the part of the drivers and teamsters.

In the afternoon the crossing of the main body was begun, the battery being the first to start. The river at this point is about 125 yards wide. The ferry boat consists of two iron tanks about 18 feet long and 4 feet in diameter, secured together and surmounted by a staunch wooden platform with a substantial floor about 20 feet long by 12 feet wide. For considerations of safety we fixed the minimum load about as follows: Horses, 7; mules, 8; escort wagon, 1, with 4 mules; guns, 1, with 2 horses. Such a load was, on the average, pulled across the river in about 12 minutes with 15 men on the rope, the round trip consuming about 20 minutes. The battery and the

Signal Corps company consumed the hours 3 to 6 p. m. that day and did not entirely complete their crossing.

As to communication on this day, the entire command was well served. Immediately upon arrival in camp the Signal Corps company established a field buzzer line from the camp Headquarters on the east bank of the river to a station on the west bank, the wire being used as a cable in the river. Heliograph stations were also used for the transmission of messages, and at night, the lantern-signals flashed from one bank of the river to the other. The wire was a great convenience, on account of the density of the undergrowth along the river and the fact that the river at this point flows through a deep canyon. Our camp on the east bank was high above the ferry and some distance back.

NOVEMBER 15.

Troops "G" and "H" with their wagons had ferried across and been sent to Matanzas the day before. By 9:30 this morning the battery had completed its crossing. By 10 o'clock the Signal Corps company had crossed and finally at 12 o'clock the crossing of the cavalry train was accomplished. Altogether we had consumed 12 hours in crossing. The time could have been considerably reduced but there was no object in attempting to make a record when such an effort might very likely have resulted in loss of life or property.

In the meantime Troop "E" had been sent this morning to ford the river at Tumbadero which they did with ease. Troop "F" selected still another method of crossing which was by swimming the river. This swimming was done at the ferry where the banks had shore spaces sufficiently large to afford ingress and egress to the animals. Capt. Parker supervised the swimming of his troop across the river with commendable energy and skill.

Possibly no instruction gained during the twenty-one days was as valuable as this crossing of the Canimar River. The stream was crossed in daylight and in darkness, Lieut. Elting's platoon of Troop "G" having ferried over on the night of November 13th and every possible method of getting over was used; one troop fording, one troop swimming, and the battery,

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Signal Corps company and two other troops ferrying across. Every officer and enlisted man saw for himself the amount of time absolutely necessary, the degree of hard work involved and the methods of loading and unloading animals and wheeled transportation. All could observe the best method of hauling the ferry back and forth and the importance of handling carefully the only ferry available. The effect of the river in delaying military operations was impressed lastingly on all concerned.

The Signal Corps company added to the day's interest by communicating with Matanzas by heliograph. The command had undertaken no tactical exercises in addition to the river crossing instruction and camped in Matanzas that afternoon.

NOVEMBER 16.

This day was spent in camp at Matanzas. The Signal Corps company set up a wireless station—using the "division set"—on high ground about one mile from the point where the station was opened on the 8th of November. Although the pole was 10 feet shorter than on the 8th no difficulty was experienced in raising Camp Columbia. From this hill station the messages were repeated to camp Headquarters in Matanzas where one of the portable wireless sets had been established.

NOVEMBER 17.

The command marched along the Matanzas—Ceiba Mocha calzada to the bridge across the Rio San Agustin three miles east of Ceiba Mocha. Here camp was made in one of the most picturesque spots that we had seen in our entire march. Our tactical activity was confined to a well conducted advance guard, and a flank march by Troop "H"—Capt. Vidmer. This troop was sent from Matanzas by way of the Yumuri Valley to search that fertile district for an assumed small force of the enemy. Their march along the Yumuri River continued as far as Corral Nuevo, turning thence due south and crossing over the slopes of the Pan de Matanzas to our camp in the valley of the San Agustin.

At this camp wireless communication with Camp Columbia was established by means of the kite alone, the limitations of the "division pole" having been sufficiently determined. With the kite carrying about 500 feet of wire, Columbia was raised in a few minutes after reaching camp.

NOVEMBER 18.

On the assumption that small detachments of the enemy had been reported to the north and to the south of our line of march to Madruga, the command marched on this day as a single column as far as Ceiba Mocha-and in three columns after passing that town. Troop "F" (Capt. Parker) was sent along the road Finca Carlota - Xenes and Troop "E" (Lieut. Harris) was sent along the trail which passes east of the Loma de Gloria and across the valley south of the "Loma" to the Finca El Padre. The function of these two troops during the day was to act as flanking forces for the command marching along the calzada. Lieut. Harris was instructed to make camp near the Finca El Padre and there await further orders using his heliograph, flags and flash-lantern in communicating with the camp of the main body at Madruga. Capt. Parker was to camp among the hills north of Madruga, under similar instructions. Each troop was to do individual cooking until it rejoined the main body with which its wagons marched.

At noon that day the main body arrived at Madruga, camping as before in the little cup surrounded by high hills which commanded the valley to the east, south, west and northwest. In order to take full advantage of the terrain, the artillery, the signal facilities and the location of our two outlying troops, a new problem assumption was adopted upon reaching camp. It was to the effect that our troops in camp represented a much larger force in retrograde movement, with Troop "F" as an outlying force protecting our right rear and Troop "E" protecting our left rear. Troop "G" was sent to a strong outpost position about one mile east of Madruga protecting the calzada in our immediate rear. The guns of the battery were posted on the hill where their location was described as follows

by our Chief of Artillery, Captain Gatley: "Position well night ideal. Complete circle about town under fire of guns from three positions, weak only at N. E. where strong outpost in direction of Aguacate was necessary" (Troop "F").

A signal station was opened on a high hill east of the camp and communication with all portions of the command was established in the following time limits after the command reached camp:

- 1. Troop "G" outpost 1 mile E. of Madruga by buzzer wire 8 minutes.
- 2. Troop "F" outpost 2½ miles N. of Madruga by flag 17 minutes.
- 3. Troop "E" outpost 4 miles S. E. of Madruga by helio. 18 minutes.
- 4. Camp Columbia 49 miles W. of Madruga by wireless 22 minutes.
- 5. Artillery positions by buzzer as soon as positions were indicated.

In this problem the field wire was run from the Troop "G" outpost east of Madruga to the artillery positions as a trunk-line, on which were the commanding officer; the Troop "G" outpost; the Chief of Artillery and the main signal station. During the night, messages were exchanged with the outlying troops by means of flash-lanterns. Everything worked perfectly and without a hitch. As will be seen from the above record of communications and from a study of the terrain around Madruga this was largely a signal corps—artillery problem.

NOVEMBER 19.

From our camp on the Rio San Agustin on the 17th inst. two officers' patrols had been sent forward to reconnoiter the roads from Madruga south to San Nicholas and from San Nicholas northwest to Guines. By noon of the 18th inst. we had been informed that for our wagons and guns these roads were impassable—that it would take a week to get to Guines, so deep had become the mud as a result of the prolonged rainy season. It was therefore decided that from Madruga the guns, trains and signal equipment-wagons would march by the main

road to Catalina escorted by two troops of cavalry, while the other two troops of cavalry would sweep the country between Madruga, San Nicholas and Guines in which region a small force of the "Blues" was assumed to be. Troops "E" and "F" were therefore informed by flash-lantern on the night of the 18th that they would come in to Madruga at daylight of the 19th prepared to march to Catalina. Troops "G" and "H" were organized into a flying column under Capt. Tompkins with orders to cover the country lying between Madruga, San Nicholas and Guines, on the 19th, camping that night at the latter place and reporting results by wireless; then to march to Catalina on the 20th. The pack mule wireless set was sent with Capt. Tompkins.

Accordingly the main body moved to Catalina on the morning of the 19th, experiencing some difficulty with the roads, but nothing to compare with our work in the same place on November 6th. At 11:30 a. m. we went into camp. At 2:30 p. m. Capt. Tompkins reported, by wireless, his arrival at Guines and at 3:30 p. m. Capt. Vidmer's arrival with Troop "H"—the former having marched to Guines by way of the road Madruga—Finca San Blas-Ingenio Amistad while the latter marched by the road Finca Zaldiva—San Nicholas—Rio Seco; the two troops thus having completely covered the zone assigned to them. They reported the roads passed over as the very worst they had ever seen.

November 20.

The main body spent this day at La Catalina. The battery and Troops "E" and "F" 11th Cavalry were out at daylight to cover the approaches of Catalina from the direction of Guines, where two troops of the "enemy's" cavalry were assumed to be, on mischief bent. Troop "E," less one platoon, screened the town on the south, covering the hill-trails with its patrols, while Troop "F" with one platoon of "Troop "E," and Battery "F" 3rd F. A., Captain Gatley, held the approaches along the main roads from Guines entering Catalina from the west and southwest. These troops went into position about 6 a. m., their positions having first been occupied by cossack posts at 4 a. m. At 10 a. m. Capt. Parker, with Troop "F"

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inflicted considerable damage upon one of the troops approaching from Guines along the Ojo de Agua road and then withdrew his troop to the guns at the edge of the town. At 10:30 a. m. both the Guines troops attacked the cavalry and the guns at the western edge of the town, but the defense was, of course, too strong and must have won decisively in time of war. At 10:40 a. m. the problem ended and the Guines troops "G" and "H." joined the main body.

NIGHT, NOVEMBER 20-21.

Camp at Catalina was struck at 9 o'clock on the night of the 20th and the command started for Cuatro Caminos. Every preparation had been made for a quiet and rapid withdrawal from Catalina, as though in time of war, and our plans were carried out in a way which literally "astonished the natives." These latter, by the way, showed in their actions that they were astonished at the expeditious withdrawal by night of so large a mounted command and they seemed puzzled as to what unexpected thing we might do next. Our march through the black night was without incident, save the experiencing of unusually low temperature for the tropics, and at 3 o'clock in the morning we made camp at Dique, a public reservation, west of Cuatro Caminos. The remainder of the day was spent in such camp routine as was necessary and in secovering the sleep lost the night before. The signal corps company opened wireless communication with Camp Columbia at noon, with a kite, also established a heliograph station on a hill 4 miles west of camp, thus communicating with Camp Columbia also by flash.

NOVEMBER 22.

The command attempted no tactical exercises as the day was Sunday. As an experiment the signal corps company stretched a wire between two palm trees about 150 feet apart and thence to the instrument. With this improvised aerial, perfect communication with Camp Columbia was maintained all day. The Inspector General, Army of Cuban Pacification, joined the command in this camp.

NOVEMBER 23.

This day's march to Camp Columbia was devoted to the solution of a tactical problem presented to the command by the Inspector General. The problem was stated as follows:

General Situation.

A force of United States troops is advancing from the southeast to attack a large body of irregular troops occupying a stronghold at Camp Columbia.

Special Situation.

U. S. TROOPS.

The main body leave Cuatro Caminos early Monday morning, the 23d inst. The Commanding General sends forward his squadron of cavalry with orders to reconnoiter the country about Camp Columbia, locate any outlying troops defending it, and determine the most advantageous route for approaching and attacking it.

He announces where he will march and gives orders that all important information shall be transmitted to him with as little delay as possible.

On the evening of the 22d the officers of the command were assembled, the problem read to them, the wishes of the commanding officer made clear and an appropriate field order published. In the absence of any information as to when the problem would end, it was decided that 2 o'clock P. M. would be adopted as a convenient hour for the termination, although the terms of the problem really necessitated at least the entire day for a satisfactory solution.

The scheme of advance was to send Troops "E" and "H" under Capt. Vidmer along the main calzada through Cerro, towards Camp Columbia, these two troops to be a screen immediately in front of the main body, which would follow along the same road, communication between the advance cavalry and the main body to be by mounted courier. Troop "F" under Capt. Parker was to proceed "across country," as it were, to Vento Springs, thence to Arroyo Arenas, near which point he would establish a wireless station and radiate his scouts toward the western line of Camp Columbia's outposts. Capt. Parker was given the pack-mule wireless set as his means of communication. Troop "G" under Capt. Tompkins was to proceed by the best available

road to Vento Springs, near which place to establish a wireless station and radiate his scouts against the southern outposts of Camp Columbia. Capt. Tompkins was given the wagon wireless set as his means of communication.

On the morning of the 23d the cavalry squadron moved out at 6 o'clock. The Inspector General had prohibited an earlier start. The main body marched at 7 o'clock. As the main body approached the western limits of Cerro a message from Capt. Vidmer warned the commanding officer that a line of the enemy's outposts had been discovered extending from Puentes Grandes to Colon Cemetery on the east bank of the Almendares River. As a favorable and protected halting place was near at hand the entire main body moved off the main road and rested—awaiting developments by the advance cavalry. Messages by courier kept coming in from Capt. Vidmer, who had extended his line of observation from Vedado on the north to the railroad bridge over the Almendares River beyond the Finca Usillo on the south. The enemy's eastern outposts were quite well located and several prisoners captured. Our Chief Signal Officer established an observation station on the tower of a house near by and from this point of vantage located one of the "enemy's" flag signal stations on the Buena Vista water tanks, incidentally reading some of their messages by the use of his glasses. At 1:30 p. m. an order was received from the Commanding Officer at Camp Columbia to proceed to that place, the problem having been declared at an end.

The troops which had been equipped with wireless sets unfortunately did not figure in the solution of this problem owing to its premature ending at 1:30 p. m. One of them could not find a road over which the wireless wagon could be taken to its objective near the Vento and so proceeded without its means of communication—penetrating ultimately well into the enemy's lines to the south of Marianao. The other troop made a long march encircling Camp Columbia to the Playa de Marianao, but, having out-marched its pack-mule wireless set was without means of communication—until the time limit on the problem had expired. As its wireless apparatus finally caught up with it, this latter troop would have sent in plenty of information had the problem continued during the remainder of the after-

noon, or if actual war had existed and the troop had been similarly situated. The troop which had had the wagon wireless set would also probably have sent back some information by mounted or foot messengers, though this would have been slow and uncertain, owing to the distance and to the enemy's numerous detachments intervening.

With regard to the solution of this problem it may be remarked that a commander in time of war would have remained at Cuatro Caminos or thereabouts until his information began to come in. As it was, our main body, through circumstances, had to take up its march only one hour after the departure of the advance cavalry, thus robbing the advance cavalry of the time allowance which must be given to any force charged with reconnoitering an enemy's extended position some distance removed.





LESSONS IN MODERN TACTICS.*

THE Russo-Japanese War came at a most opportune time as regards the British Army whose tactics had shortly before been almost entirley remodeled by the South African War. It was a grave question whether this had not been overdone and there were many who considered that we had gone a great deal too far in our changes, maintaining that a war between two armies, modernly equipped and organized, would be a very different matter, requiring very different tactics, from the Boer War.

In the Russo-Japanese War we had exactly what was wanted to prove or disprove these theories-two armies whose rank and file were of equal morale and the issue of whose encounters would therefore depend entirely on the handling, both strategic and tactical, and previous training of the opposing forces. As the war progressed it became more and more obvious that the advantage of leading and training lay all on one side. That a nation like the Russians, whose rank and file were of the best, could go through a whole campaign without a single success of any magnitude, brought home to every one the stupendous importance of training and leading. We now look back on a war waged under almost every conceivable variation of conditions—in intense heat and bitter cold—over plains as flat as those of India and over mountains which compare with our own frontier ranges-through luxuriant crops and desert tracts --- an almost ideal school, in fact, from which to learn the lessons

of war; and it only remains to the onlookers to learn the lessons taught, and train their armies to the altered circumstances of modern warfare; for one fact stands clear to all who watched, that no matter how adaptable the troops of a nation may be, that nation will stand but little chance of success which enters the lists of modern warfare without the most up-to-date weapons, the most up-to-date training in the best use of those weapons, and the skilled leading now required of all in authority in modern armies, from the group commander to the C.-in-C.

In dealing with the tactical lessons of the war it will be most convenient to take each of the three arms in turn, and after discussing the lessons which affect them to finish by dealing with the tactical questions involving all arms generally.

ARTILLERY.

Though the tactical importance of artillery may be said to have been fully upheld by the Manchurian war, more cannot be said. The tremendous destructive powers of modern artillery were to a large extent neutralized by the fact that, after the first few occasions, troops of necessity adapted themselves to the new conditions; it being obvious to all that exposure of troops in any form of dense formation within range and sight of hostile artillery meant certain disaster.

Equally did this apply to the artillery itself of both sides, and invisibility of the guns became of paramount importance; so much so that after the middle of June, 1904, practically nothing but indirect fire was used by the artillery of both sides. The state of affairs soon resolved itself into the following: Infantry could not hope to advance by day against hostile artillery, but the latter could do little by night, which therefore became the time when all advances took place, troops being entrenched and concealed by daylight.

The chief tactical lesson of the war as regards artillery was, therefore, the necessity of concealment and the supersession of direct fire by indirect fire.

To cite a few examples of the importance of concealment—at the battle of the Yalu, April 30th, 1904. The Russians had made no attempt to conceal their guns, whereas the Japanese had made use of every device imaginable. It is true that in

^{*}Prize essay by Captain H. D. Shaw, First Gurkha Rifles. Reprinted from the Journal of the United Service Institution of India for January, 1910.

this battle the Japanese had a large preponderance of artillery, both in numbers and weight, but that alone was not responsible for the fact that the Russian artillery was completely silenced in 30 minutes; a carefully concealed and cleverly worked artillery would have been of almost incalculable use to the Russians that day; as matters went, by its prompt destruction it merely served to improve the morale of the whole Japanese army at a critical moment.

Again, the great effect of a single Japanese battery at the battle of Telissu (June 14th, 1904), which opened fire at about 1:30 p. m., and which could not be located by the Russians, is a striking instance of the advantage given by concealment. Though up to this moment the Russian artillery had dominated that of the Japanese and rendered any advance of the infantry impossible, the action of this invisible battery at once changed the whole aspect of the fighting. The Russian batteries were silenced and the Japanese infantry launched to the attack.

But by far the most striking instance of the enormous powers of a concealed artillery was the action of the two small mountain guns at the battle of August 26th, 1904. Although, in this case there was no hostile artillery to be reckoned with, the position in the corps from which these two guns turned the fortunes of the day was well within rifle range of the enemy's trenches, and had they given the Russians an inkling of their position, they must have retired immediately or ceased firing.

We next come to the vexed question of concentration versus dispersion. On the whole, the war may be said to have answered in favor of concentration, but always subject to the absolute necessity of concealment. This necessity of concealment has made it almost impossible for guns to take up or change positions during the progress of an action. Guns must therefore be placed, under cover of darkness, in such positions from which they will best be able to assist the infantry attack; and there they will probably have to remain at any rate until next night. The old practice of keeping a part of the artillery with the reserves may be said to be dead, chiefly owing to the above-mentioned difficulty of bringing up guns into action during the progress of a battle. All this tends to concentration. The Japanese, working with an inferior weapon and, generally

speaking, against superior numbers, obtained satisfactory results by concentrating their artillery in large batteries.

The chief exception to the above is the working of a palpably weaker artillery in face of an overpowering hostile artillery. Here the necessity of concealment becomes so vital as to compel dispersion even as far as to single guns. The Boers taught us this lesson in South Africa. To take two instances from Manchuria:—The Russians had two splendid opportunities to display the clever working of an inferior artillery at the Yalu and Nanshan (May 25th, 1904). In both cases, owing to the injudicious placing of their guns, these were silenced almost at once and were able to take no further part in the battles.

The next lesson we get is the necessity of heavy guns with an army. Not only must the field artillery be of the latest and heaviest pattern conformable with portability, but every army must also be accompanied by heavy guns and mortars.

Again and again throughout the war was the necessity of heavier metal felt. At the Yalu the mortars of the Japanese put all doubt as to the issue of the artillery duel out of the question. At Liao-yang, as in the fighting around Mukden, the heavier guns of the Russians almost always completely dominated the Japanese artillery. Both sides felt the importance of having the heavier guns and made the greatest efforts in this direction. Six inch guns were, whenever possible, brought up to the battlefield by rail—noticeably by General Oku in front of Lioa-yang in the fighting of September 1st to 4th; and by the Russians in the defense of Mukden at the end of February, 1905.

Another point brought out by the war is the value of howitzers. Their suitability to indirect fire, their power to search reserve slopes and their destructive capabilities against villages and field works render them of enormous use. Indeed, the war may be said to have proved them indispensable to cavalry. The failure of the Russian, General Mischenko's, cavalry raid (January 8th-15th, 1905) was almost entirely due to the absence of howitzers with the force.

As the war proceeded, and the night attack or night advance become more and more resorted to owing to the deadly nature of artillery fire by day, the want of powerful search-

lights attached to batteries became more and more apparent. This subject wants careful attention on the part of the authorities, as these engines are certain to play an impostant part in the next war.

Finally we come to the question of ammunition supply. Owing to the concentration and accuracy of the enemy's fire, teams had to be placed under cover further and further from the guns. This naturally enormously increased the difficulties of supply. In almost all the big battles of the war the artillery of both sides had to slacken or even at times cease fire owing to the necessity of husbanding ammunition. With modern quick-firing guns the expenditure in a prolonged battle proved to be far beyond even what was anticipated.

This subject also wants the most careful attention both as regards the accumulation at the front of the immense quantities of ammunition now required, and also as regards the moving it up to the guns from the teams, which may now be a distance of half a mile or even more. Some better means than moving it up by hand, which was the only way found possible in Manchuria, should, if possible, be evolved.

CAVALRY.

The lessons of the war in the tactical use of cavalry are particularly interesting and very pronounced.

The Russian cavalry went into the war with a world-wide reputation, and was known to be better horsed and more numerous at the seat of war than the Japanese Cavalry. The word Cossack was proverbial in Europe and stood for all that was good in light cavalry work. The Japanese cavalry was known to be poorly horsed, and its horsemanship also was generally supposed to be poor. No one doubted the crushing superiority of the Russians in this arm. And what happened? The Japanese Cavalry may be said to have accomplished much during the war; the Russian Cavalry nothing beyond actual protection.

The explanation for the complete reversal of all forecasts lies in the tactical handling of the respective cavalries. The Japanese employed their cavalry on the only possible principles on which cavalry can be used in modern warfare, that is, as a mobile infantry; and its use might have been greatly extended

had it been armed with the cavalry weapon of the future, the infantry rifle. In the whole campaign there is only one instance of cavalry charging according to the old cavalry style (the small affair of May 30th, 1904, south of Telissu), whereas it is no

exaggeration to say that hardly a day passed in which cavalry

LESSONS IN MODERN TACTICS.

had not to fight dismounted as infantry.

Therein lies the explanation. Cavalry has no longer a place in its old role on the modern battlefield, or in front of the modern army. The Japanese recognized this, and when they employed their cavalry for reconnaisance or protection in front of their armies, they used it as a mobile force, generally in conjunction with infantry and always prepared to dismount and act as infantry; and again on the battlefield they used it as a mobile force, available to move long distances to a threatened or critical point, but always prepared on arrival at that time to leave its horses and act as infantry.

There is a third important function of cavalry; that of raids, generally on communications, which we shall deal with more fully later on, but here again the fundamental lesson is the same; cavalry on the raid must these days consider itself as a mobile force, prepared to fight as infantry, with its horses at hand ready to enable it to pursue success or carry it to safety.

Let us now take these three functions of cavalry in turn, and deal with them more in detail. First as regards reconnaissance and protection.

The attempts of the Russian Cavalry to pierce the Japanese screen continually failed, owing to it always finding itself opposed to infantry or dismounted cavalry, against which it could make no headway. This was due partly to the fact that the Japanese protecting screen generally consisted of mixed infantry and cavalry, but very often the supposed infantry was dismounted cavalry. This piercing of the protecting screen to obtain information is undoubtedly one of the most difficult problems of future wars. The Japanese were certainly more successful than the Russians in obtaining accurate information, but although this was partly due to the faulty tactics of the Russian Cavalry, it was much more due to their well regulated system of spies, for which the circumstances of the war were particularly favorable to Japan.

The failure of General Sanzonoff's cavalry to gain any sort of accurate information as to the Japanese movements after the battle of Telissu (June 15th, 1904), although he was in actual contact for 23 days, is a notable example of this failure of the Russians to pierce the protecting screen.

As regards the best use of cavalry on the battlefield, we find many good examples. The sending of the 2nd Cavalry Brigade under Prince Kanin (Kuroki's last reserve) at the battle of Shaho to Chaotao on the 11th of October, 1904, was a fine example of a rapid move of the reserves of an army to a threatened point, a move which, owing to the distance, would not have been possible with a reserve composed of infantry; Prince Kanin's dashing piece of work at Penchiho the next day was a fitting sequel and an example of the powers of cavalry accompanied by machine guns when properly used.

The prompt taking of the opportunity of a gap opening between the armies of General Kaulbars and General Bilderling on March 9th, 1905, during the battle of Mukden by the Japanese is another good instance of the best use of cavalry. This decisive stroke would have been impossible with slow moving infantry. As it was, the cavalry, pushing through the gap with their artillery, converted an ordinary retreat into a disaster for the Russians.

Such are the opportunities which will render the role of cavalry, when properly used and properly armed, of immense importance on the battlefields of the future.

In "Modern Strategy," by Colonel James, we find the following paragraph:—"The vital necessity to the complex modern army of its communications renders it more than ever sensitive to any attempt to interrupt them." This operation of threatening communications is commonly known as a "raid." and brings us to the third important role of mounted troops in modern warfare. The truth of this saying was fully borne out in the war in Manchuria and with an active cavalry on either side it was a foregone conclusion that such attempt would be made. Here was a branch of war at which the Russian Cavalry was sure to excel; well mounted and with dashing leaders, their possibilities in this direction were considered infinite; and yet once more we have nothing to chronicle on their part but failures.

Raids they certainly made, which lacked nothing in energy, dash and daring; well planned and ably carried out to a certain point vet always doomed to failure because at the critical moment the cavalry was unable to fight infantry for lack of the necessary weapons and training.

The first Russian raid occurred early in the war and up to a certain point was fully favored by fortune. The town of Anju in Korea, on the line of communication of the 1st Army under Kuroki had, owing to the fact that the line of communication was in the act of being changed, been left with a garrison of only 70 reservists. On May 10th Colonel Matoriroff with 500 Cossacks swooped down on the town. Owing, however, to his men not being able to fight as infantry, he was unable to force an entry, and, after allowing reinforcements to enter, was eventually driven off by a total force of Japanese Infantry in numbers equal to about one-third of his command.

General Mischenko's raid from Mukden in January, 1905, on the Japanese communication around their left flank is a very similar instance only on a much larger scale. General Mischenko with 5,000 cavalry and horse artillery crossed the Hunho on January 8th and moved round the Japanese left. Everything went smoothly at first; on the 11th the railway was struck near Haichong and considerable damage was done. On the 12th, however, 1,000 Japanese entrenched in the station of Yinku were attacked. The attack failed for want of howitzers and infantry rifles, and Mischenko had to hastily retire, having accomplished little, from a position in which a success would have had far-reaching results.

Contrast this last example with the successful action of the Japanese Cavalry under General Akiyama during the battle of Mukden. Strengthened by 1,000 infantry, and accompanied by machine guns and artillery, General Akiyama with 40 squadrons left the Hunho on the 1st of March and succeeded in getting round the Russian right. Continually outflanking the enemy and driving them back, he reached the railway on the 9th, capturing large quantities of stores and ammunition.

With this example of the correct use of cavalry we shall leave this branch of the service, and proceed to discuss the tactical lessons of the war which deal with infantry.

INFANTRY.

Though the Russo-Japanese War was essentially an infantry war, the new lessons from a purely infantry point of view are not so pronounced as those dealing with the other arms. This is largely due to our South African experience coming immediately before, most of the infantry lessons of that war being fully confirmed by the course of events in Manchuria. When, however, in spite of the lessons of all large campaigns since 1866, we find the Russian infantry in 1904 entering a war with such obsolete practices as volley firing, and with a marked preference for the bayonet to the bullet even at 500 yard range, it will perhaps be not altogether vain to repeat some of the lessons of former wars which are borne out by the present campaign.

While on the subject of the bullet, too much stress cannot be laid on the necessity of marksmanship. All reports from the

seat of war agree on this subject.

The marksmanship of the Russian infantry was worse than poor. Hence not only the remarkable difference in the casualty returns of the two combatants throughout the war, but herein also lies the explanation of how it was possible for these Russians to be again and again turned out of prepared positions. It has been said over and over again that if the Russian shooting had been even moderately good (at Mukden after a year's fighting) the Japanese attacks over the open would have resulted in a disaster.

The Japanese marksmanship was by no means perfect (according to some, not even good at times), but compared to that of the Russians it showed up most favorably, and went a long way towards the building up of the long list of Japanese successes.

We rightly pride ourselves on the marksmanship of our standing army, especially in India; and with our large annual expenditure of ammunition, our great opportunities for firing off the range, and the general keenness of officers in this branch of training, it is probably not going too far to say that we are most likely a good deal in front of most armies in the respect; but such is the paramount importance of good marksmanship in a soldier nowadays that we might even go a step further, which our voluntary system of recruiting would enable us to do, and refuse to keep men who are, at any rate, not average shots. Every company or double company commander could name three or four men at least in his command who are really poor shots, to pass whom through the necessary standards entails a large expenditure of ammunition every year. These men a Commanding Officer should be able to get rid of automatically, irrespective of their length of service, under some such clause as "unable to maintain a proper musketry efficiency," just as at present he can get rid of a man under three years' service as "unlikely to become an efficient soldier."

The question of the infantry advance to the attack was by far the most important one to which infantry officers looked for an answer in the war. Had we overdone things since the Boer War? and would our loose extensions lack the driving force necessary to the successful attack, which was the opinion of the continental nations? The answer is very clear. The Japanese entered the war with the German formations. Immediately after the first battle (Yalu) Sir Ian Hamilton finds them practicing very much looser formations. A month later (June 15th) we find the Division Commanders empowered to double the drill book intervals. At the battle of Chaotao (July 18th), the German formations are being discarded and our own South African formations being adopted. At the Yoshirei Pass (July 31st), the formation of the firing line, as described by Sir Ian Hamilton, was very loose, and from thence onward we find loose formations everywhere adopted by the Japanese.

The Russians, on the other hand, favored close formation and paid the full penalty throughout the war. The same authority quoted above, in describing the battle of the Motienling Pass, states that "the closeness of the Russian formations left nothing to be desired from the Japanese point of view"; and these dense formations were responsible for the disproportionably large Russian losses as compared to those of the Japanese, in this as in nearly all the other battles of the war.

To take one more instance, we find at the battle of the Shaho the magnificent effort of the Russians to capture Penchiho on the Japanese extreme right on October 12th was completely spoilt by the unsuitability of their dense formation against the deployed line of the Japanese. The Russians advanded in battalion quarter column trusting to the bayonet, with the inevitable result of such tactics against modern rifles. Not only, therefore, do we find that the wide extensions of South Africa are absolutely necessary in the advance under fire, but we find the Japanese in the later stages of the war going even further and sacrificing the even lines of the start of the attack to the necessity of wide extensions and use of cover; the various groups rushing pell mell at full speed and for marvelously long stretches after their leaders in irregular swarms to the next halting place, which may be considerably out of the direct line if better cover exist on either side; group leaders being responsible for the general direction, and ultimate direct attack on the objective. This is undoubtedly the best way of getting over open ground, but requires careful training in peace time.

Another point accentuated by this war is the importance of the entrenching tool in the attack. The Japanese may be said to have reduced the use of the spade in the attack to a fine art. Ground gained in the attack was never relinquished. In some cases the firing line sank into the ground like moles, digging themselves in under fire; but generally, owing to the deadly nature of modern fire, the advance was made under cover of darkness, the firing line being entrenched in their new line by daybreak, and the supports or reserves moved up to the line of trenches vacated by the firing line. Infantry must be provided with a suitable entrenching tool and instructed in its use, not only standing, but while lying prone.

The tactical importance of fire discipline which controls the expenditure of ammunition and so helps to solve the knotty question of supply, is another lesson of the war. In fact, fire discipline combined with good marksmanship would practically solve the question and at the same time render the attaining of the fire mastery without which the final assault is impossible. A question which is not yet properly solved is that of firing during the night. The experiences of the war certainly show

that, as far as the attacker is concerned, the less firing the better, trust being put to the bayonet; but as regards the defender, opinions seem to differ as to whether fire should be opened as soon as the attack is detected, or whether it should be reserved until the attackers are close to the trenches.

These are the most important lessons which deal with infantry alone and we now come to our last heading, under which we shall discuss those lessons affecting the tactics of an army in general.

GENERAL.

The importance of a definite plan whether it be the plan for a whole campaign or only the tactical plan of operations for a single battle, has always been so obvious that we had scarcely put it down amongst the lessons of the war. In this war, as in all others wars that have ever been, we continually come upon instances of the want of definite plans—troops disheartened by marching and counter-marching-reserves out of place at the critical moment or previously frittered away in aimless fashion -without striking new ground, but on the other hand we can learn much from the Japanese in the carrying out of plans when made-first the impenetrable secrecy with which the plan is guarded, next the generous co-operation of all ranks in the carrying out, and, lastly, the unalterable determination with which it is carried out regardless of cost. In the relentless spirit of "no surrender," too, the Japanese have set a high example to the older nations.

The tactical point most emphasized by the war, however, is the overwhelming value of the offensive. It may now be laid down as an unfailing axiom that to persist in the defensive role is to commit tactical suicide. The Russians, for reasons of their own, chief of which, we must presume, were want of confidence in their generals, their staffs, and the shooting of their troops in the open, persistently accepted the defensive role, with the result that they were never within reasonable reach of any important tactical success. The powers of the modern rifle have rendered impossible the old time counter-attack by which the defensive was turned into the offensive. The immense frontage of the modern battlefield which renders it exceedingly difficult

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to move reserves in time to a threatened point confers an additional advantage to the attackers, who, having the initiative, can decide at what point along the battlefield, or behind which flank, the issue of the day will be decided.

This difficulty in getting reserves up to a critical point in time, combined with the difficulty of piercing the center of a modern line of battle against modern arms, greatly increased the importance of turning movements. and consequently tended. as the war proceeded, to materially alter the normal position of the reserve both in the offensive and defensive to the flanks instead of the center. This naturally conferred an additional advantage to the attackers, who could mass their reserves towards whichever flank from which they intended the chief turning movement to be attempted; whereas the defenders had to be prepared for eventualities on either flank. Before leaving the subject of turning movements we must notice another point brought forward by the war. The containing powers of infantry nowadays are very great under any circumstances, owing to the precision, long range and rapidity of fire of modern rifles, but in hilly country these containing powers are enormousby increased, and as a general rule the war has proved for this reason that the decisive stroke on an enemy's flank should not, if the choice exists, be made on a flank resting amongst mountains.

Night operations in the Russo-Japanese War may be divided into two distinct classes, the first the night march culminating in an attack during the night or at dawn, the second merely an advance by night with the intention of gaining ground swept by artillery or rifle fire under cover of darkness. In this latter case the troops started digging themselves in at or just before dawn, so that they were under cover by daylight. Owing to the accuracy of fire this soon became the usual form of advance on a position, and as this is bound to be the same in future wars, this operation should be extensively practiced in peace time.

An interesting point occurs in connection with night operations. As the war progresses we find the Japanese in selecting positions to resist night attacks coming round more and more to the opinion formed by us on South African experiences, that it

is better to place the defenders at night a short distance back from the crest line, so as to get the attackers against the sky line, even though a more extensive field of fire is thus sacrificed

Space forbids us to deal in this essay with the subject of the various tactical aids to both offense and defense. The placing of obstacles, the necessity of well sited and well constructed trenches, with loopholes and head cover, the use of hand grenades. light railways, visual signaling and the many devices used to give concealment, both to works and to movements of troops. are all points, the importance of which are fully brought out again and again during the war. Visual signaling was little used by either side, but the opportunities for its successful use were many, especially in the mountainous country traversed by the 1st army on the right; and a good signaling equipment must have saved General Kuroki many anxious moments, besides insuring co-operation, not only between his own divisions, but between his army and the armies on his left as they drew together in front of Liao-vang. This essay has, however, long passed the limits intended, and it is time to bring it to an end. In conclusion, therefore, we would point out that in the race of nations to prepare their armies for the new conditions of a modern campaign, the British Army starts with a generous handicap. The lessons so painfully learned by our army in South Africa have almost without exception been proved to apply to all circumstances of modern warfare. And these conditions of modern warfare are peculiarly favorable to our armies. The comparatively long term for which we enlist our men under the voluntary system should enable us to give our troops the high training now required. Numbers no longer count as much as efficiency. We know our men will fight in the extended order rendered necessary by the precision and rapidity of modern fire. Well led, well trained and every man a good shot, there would be little fear to our army in a conflict under modern conditions even with a nation whose forces greatly outnumber our own.

THE CHARGE OF THE CUIRASSIERS AT MORSBRONN.*

(BATTLE OF WOERTH, August 6, 1870.)

By Major IMMANUEL.

A T the present day many authorities deny the possibility of success of cavalry in battle against infantry or artillery and base their reasons as a rule on the extended attacks of the French cavalry in the introductory battles of the Franco-Prussian War of 1870-71. The charge of the Cuirassier Division Bonnemain at Elsasshausen, at the decisive moment of the battle of Woerth, was executed with such a small degree of unity that non-success was a foregone conclusion.

The attempt of the cavalry masses of Galiffet and Marguerite to break through the lines at Sedan was more in the nature of a forlorn hope than in the nature of a well planned tactical performance, so that it is futile to cite that as an instructive case. But the attack of General Michel's Brigade on the French southern wing in the battle of Woerth deserves more consideration. That attack was ridden under the most unfavorable conditions, i. e., in a very difficult terrain, and shows exceedingly grave errors or faults in its inception as well as in its execution. If, however, it is true that we learn most in the consideration of errors of commission and of omission, then this attack deserves our especial attention, the more so as it was executed in a situation, which not only justified but compelled the interference of the cavalry to relieve the other arms. That ride of the "Cuirassiers dits des Morsbronne" is celebrated in song and legend. Friend and enemy have wondered at the devotion to duty of the brave troopers and their willingness to sacrifice themselves. Only a very careful investigation during later years have made clear the details of the charge and almost solved the contradictory reports connected with the course of the charge and its results. It is our intention in this paper to

shortly discuss the cavalry charge at Morsbronn from the standpoint of present day views and to draw lessons therefrom for the present and for the future.

Since noon the right (south) French wing had been gradually forced back by the Prussian XI Army Corps. The Prussians had taken Morsbronn and the Albrechthausen Hof-of course, only after a severe and protracted battle. About 1 p. m. the French Division, commanded by General Lartigue, which was weak from the start, found itself in a very grave situation. Parts of the division still held the southern edge of the Niederwald (forest) opposite the Albrechthausen Hof, while the other parts retreated through the village of Eberbach into the forest on the right wing of the division. The Prussians concentrated in mass at the Albrechthausen Hof; other masses, the 32d and 94th regiments, were executing an enveloping movement via Morsbronn with the intention of catching and holding the debris of General Lartigue's division. The three batteries of the division had been silenced by the superior Prussian artillery on the heights of Gunstett and had retired. The division was in imminent danger of annihilation within a very short time. Should this happen, the immediate loss of the southern part of the Niederwald to the French would have been unavoidable, and the division could not have retreated, and what is of more importance, the center of the French position at Elsasshausen would have been in great danger. General Lartigue had absolutely no reserves left.

In his extremity he turned to the only remaining troops, which were still in close order and uninjured on the right wing behind the infantry, namely, the cavalry division under General Duhesme. According to the "ordre de bataille." that division was composed of 28 squadrons, but the division commander had but nine of these, hardly one-third of the total force. The first brigade had been detached for service with the Infantry-Division Pelle; of the second brigade the 10th Dragoon regiment had not yet reached the seat of war; the 2nd Lancers were with the Cavalry Division Bonnemain; the fourth and fifth squadrons of the 6th Lancers were in Hagenau to cover the detrainment there of the first arriving infantry division of the VII Corps. The division commander consequently had at his disposal the

^{*}Translated from "Kavalleristische Monatshefte," by M. S. E. Harry Bell, Army Service Schools Detachment.

first and third squadrons of the 6th Lancers and the 3d (Cuirassier) brigade, commanded by General Michel. That brigade was composed of seven squadrons, four of the 8th and three of the 9th Cuirassiers. This gave the division commander a force of but 1,000 or 1,100 troopers and that in a situation which required the utilization of all possible forces to the last man.

The assembled parts of the cavalry division were, dismounted, behind Lartigue's division in the meadows immediately east of Eberbach and north of the Eberbach-Gunstett road, facing east towards Gunstett, and were covered from sight and from the enemy's fire by a flat hill; the 8th Cuirassiers were in the first, the 9th and the Lancers in the second line, all in column of regiments. General Duhesme himself had been in poor health since the beginning of the campaign and could neither mount his horse nor lead his troops in person. It was just a few minutes before one o'clock when the general staff officer of Lartigue's division, Colonel d'Andigne, brought to General Duhesme the request of General Lartigue "to attack with one regiment the Prussian infantry leaving Morsbronn"a request which, according to a cavalryman's view, was entirely wrong. The force designated was insufficient, for if we once decide on using the disposable cavalry, then each and every trooper should be utilized in the charge. General Duhesme considered the task impracticable and of no use and replied: "For heaven's sake, tell General Lartigue that he is about to commit a very mad act (une folie) and will cause my cuirassiers to be annihilated to no purpose." Andigne replied: "There is nothing else left for General Lartigue to do in order to save the remnants of his division from entire annihilation. Ask your men yourself if they are willing to see such an event happen without holding out a helping hand. For myself, my only regret is that I can not charge with you." After that Duhesme acquiesced, saying only, "Mes pauvres cuirassiers," shook Colonel d'Antigne's hand and gave orders for the 8th Cuirassiers to start. But the brigade commander, General Michel, was of a different and better opinion; he decided to make the attack with the entire brigade and in addition to take along the Lancers. "I had not the slightest doubt." wrote General Michel in his official report, "that our losses would be immense, but I made up my mind that we would have to sacrifice ourselves in order to save our comrades." A very proper cavalry spirit! The general and his brigade did sacrifice themselves!

A few minutes after one o'clock the brigade started on a trot; the 9th Cuirassiers in the lead, followed by the 8th; the Lancers being in the third line. The three regiments were in one line, an exceedingly dangerous formation, as the direction of the attack was not yet decided, neither could the formation of the enemy be seen. It had the most unfortunate consequences. The brigade reached the crest of hill 756 without opposition. Here General Lartigue had halted and indicated to General Michel, who had galloped in hot haste ahead of his command, the hill of Morsbronn in his front. To the left, behind the eastern slope of that hill, the most northern house of Morsbronn could just be seen; a little farther to the right hostile skirmish lines could be seen advancing through the open, the second and fourth battalions of the 32d Infantry. General Lartigue, who knew the lay of the land and the enemy's dispositions to some extent, advised the brigade commander to ride not against the front, but against the left flank of the Prussian infantry, that is, to leave hill 756 on the left (east) and to proceed through the Eberbach bottom to the south and to debouch to the east for the charge when on a line with Morsbronn.

It is clear that this advice was good from a general tactical as well as a cavalryman's standpoint; in this manner the brigade could have attacked under cover the enemy's flank and would have had open terrain for the attack. But it now appeared that the formation of the brigade made a change of front exceedingly difficult, and in addition General Micnel did not clearly grasp General Lartigue's directions in the confusion of the moment, and took as objective for his attack the skirmish line on the northern edge of Morsbronn, which was then the only portion of the enemy's force visible. At just this time the left flank of the 8th Cuirassiers was overwhelmed by the rapid fire, poured into it by skirmishers of the 80th and 95th Regiments, which up to now had been invisible to the French troopers. These skirmishers had assembled in Albrechtshausen Hof and when the Cuirassiers started, threw themselves into

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the ditches alongside the road and fired on the approaching cavalry at a range of less than 450 yards.

The two circumstances, i. e., the erroneous direction of the attack and the fire coming from the left, led General Michel to the decision to debouch to the right with the entire brigade and to charge the enemy in his immediate front. This decision led to an inconvenient and time-consuming change of front, and that under a galling infantry fire. The brigade encountered furthermore an exceedingly difficult terrain—on its left was a deep defile, in its front ditches, cuts, trees and hop gardens, full of barbed wire and constituting a serious obstacle.

The French cavalry has been blamed for not reconnoitering the terrain over which the attack was made, and justly and the fault must be laid at the door of division, as well as brigade and regimental commanders. There had been hours in which patrols could have been sent out to reconnoiter; nothing was done in that line, although it must have been perfectly plain that an interference was becoming more and more necessary the more unfavorable or precarious the situation of General Lartigue's division became. Even during the attack there were no scouts out in front; all eyewitnesses corroborate that only General Michel and the commander of the 8th Cuirassiers, Colonel Guyot de la Rochere, were in front, brave and spirited, it is true, but under a misconception of the situation. And in this manner the squadrons rode to destruction!

The turn to the right of the 8th Cuirassier Regiment miscarried entirely; on its right were woods and hop gardens and a destructive rapid fire was poured into it from the left. The squadrons broke into columns of troops and in that formation galloped faster and ever faster to the northern entrance of Morsbronn and right into a half-circle of Prussian skirmishers, and this circle closed on the attacking cuirassiers. With enormous losses parts of the regiment passed the 2d battalion of the 32d Infantry at point blank range, took the direction towards Duerrenbach and on the way were fired on again by the 9th and 12th companies of the 80th Infantry; other remnants of the regiment lost themselves in the country. Some of the cuirassiers rode even as far as Strassburg; riderless horses, blood and foam covered, were captured in villages miles from the scene of disaster. Parts of the regiment faced about and rode westward along the northern edge of the village from where the 2d battalion of the 32d Infantry poured a destructive fire into the squads of fugitives. The 1st and 3d squadrons entered Morsbronn, possibly to seek shelter from the fire behind the houses, and possibly also because their horses had become unmanageable and blindly ran into the village. "But a destructive fire met us coming from the houses." says the history of the 8th Cuirassiers, "we encountered a barricade closing up the narrow street. We were compelled to face about. Every one of the troopers either fell or was captured." And so miscarried the charge of the 8th Cuirassiers.

The 9th Cuirassiers were not more fortunate. To make the change of front, the regiment had formed troop columns; two columns deployed, the third rode in close order. The terrain over which it had to attack was not so bad as that over which the 8th Cuirassiers charged, but the rapid fire of the Prussians had a more telling effect on them. The main mass of the regiment galloped around Morsbronn, losing heavily; single groups went through the gardens on the northern edge of the village right up to the muzzles of the rifles of the skirmishers of the 32d and 94th Infantry in position there. A large part of the regiment entered the village from the south. While most of that party succeeded in again leaving the village and seeking safety in the open, many were delayed by the dead of the 8th Cuirassiers blocking the street, and all those were killed by the fire from the houses, barns and gardens. Finally the village street was completely blocked with dead and wounded troopers and horses. All those troopers, who succeeded in escaping either death or capture, fled in the direction of Hegeny,

The two Lancer squadrons formed the third line in the attack, but shared the same fate as the Cuirassiers. The remnant of that regiment went partly east and partly west of Morsbronn, some few going through the village; the survivors followed the 9th Cuirassiers to the south.

The entire bloody spectacle was over in less than a quarter of an hour. The survivors of the three regiments concentrated near Hegeny and established some kind of order. It was their intention, instead of righting around the far reaching flank of the

enemy, to try and rejoin the French army by going close to Morsbronn and they did so; but the enemy's reserves (supports) were still at that place and captured nearly all of the troopers that were not killed at the first fire, and but very few escaped. An unusual event occurred here; the 6th Company of the 94th Infantry charged with the bayonet a detachment of French Cuirassiers who had made a stand behind a barricade of dead horses and defended themselves with their pistols. "All troopers which did not immediately surrender were bayoneted."

Another small detachment of Cuirassiers taking the direction from Hegeny to Fortsheim encountered in the vicinity of the latter village three squadrons of German hussars, which formed the extreme left wing of the 22d Division. The hussars attacked the remnants of the French cavalry and dispersed them. Up to 2 o'clock at night several remnants of the French cavalry rode around the vicinity of Morsbronn, trying to break through the German troops and join their army. Only a very few of them were successful in this.

Reports of casualties of the French brigade differ widely. As a matter of fact but seven officers and fifteen troopers of the 9th Cuirassiers and three officers and 52 troopers of the Lancers returned to MacMahon's army. The total loss of the 9 squadrons was 63 officers and 780 troopers, of whom about 300 unwounded or only slightly wounded were captured. Taken all in all, the brigade was absolutely annihilated. The loss on the German side was slight. But few men were wounded by saber cuts or by the hoofs of the chargers, for the French cavalry did not strike the German infantry en masse, but individually. The only organization which lost considerably in the melée with the Cuirassiers was the 13th Hussar regiment, their loss being 24 men and 35 horses.

The question is, did the sacrifice of an entire cavalry brigade justify the results attained? As a matter of fact, the advance of the Prussian left wing was delayed 35 or 40 minutes thereby—that is, it took that long until the main body of that wing could again take up the forward movement, but not only on account of this cavalry charge, but also because the left wing of General Lartigue's Infantry utilized the time

gained by the charge, to make a counter attack from the Niederwald towards the Albrechtshausen Hof, to gain a breathing spell for a retreat.

So it happened that while General Michel's brigade went to pieces, the right wing of the Lartigue's Division escaped into the Niederwald and, being but weakly pursued, was enabled to retreat to Reichshofen. It is a fact, however, that it was impossible in any case to save the day for the French. The far superior leadership on the German side, the high tactical and moral worth of the German troops, their bravery and eagerness to attack, as well as their numerical superiority, all these considerations were instrumental in keeping victory perched on their banners. If General Michel's brigade had not sacrificed itself, it is more than probable that General Lartigue's Division would have been so badly defeated at Morsbronn-Eberbach, that its fighting powers would have been at an end. It is also true that the French defeat could hardly have been worse.

Another question: Could the brigade of General Michel have had better success in having chosen a different direction of attack, say by advancing against the left flank of the German Infantry wing, without having had to sacrifice itself completely? This question we answer in the affirmative, and that emphatically. We give General Michel's brigade all due credit for its bravery and intrepidity, the victor only honors himself by giving this credit. But nevertheless we cannot help but emphasize the low degree of tactical ability of the French cavalry. It is true it was opposed by an infantry which received the cavalry charge with composure and in security and repelled it as a mere matter of course worthy of emulation. When opposed by such an infantry, even a better planned attack would not have had better success, and possibly nothing more might have been gained except a little more time.

The charge of General Michel's brigade is often likened to that of Bredow's charge at Vionville. Both have been named the "death ride." But what a difference in the two! At Vionville five and three-fourth squadrons charged in excellent order and in compact mass through several batteries and two lines of infantry and then sturned about to ride down the hostile cavalry masses who attempted to block their road. The

brigade of General Bredow sacrificed two-thirds of its number, but was successful in so far that the enemy abandoned his advance and took up a waiting position. In this case there was a definite and decided success. It was otherwise in the case of General Michel's brigade. It started with nine squadrons and lost over four-fifths of its strength; it succeeded in causing but a very short delay to the enemy without stopping him. As already stated, however, the morale of the German Infantry as compared with that of the French, was a decisive factor. The German infantry remained unshaken, but not so with the French. The same applies to the German cavalry; it was better drilled tactically and was better in every way in the field than the French cavalry.

It is unquestionably true that the entire French cavalry ought to have been with the south wing of the army on August 6, 1870; on that wing lay its task. In place of nine squadrons, two entire cavalry divisions at war strength with a few horse batteries should have been at hand, instead of being scattered behind the entire battle front and coming scattered into action. Their mere appearance, even if not decisive, would have had a far different effect on the enemy than the nine squadrons, provided of course that there had been decided and quick action.

The question now is: Would a cavalry leader of today, in a similar situation, act as did General Michel? Might he not decline the responsibility for the attack with the excuse that the use of cavalry in action in that manner is a thing of the past? Each and every battle situation offers a new and peculiar phase and makes special demands on the force of decision and will power of the leader and on his willingness to take responsibility. And this is especially so in the case of a cavalry leader. He must never wait to be called or urged, else the valuable moment for action is lost. Of course, he must carefully weigh his decision, and whether or not he shall lead his troops to a charge on the death-dealing skirmish lines. He should always have in mind the sentences in our cavalry drill regulations: "A use of the cavalry, regardless of consequences, may be required to offer, resistance to a pursuing enemy in case of an unavoidable retreat. A short breathing spell, which can thereby be gained for the army, may be sufficient to avoid a catastrophe, and to the cavalry which does this, even if not entirely successful, will remain the honor of the day." The progress made in our cavalry arm has changed nothing in this respect and cannot do so.

Consequently the cavalry leader of today will lead his troops to the charge, of course with different organization, in different formation, and in a different direction than was done at Morsbronn. Even then if the cavalry does not succeed, it has done its duty.

CAVALRY IN THE RUSSO-JAPANESE WAR.*

By Captain R. S. HAMILTON GRACE, p. s. c., Thirteenth Hussars.

THE achievements of Cavalry during the Russo-Japanese War were not of that magnitude which the strength in mounted troops, possessed by at least one of the belligerents, would have led us to expect.

This fact has been seized on by the opponents of Cavalry to enunciate the formula that "the part Cavalry play on the stage of modern war is necessarily small, owing to its inherent defects as an instrument under modern conditions."

In the opinion of these people Cavalry must be replaced by Mounted Infantry. Yet how illogical is their argument is shown by the fact that in 1901 Colonel Picard wrote: "La cavalerie russe est donc de toutes les cavaleries européennes, celle qui se rapproche le plus de l'idée de transformation en infanterie montée." The dictum of these critics being obviously false, let us inquire whether the small results attained by the Cavalry in Manchuria were not due to abnormal conditions and to the neglect of lessons expounded by great leaders.

The duties of Cavalry may be divided into:-

- 1. The acquisition of information.
- 2. The prevention of information.
- 3. Strategic delay.
- 4. Raids.
- 5. Battle action.

^{*}From the Cavalry Journal (British) of April, 1910.

I. ACQUISITION OF INFORMATION.

The vital necessity of information to a commander is obvious: it has been the foremost care of every great commander. Before commencing the 1815 and 1870 campaigns, Napoleon and Moltke flooded the enemy's country with spies, and these spies were backed up by Cavalry, for, once the fighting begins, the information from spies becomes uncertain. Lee's Cavalry in 1862 working in a friendly country gave him excellent information. A system of espionage organized before war, combined with Cavalry reconnaissance, is the best method of gaining information.

The Japanese followed this system, the Russians did not; they omitted to prepare before the war and asked their Cavalry to perform impossibilities after hostilities had broken out.

Kuropatkin ascribed his failures as being largely due to the scanty and imperfect information that he received from his Cavalry.

In this matter of seeking and preventing information the war in Manchuria was somewhat abnormal.

The natural cunning of the Japanese, added to their facial resemblance with the Chinese, had enabled them to perfect before the war a system of espionage probably unrivaled in the history of war; in consequence the duty of their Cavalry was practically confined to prevention. The Cavalry in forming their screen were not forced to go far afield and could call in the assistance of both Infantry and Artillery. Hence there could be no Cavalry fight to decide the question of liberty of reconnaissance.'

The Japanese Cavalry had thus attained to a position without fighting which in a European war will not be reached without considerable losses. There were two courses open to the Russian Cavalry, either to split up into small parties and to attain their object by mobility or to remain in large masses and crash through the Japanese screen by fire action.

The Russians chose a middle course and failed. They did not mass and then break through by a determined dismounted attack, nor did they scatter and try to attain their object by mobility. They took the middle course, viz:, they scattered and then tried a half-hearted dismounted attack, and

were quite naturally stopped by the Japanese mixed screen. On February 27, i. e., one day after the commencement of the movement, the presence of a strong Japanese force was located at Tawan. Not only this advance but the preparation for it would have been discovered had the Russian Cavalry followed the example of Stuart and acted as Cavalry instead of Mounted Infantry.

Let us suppose the Japanese had been defeated and driven back. What would have happened?

The whole system of espionage would have been dislocated, spies would have been unable to get back, foreign agents would have been terrified, collecting stations for information would have to have been changed, and it is extremely probable that the Japanese leaders would have got very little information indeed from their spies.

If all this had happened, as might easily have been the case, how acutely would the want of a sufficient force of Cavalry have been felt—a Cavalry that could make certain of getting the necessary and vital information, and that could hold off the enemy's Cavalry from pursuit.

For gaining information Cavalry in its proper proportion is essential as ever; moreover it must be trained as Cavalry, otherwise it will not have the requisite mobility and dash to enable it to out maneuver and outfight the opposing Cavalry with whom it must sooner or later in its attempts to get information come into contact.

This rôle of gaining information is the most important which can fall to the lot of Cavalry, and it is one upon which the majority of our Cavalry at the outbreak of war will be employed. (The duty of preventing information being largely handed over to our Mounted Infantry.)

It is in this rôle and at this stage of the campaign that large bodies of hostile Cavalry are likely to be met with. The most essential function of the training of Cavalry is, therefore, to prepare it in the best way for the rôle of gaining information, and this training must have in view the probability of a combat against the enemy's Cavalry. If beaten in the action against the enemy's Cavalry it matters little how well

our Cavalry could have performed their other duties had a chance arisen.

There are, however, times when Cavalry must rely to a very large extent on fire action, and therefore the training of Cavalry to fight on foot, rifle in hand, is extremely necessary, and should not be neglected. Our Cavalry are enlisted for seven years' color service, while the majority of Continental nations have to train their Cavalry in three years or less. It should not, thererefore, be hard to train our men to such a state of efficiency that they can equal, if not surpass, Continental Cavalry in the mounted combat, as well as being able to fight on foot.

Especially is this fire action necessary when told off to delay the enemy, as Jackson's Cavalry delayed the enemy prior to and during the battles of CrossKeys and Port Republic, and as Benedek's Cavalry might have delayed the Crown Prince from arriving at Koniggratz, and as Grouchy's Cavalry might have done before Waterloo.

Modern firearms have increased this delaying power of Cavalry. Long range and rapidity of fire make it impossible to guess the delayer's strength, and the precision of the modern rifle makes a wrong guess costly. After the battle of Wafangkou, Samsonoff and his Cavalry delayed the enemy to such an extent that they only advanced thirty-five miles in twenty-three days. At Yentai, also, the delaying power of Cavalry was well shown.

When the Japanese on exterior lines were converging on Liaoyang there were occasions when this great power could have been used.

The American Civil War showed that a boldly led Cavalry, relying on speed and secrecy, can make raids against an enemy's communications with fair safety, even when the latter has Cavalry. When, however, there is little or no hostile Cavalry the raids can be made with perfect safety, for the enemy, unable to take the offensive, is chained to the defensive, and no commander can be crushed by purely defensive action. But to be effective a raid must be undertaken with a definite object at a suitable time.

On June 12, 1862, Stuart rode round the Federals; the main operations began on June 26. On August 23, 1862, Stuart, with 1,200 men, again rode round the Federals, covering some sixty miles in twenty-four hours: the main operations, e. g., Jackson's march, began on the 25th. On June 27, 1863, Stuart again raided, with some 1,500 men; he did not arrive back till July 2, and was not present at Gettysberg. The first of these raids destroyed a certain amount of material and gained information, the second drew off the Federal troops at the critical moment, the third left Lee in ignorance and without Cavalry for the battle. We therefore see that a raid should be undertaken just before the battle, that the troops should return for the battle, that numbers should be limited, secrecy maintained, and trust placed in speed rather than in fighting.

From mid-December the Japanese had known of Mischenko's proposed raid and had made their preparations. On January 8, Mischenko, a gunner by trade, started. His column consisted of 10,000 men, 1.500 beasts for food. 22 guns, and some Mounted Infantry. His average march was 45 versts a day, and the next main operations did not begin till January 26. When lessons of the past are thus disregarded, lack of success must be put down to the bad workman rather than his tool.

On January 15 the Japanese despatched two patrols of 200 men each. Making a long detour, these were able to blow up a bridge 160 miles north of Mukden; as a result the whole division of Don Cossacks and two brigades of Infantry were absent from the battle of Mukden.

Since the Russo-Japanese War the *rôle* of Cavalry on the battlefield is deemed by some to be past; but before coming to so momentous a conclusion let us see whether by judicious handling the Cavalry might not have been able to reap greater results than they did.

At Waterloo and Quatre Bras it was shown that Cavalry applied frontally and without surprise against unbroken Infantry were of little avail. The same lesson was proven in 1862, 1866, 1870. Lingy showed the effect of Cavalry against tired Infantry, Waterloo its effect in pursuit, Koniggratz its effect as an antidote to the pursuit.

The campaign of 1870 showed that these duties were still possible if the element of surprise was present, the right moment chosen, and the Cavalry well led. During the course of the American Civil War, a type of Cavalry was evolved that could charge as Cavalry, delay as Mounted Infantry, or fight on foot as Infantry. If the lessons of the past had been learnt, and the right type of Cavalry evolved, could not it have been of use on the battlefields of Manchuria, or have modern conditions eliminated it from the battlefield altogether? Could not something have been done besides merely locating the enemy's movements as the Russian Cavalry did at Wafangkou, Liaoyang and Mukden? Was there no opportunity for delaying tactics for the Russians, or would a strong Japanese Cavalry have been useless for getting information and for pursuing the enemy after Shaho, Mukden, Liaoyang, etc.?

The Japanese Cavalry failed on account of numbers. The failure of the Russian Cavalry was partly due to their leaders and want of dash, partly due to the way they were scattered without method throughout the Army. They were trained as Mounted Infantry and used as Mounted Infantry, i. c., dispersed and wedged into the fronts of strongly fortified battle-fields—used in the hills when the vast plains in the west lay open.

At Wafangkou the Russian Cavalry could have delayed the Japanese turning movement and taken it in flank. The fire of the Japanese Cavalry effectually broke up the Russian counter-attack.

At Liaoyang the Cavalry was scattered: Samsonoff on the right, Grekoff in rear of the centre, Rennenkampf on the left. On August 31 between 7 and 8 p. m., the attack of the last reserves of the Second and Fourth Japanese Armies on the works south of Liaoyang had failed, and after untold hardships and losses the Japanese had to fall back. Surely this was an opportunity for a Cavalry massed on the Russian right, but they were scattered, were not available, and had not the man at their head to seize the psychological moment. On August 28, Samsonoff's Cossacks, nineteen sotnias, were not enough to stop the Japanese turning movement. On August 30 Rennenkampf's Cossacks did nothing to stop the Japanese turning movement

round the Russian left. September 2, Samsonoff held back Kuroki, and when Kuropatkin decided to retire, the Cossacks of Mischenko, connecting the 2nd and 4th Siberian and 17th European Corps, for two days prevented the Japanese from breaking the line, while Rennenkampf prevented the turning movement round the left. No pursuit owing to insufficient Japanese Cavalry: result, another fight at the Shaho.

At the Shaho the Cavalry were again scattered. Grekoff, with twenty-two sotnias, on the right; Mischenko, with sixteen sotnias, in the centre; and Rennenkampf, with fifteen, on the left. On October 12 and 13, Mischenko stopped Kuroki's turning movement.

On October 12 Prince Kamin and his Cavalry saved the Japanese right wing from a perilous position at Ponsiho. In spite of the Cavalry having to work in the mountains, twenty-four squadrons, backed by sixteen battalions, managed to place themselves on the communications of the First Japanese Army. Had the Russian Cavalry been massed on the right it is quite open to question whether the advance of the Japanese left would have been here possible. No pursuit owing to insufficient Japanese Cavalry: result, another fight at Mukden.

At Mukden we once more find the Russian Cavalry scattered. Out of 143 sotnias, ninety-one were distributed between Alexieff, Rennenkampf and Mischenko, and the remaining fiftytwo were allotted seven per Army Corps.

This dispersion, coupled with the purely defensive spirit inculcated by the Russian command and the Mounted Infantry training given to the Russian Cavalry, led, as might be expected, to a purely passive, spiritless, dismounted defensive.

A great Cavalry mass acting on the right flank, outflanking the turning movement of Nogi's army, would have had, at least, great, if not decisive, results on the future of the war.

At this battle the Japanese felt the want of Cavalry most keenly. All the elaborate moves of Kawamura and Kuroki were necessary, owing to the want of a Cavalry screen, in order to deceive the Russians.

On March 2 the Cavalry of the Second Japanese Army was placed at Pan Chiatai to fill a gap in the line of the Third Army. The rest of the Cavalry were rightly employed in

screening Nogi's march and eventually placing itself across Kuropatkin's communications north of Mukden; but it was too weak to be of use. The Russian Cavalry did practically nothing to stop this turning movement, and even allowed this small body of Japanese Cavalry to threaten the Russian line of communication. The mere presence of this body of Cavalry on the line of retreat indicates what would have been the result of a mass of Cavalry employed in a similar manner. Mukden would have been a battle of fruitful results, instead of a fight in which the victor was too exhausted to receive the laurels.

From the above it is hoped that it has been shown that in the late war it is not opportunities for Cavalry that have been wanting, but leaders and men to take them.

The lesson of the war is that Cavalry is as useful as ever, but that to obtain good results it must be trained in morale, placed under good leaders, and be used in its proper sphere, i. e., to enable Cavalry to use its full power it must have room to move into action as well as in action. Its defensive power must be used to create offensive opportunities.

In fact, what is wanted is not Infantry turned into Cavalry, but horsemen trained to fight as Cavalry, imbued with the desire to get at the enemy, and trained to be good shots.

ON WRITING MILITARY HISTORY.*

BY CAPTAIN THE EARL PERCY.

THERE are many ways of writing military history to be of use to those who wish to study war. A mere catalogue of marches, a mere statement of the positions occupied by contending forces from day to day, may be of service when the strategical principles involved by the shapes of frontiers or geographical features in relation to armies are illustrated and explained by such an author as Hamley; but to de-

scribe a campaign, adequately apportioning praise or blame to the various commanders, criticising their actions and stating the alternatives to them, requires not merely statements of facts, but a very careful consideration of all the conditions which governed those actions. This method, when combined with great military ability and enthusiasm for the subject in hand, has given the world such works, among others, as Houssaye's "1814" and "1815," Jomini's "Life of Napoleon," and Henderson's "Stonewall Jackson."

A very different method is observable in an article on "Mc-Clellan's Campaign on the Yorktown Peninsula," in this number of the United Service Magazine, and as it is typical of a style of writing military history which would appear to be of little value in gaining a real understanding of war, it may be worth while to note a few of the cardinal defects.

In the first place, a certain opinion seems to have been formed as to the lessons of the campaign; facts are then made to fit in with those preconceived views; the plans which the various generals should have followed in dealing with the strategical problems are then put before us without any regard to the difficulties, moral and physical; and last, but not least, a famous general, who has hitherto been regarded by most people as little short of a hero, is branded for his "unprecedented behavior" and "defection" at critical periods during the campaign.

With regard to the seven days' battles, the attempt has been made to show that Lee committed a grave error by what is termed his "inaction" on the 28th June, after the battle of Gaine's Mill; an alternative plan which is called "obvious" is then given, Lee's original plan is called "unsound," and Jackson's reputation as a man and a soldier is light-heartedly dismissed in a few words of denunciation.

Now all this may, of course, be the result of profound study and of careful thought, but for any impartial person who cares to follow the alternative plans and to read both sides of the question as regards Jackson, it is all strangely unconvincing, while the dogmatic tone adopted throughout is irritating, to say the least of it. To shirk the real problems involved by difficult situations in war is certainly not the way to write military history.

^{*} From The United Service Magasine for May, 1910.

The real facts about the 28th of June are these: On the early morning of that day Lee was quite uncertain as to what his enemy's line of retreat would be. The fighting on the preceding day had been continued till long after nightfall, and the Federals had retired to the south side of the river under cover of darkness. The difficulties of the country were enormous. though in the article in question they are ignored altogether until the last page, and then described in such a way that we might imagine the valley of the Chickahominy to present much the same features as those of the Thames or the Seine. The cavalry, we are told by Lee, could only gain information by advancing along the regular roads, which were, of course, obstructed by barricades and broken bridges, and all lateral movement was out of the question. Under these circumstances a direct pursuit of the enemy would not provide great results: and besides, and this is a most important point, Lee believed that McClellan would recross the river by the railway and Bottom's bridges, or even lower down. He therefore despatched Ewell and Stuart's cavalry to reconnoitre down-stream and seize the bridges. No reports had come in from the south bank, which tended to show that McClellan had changed his line of communications and was retiring on the James River. The first indication appears to have been the dust raised by the Federal trains in the evening of the 28th; but it was not till 3:30 A. M. on the morning of the 29th that Lee received positive information from Magruder that the enemy's works were vacated. He then issued orders for a combined advance of the Confederate columns on the 29th.

Now, if anybody is prepared, after considering the problem in all its bearings, to say that Lee was wrong, he should at least bear in mind the following possibilities:

First.—McClellan, only one of whose corps had been beaten, might overwhelm Magruder and seize Richmond.

Second.—He might retire due south to some point on the James River.

Third.—He might recross the river and march either to White House or down the Peninsula to Yorktown or Fortress Monroe.

If Lee crossed to the south bank he would give McClellan an opportunity of regaining his original line of communications and his supplies at White House. If he advanced down the north bank, he increased Magruder's danger. He therefore waited until his enemy's designs should be disclosed, and when he discovered that he was retiring to the James, took measures which but for untoward accidents would have led to the total defeat of the Federal army. Considering the difficulty of obtaining information, and the fact that he was operating on both sides of a river against an enemy greatly superior in force concentrated on one bank, his action on the 28th would appear to be on the whole the best possible one to adopt.

Now let us consider the alternative plan propounded in the article and described as "obvious."

This consists in sending Jackson's corps on Saturday the 28th to cross at Bottom's bridge, Stuart to cross lower down, A. P. Hill and Longstreet to act as a general reserve to operate in aid of either Magruder on the right or Jackson on the left. This is a very pretty scheme, no doubt, and perhaps it has been carefully thought out and based on information not available to others. If we were only shown the process of reasoning, we might humbly acquiesce even if we were not convinced; but at the very outset so many difficulties stare us in the face that one is almost tempted to believe that the scheme was never intended for close scrutiny at all. In the first place, Lee says in his report, "Below (south of) the enemy's works the country was densely wooded and intersected by impassable swamps, at once concealing his movements and precluding reconnaissances except by the regular roads, all of which were strongly guarded. The bridges over the Chickahominy in rear of the enemy were destroyed and their reconstruction impracticable in the presence of his whole army and powerful batteries. He was therefore compelled to wait until his purpose should be developed." We read at the end of the article a strong condemnation of Mc-Clellan for not overwhelming Magruder on the 28th and 29th of June. But surely this result would have been achieved with much greater ease had the whole of Jackson's corps been left on the north bank engaged in the hopeless task of building a bridge and forcing the passage of a river in the teeth of an

artillery greatly superior to his own, while the divisions of Longstreet and A. P. Hill are in the dilemma of being compelled either to leave Magruder to be crushed and go to the aid of Jackson in his almost impossible task, or to fleave Jackson isolated and march to the assistance of Magruder, whom they will probably be too late to aid, as indeed they actually were, under much more favorable circumstances on the 29th. We know that Bottom's bridge had been destroyed; everything seems to show that it was commanded by powerful batteries, for we know by Lee's report that the bridges in rear were held, and from Magruder, that the works were fully manned on the evening of the 28th. Another little difficulty which must strike any one is, how were A. P. Hill and Longstreet to support either Jackson or Magruder? A glance at the map will show that the only points which would render this possible at all are Grapevine and New bridges. By remaining there they would be in a central position, it is true, but Grapevine bridge, which needed repairing, is about five miles from Bottom's bridge, and New bridge more than eight. So that Lee's inferior forces are to split themselves up into three practically isolated portions, on something like a fifteen-miles circumference, operating on both sides of a river, amid pathless swamps and thickets, against a superior force concentrated on one bank of the river! It may be all very well, but there are surely a few slight difficulties, and we should so much like to have a little more explanation!

It has been said above that facts recorded in the article are made to fit in with preconceived opinions. For instance, Magruder is described as being left to "struggle" alone against Mc-Clellan's flank guard on the 28th. This is misleading. Only one division, that of Jones, was engaged. It is true they lost about 400 men, but considering the numbers engaged, this action can hardly be called more than a skirmish. Besides which, Magruder's special duty was to hold the enemy in check until his designs should be disclosed. Had an attack in force been made upon him there would have been some reason for the phrase employed; but it is perfectly evident that Magruder, on his own showing, had no notion whether the Federals were retiring or not, and to give the impression that he was left in the lurch by Lee is absurd.

Again, we read of Lee having been subject to "a collapse of energy," and that commander is blamed for "the complete stagnation that supervened for forty-eight hours." What this may mean it is hard to say. If history must be written in this rather sketchy manner, the strictest accuracy is necessary in order to avoid misunderstanding. Now, the combined Confederate advance took place on the morning of the 29th. It is surely most misleading to apply the term "stagnation" to a day which was spent in hard marching by all the Confederate columns except perhaps one, and on which a hard-fought action took place at Savage Station, which, though it did not cost more men than the "struggle" of the preceding day, resulted in a repulse of the Southerners.

As regards Lee's original plan which is called "unsound," we are not favored with any alternative and "obvious" plan, except that we are told that "General Johnston chose the better part, with inferior forces effecting surprise and operating on inner lines against the Federal center." This criticism may be very valuable, but unless it can be shown that Lee could have done the same, it is rather unconvincing. The Federal center was strengthened by fieldworks, and unless a superior force gives its opponent an opportunity, by making wide outflanking or enveloping movements, to operate on inner lines against the center is hardly likely to be attended with success.

But when we turn to a work on the "War of Secession," by the same author, we are given a little more light on this point. In that we are told that "if Jackson had commanded on the right and Magruder on the left, if Longstreet's six brigades in a central position had been used as a general reserve, the Federals would have had to fear a double envelopment." The advantage of reversing the positions of Magruder and Jackson is only apparent if we adopt the view that Magruder's energy was greater than Jackson's. But even then, it is rather hard to take this sort of criticism seriously. Time is of some importance in war, and as Jackson was coming from the valley, the left flank was obviously the most suitable one for him to operate on. But how a double envelopment of a superior force by an inferior one operating in such country and separated by a river was to be effected, we are not told.

But it is refreshing to turn from this sort of solution of a strategical problem to that of a careful writer like General Alexander. His alternative plan for the 28th is really interesting. Leaving Magruder on the south bank, Lee, reinforced by Holmes' division, should march down the north bank of the Chickahominy by the good roads which run on that side, should cross the river at some point below the Federals and endeavor to intercept them on the Malvern heights. This scheme is risky; it leaves Magruder completely isolated, but it has at least the advantage of keeping the whole Confederate force on the north bank concentrated and operating in the most effective direction against the enemy. Had McClellan been cut off from his new base on the James River, his army demoralized and hampered by its long trains on the muddy roads, the result might have been a surrender of the whole force. It would at any rate be infinitely better than splitting up the attacking force into three detachments, each of which is liable to be beaten in detail.

As regards Jackson's reputation during this campaign, the whole question may be studied with profit both in the pages of Colonel Henderson and in those of General Alexander. Each of these writers takes a very different view from the other. Each is somewhat prejudiced Alexander undoubtedly so, as he writes from the point of view of one who held a high command in Longstreet's corps and believed that at any rate on one occasion that commander was left in the lurch by Jackson. The severest criticism is perhaps that of D. H. Hill, who says that pity for his men was a chief factor in his inaction at White Oak swamp on the 30th, and that in view of the exhausting work done by the valley troops, "he thought that the garrison of Richmond ought to bear the brunt of the fighting." Henderson's arguments are at any rate hard to refute. He points out that Jackson took the view that orders should be literally obeyed, and that, on the 30th, he had received explicit orders from Lee to guard the left flank. By remaining opposite the Federal position at White Oak swamp and making a demonstration, he was carrying out this duty by preventing them detaching a force to act against Longstreet. He also shows, and this was Jackson's own explanation, that Lee could easily have sent for him if he had required him.

Another accusation made against him and repeated in this article is that he remained in camp on the 29th. A part of Jackson's force did remain in camp while Grapevine bridge was being repaired. This was not effected till after nightfall. Alexander says that it could have been repaired earlier, that there was a ford close by, and that, even if he could not cross there, he might have followed behind Longstreet and Hill over New bridge. Now, one would like to know, first, whether the ford was practicable for artillery; second, whether the bridge really could have been repaired earlier; third, how much delay would have been entailed by adopting the third course, which incidentally was contrary to orders, and would appear to mean not only several miles' extra marching, but a great blocking of the roads.

All these points want clearing up before we can give a final verdict. It will be noted that in the article in question, in speaking of Jackson's action on this day, Sunday is written in brackets. This is no doubt intended to amplify a remark made in the same author's book, that Jackson's attitude during the seven days was either "that of a rabid Sabbatarian or that for which Achilles was blamed at Troy."

To this it can only be remarked that such a bald statement, shirking as it does all the above-mentioned difficulties and the arguments of a great authority, displaying an even greater prejudice and unfairness than that of even his bitterest critics, who venerated Jackson's memory even though they believed that he had displayed too bigoted a regard for the Sabbath, and a disproportionate care for his men—such a statement can only be described as verging on the impertinent.

If adequate explanations of statements are too much to expect from a magazine article, we might at any rate hope to see common fairness displayed. But in speaking of events on the 26th, there is a good deal of subtle misrepresentation. "What was Jackson doing on that day?" is the question asked and obviously intended to convey the impression that nothing but incompetence or disloyalty to his brother officers stood in the way of his supporting Hill. Are want of maps, the fatigue of troops, the necessity of constructing bridges, and incessant skirmishing

with the enemy no reasons for delay? The statement that "Stuart had bridged the Totopotomov" requires proof. The evidence seems to be conflicting. Jackson says Whiting repaired the bridge, and Henderson asserts that the operation delayed him for a full hour.

In a review of "The War of Secession," in the April number of this magazine, the author of that work is commended for having opened a field of inquiry into the "origins of legends." Legends are sometimes rather hard things to kill; indeed, they can only be killed by closely reasoned arguments and careful sifting of the evidence, not by dogmatic utterances. If the picture of Stonewall Jackson given to us by Colonel Henderson is really a legend, if the interests of historical truth require that it should be dissipated, let us by all means see the reverse side of the picture in all its details, supported by good evidence. It is probable that such an effort would meet with much the same fate as that of a certain Colonel Mitchell who published a work on Napoleon, in which he proved, at any rate to his own satisfaction, that that individual was an incompetent general, a gigantic impostor, and an unutterable blackguard; but it would at least be an honest method of dealing with history.

If Tackson failed to live up to his high reputation during this campaign, it was one of those temporary lapses which are common to all who hold high responsibility. Conceive such a method of criticism as that employed by the article in question applied to the greatest commander of any age! It is only the literal truth that Napoleon completely lost his head at Castiglione in 1796, that his tactics at Marengo were foolhardy and faulty to a degree, that he suffered from a serious "collapse of energy" and irresolution at Borodino in 1812, again during a critical period of three days at Düben in 1813, and after the battle of Ligny; but would the statement that he was rash, idle and irresolute be giving a true picture of his military career?

And yet this is an exact parallel to the method employed.

What impression that is not totally misleading can be gathered from the whole tone of the article, and from expressions such as "Lee being set the task of redeeming an unfavorable strategical situation with an army deficient in morale or maneuvering power, and only half loyal to its commander," or of

"Lee having pinned his faith to one subordinate who signally failed him"? As they stand, the only opinion one can come to is that Lee was a somewhat reckless commander, who in times of emergency showed a lack of resolution: that an army which lost about 25 per cent. in a week's continuous marching and fighting, which included a division that in two successive days' fighting endured a loss of 33 per cent., which at the end of those seven days poured out their blood like water on the open slopes of an impregnable position—that this army lacked morale and distrusted its commander! That the hero of the Second Manassas and of Chancellorsville was a religious maniac, incompetent and disloyal both to his superior officers and to his colleagues! Is this really a true picture? It seems a poor substitute for Henderson, at any rate.

WRITING MILITARY HISTORY.

It is unfortunate that the writing of military history in this country appears to be confined to those who wish to "cram" the details of a campaign into the brains of officers going up for promotion examinations. On the Continent such works are written for an appreciative public, who are judges not only of literary merit, but who, or at any rate a large proportion of whom, have some knowledge of military matters. In this country they are too frequently served up as dry bones for the benefit of bored subalterns. There is nothing more remarkable than the way in which Colonel Henderson's work has been recommended to officers and set over and over again for examinations, until it is to be feared the natural "cussedness" of humanity is inclined to take the form of voting Jackson a prig or a bigot. The only explanation is that that work is almost the only living entity in this "valley of dry bones," the one description of war which gives not only a scientific exposition of the principles of strategy. but a human picture of war as it really is, and the physical and moral conditions which dominate it. Is it not of far more educational value to read in Colonel Henderson of the difficulties experienced by the Confederate columns, vainly trying to cooperate in thick bush, vainly trying to form a junction of converging columns on the battlefield, an operation which has rarely succeeded, and then only when guided by a staff trained to the highest pitch, than it is to follow these off-hand criticisms and arbitrary methods of dealing with strategical and tactical situa150

tions without a single mention of the nature of the country or of the extreme difficulty of combined movement in swamps and thickets?

For examination purposes and in order to impress an examiner, it is no doubt well not to be too elaborate, and to be able to vaguely compare the situation during the seven days to Vittoria, Nivelle or Austerlitz, all of which are brought in, in different places, either in the book or article, is no doubt an asset; but the value to a serious student of war is doubtful. He knows that there is about as much similarity to the tactical situation at Austerlitz as there is between the swamps of the Chickahominy and the rolling hills of Moravia.

"In war the moral is to the physical as three to one," and if succinct accounts of great campaigns are to be written for the education of officers, the task should be approached in the spirit of Colonel Maude's 'Campaign of Leipzig,' a work the scope of which is necessarily limited, but where useless details are avoided, and which is an exceedingly clear, thoughtful and carefully reasoned account of a national struggle dealing with all the problems, both physical and moral, involved.

Of late years some of the finest pictures of war have been given us by a civilian writer, Trevelyan, in his works on Garibaldi. It is from such works and from military memoirs that we learn the most. It is possible that authors, led away by enthusiasm, exaggerate the merits of their heroes; it is possible that this author exaggerates the qualities of Garibaldi as a leader of men; it is possible that Colonel Henderson has placed Jackson on too high a pinnacle of glory; it is possible that Plutarch's heroes were not heroes at all; but if we are to follow Napoleon's advice "to read and reread the campaigns of the great masters of war," it is to such works we shall turn for inspiration, and for a true picture of war and the human equation which is its most important element. We shall leave others to serve up their somewhat tasteless hash of dry bones, carefully boiled down, with all the marrow extracted from them, and treated with their own special sauce, for the benefit of those who shall thus be fortified to impress the examiner with their extensive knowledge of war as it never really was, nor ever will be.

A NEW AUTOMATIC MILITARY RIFLE.*

FTER several years of discussion and testing, by nearly all the leading powers of the world, reports say that Mexico is about to give a practical demonstration of an automatic rifle in the hands of the regular troops of that country. Mexico is not one of the greatest powers, nor are Mexican troops considered to be as well trained in modern military tactics nor as well educated as those of some other countries. Nevertheless, the Mexican military authorities evidently believe that the men are wise enough to learn how to handle an automatic gun.

The "automatic" or "self-loading" rifle is in its early stages of perfection and the Mexican rifle will be subject to constant criticism, and improvements will be made as years go on and more countries follow Mexico's lead. The same was true of the bolt action military guns in use by the various armies of the world today. They are all essentially the same, but the new Springfield is the latest and considered the best.

The same evolution will take place in the automatic rifle. Already the process of elimination and simplification has begun. The various methods of obtaining a self-loading action have been thoroughly tested out.

The "blow-back" and "recoiling barrel" actions have been discarded and the "gas-borrowing" principle pronounced the best. It only remains now to prove that it is possible to make a military automatic rifle simple enough for the average soldier, who is lacking in knowledge of machinery and mechanical principles, to handle safely, easily and economically, and at the same time to make a rifle as light in weight as possible without sacrificing strength, durability and accuracy.

Improvements in all classes of machines are accomplished with the same end in view, namely, to produce a given result with fewer movements and in less time without decreasing the efficiency of the result. A practical demonstration of the auto-

^{*} From Arms and The Man of May 12, 1910.

matic rifle will show to a large number of waiting mechanics and inventors just where the weaknesses lie and where the greatest improvements can be made.

Maxim, Colt and Benét-Mercié all hold patents on automatic machine guns of the gas-operated type, and McClean, M. F. Smith and General Mondragon, the inventor of the Mexican rifle, hold patents on shoulder arms using the same principle of automatic action. Besides the above, there are many others in this country and in Europe who have used this principle in the design of automatic arms, as it is by no means new. The method of applying the principle and improvements in its use are all that can be patented.

If, then, no radical departure from the "gas-borrowing" principle is made, it is safe to say that the automatic military rifles of the future will simply be improvements on the proposed Mexican arm. This rifle is said to function perfectly and weighs nine pounds four ounces, but photographs show it to be rather awkward in appearance and complicated in action.

The writer, during a recent visit to the Standard Arms Company of Wilmington, Delaware, had the pleasure of seeing a new automatic rifle designed by Mr. M. F. Smith and built by that company.

At first glance it would not be noticed that this rifle was an automatic, so nearly does it resemble the bolt action rifle in use today in the various armies. The lines of the arm are graceful and easy, the mechanism is simple, compactly arranged and incased so that there are no projecting parts or sharp corners to mar the appearance, which is not unlike the new Springfield, having the same accessories, bayonet mount, swivels, steel butt plate and wood casing along the barrel.

The automatic, however, has a solid breech and the bolt does not come out and overhang when in the rear position as is the case with the Springfield. This, of course, would be a very bad feature in an automatic arm, as the bolt would come back in the shooter's face after each shot. The rear sight on the automatic has been brought back as far as possible, and is mounted on the rear end of the receiver, thus giving a maximum distance between the sights. The sight used is the same as that mounted on the Springfield.

Readers who have seen the Standard automatic sporting rifles are familiar with the principle of gas operation. For the benefit of those who do not understand this principle, a simple explanation of the mechanism may serve to make clear the following description of the new Standard military rifle:

The power to automatically eject the empty shell after firing the rifle is taken from behind the bullet just before it issues from the muzzle of the barrel. There is no loss of power or penetration of the bullet as it has attained its maximum velocity before the automatic action begins.

At a point 3½ inches inside the muzzle of the barrel the bullet passes over a small hole. The pressure from behind the bullet is flashed through this hole into the cylinder under the barrel. The piston in the cylinder is driven back, compressing the action spring which is coiled around the piston rod. By means of the piston rod, cross head and two connecting rods, the rearward motion of the piston is transmitted to the breech bolt and this bolt is unlocked and driven backward, extracting the empty shell from the chamber of the barrel.

At the end of this backward stroke the bolt enters a recess which serves as an air cushion or dash pot to ease the shock of the backward thrust. The empty shell is ejected and the bolt starts on its forward stroke propelled by the power of the compressed action spring.

The firing pin is cocked by the backward stroke and held in this position on the forward stroke until it engages the sear and the bolt lugs enter the locking grooves. During the forward stroke the front end of the bolt engages the top cartridge in the magazine and pushes it forward into the barrel chamber. In this way the rifle is automatically operated, and the shooter merely maintains his aim and pulls the trigger for each shot until the magazine is empty.

In general, the above description will apply to any gas-operated automatic rifle. The distinguishing features of the New Standard military are the simple and complete ways in which the requirements for an automatic military have been met. The requirements of the British and the United States War Boards demand that the military automatic must be capable of variations in the method of use.

It must load with a clip, must be a single loader holding the magazine full and in reserve, or shoot automatically, using cart-ridges from the magazine.

The New Standard is designed to fulfil these requirements without complicating the necessary mechanism of the automatic action. The various methods of loading and operating are controlled from the magazine. On the side of the rifle just back of the magazine is a button, which by turning a quarter turn converts the rifle from a "single fire" to "magazine fire," or vice versa, at any time with any number of shells from one to five in the magazine.

The operation of the rifle as a single loader is accomplished in the following way:

As the bolt reaches the back end of its stroke, a stop plug springs up in front of it and holds it in the rear position. The operator may now push a single shell into the top of the magazine and as he raises the rifle to his shoulder he presses up the bolt-releasing lever which is situated inside the guard and in front of the trigger.

The bolt will spring forward, pushing the cartridge into the chamber and locking and cocking the rifle. When the rifle is fired the bolt automatically unlocks, withdraws and ejects the empty shell and is held open by the stop plug before mentioned. The soldier, on lowering the rifle from his shoulder, finds it open to receive the next shell, thus eliminating a hand movement of the bolt necessary to eject the empty shell, as with the present service rifle. This single-loading operation can be performed rapidly, at the same time keeping the magazine full and in reserve.

By turning the button on the side of the rifle from "single loading" to "magazine fire," the plug which holds back the bolt after each shot is withdrawn and the rifle may be operated and six shots fired automatically as fast as the trigger is pulled. When the magazine is empty the plug again engages the bolt and the rifle remains open after the last shot, permitting the quick recharging of the magazine from a clip of five cartridges. Thus it is possible for a soldier to operate the rifle either as a single loader or from the magazine without losing time and with the least possible number of hand movements.

The action of the rifle is readily mastered, the converting button has index marks showing the positions for "single fire" and "magazine fire," and a magazine hinge has an indicator to show the number of cartridges in the magazine at any time. The bolt operating lever is locked forward and turned down out of the way when not in use. It does not project from the rifle and does not move backward and forward with the bolt when the rifle is functioned automatically. To use this handle to operate the bolt by hand, it is necessary to turn up the handle, press it in to engage the connection rods and pull back the action.

The handle releases itself when the action is at the forward end of its stroke. At the forward end of the barrel is the attachment and valve through which the gas passes from the barrel to the piston to operate the automatic mechanism. The valve may be turned one-half turn, cutting off the gas and making the rifle entirely hand-operated in action. The magazine is of the open box type and holds six cartridges. It can be loaded quickly with the clip from the top or by turning the rifle over, opening the cover on the bottom and dropping the cartridges in. This same cover permits of unloading the magazine from the bottom instantly at any time without pumping the cartridges through the rifle.

The automatic rifle has been fitted with several barrels chambered and bored for the different calibers of military ammunition. Experiments have been made to test velocities, pressures, etc. With the 7 mm. or .276 caliber cartridge having 139 grain bullet a velocity of 2,700 feet per second was obtained, with a chamber pressure of 44,000 pounds per square inch.

The rifle, like all military rifles, is not intended to take down, but this can be done by removing a single screw in the bottom just back of the guard. The rifle can be entirely dismounted in a very few minutes with few tools. The small number of parts contained in the mechanism is astonishing. The rifle shoots accurately, handles perfectly, and the weight is about nine pounds, unloaded.

In conclusion the writer would say that the New Standard comes nearer to fulfilling in a satisfactory manner the requirements for an automatic military rifle than any other that has appeared up to this time.

CONCERNING THE PURSUIT.*

ARTICLES on the cavalry fire-fight and the pursuit can nowadays be found in every issue of most military publications. These theoretical pursuits will undoubtedly cause great disappointments in actual war. If, in war, we have once been disappointed in our expectations and hopes, it will be difficult to pick up courage to entertain renewed hopes, even should circumstances be favorable and promise fulfillment of those hopes. If we do not completely and entirely understand the matter of pursuit, the probability will be that we will take it up when there is no hope of success, or that we neglect to do so when everything is in its favor. I hold that the how and when of the pursuit is of less importance than is the manner in which the victory was gained; I also hold that the national character of the pursued is a great factor in the pursuit.

"According to theory, the pursuit should immediately follow the victory—a requirement which no one will gainsay, not even laymen: but this requirement is but seldom carried out in practice. Military history cites but very few such glorious examples as that of Belle-Alliance. It takes a very strong and compassionless will to require troops, which have marched, fought and hungered for more than 12 hours, to undergo new hardships and dangers instead of receiving rest and food. Now, assuming this will is present, the pursuit will still depend on the manner in which victory has been gained! Pursuit will be difficult to inaugurate if all bodies have become mixed on the battlefield, as was the case at Königgrätz, to such an extent that hours are required to reform tactical units; or when, as was the case at St. Quentin, all troops, even the very last reserves, were engaged, so that no intact, closed body of infantry is available to take up the pursuit. Without such infantry support, cavalry can but very seldom execute that task alone, especially at night, when it can be delayed by many features of the terrain and by insignificant hostile detachments. General v. Goeben started his pursuit of the vanquished enemy only on the succeeding day" (v. Moltke). General v. Goeben ordered the relentless pursuit of the enemy at 12 midnight to take the direction of Cambrai, Caudry, Bohain and Le Chateau Cambresis. In his orders we find: "The question now is to gather the fruits of the victory; today we have fought, tomorrow we must march to complete the destruction of the enemy. To this end I direct: All troops march 20 miles tomorrow, the infantry, wherever practicable, carrying knapsacks on wagons." In the meantime the French had covered 20 miles during the night, and that in complete rout; they were not overtaken by the Germans. With different opponents the case possibly would have been different. That is the reason I stated above that the national character of the vanquished is a material factor in the pursuit.

At that time the General had his doubts as to whether or not the cavalry, without proper support of intact infantry, could successfully perform the task at night; today those doubts would be less, considering the present day armament and training of our cavalry reinforced by machine guns; still the solution of the task remains very difficult.

A pursuit which does not promise an early panic in the ranks of the pursued had better be left alone; at the best it will lead only to a series of rear guard fights which, as is shown by military history, frequently are as costly to the pursuer as to the pursued. Reverses may create conditions which may make it exceedingly desirable to have still intact cavalry at our disposal.

The question arises. Who can state with any degree of certainty that the vanquished is so demoralized that a very short pursuit will suffice to change his retreat into panic and rout? Only a very competent and experienced general may be able to answer this question, considering all circumstances; that it can be answered with a certain degree of certainty is not at all impossible. Of main importance in arriving at the answer is the degree of vehemence and the duration of the preceding battle; whether it is the enemy's first defeat, or whether it has been pre-

^{*}Translated from Kavalleristische Monatshefte by Harry Bell. M. S. E., Army Service Schools Detachment.

ceded by a series of defeats; climatic influences also, the time of day, and last, but not least, the nature of the terrain, play an important role in arriving at that conclusion.

Cavalry is the trump card in the hand the supreme commander holds; to play it at the correct time is an art. War is a game, and consequently subjected to changes of fortune; and unless fortune smiles, there is no art which can overcome fate.

v. T.

"STONEWALL" JACKSON: SOME CURRENT CRITICISMS.*

THERE is a tendency amongst British historical writers, and especially amongst those who cater for the military clientèle, to attach undue importance to "facts." I am afraid that our cramming system is responsible for this. It is easier to forcibly feed a mind with facts than to train that same mind to form opinions and judgments. Hence our martial Gradgrinds and Dry-as-dusts. Long catalogues of marches, times, distances and orders of battle; schedules of brigades and divisions, each docketed with their strength and subordinate leaders (in brackets) and their distinguishing numerals (in Roman figures)-these may impress the groundlings with the writer's wisdom and eye for detail; but they do not constitute Military History. I have never forgiven the pedagogue who impressed for all time upon my infant mind that something befell a gentleman called Marcellus so long ago as 222 B. C., or that William Rufus was shot through the eye by an archer in the New Forest in the year 1100.

The only occasion where minute detail is justified is in tactical exercises or war-games, where we wish to elucidate certain specific problems or to reconstitute circumstances—and in these cases it is important that every detail that can possibly have had any bearing on the situation is taken into account.

The article on the Shenandoah Valley campaign in the February number of this magazine seemed to me a pernicious article for three principal and distinct reasons:

- 1. It was bald and dull;
- 2. It was paradoxical and misleading;
- 3. It was subversive to one of the tenets of our military faith.

Taking these in order: on its baldness and dullness it is unnecessary to enlarge. To compress half a thousand pages of closely printed Henderson into nine pages of a magazine article is "Potted Brains'" with a vengeance; either it is intended to facilitate the sluggard and ne'er-do-well in short-circuiting a most advantageous part of his military education, or it argues a most presumptuous vanity on the part of the writer.

It is a favorite device with Mr. Chesterton, Mr. Shaw and other of our modern "brilliants" to enhance a reputation for perspicacity by pretending to hold a view diametrically opposed both to their own knowledge and the accepted popular opinion. Victrix causa diis placuit, sed victa Catoni. This effect is easily obtained by a judicious suppression of that which is true and insinuation of that which is false. Only a very gifted or a very conceited advocate, however, could hope to subvert in one brief essay Colonel Henderson's laborious* estimate of Jackson.

Let us glance curiously over the first two pages of the article in question. The opening sentence cheaply tries to throw odium over Jackson's abilities as a soldier by describing him as "an ex-professor of Philosophy"—not a word about artillery or tactics, which undoubtedly must have been his favorite subjects of instruction. A few lines further down we find Jackson described as "churlish" for not having been able to get on with Longstreet; yet who can doubt, considering the latter's pig-headed conduct in refusing to attack at the Second Manassas and at Gettysburg, that the "churlishness"—if such a harsh word can legitimately be used to indicate a cautious obstinacy of character—was mostly on the other side? This pettiness is the keynote of the article. On the second page we find the following: "Evidently the Richmond people feared mischief, for they not only

^{*} From The United Service Magazine for April, 1910.

[•] Colonel Henderson spent fifteen years in collecting material and writing his magnum opus.

vetoed Jackson's plans, but bid him evacuate Romney." Colonel Henderson has clearly shown* that this was due solely to the extraordinary lack of discipline on the part of Loring and his civilian officers, who used their influence at the Capital in a most underhand manner. When the true facts were known at Richmond Jackson's view prevailed, and Loring was removed with part of his troops.† That the modest Jackson had the bad taste to apply to be appointed commandant of the Virginia Institute is so unlikely that chapter and verse should certainly be given for such a statement.

Von Moltke is said to have expressed the opinion that the American troops in the Secession War were an "armed mob" and that no lessons can be learned from their operations. However true this may be for Germany, so far as we are concerned it is palpable nonsense. In the same way it is easy to sneer at the Shenandoah Valley campaign as "an affair of outposts." The phrase might be becoming to the hero of Wagram and Austerlitz; but on English lips it savors of precocity. The "Life of Stonewall Jackson" is a priceless legacy bequeathed to the British Army by a splendid soldier whose career was unstintingly dedicated to the public service. The labor of a lifetime, the weighty teaching of an able and highly trained mind, we should be ungrateful indeed were we to allow his judgments to be lightly set aside in the short space of a magazine article. Colonel Henderson has proved beyond cavil that the Valley Campaign was a masterpiece of political strategy, and has also shown that its half dozen battles serve to demonstrate, in miniature, the whole range of military strategy.

It has been wisely said that "the fictions of history are largely responsible for its facts." It is for this reason that the hero of a biography, like a wife or a commanding officer, should be placed upon a pedestal. Whilst admitting the accuracy of Professor Rose, we turn with zest to de Bourienne; from Johnson's "Lives of the Poets" to Boswell's "Life of the Doctor." There may be another, and perhaps seamier, side to Jackson's career, but Colonel Henderson has done well to keep it from our sight. We want no blemishes or infirmities reproduced upon the

statue as it is reared for our delight, nor should we tolerate dirt to be flung at it in its glorious completeness.

It is said sometimes, "I simply can't read 'Stonewall Jackson,' the fellow seems such a prig." To those who admire the character of the late Colonel Henderson this view seems almost incomprehensible, and certainly Jackson cannot have been considered a prig by the thousands of Anglo-Saxon soldiers whose devotion he gained. He was not one of those afflicted with the military disease of active participation in prayer meetings and gospel readings; he merely gave every facility to his chaplains for carrying out their business in so far as it did not interfere with vital military processes. Like many another of the world's captains, his piety and conviction gave a sincerity to his character which compelled respect. This function of command is so important that, if it does not exist, it sometimes has to be simulated. Thus Napoleon: "My extreme youth, when I took command of the army in Italy, rendered it necessary that I should evince great reserve of manners and the utmost severity of morals. This was indispensable to enable me to sustain authority-over men so greatly my superiors in age and experience. I pursued a line of conduct in the highest degree irreproachable and exemplary. In spotless morality I was a Cato, and must have appeared such to all. I was a philosopher and a sage. My supremacy could be retained only by proving myself a better man than any other man in the army. Had I vielded to human weaknesses, I should have lost my power." In this world so full of doubts and fears, humanity clings to any man whose rule of conduct appears fixed and to be relied upon, and most great leaders have realized how great a part steadfast religious belief plays in forming such a character. Even the dashing Michel Ney, on the eve of his execution, confessed that "never had he gone so boldly under fire as when he had first recommended his soul to God." Some inkling of the magic of Jackson's power in this respect is brought home to us by those moving words used by one of the chaplains of the Valley Army on the occasion of the unveiling of the Jackson monument at New Orleans: "When in Thine inscrutable decree it was ordained that the Confederacy should fail, it became necessary for Thee to remove Thy servant, Stonewall Jackson." How keen and earnest he must have

^{*&}quot;Stonewall Jackson," chap. vii.

[†] Not all his troops, as Major Redway suggests.

been, that even Heaven was deemed reluctant to disappoint him! Those who consider Jackson a prig probably have not realized the power of unostentatious religious sincerity on Anglo-Saxon masses. Even blasphemers appreciate a mind free from pettiness or meanness—and such is essential nowadays, and in this country more than ever, for a leader of men.

Attention has been drawn to the similarity between the American armies in the war of 1862 and our own Territorial Army,* and it is suggested that the conditions are so analogous that they are worthy of close study by our Territorial officers. This is true in a sense; but is not unfraught with danger.

In a war between two Powers a great deal depends, not only on the thoroughness of peace organization, but also on the "military atmosphere" created by peace training. A nation has its own ideas in these matters, and it is disconcerting to find that a possible rival, with just as much brain-power and hard work devoted to solving identical problems, arrives in many instances at precisely opposite conclusions. The solution is vital; one must be approximately correct, the other grievously wrong; but who can dare to prophesy? How well this is put by General Langlois: "We ought to realize that soldiers who are called upon to command, arrive upon the field of action with a military education which has been created and fostered in surroundings which are permeated by ideas, many of which are often erroneous.. It is unjust to hold the chiefs of an army responsible for the mediocre results of an imperfect military education. The responsibility rests with those in higher authority, or rather it should be divided among all who form, as it were, the military atmosphere of their generation."

Now, in a civil war—"the heat of a fever"—both sides have the same military atmosphere. The conditions in this respect are scrupulously fair, and the maneuvers on each side may be expected to conform to the "field-day" of peace time. The opposing commanders know each other's mode of thought, the quality of their troops, and even the extent of their resources. This is the reason why the War of Secession, although the combatants were in most ways unequally matched, dragged on so much longer than the other wars of the last half century.

It is safe to say that our Territorial Army will never be involved in a civil war. Its position is peculiar. Whilst our best regular troops are liable to be called away to engage a barbaric foe armed with jezails or assegais, our second line army may have to content itself with facing some Continental Corps which is at full strength without its reservists (i. e., at the acme of training). Reading of the appalling ignorance of military usages displayed by some of the Volunteer officers in the American Civil War, one cannot but hope that, thanks to the generously self-imposed training of our Volunteers and Territorials, we should, in the same conditions, be able to produce superior armies. Unfortunately our conditions are by no means likely to be the same.

But I will not "adorn the tale." Colonel Henderson has provided his own antidote to any delusions which may exist on this subject in his essay on "Battles and Leaders of the Civil War," where he indorses Lord Wolseley's opinion that a single Army Corps of Regulars would have turned the scale in favor of either side.

Science has made long strides since 1865. Artillery and musketry are much more complicated and the world's standard of efficiency in these two crucial branches of the art military has greatly advanced, and calls for much keener specialization. Sea-power, also, has been revolutionized since the days of the Merrimac and Monitor. The armament which bottled up Port Arthur might have altered the whole course of the war, could some wizard's wand have called it into being at the mouth of the James or the Potomac. On the other hand, no river craft nowadays could hope to deal with decently armed forts along the Mississippi. Balloons were used at Fredericksburg, and several times afterwards, with indifferent success; but had the Wright brothers been on the Federal side, we may imagine that a flight from Winchester over the Luray Valley would have played the devil with the strategy of Front Royal or of Port Republic.* and that a single Parsefal would have made private

^{*} See an article by R. H. Beadon in National Defense, December, 1909.

^{*}Jackson might possibly have made his troops march and bivouac in forests, which will probably become much more important in these days of aerial scouting. Also tents will have to be khaki-colored or dyed in spots with primary colors.

detectives a back number with McClellan and even have stultified the enterprise of Ashby and Stuart.

With so many changes, it would seem, at first sight, that few reliable lessons could be gleaned from the study of such vieux jeux. Needless to say, this is not a fact. Notably because the methods of strategy and the laws of human nature are constant throughout the ages, but also because such a war teaches us that disappointments and surprises are sure to come and gives us an insight into their nature, and the determination; and adaptability necessary to overcome them. Colonel Henderson's history most markedly demonstrates the importance he attached to the dictum that the moral is to the physical as three to one; for the pages in which he discusses psychology, discipline, etc., bear very nearly that proportion to those devoted to armies, marches and material. And to subordinate officers the former are the really important pages. That the strategy is invaluable to those who need it is handsomely testified by Lord Roberts: "Whilst still thinking over this problem (what measures to adopt on outbreak of war) I read 'Stonewall Jackson,' and was much struck with the extraordinary effect which strategy-whether Lee's or Jackson's-had upon the campaign in Virginia, and also with the result of Jackson's swift and unexpected movements, as described by Henderson. Bearing all this in mind, when appointed to the chief command of the army in South Africa, I determined that the wisest thing to do, both from a military and political point of view, was to march on the capitals of the Orange Free State and the Transvaal, and so to break up their combination. It will be seen from this what a high opinion I had formed of Henderson's abilities."

Most of us, however, will never be called upon to lead great armies, and for us the lessons of the American Civil War are the lessons of everyday dealings with the men in camp, on the march, and on the battlefield. The mind well stored with precedent has confidence in its judgments when tried even in the most distracting and unexpected circumstances. It is not necessary

to remember actual details—the example once learnt is apparently forgotten; but when occasion arises some tiny storehouse of the brain delivers up its treasure as though it had been waiting through the ages for that fateful moment. And what a mass of precedent is to be found in the many records of the American Civil War, all so readily accessible in our mother tongue. Colonel Henderson's "Stonewall Jackson" is as easy and pleasant reading as any novel, and yet probably no book on the war is more instructive to British readers. Those who have no taste? for military history do wrong to imagine that they derive any professional benefit from the "cram" books of dates, figures and "facts," although at first sight these latter may appear to contain the very cream and essence of the subject. If military histories are too heavy reading for them, let them try and develop the taste (I believe it can be acquired) by reading some lighter books, such as H. M. Stanley's recently published Autobiography (who had the doubtful, but in his case perhaps excusable, distinction of wearing both the Confederate and Federal uniform during the war) or that capital psychological novel of Stephen Crane's, "The Red Badge of Courage." From such military history we learn much to help us in our rules of conduct; our methods of dealing with and training men in peace-time, preserving discipline, and such-like common but important matters.

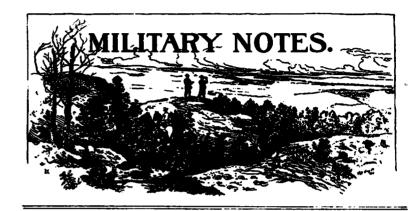
Military history should be the parade-ground of the intellect. As the soldier drills and drills until the movements started by a certain word of command become his second nature, so should the officer think and think. "To be able to think with vigor, with clearness, and with depth, in the recess of the cabinet, is a fine intellectual demonstration," says Disraeli, "but to think with equal vigor, clearness, and depth amidst bullets appears the loftiest exercise and the most complete triumph of the human faculties."

Military history also teaches us that "whatever men have done, men may." "The heroic example of other days is in great part the source of courage in each generation, and men walk up composedly to the most perilous enterprises, beckoned onwards by the shadow of the braves that were."

[†] What a bitter discouragement to a keen general the straggling and desertion must have been. Fancy, on the morning of an important battle, what opinion one would form of the patriotism of one's countrymen on finding that half the strength of the army had sloped off to spend the harvest-time in their homes. Is it right to hope such conduct would be impossible in England?

And military history is found in biographies, memoirs, diaries and dispatches—in the human documents of the forced march and the battlefield. Not in the chronological compilations of the pedagogues—drear skeletons in alluring (and usually costly) sarcophagi.





CLASSIFICATION OF SADDLE HORSES ACCORD-ING TO THEIR WEIGHT AND GIRTH.

A N expert jury of well known judges of horse flesh in France, has just rendered a decision of considerable interest to buyers of horses intended for the cavalry.

Leaving aside the questions of necessary conformation and action, saddle horses have heretofore been required to possess a certain more or less well defined relation between height and weight, according to the pounds they may be expected to carry: The jury of the Paris horse show this year has discussed this question in all its aspects.

They asked themselves if some fairly definite rule of guidance could not be found to help it in its classifications and decisions. The answer is the following, in which for the first time, as far as we know the relation existing between weight of horse, girth and weight to be carried are definitely specified.

Conformation of back and size of cannon bone being satisfactory, the following rule is considered based upon experience:

A horse weighing at least 1,045 pounds, with a girth of at least 71 inches, should readily carry a minimum of 209 pounds on his back.

A horse weighing at least 935 pounds with girth of 69 inches, should carry from 187 to 209 pounds.

Such horses are divided into two classes, according to height: First, those standing 15 hands 2½ inches or over; Second, those under this.

A horse weighing not over 825 pounds, with girth 67 inches, should not carry more than 187 pounds.

It is to be remarked in this connection that French Cuirassier horses have to carry about 280 pounds, dragoon horses (corresponding about to our cavalry mount) 250 pounds, and light cavalry 235 pounds.

The above classification, therefore, is not carried far enough to apply to these categories as such, but stop at weights usual in horses ridden for sport and pleasure.

T. B. M.

REMOUNTS IN THE GERMAN ARMY.

THE details respecting the remounts for 1909 are as follows:

a. In Prussia.

Province or Country.	Number of Markets Maint- ained.	Offered for Sale	Number Selected.	Number Bought.	Per Cent.
East Prussia	257	12,666	7,433	6,561	52
West Prussia	33	1,499	676	189	35
Posen	53	1,953	963	728	37
Schlessia	6	325	. 85	65	27
Brandenberg		418	190	165	40
Pommern	18.	479	244	225	47
Hannover	53	2,712	1,276	1,250	46
Schleswig-Holstein	33	1,408	433	425	30
Rheinland	3	336	54	32**	10
Mecklenburg	52	2,079	1,061	924	45
Oldenburg	10	268	65	61	23
Berlin		1	; 1	1	100
Total	554	23.964	12,481	10,926	46
Total 1908	529	23,820	12,520	10,949	46
Total 1907		23,376		10,817	46
Total 1906		22.954	1	1 10,704	47

^{*}Including about 65 cold-blooded for heavy field artillery,

AVERAGE PRICE:

1909	M. 1065=\$253
1908	M. 1045=\$249
1907;	
1906	M. 1000=\$238

b. In Bavaria.

Of the 612 remounts collected within her own borders, Bavaria bought 350=57%; in East Prussia, 791 out of 939, 84%; in Holstein, 284 out of 291, 86%; the average age of these remounts being 3 to 3½ years. In addition to the above, 120 matured artillery remounts were purchased in Hamburg, and for the machine gun companies 28 from Bavaria and 52 from Holstein. For young remounts 1000 Marks (\$238.) were paid; for matured remounts 1300 Marks (\$310.); and for machine-gun remounts, 1430 Marks (\$340.) Matured remounts only are bought from the dealers.

c. In Saxony.

The Saxon Remount Commission purchased 970 of the 1423 remounts offered for sale=68%. Of this number, 236 remounts were secured within the limits of Saxony, and from which 96 were taken. In East Prussia 763 were bought out of 1020; in West Prussia 13 out of 15; in Hanover, 18 out of 32; and in Holstein, 80 out of 120. Of the total number of remounts purchased, 235 were bought from dealers and 735 from breeders.

The total number of matured remounts purchased by the commission was 510 (= 80%) out of 636 which were offered for sale. Four (4) of this number were bought in Saxony; 322 (out of 400 offered) in East Prussia; 94 (out of 130 offered) in Posen; and 90 (out of 100 offered) in Holstein. Of the total number of remounts purchased 428 were bought from dealers and 82 from breeders. The average price for young remounts was Marks 1037 (\$245) and for matured remounts (cold-blooded) 1350 Marks, (\$321); for warm-blooded 1135 Marks, (\$270).

^{**}Only cold-blooded.

d. In Wuerttemberg.

Wuerttemberg secures her 4 and 4½ year remounts from Prussian Remount Depots—an average of 255 each year which are immediately assigned to the different regiments. The artillery remounts are secured, partly within her own borders and partly from North Germany. The total number of remounts purchased by the Remount Commission was 252 (=61%), out of 413 offered for sale. Of this number 73 were from Wuerttemberg, 54 from Holstein, 42 from West Prussia, and 83 from East Prussia. Average price: Marks 1069, (\$254).

The total number of remounts offered for sale in the German Empire was 28,478 of which 14,247 (=50 %) were bought.

The following shows the number received from the principal breeding districts:

¡Province.	Number Offered For Sale.	Number Bought.	Per Cent.
East Prussia	15,108	8,520	57
West Prussia	1,466	544	38
Posen	2,085	822	40
Holstein	2,145	1,069	50
Hannover	2,744	1,268	46

S. C. S.

UNITED STATES FIELD ARTILLERY ASSOCIATION.

THE United States Field Artillery Association was organized at Fort Riley, Kansas, June 7th, in an enthusiastic meeting which was presided over by Lieutenant Colonel Eli D. Hoyle, 6th Field Artillery, and attended by thirty-three regular and forty-eight National Guard field artillery officers. Every regiment of field artillery, except the Second, was represented; and eighteen states were represented by officers of the National Guard.

The objects of the Association, as stated in its constitution, are to promote the efficiency of the field artillery by maintaining its best traditions; to publish a journal for disseminating professional knowledge and furnishing information as to the field artillery's progress, development and best use in campaign; to cultivate with the other arms, a common understanding of the powers and limitations of each; to foster a feeling of interdependence among the different arms and of hearty cooperation by all; and to promote understanding between the regular and militia forces by a closer bond.

Membership in the Association is divided into two classes -active and associate. Commissioned officers on the active lists of the field artillery of the regular army and of the organized militia of the several states are eligible to active membership. The following are eligible to associate membership: Commissioned officers on the retired lists of the regular army and of the organized militia of the several states; those who, as commissioned officers, either regular, milita or volunteer, have served with batteries or larger units of field artillery in time of war; commissioned officers of the regular army and of the organized militia of the several states not now belonging to the field artillery, who have served at least one year as commissioned officers in field artiflery; general officers of the regular army and of the organized militia of the several states; all commissioned officers and former officers of the United States Army, Navy and Marine Corps, and of the organized militia and volunteers in good standing, not included in the classification hereinabove set forth; and those in civil life whose applications are approved by the Executive Council.

The headquarters of the association are to be in Washington. The Executive Council, elected for two years, is composed of: Colonel Montgomery M. Macomb, 6th Field Artillery; Captain Fox Connor, 1st Field Artillery; Captain Oliver L. Spaulding, jr., 5th Field Artillery; Captain John F. O'Ryan, F. A., N. G. of N. Y.; Captain Robert H. Tyndall, F. A., N. G. of Ind.

It is provided in the constitution that three of the members of the Council shall be officers of the regular army and that two shall be officers of the organized militia. The officers of the Association will be appointed by the Council as follows: A president who shall be an officer of the regular army from among the members of the Council; a vice-president to be selected from among the active members of the Association; a secretary-editor who shall be an officer of the regular army; and a treasurer who shall be an officer stationed or residing in Washington D. C.

This is the first time that National Guard officers have been accorded full rights as active members of a service association or have been given representation on the executive council of such an association, and it is believed that the intimacy arising from this close affiliation will hold the interest of the National Guard officers and prove very beneficial to them. All of the officers of the camp of instruction for National Guard field artillery officers now at Fort Riley have enthusiastically enrolled as members of the Association.

. The publication of a field artillery journal has been long desired by all the officers of that arm, and at this particular stage in the development of field artillery it is well nigh indispensable. On account of the relatively small number of officers eligible to active membership in the Association, it is essential that every one who is eligible should join the Association without delay. Any person eligible to membership may become a member by making a written application to the secretary and paying the first year's dues. The annual dues of the Association shall be fixed by the Executive Council, but shall not exceed four dollars per year. Active members are entitled to receive all publications issued by the Association, and associate members are entitled to receive the journal without payment other than the annual dues. Temporarily, applications for membership should be addressed to Captain W. J. Snow, Fort Riley, Kansas.

ESTIMATION DISTANCE TABLE.

To the Editor:

Within the last month I have devised, compiled and computed an Estimation Distance Table for use with troops when training men in the preliminary drills and in the record practice in the estimation of distance. I was first induced to work out this table on account of the labor that I saw was involved each day when I endeavored to have the percentages made by my men in the preliminary estimation drills, posted daily for their information, on the bulletin board. The commanding officer and a great many other officers examined it and were of the opinion that it was such an excellent thing that they desired it printed and accordingly it was printed by the Military Record Filing Co., of 83 Merchant Street, Honolulu, H. T. The organizations at this post have all used this table this season in both preliminary and record estimation drills, and all are of the opinion that it is a great labor saving device. It possesses the virtue that it is simple.

I have, therefore, decided to send it to you thinking that possibly you might deem it of sufficient importance and benefit to the service at large to publish it in the JOURNAL.

I would highly esteem any criticism upon it, for my sole object in originating it was to save time and labor, and the use of it for a short time in actual experience will demonstrate that it accomplishes its purpose. If it has any faults, which it may have, although the use of it so far here has not shown them, any criticism or suggestion as to its improvement would be appreciated.

EXPLANATION OF TABLE.

The first line of horizontal figures are the actual ranges from 350 yards to 1200 yards, whereas those in vertical columns under these are the estimates. At the left hand of the sheet is a column of figures from 350 yards to 1200 yards, these figures correspond to the range estimated by any particular man. The use of the table can be best illustrated by a few examples.

50-YARD ain 5th U. S.

RANGE YOS.	826	4 9	450	9	980	2	650	3	150	800	200	3	98	2	1060	8=	200	00%1
850	1009	2	13	5	2	2	1 .	2	\$ 6	43 75	÷ 18	3 5	20.00	8	88.88	81.8	8	20 12
460	8	700	2	_	2	5	2	67 14	200	8	47 98	=		8	88 10	86.86	84.78	88
84	2	25	5001	8	£	8 8		25	8	£	_	80 88	18.19	8.	98	40.01	80.18	87.50
2	57.14	26	2 £	1009	3	8	-	7 8	8	2	2	2	8	8	£1.78	45.45	48.48	41 67
556	2	2	3	8	8	5	26 ±	2 25	73.88	8 78	3	5	25	8	88 .88	60.00	47.88	8
909	¥	8	8	8	3	100%	22	25 Z	8	_	20.02	29.62	8	8	67.14	54.05	68.17	90 00
656	7 28	2	20	2	Œ		25.00	25	78 67	Z.	£	22 22	£	8	01.90	60.00	56 62	- 64.17
202		8	=	3	72 73	2	2. 2.	1000	8	2	35	77.78	78.08	3.8	66.67	68 .6 4	60 B7	88 99
780		2	35 25	8	2	28	2	200	100%	•	¥	8		26 B	71.48	68.18	8 2	25
90%		:	33	8	3	29 es	9	25.22	5	100%	2	£	25 25	8	76.19	72.73	00 . SG	68 67
860			=	8	3	25	3	78 87	79 ET	£8 75	100%	7	8	88	80.96	77.81	78 91	70.88
989		,		8	28	8	2	71.48	8	25 25	3	1 90%	2	8	17 88	88	78.26	75.00
980				9	77.77	=	23 25	£	73.83	₹	2	3	100%	8	FD. 48	86.86	88.61	70.17
1000					E 13	報	\$	#	A6 A7	8	23	2	27.14	100%	26 24	90.91	98 98	88.88
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8		: :				20 00	8 1	3	2	٠	70.66		84 21	8	28 88	3001	35 85	91.67
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1700] : 	:			:		15 3K	2% K7	OU UF	9		GA 67	73 GR	5	25.71	90.91	95 GS	100%
TAR OF	*	\$ 2		8	2	₹	40 2	7.1428	6 6667	## #	6.19421	6.6865	6 2481	9.00	4 7619	4.5456	4.8679	4.1086

Suppose that a soldier makes the following five estimates: 550 yards, 700 yards, 950 yards, 1050 yards, 1200 yards, and also impose that the actual distances are respectively: 600 yards, 750 yards, 900 yards, 1000 yards, 1100 yards. Taking the table, glancing along the line of actual ranges until column headed "600" is reached, now pass down this vertical column headed "600" until opposite "550" at the left side of the table and note that the percentage is found to be 91.67; that is the percentage made by the soldier in this estimate.

In the second estimate where the actual range was "750" yards and the estimate was "700," take the column under actual range headed "750," and pass down this until opposite "700" and note the percentage which is 93.33; this is the percentage made in second estimate. Pursue the same course with third estimate and you ascertain that the percentage is 94.44; the percentage in the fourth estimate will be found to be 95.00, and in the fifth case the percentage will, in a similar manner, be found to be 90.91. The estimates are then:

ıst	-		- 91.67		
2 d		-	93.33		
3d	•				
4th		•	95.00		
5th	-	-	90.91		
Total	-		465-35		
Divided by 5		•	5)465.35		
Average	•		93.07	Final qualification,	Expert Rifleman.

The table can be used similarly in any other case.

Under each vertical column will be found the tabular difference for that column, that is, each set of figures in any particular column will be found to differ by an amount that is equal to the tabular difference from the set of figures either preceding or following them. For example take column headed "400." The first percentage in this column opposite 350 is 87.50, the tabular difference is 12.50, hence adding 12.50 to 87.50 should give the next set of figures below in this same column. Again taking the first set of figures under 950, which is 36.84, the tabular difference in this case is 5.263 and adding these two sets of figures we obtain 42.10. In this case the table shows 42.11, but if the

percentages had been carried out to three places it would have been found that the figures resulting are 36.842 plus 5.263 = 42.105 = 42.11. It may, therefore be stated that this table is correct to 1-100 of 1%, which is sufficiently accurate for all practical purposes.

It may be asked what is the advantage derived from these tabular differences? Simply that it affords the means of ascertaining with little labor what an estimate of any number of yards might be. The tabular difference in each case corresponds to a difference of 50 yards, therefore 1-50 of the tabular difference will in any case correspond to 1 yard.

Suppose the estimate were 560 yards (though according to the manual and to the practice here, estimates are only made of fifty yard intervals), how could the percentage be obtained?

The nearest tabulated percentage is (supposing the range to be 600 yards, and estimate 560 yards) 91.67 (550 yards), the tabular difference is in this case 8.33 corresponding to 50 yards, therefore for ten yards, it would be 1.5 of this tabular difference or 1.66, which added to 91.67 gives 93.33 as the required percentage. In case of estimates differing by 25 yards from the tabular estimate, it is only necessary to take half of the tabular difference and add to or subtract from the nearest tabulated percentage, according to circumstances.

It will be noted that where an estimate is double the actual range that the error committed is equal to the actual range and therefore the percentage made is zero. For example, suppose that the estimate be 800 yards, whereas the range was 400 yards, this is an exaggerated case but it illustrates the principle, the error made is double the actual range and therefore zero.

Again, the firing regulations made no allowance for over estimates as distinguished from under estimates. There is a vast difference, so far as practical results are concerned. In case a soldier makes an over estimate of an actual range of 1000 yards, his estimate being, say 1200 yards, and he sets his sight and shoots consistently according to his estimate, he has little or no chance of hitting his target. On the other hand if he were to under estimate the range by 200

yards and set his sights accordingly there would be the possibility that he might ricochet and hit his target. Of course a man who makes an over estimate commits a far greater error than one who under estimates any given range. According to the manual, however, no cognizance is taken of this and theoretically he commits the same error when he makes an over estimate as he does when he makes the corresponding under estimate. In the computation of this table no allowance has been made for this, as under the regulations none could be made, but the facts stated are none the less true, and this should be corrected when the Firing Regulations are revised.

HARRY O. WILLIARD,

Captain Fifth Cavalry.



+ Problems. +

As will be seen from the report given herewith below, there were fourteen solutions submitted to Non-commissioned Officers' Problem No. 2. This evidence of the interest being taken in these problems by the non-commissioned officers of cavalry is very gratifying, although there was a falling off in the number of solutions submitted by those of the regular service.

Owing to an unfortunate misunderstanding as to the conditions regarding the submission of solutions to these problems, a number of those to Problem No. 1, were received after the time specified for their receipt, that is on or before the tenth of the second month after the publication of the problem. That is, Problem No. 1, having been published in the March number of the JOURNAL, the solutions for the same should have reached the Editor of the JOURNAL not later than the tenth day of May.

This rule was adopted in order that the best solution might be published in the succeeding number of the JOURNAL or before interest in the problem had died out. This, of course, shut out our non-commissioned officers in the Philippines from competing, but the Executive Committee, in drafting this rule, thought it best to have the solutions follow the publication of the problem as soon as practicable in order to avoid the complaint that interest in them was lost when published several months later, as was formerly the case.

EDITOR.

NON-COMMISSIONED OFFICER'S PROBLEM NO. 2.

THE EDITOR:—Fourteen solutions of this problem were received by the committee. Most of the solutions were eminently practical and of a high order of merit.

Satisfactory provisions were generally made for carrying the explosives. If possible each stick of dynamite should be wrapped in a piece of soft cloth (an undershirt, sock or something of the kind) and all the sticks then firmly tied together in a flannel shirt or piece of blanket. The resulting bundle or bundles could be well carried either on the person or strapped on the saddle. If placed in the saddle pockets, the latter should be tied down so as to prevent flapping against the sides of the horse during a trot or gallop.

In most of the solutions the patrol very properly kept to the road and did not attempt to send out flankers. Speed is essential and flankers would delay progress.

In most of the solutions the patrol leader sent a couple of men ahead of him as a point. It is believed that he might better himself be at the extreme front as was done in the prize winning solution. In this position he can observe for himself instead of having to depend upon the observation of someone else and can better command his patrol by signals.

The estimates as to the amount of dynamite required varied greatly, from one or two pounds to twelve pounds or more. Three or four pounds if well placed should be ample, but six or eight pounds might well be taken so as to have extra sticks in case the first charges failed to destroy the bridge.

In most of the solutions a message was sent back to Fort Leavenworth as soon as the hostile patrol was met. It is believed, however, that in view of the small size of your patrol, the importance of the mission assigned to it, and the possibility of its having to fight in order to accomplish its mission, it is inadvisable to detach any men at present. It would be an entirely different matter if the hostile force met were a considerable body of troops or if, from the situation, it was

not to be expected that small hostile patrols would be seen. The solutions signed "Pendleton," "Raffles," "Smith," "Komatser," and "English," were considered the best of those submitted. The first named, signed "Pendleton," has been selected as the prize winner and is published herewith. With reference to this solution it is believed that in view of the close country passed through the rearmost members of the patrol should be kept more "closed up." The movement across the country from Currans would on the ground cause the loss of much valuable time, but this is not evident from the map alone, and hence is not considered incorrect. It is also believed that one man should be left to hold the horses. To tie the horses and leave them unguarded might result in the patrol losing its mounts. A mounted man might well be sent to the top of Sentinel Hill. From there he can see a long distance, can early observe the approach of any hostile force and can then promptly join the rest of the patrol near the bridge.

LEROY ELTINGE,

Captain 15th Cavalry.

ROGER S. FITCH,

Captain 2d Cavalry.

Committee

In accordance with the above report, the prize for the best solution of Non commissioned Officers' Problem No. 2, is awarded to First Sergeant A. W. Booraem, Troop 3, Squadron "A," N. G., N. Y.

The other four solutions noted as being among the best were submitted by members of the same troop as follows:

- "Raffles"-Lance Corporal Prentice Strong.
- "Smith"—Corporal Howard Payne.
- "Komaster"-Sergeant Stanton Whitney.
- "English"—Lance Corporal Walter C. McClure.

EDITOR.

SOLUTION.

I. One one-half pounds of dynamite will cut a plate one foot wide by three-fourths inch thick. Girder would probably not be as large as that. I would, therefore, need one and one-half pounds or six sticks of eight ounces each.

I would equip each trooper and myself with six sticks and detonators. Sticks to be carried in saddle bags, well wrapped in underwear and towels. Detonators to be carried on person. Both sticks and detonators on off side to give maximum shelter in case of firing. Each man is then equipped sufficiently to destroy bridge at least in part.

II. I would follow the roads mentioned in following formation: Myself and one trooper in the lead on opposite sides of the road, one trooper about 25 yards in rear, the other two, a couple of hundred yards still further back. I would take leading unit to avoid necessity of signals as far as possible. I would keep the odd man near in case of necessity for sending up side roads, etc. The rear pair as far to rear as conformation of road and land permit, about 200 or 300 yards to insure their escape if necessary.

It is not my mission to discover the enemy, its patrols, etc. Therefore I would proceed as rapidly as possible along roads indicated, observing so much of country as was in sight for purpose of avoiding enemy and preventing interference with mission.

III. On discovering patrol I would endeavor to avoid it. It is not my mission either to report or to resist them unless there is no alternative and my original mission has failed.

I should avoid them by turning to the right (North) and making detour as far as Curran's. Atchison's Hill on left would probably be occupied by one of their patrol for observation.

In making detour I should proceed well to north so that if discovered enemy would be lead to believe I was making for Wagner's Point. Passing Curran's I should proceed across country parallel to the road so as to have alternative if going South or North of Sentinel Hill according to de-

velopments and proceed as rapidly as possible, consistent with safety and observation.

- (b) I intend to carry out original order unless prevented by superior force. I would not report discovery of patrol as presence of enemy generally is known to commander and I cannot afford to take man from my patrol.
- IV. (a) On arriving at bridge dispositions would depend on circumstances. I would leave horses at nearest convenient tree until ready to fire charges when I would withdraw them to safe distance. If pressed for time I would use all the men at the bridge. If not, I would leave one man with horses as a general lookout.

In case of opposition I would place four men in most advantageous positions according to position of enemy and would meet opposition by making a stand, developing enemy's force as far as possible and then go in person, probably by river bed to avoid discovery to bridge to fix and fire charges.

There is nothing to be gained by putting a man up each road to report an advance as their time and labor at bridge is worth more than such service.

(b) One one-half pounds dynamite would cut any one girder. This means six sticks would probably do the work. I would fasten five sticks in the angle at the center of the upper and six on the center of the lower chords on each side of the bridge; if time permitted fastening them around girder or if not, just tying them on top of lower chord and underneath upper chord. If still undisturbed, I would fire these charges and observe results and prepare second charge if necessary.

If greatly pressed for time and working alone, I would take saddle bags and fill them full of dynamite with detonators and fasten to center of lower chord, if possible. If not, then just inside angle at end of bridge.

V. There would be no necessity for sending a message unless circumstances arose which made it advisable to remain in observation after destroying bridge instead of reporting in person. In this event I would send message by two men.

FRENCHMAN'S, 3 June, 10.
10:30 A. M. No. 1.

FROM FRENCHMAN'S PATROL.

To Commanding Officer Independent Cavalry:

Pursuant to instructions I have destroyed bridge at Frenchman's.

At 9:30 A. M. I discovered and avoided enemy's patrol of five men at E. F. No further evidences of enemy as yet. Will remain in observation at Sentinel Hill until dark, unless recalled, and endeavor to interrupt and destroy patrol referred to. Am sending report by two men. Have (or have not) heard detonations in vicinity of Millwood bridge.

PENDLETON, Sergeant.

Respectfully submitted,

"PENDLETON."

NON-COMMISSIONED OFFICERS' PROBLEM NO. 3.

SITUATION.

A large mixed force, of which your troop is a part, has arrived in Kickapoo from the north and has halted there. Your troop has been ordered to reconnoiter for the enemy who is reported as advancing toward Leavenworth from the south.

Your troop has arrived at West End Parade in Fort Leavenworth and your troop commander there gives you the following verbal orders:

"I have heard nothing more about the enemy. The troop is now going to PRISON HILL. You will move out quickly at once with the leading three sets of fours as advance guard marching via PRISON LANE."

REQUIRED.

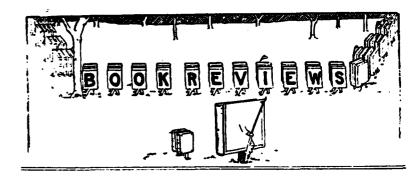
- I. Write out the verbal order you would give to your advance guard.
- 2. Presuming that the main body of the troop moved out at a walk at the same time that you began the deployment of your advance guard.

- (a) Give the location and strength of the various elements of your advance guard when its point has reached the spur just north of U. S. Pen.
 - (b) Indicate your own position.
- (c) About where will the head of the main body of the troop be at this time?
- 3. When you reach the crest of Long Ridge you can see marching on the road from Ninth Street and Metropolitan Avenue toward the U. S. Pen a force of dismounted men in several bodies, increasing in size from front to rear. You judge you can see 100 men and dust is rising on Metropolitan Avenue back of these.
- (a) What are your conclusions as to what you have seen?
 - (b) What do you do now?
- (c) If you should send a message to your troop commander, what is the message and would you write it out or send it verbally by a messenger?
- (4) You look back from Long Ridge and see your troop turn westward. In a minute or two a messenger arrives with instructions to you from your troop commander as follows:

"The troop marches via 12 and Atchison Cross. I will send out a new advance guard. You with your detachment will follow the troop as a flank and rear guard."

- (a) How do you intend to carry out this order?
- (b) What instructions do you send to the men in your point and to those out as flankers on your left?
- 5. As the troop approaches 12, you see that it takes the gallop, turns due west up the ravine and disappears in the woods. When you arrive at 12 you are fired upon by what you take to be about eight or ten dismounted men from the direction of the railroad cuts south of 12.

What do you do now?



Military
Topography.*

This book was written for use as a text book in the Department of Edgineering, Army Service School, and contains all that

the average line officer requires to know of the subject. It is divided into three parts, viz: Military Map Reading, Military Topographic Surveying and Military Sketching.

The first part is a revision of the author's book on map reading, 8,000 copies of which were issued to the Organized Militia by the Militia Division of the War Department. This book has filled a long felt want and has been enthusiastically received by officers of the regular army and militia. It is very complete and yet so simply written that it has been used with great success in the instruction of officers and non-commissioned officers.

The second part on surveying treats of just the matter that a line officer should know, and embodies the experience of the Department of Engineering in the instruction of line

^{**}MILITARY TOPOGRAPHY FOR THE MOBILE LAND FORCES." by Captain C. O. Sherrill, Corps of Engineers, U. S. A., Instructor, Department of Engineering, Army Service Schools, Fort Leavenworth, Kansas. Three hundred and fifty pages 5½ x8½, 170 figures and one map 18x24 inches, bound in cloth. Published by the author and supplied to officers of the army by the Secretary of the Army Service Schools, Fort Leavenworth, Kansas, General agents: The U. S. Cavalry Association, Fort Leavenworth, Kansas, and the U. S. Infantry Association, Washington, D. C. Price, \$2.50.

officers at the Service Schools for the past four years. Special attention is devoted to plane table work, which has been found to be the best method of making accurate military topographic surveys and to be an excellent preparation for the use of the hand plane table, which is used in making rapid military sketches.

The use, adjustments and care of the transit and level are explained and each instrument is clearly illustrated with the names of all the parts tabulated and shown on the figures.

One chapter is devoted to the instruments used in finishing maps, and the methods of using them. Another chapter treats of the reproduction of maps by mechanical and photographic methods.

The third part on sketching was used this year at the Service School in pamphlet form and proved to be an excellent text book on the subject. It is the only book on sketching by which an officer can learn to make rapid sketches without the aid of an instructor. It embodies the results of the experience of line officers at the Service Schools for the last four years, during which time there has been a marked improvement in the quality and rapidity with which the sketches have been made. This part of the book is especially adapted for instruction in the use of the new sketching case issued by the Engineer Department, and used for the past two years at the Service Schools.

Chapter I, of the part on Sketching treats of sketches, scales, measurements made in sketching, estimation of distances. Chapter II contains the method of measuring horizontal distances, instruments used in position and outpost sketching, estimation of slopes, estimation of differences of elevation, what military sketches should show, classification of sketches. Chapter III gives the methods of sketching, horizontal location of points, methods of contouring, execution of a position sketch, methods of work, contouring the sketch, points to be observed in sketching, execution of outpost sketches. Chapter IV contains the following: Execution of a road sketch, methods of work dismounted, location of horizontal details, contouring the road sketch, road sketching mounted, execution of place sketches, exercises in

sketching. Chapter V treats of topographical reconnaissance reports; road and river reconnaissance; reconnaissance of railroads, woods or forests, mountains, camps, positions.

In an appendix are tables for the reduction of stadia measurements; natural sines and cosines, and common logarithms, with explanations of their use.

All mathematical demonstrations are limited to the actual necessities of the case, and where possible, figures are used to illustrate problems.

The book is well illustrated by over 150 figures and plates; it is logically arranged, the paragraphs are numbered and there is a good index; the type is large and clear, and the binding heavy and durable.

J. A. W.

A Course

As set forth in the preface, the text is intended for a course of instruction in conventional Spanish. It has been written as a text book for use in the Army Service Schools, where the period devoted to the study of languages; is unfortunately but necessarily, limited, and where the fundamentals are the first consideration, but the student who has mastered this text has gained a working knowledge of the language, and a foundation from which he can make (if he should desire) a more extensive research into the refinements of Spanish grammar and literature.

The scheme of the work is not essentially different from that of other methods of instruction, but its prime object of giving a useful vocabulary in dealing with subjects which present themselves in daily life is consistently pursued throughout. Beginning with orthography, pronunciation and syllabification, the article, the noun, with the simplest sentences, the student is taken progressively in the forty-six chapters through the use of the tenses and modes, the passive voice and its reflective substitutes, the distinctions be-

^{* &}quot;A COURSE IN SPANISH." Prepared by the Department of Languages, Army Service Schools. Army Service Schools Press.

BOOK REVIEWS.

Machine Gun

This is a book of 260 pages, printed in

tween "Ser" and "Estar," the use of the pronouns and possessive adjectives, the distinctions between "por" and "para," etc., and the essential grammatical rules are explained and exercises given therein. Each exercise is preceded by a vocabulary containing words to be employed. These exercises in the latter part of the text deal with single general subject, as the Army, Navy, Railways, Stores, Hotels, etc., but with sentences so varied as to meet the requirements of expression. These exercises are in two halves, Spanish and English. The English part is the exercise proper. The Spanish to be used mainly to accustom the ear to Spanish sounds.

Every fifth chapter, after the simplest rules are explained is a review of the exercises given in the four preceding ones.

The fundamental rules given in the beginning are elaborated in the latter part of the text, and the repetition necessary for fixing the grammatical rules in the memory of the student is obtained.

An appendix contains the conjugations of verbs in the various classes with references to the paragraphs in the text in which the irregular verbs are actually used in the exercises.

An excellent index of fourteen pages adds greatly to the value of the text, making reference to any troublesome point casy.

The work is well thought out, the sentences generally natural, always rational, and the text as a whole gives the impression of being a very useful and practical scheme for the attainment of a speaking acquaintance with the Spanish language.

While written primarily for use as a text book in the Army Service Schools, it will prove useful to those who are endeavoring, without the aid of an instructor, to gain a working knowledge of Spanish.

As to its value to an officer who contemplates taking the course in the Army Service Schools, the text speaks for itself.

Tactics.* large type and well bound. So little study has been given to Machine Gun Tactics by our service in general that such a book as this one ought to prove an eye opener to the possibilities of this relatively new arm. The author quotes freely from accounts of the late Russo-Japanese War, where machine guns, according to many of the observers played a very important role to sustain the principles he enunciates. Reports of American observers and articles that have appeared in the CAVALRY JOURNAL are referred to and give an added

interest to this book for the American officer. To those who are entrusted with developing the proper tactical use of machine guns in our service, this book is commended. No officer alive to his profession will regard its cost otherwise than money well spent.

The following table of contents gives an idea of its scope; it will be noted that two full chapters are devoted to the use of this weapon with the cavalry:

TABLE OF CONTENTS:

Chapter I. Description and Organization.

Chapter II. General Principles.

Chapter III. With Independent Cavalry.

Chapter IV. With Protective Cavalry.

Chapter V. Employment with Infantry.

Chapter VI. Employment with Infantry. (Continued.)

Chapter VII. In Fortress Warfare.

Chapter VIII. In Minor Operations.

Chapter IX. Machine Guns of Different Countries.

^{*&}quot;MACHINE GUN TACTICS," by Captain R. V. K. Applin, D. S. O. Hugh Rees, London, 1910. Price six shillings, net.

Cavairy in War A new book by General Frederick von and Peace.* Bernhardi on the rôle, tactics, training and organization of cavairy, has just appeared in the German. An authorized English Translation has been made and is now being published by Hugh Rees, Ltd., and the U. S. Cavairy Association.

An extended critical review of this work will appear in the September number of the CAVALRY JOURNAL.

The following are extracts from a review of the book which was prepared by the British General Staff:

"In this important work General v. Bernhardi examines and develops his previously expressed views on modern cavalry by the light of history and of the recently published German "Cavalry Drill Regulations."

"In introducing his subject the author agrees in a measure with those who hold that, of all the arms, cavalry has suffered most in value through the improvement in modern weapons, but he maintains that, in certain directions, its sphere of usefulness has extended and requires to be dealt with by new methods.

"Speaking generally, he holds that the great decisive cavalry charge is a thing of the past though still a possibility, and bears out his contention by reference to history and by close reasoning. At the same time he shows how easily such attacks may be warded off and how in future it will be necessary to pave the way for them with fire action and thus introduce a mixed element into the fight.

"The services of exploration, of screening and of raids have, he says, become by far the most important duties of modern cavalry.

"This book is divided under three main headings, the rôle of cavalry, peace training and organization. The first of these occupies two-thirds of the book and deals with almost every phase of cavalry duties in war.

"He can find no light in history from the time of Frederick the Great and Napoleon right up to the latest examples in Manchuria, as to the proper conduct of cavalry in a future war, but thinks of all campaigns the American Civil War can most profitably be studied by cavalry officers.

"He deals first with the service of reconnaissance from the point of view of the army cavalry down to that of the small patrol. This is followed by a chapter on screens which the author classes as offensive and defensive. The former is only used by an advancing army and where a defensive screen cannot be formed. It consists of patrols pushed up all roads leading to the front supported by stronger bodies of cavalry, cyclists and where necessary the other arms. The defensive screen consists of patrols holding the approaches in chosen localities (especially woods) and supported by formed bodies ready to attack the enemy should he break through. The author remarks that the divisional cavalry will have to be supplemented for these duties.

"The author then turns to the subject of raids with which he deals at considerable length, finding himself in disagreement with the 'Cavalry Drill' which lays down that they should only be undertaken when there is a superfluity of cavalry and must not deter troops from playing their part in a general engagement. The author holds that on account of the sensitiveness of the modern army's communications such enterprises have increased in importance as the value of cavalry on the main battlefield has diminished. He thinks that under modern conditions a cavalry division would exercise more influence on the decision of a great battle by riding round the enemy's army, as did General Stuart at Gettysburg, than by being present at the décisive point. He examines the conditions necessary for success in such undertakings and thinks the German cavalry division of six regiments too weak to undertake them. He therefore advocates augmentation of strength and the addition of cyclists battalions.

"In dealing with dismounted action, the author criticises the 'Cavalry Drill' for laying down that attacks on foot

^{*&}quot;CAVALRY IN WAR AND PEACE." A critical survey of the role, Tactics, Training and Organization of Cavalry," by General Frederick von Bernhardi. Authorized translation by Major G. T. M. Bridges, D. S. O., Fourth (Royal Irish) Dragoon Guards. Hugh Rees, Ltd. London, and The U. S. Cavalry Association, Fort Leavenworth, Kansas.

must be brought to a conclusion with the utmost rapidity and only undertaken when superiority is assured to the attacker. This does not allow for the grave situations where the army cavalry may be obliged by the strategical situation to attack some locality, cost what it may, without any such overwhelming superiority. Cavalry, like the other arms, should be prepared to fight on to the last man when the occasion demands, as did the Japanese cavalry brigades at Sandepu. He disagrees with those who advocate the substitution of a bayonet for the sword, holding that the sword has its use and its loss would tend to lower a cavalryman's self-confidence.

"The second part of the book deals with peace training looked at from the practical point of view of preparation for war. A series of short chapters deals with the individual training of man and horse on a progressive system, the result of experience. Stress is laid on the desirability of a longer individual training for the remount and a more constant flow of young horses into the ranks.

"Value is attached to the simultaneous training of the man in musketry and riding so as to save more time for war training, while stress is laid on the necessity for developing his self-reliance.

"Field training, thinks the author, should conclude not only with maneuvers but with a great reconnaissance. He discusses this and offers numerous practical hints which would be of service to leaders at maneuvers.

"He then deals with the battle training for formations of all strengths. The practical in war is his watchword, and from this point of view the various considerations as to the battle of encounter and the proper value of fire action are discussed.

"In conclusion, the author deals shortly with the German cavalry organization, holding that for war, brigades of three regiments, strong cavalry divisions properly supplied with everything necessary to their independence and the creation of cyclist battalions are necessary to give the army cavalry

its proper offensive value. He asks for more scope for the Inspector-General of cavalry in the performance of his duties.

"The book is replete with useful matter for cavalry officers and others interested in the subject, and crystalizes much abstract and vague teaching into sound argument and clear language. It has an excellent index."

A Precis of As the title indicates this book is a glossStrategy.* ary of the subject of strategy. A student
about to take an examination in strategy
would find the book of great benefit as a general review just
prior to the examination. A condition precedent to gaining
any benefit from the study of this work is a thorough knowledge of military history and a previous course in strategy.
Considering that our army does not have much to do with
"speck" examinations, and also the general condition of
military education as it now exists with us, it is not believed
that this work will be found of value by many of our officers.

The book is well printed in large type, handsome in appearance and is accompanied by fifteen maps or charts that make clear the meaning of the reference in the text to various battles or campaigns.

E.

Campaign of which will be issued in the early fall.

Chancellorsville.†

In this number of the CAVALRY JOURNAL is reprinted a part of Chapter VIII of this book under the title of "The Battle of Kelly's Eord."

Those of our readers who know Major Bigelow are aware that he is a careful, painstaking writer, and it is believed that this forthcoming book will be a welcome addition to the literature on the subject of the campaigns of the Civil War. A review of this work will appear in the September number of the CAVALRY JOURNAL.

[&]quot;A PRÉCIS OF STRATEGY," by Brevet Lieutenant Colonel W. D. Bird. D. S. O. Hugh Rees, Ltd. London. Price 3 shillings and 6 pence.

[†] The Campaign of Chancellorsville, by Major John Bigelow, Jr. The DeVinne Press, New York.



BREEDING CAVALRY HORSES.

As many of our readers may know, some time since the Quartermaster's Department and the Department of Agriculture entered into a scheme for the purpose of encouraging the breeding of suitable horses for the mounted services of the army, particularly suitable horses for the cavalry service. The Department of Agriculture has long been willing to institute a general scheme with this end in view, but it was only within the last few months, since the establishment of the remount depots, that the Quartermaster's Department was able to cooperate by agreeing to purchase the colts that should be bred under this scheme.

The Department of Agriculture is about to, or has already instituted two or more experimental horse breeding stations in certain districts for the express purpose of interesting breeders in raising horses suitable for the cavalry service.

Also very many of the horse shows throughout the country are now having a "Charger" class which will also have a tendency to improve the breed of horses that we need for the cavalry service.

Both of these ideas should be encouraged to the fullest extent by our mounted services. Although these beginnings may not bear immediate fruit, yet the work is in the right direction and may ultimately result in our being able to procure suitable mounts for the officers and troopers.

Recently, at the suggestion of Captain C. H. Conrad, Third Cavalry, who is now on duty in the Quartermater's Department and engaged and purchasing young horses for the remount depots, the Executive Council of the Cavalry Association determined to offer a cup for the horse exhibited in the Virginia Horse Show Association winning the largest number of blue ribbons as a charger.

Regarding this proposition Captain Conrad wrote:

"The spring shows commence next month, and if this step is to be taken the present year, it is essential that all the preliminaries be arranged at once.

"As I wrote you before, I am in a position to have this matter taken up by the Virginia Horse Show Association and can assure you that all of the shows will make a feature of this class and devote a page in all catalogues to a description of the horses considered proper for entrance in this class, as well as the general advertisement of the cup and reasons for its existence.

"Owing to the fact that a number of officers of infantry are now required to be mounted, it is possible that some support of this movement could be obtained from the Infantry Association. I have not approached them on this subject, as it seems to me that the cavalry should be not only willing, but anxious to do this by themselves. Later it might be advisable to have all branches of the service help this movement and designate the cup as an army cup. This of course, would increase the interest and stimulate the competition in the charger class. The horses of this class are, of course, exactly what we want for officers' mounts as well as for the troopers. While the civilians interested in horses and horse shows have manifested themselves in this way, and the two departments are doing everything in their power

to improve the mounts of the army, it seems rather negligent for the branch of the service most effected to do nothing.

"I, therefore, write to urge upon you the advisability of looking into this matter at once and if possible have the necessary money set aside for the purchase of a suitable cup.

"I suggest the giving of this cup in Virginia because of the fact that at present the class of horse that we want, and the breeding we are anxious to stimulate are found princicipally in Virginia, also because the horse shows are better organized in Virginia than elsewhere.

"As you know, the cavalry has been used to the heavy and draft type of mounts for so long that its eyes have become set upon a rather beefy, low bred but substantial looking horse. Many officers are inclined to think that the finer bred horse; the horse with better lines, has neither the power nor endurance of the horse to which we are accustomed. Many do not realize that a finely turned horse is heavier and stronger than he appears.

"If my suggestion is followed and photographs of the blue ribbon winners in the various shows are published in the CAVALRY JOURNAL, nearly every edition could show a photograph of an animal considered by experts as one of the best chargers. It seems to me that the educational side of this would far outweigh any expenditure that might be made in this direction for this trophy. Later also this cup should be open to competition in any show in the country."

Since the cup has been offered the following has been received from Captain Conrad:

"I am enclosing a copy of the page in the horse show catalogue on the Charger Class, recently issued as a result of the offer of a cup by the Cavalry Association.

"The judges score card will have the following headings and their marks will be in per cent: Catalogue number, name of horse, sex, color, etc., name of exhibitor, breeder, age, height, head, neck, withers, shoulders, chest, fore legs, knees, back, loins, barrel, hind quarters, tail, hocks, limbs, pasterns, feet, general appearance, average per cent. and award."

"CHARGER CLASS."

"In order to stimulate the raising of horses for the army, as well as to acquaint horse breeders with the type and kind of horse best suited for army purposes. The Cavalry Association U. S. Army has decided to donate yearly an handsome solid silver cup to the horse exhibited in the Virginia Horse Show Association Circuit, winning the largest number of blue ribbons as a charger.

"GENERAL DESCRIPTION OF CHARGER."

"Mare or gelding, shown to halter, conformation only to count; breeding, at least fifty per cent. thorough-bred; age three or four years; color, any but gray or white; height, measurements to indicate a 15½ to 16 hand horse when mature."

"(Note.—Score card of judges will be conspicuously posted on bulletin board, after awards in class, showing standing of horses, in points, on detail of conformation. Owner of each blue ribbon winner to furnish photograph and breeding of horse for publication in "JOURNAL OF THE U. S. CAVARRY ASSOCIATION." A copy of the JOURNAL will be sent owner of each blue ribbon horse."

THE BATTLE OF GETTYSBURG.

Under the above title, there appeared in the September and November, 1909, numbers of the CAVALRY JOURNAL a reprint of an account of that great battle written July 16, 1863, by First Lieutenant Frank A. Haskell, Sixth Wisconsin Infantry, at that time an aide on the staff of General Gibbon, and who was killed at Cold Harbor while colonel of the Thirty-sixth Wisconsin.

As was stated in a foot note to that article, the pamphlet was furnished the Editor by Major General Wiley, N. G., Pa., and that it appeared to be a reprint from some college magzine.

As has been noted before, no one article that has appeared in the CAVALRY JOURNAL for years, if ever, has at

EDITOR'S TABLE.

tracted more universal attention and comment as did the reprint of this one. It was highly commended by many of our readers and spoken of as "a graphic description," "a classic," etc.

Recently, however, there has appeared a small book of forty-two pages, published by "The Philadelphia Brigade Association," and which is a scathing attack upon Haskell and his account of the battle. From this book we learn that this account was first printed for private distribution by Haskell's brother about the year 1878. It was reprinted in 1898 as a part of the History of the Class of 1854, Dartmouth College, but with certain omissions that severely reflected upon the Eleventh Corps, General Sickles and President Lincoln. It was again republished in 1908 by the Loyal Legion of Massachusetts and again in December, 1908 by the History Commission of Wisconsin.

It was a copy of the 1898 edition, the expurgated edition, that fell into our hands and was reprinted in the above mentioned numbers of the CAVALRY JOURNAL.

The cause of the appearance of this book will appear from the following extract from the introductory part of it:

"At the stated meeting of the survivors of the Philadelphia Brigade, held in that city on September 7, 1909, letters were read from General Alexander S. Webb, who commanded the Philadelphia Brigade at the Battle of Gettysburg, requesting the consideration of the Brigade Association to the most astounding misstatements made by First Lieutenant Frank A. Haskell, Sixth Wisconsin Infantry, in a paper said to have been written by him under date of July 16, 1863, two weeks after the Battle of Gettysburg had been fought and addressed to his brother."

The reading of this letter and the accompanying copy of Haskell's account led to the unanimous adoption of the following preamble and resolution.

"WHEREAS, In the 'Narrative of the Battle of Gettysburg,' by Lieutenant Frank A. Haskell, Sixth Wisconsin Infantry, and an aide on the staff of General John Gibbon, said to have been written a few days after the battle and reprinted in 1898 as a part of the History of the Class of 1854, Dartmouth College, and republished in 1908 under the auspices of the Massachusetts Commandery of the Military Order of the Loyal Legion of the United States, the Philadelphia Brigade has been recklessly, and shamelessly, and grossly misrepresented; therefore, with a view of correcting these wilfull misstatements, it is

"Resolved, That a committee consisting of the officers of the Philadelphia Brigade Association, together with two comrades from each of the four regiments of the brigade, be appointed to carefully consider the matter, and, if deemed advisable by the committee, to publicly enter its protest against the malicious statements 'reprinted in 1898 as a part of the History of the Class of 1854 of Dartmouth College,' and again republished by the Loyal Legion of Massachusetts in 1908, with a degree of recklessness and disregard for truth unparalleled in any publication relating to the Civil War; statements so false and malevolent as to be wholly unworthy of a class of Dartmouth College, or of a Commandery of the Loyal Legion of the United States, etc."

The book in question is the product of the labors of the above mentioned committee.

It will be observed that no mention is made in the above preamble and resolution of this account having been repubpublished by the Wisconsin History Commission, and it is presumed that, at that time, they did not know that it had been so republished by them. However, in the report of the committee due attention is paid to the fact and this Commission, together with the Loyal Legion of Massachusetts and the prior publishers of this article are severely scored.

While it is impossible for us to give this defense of the Philadelphia Brigade Association in full, yet, inasmuch as this account has appeared in the CAVALRY JOURNAL also, it is felt that, in justice to them, the book should be noticed and such extracts made as will give their side of the question.

Their principal cause for complaint is given in the following extracts: "The charge of cowardice on the part of the Philadelphia Brigade, purported to have been made by Lieutenant Haskell is printed on pages 60, 61 and 62 of the volume published by the Loyal Legion of Massachusetts, and is in part as follows:

The part quoted is that appearing in the November, 1909, number of the CAVALRY JOURNAL, commencing with line fifteen on page 437 and down to include line twenty, page 438. In brief, this is to the effect that being unable to find General Gibbon, after having delivered a message to General Meade, he rode to the right of the second division; he being the only mounted officer then near the engaged lines-"as the most eligible position to watch the further progress of the battle." He then says: "I had come near my destination, when Great Heavens! were my senses mad?—the larger portion of Webb's Brigade-my God, it was true-there by the group of trees and the angles of the wall, was breaking from the cover of works, and without order or reason, with no hand uplifted to check them, was falling back, a fear-stricken flock of confusion. The fate of Gettsyburg hung upon a spider's single thread." He then proceeds to tell how he "ordered those men to 'halt' and 'face about' and 'fire' and they heard my voice and gathered my meaning and obeyed my commands. On some unpatriotic backs of those not quick of comprehension, the flat of my saber fell, not lightly, and at its touch, their love of country returned, and with a look at me as if I were the destroying angel, they again faced the enemy. General Webb soon came to my assistance. He was on foot, but he was active and did all that one could to repair the breach or to avert the calamity."

The report of this committee then goes on to say:

"Colonels O'Kane and Tschudy of the Sixty ninth were killed in action; Baxter of the Seventy second, wounded and carried off the field; Moorehead and his one hundred and sixth regiment had been sent by Gibbon to the support of Howard's Corps, thereby materially weakening the brigade; Colonel R. Penn Smith, of the Seventy first, and Lieutenant Colonel Theo. Hesser, of the Seventy second, were with their commands, which they never left, encouraging their men to even greater deeds of heroism; Webb is still living and in a supplemental paper to this reply will state specifically where

the commander of the brigade and his adjutnant were and what they did.

"While Haskell has long been dead—killed in action at Cold Harbor in 1864, and it seems cruel to speak harshly of the dead, yet duty to the living, and to the honored dead of the Philadelphia Brigade compels reply. The unreliability of Lieutenant Haskell as a writer of military matters was equalled only by the egotism of the youthful lieutenant."

Several other quotations from Haskell's account are made, each preceded by some such comment as "the Haskell slauder," "the egotism and recklessness of Haskell," "this silly statement," "Haskell might, with equal truth and egotism," "this absured statement," "the colossal vanity of Haskell," etc., but none of these refer to the Philadelphia Brigade and are evidently given with the view of showing that Haskell was inaccurate in other respects as well.

Following these extracts and the comments upon them is the following from General Henry S. Huidekoper, who commanded the 150th Pennsylvania at the Battle of Gettysburg after its colonel was wounded and carried from the field.

"In the first print much of what Haskell said was suppressed and we can not but regret that any of it was made public, for, from a historical standpoint the story is inaccurate and misleading, and from an ethical standpoint it is indecent, venomous, scandulous and vainglorious."

Then follows these extracts from the reply:

"And this is the 'narrative' that the Military Order of the Loyal Legion of Massachusetts and the History Commission of Wisconsin have recently published in attractive and costly form, given the same wide circulation, unmindful of the fact that thereby they are inflicting irreparable injury to both the living and the heroic dead."

"As to the charge of cowardice against a brigade that lost 3.533 in killed, wounded, deaths from other causes, and missing, made under the auspices of Dartmouth College, and the Military Order of the Loyal Legion of Massachusetts, is so positive, so indecent, so scandulous, so brutal and so absolutely false, the Philadelphia Brigade in formulating a reply to these malicious and infamous violations of facts, has

deemed it proper to submit, as briefly as possible, extracts from Colonel Bane's 'History of the Philadelphia Brigade,' about what the Old Brigade did from the time it received the order to move from Falmouth, Virginia, until it met and turned back the charge of Pickett's division at the 'Bloody Angel' of Gettysburg on the afternoon of July 3, 1863."

Then follows extracts from Bane's History, comments on on the same, various notes and letters as well as tables of losses, all going to show the part taken in the battle by this brigade.

Without going into the merits of the case, it is noted that a large portion of this book is given up to confuting other charges made by Haskell, rather than the one in question and in applying opprobious terms to the writer.

As to the charge that the Haskell account is "Vainglorious," it is true but the same may be said, to a certain extent of all, with a very few notable exceptions, personal accounts, histories of regiments and brigades, North and South, of the Civil War.

As one well known student of the History of the Civil War said not long since, "It is a God send to the military student that there were no typewriters in those days" and many others have said that the history of the Civil War is yet to be written. There is such a mass of vainglorious chaff to be sifted out before the wheat is found in the large majority of personal accounts of the parts taken by individuals, regiments, etc., in that war that they are almost valueless from a historical standpoint.

In conclusion the following extracts from official reports, etc., regarding the part taken by Haskell in the battle, are given:

"From General Hancock's report: "I desire particularly to refer to the services of a gallant young officer, First Lieutenant F. A. Haskell, aide-de-camp to Brigadier General Gibbon, who, at a critical period of the battle, when the contending forces were but fifty or sixty yards apart, believing that an example was necessary, and ready to sacrifice his life, rode between the contending lines with a view of giving encouragement to our and leading it forward, he being at

the moment the only mounted officer in a similar position. He was slightly wounded and his horse was shot in several places."

Of him General Gibbon wrote: "There was a young man on my staff who had been in every battle with me and who did more than any other one man to repulse Pickett's assault at Gettysburg and he did the part of a general there."

Colonel Norman J. Hall, of the Seventh Michigan Infantry, commanding the Third Brigade, thus refers to the same incidents; "I can not omit speaking in the highest terms of the magnificent conduct of Lieutenant Haskell, of General Gibbon's staff, in bringing forward regiments and in nerving troops to their work by word and fearless example."

From these and other similar reports, it would appear that Haskell certainly had a magnificent record for gallantry.

U. S. FIELD ARTILLERY ASSOCIATION.

As has been noted elsewhere in this number of the JOURNAL, the officers of Field Artillery, regular and of the National Guard, have organized an association along similar to those of the other service organizations. In their association, however, they have adopted an idea that is a marked exception to those of the associations of the other branches of the service, in that they have admitted the Field Artillery officers of the National Guard to full regular membership.

Inasmuch as the National Guard, under its present organization and the laws as to their service, is to become part of the mobile army in time of war, and particularly since the advancement in instruction of its officers and the enthusiasm with which a large majority of them are perfecting themselves in their duties, it is believed by many that this is a step in the right direction.

At one time it appeared that we of the cavalry were going to have the pleasure of having Field Artillery officers affiliate with us and come in as a branch of the Cavalry As-

sociation or that both would unite in forming a mounted service association. While this, in many respects, would have been best for them as well as for us, yet for many good reasons that appealed to them, they deemed it advisable to form a separate organization.

In fact there are many good reasons that have been advanced why all branches of the service, particularly all branches of the mobile army should unite in forming one grand association and publish one journal for their mutual benefit and advancement, but more especially to foster that cooperation that is necessary in a well trained army.

The U. S. Cavalry Association welcomes this new Association into the brotherhood of service institutions and wishes for it every possible success.

ARMY BALLADS.

Harvard University has appointed Professor John A. Lomax, College Station, Texas, "Sheldon Fellow for the Investigation of American Ballads."

Professor Lomax asks that our readers send in copies of old army songs or any relating to the military life of the soldier.

This is a matter of importance in the interest of American literature, American history and American folk-lore and it is hoped that our officers will help in this work of collecting and preserving the many old time army songs that are now heard no more.

There are many such that were quite familiar in the army a generation ago that possibly some of our older officers, especially those on the retired list, may have copies of and which in this manner, may be saved from utter oblivion. There was one old song that was heard about the camp-fires some thirty years ago that was about, or referred to "Aransas Bay" that is now never heard, and it is possible

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that in another generation even the "Wild Missouri" will be a thing of the past.

The Editor of the CAVALRY JOURNAL will be pleased to receive and forward copies of such songs as may be in the possession of our members.

THE CAVALRY EQUIPMENT BOARD. .

As our readers are aware, a Cavalry Equipment Board has been convened to meet at the Rock Island Aresenal for the purpose of considering the question of changes in cavalry equipments, horse and personal, the refle and pistol excepted.

This board has been authorized to correspond direct with all cavalry officers regarding suggested improvements in cavalry equipments and its President has made a general call for such suggestions.

This is an important Board and the result of its labors will be of great interest to our branch of the service, as no such Board has been convened for over a quarter of a century.

The most important questions for the consideration of this Board are those of changes in the curb bridle, the saddle, the carrying of the rifle, and the total weight of the equipment to be carried on the horse.

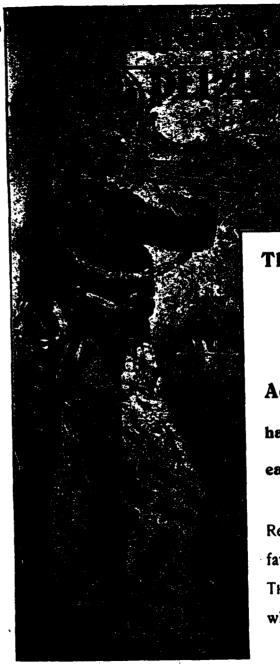
It is hoped that the question of an automatic rifle or car bine will be so far settled before this Board concludes its work that this may also be referred to it, in order that the question of the rifle vs. a carbine may be discussed and settled.

In the minds of many officers there is no doubt that the weight carried by the horse should be reduced and that not only should some of our equipments be dispensed with for this purpose and that a carbine should be adapted to replace the cumbersome and weighty rifle.

While the McClellan saddle has stood the test of time and experience in many respects, and is undoubtedly the best saddle that our service has ever had, yet there is also room for improvement in it. However, care should be taken in making these that its quality of standing the rough usage of field service should not be sacrificed.

It is hoped that our progressive cavalry officers will take an active interest in the work of this Board and assist it by sending in sound practical suggestions on the above and the various other questions that will undoubtedly come before it.





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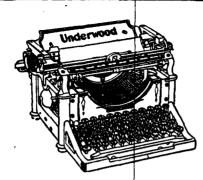
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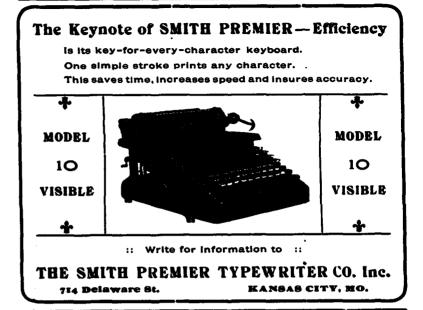
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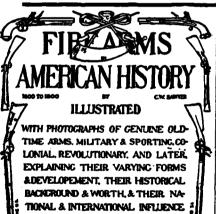
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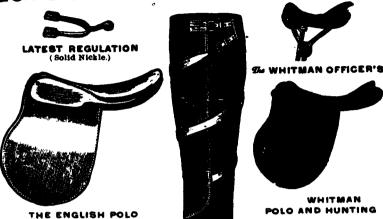
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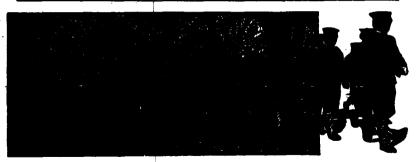
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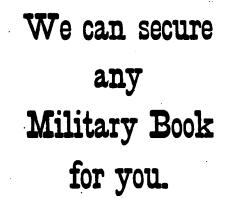
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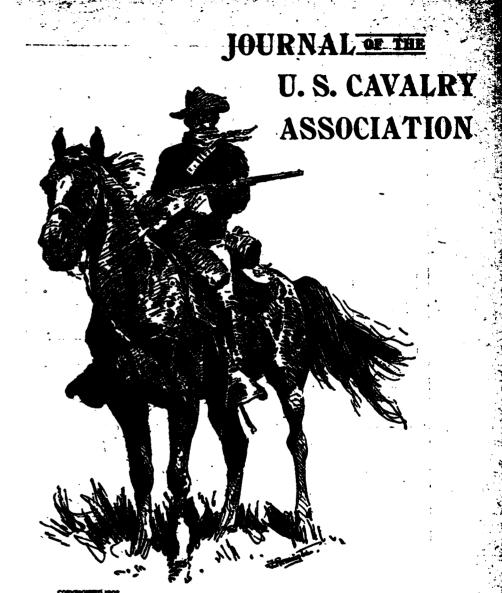
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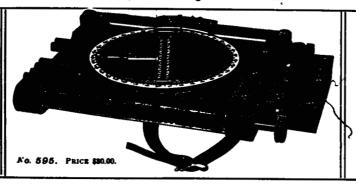
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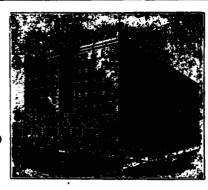
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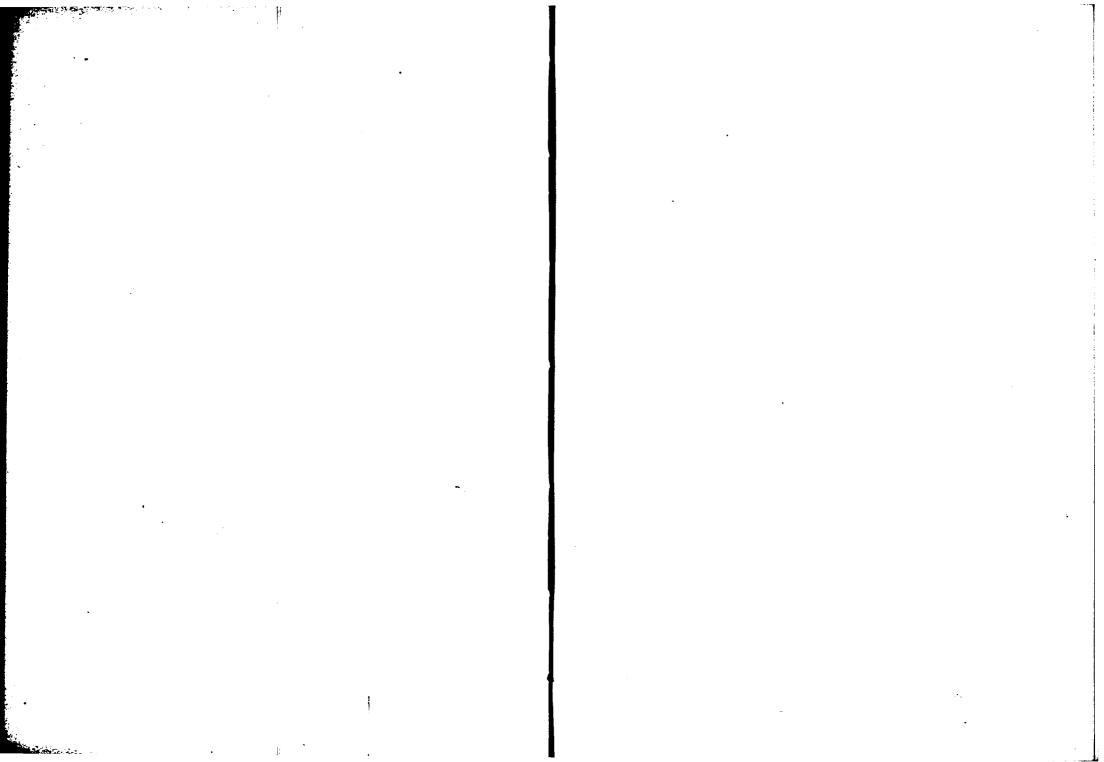
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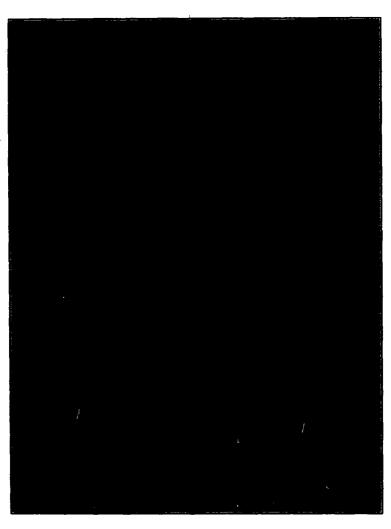
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No. 80.

THE GERONIMO CAMPAIGN OF 1885-6.

By CAPTAIN CHARLES P. ELLIOTT, U. S. ARMY, RETIRED.

Campaign of Captain Emmet Crawford, Late Third U. S. Cavalry, Against Chiricahua Apaches in 1885-6.

THE Chiricahua Apache Indian Tribe is one of the families of Apaches who have but little in common with the other Arizona Apaches and differ even in language.

The habitat of the tribe was Arizona and Northern Mexico, where they had reservations on both sides of the line.

They were for years a scourge to both Americans and Mexicans and it was not until the close of the campaign against them in 1886 that the troubles with them were terminated. The beginning of that campaign I am about to describe.

Since the death of Victoria, the Warm Springs and Chiricahua Indians have combined and blended and are both known as Chiricahuas.

In 1883 General George Crook with a command of regulars and Indian scouts entered the Sierra Madre Mountains in Mexico, followed the Chiricahuas to their stronghold in the heart of the mountains and induced the entire tribe to return to the White Mountain Indian Reservation in Arizona, where they were held as prisoners of war under the military command of Capt. Emmet

Crawford, 3rd Cavalry, in whom General Crook reposed great trust and confidence.

They were held at the San Carlos Agency for a time, then, at their own request, were allowed to remove to Turkey Creek, ten miles from Fort Apache, and were placed in the immediate charge of Lieut. Britton Davis, 3rd Cavalry. A number of bucks and their families started farms on Turkey Creek and White River, worked hard, and were to all appearances perfectly contented.

The first trouble occurred at Turkey Creek in 1884 with one of their war chiefs, "Ka-e-te-na." His prompt arrest, trial by Capt. Crawford, and sentence to three years' imprisonment at Alcatraz Island, in San Francisco Harbor, put a stop to all further trouble.

The fall and winter of 1884 passed in peace and quiet as did also the early spring of 1885. In April, 1885, the 3rd Cavalry, Capt. Crawford's regiment, was ordered from Arizona to Texas. Capt. Crawford applied to be relieved from duty over the Indians in order to go with his regiment. His request was granted in an order paying high tribute to his valuable services. Lieut. Davis, 3rd Cavalry, was retained in charge of the Chiricahua Indians and came to San Carlos in the latter part of April to draw annuity supplies for them. He reported that all were quiet and seemed thoroughly satisfied with their condition. On his return to Fort Apache he was accompanied by Capt. Pierce, 1st Infantry, the new commanding officer of the reservation, and Agent Fard, who represented the Interior Department. On their return to San Carlos they reported the Chiricahuas to be in a thoroughly satisfactory state.

Immediately thereafter a telegram came to Capt. Pierce stating that several of the prominent leaders had gotten drunk, camped together, evidently intending to defy authority and avoid punishment, and that an outbreak was feared. In a few moments after the receipt of the message the telegraph wire to Fort Apache was cut by the Chiricahuas, and of course it did not require an experienced cook to tell that the "fat was in the fire."

An extract from General Crook's report explains the situation very clearly:

EXTRACT FROM REPORT OF GENERAL CROOK.

"My first information of impending trouble was a telegram received on the afternoon of May 17th, 1885, and before a reply could be sent the wires between Fort Apache and San Carlos were cut. The next afternoon I was informed that Geronimo, Nana, Mangus, Natches and Chihuahua, with a considerable party, had left their camp on the preceding evening. Within a few days the exact number of renegades was fixed at thirty-four men, eight well grown boys, and ninety-two women and children. I learned that on May 15th, Lieut. Britton Davis, 3rd Cavalry, sent a telegraphic dispatch (copy attached, marked "A") which I did not see for months afterwards. Had the telegram reached me I feel morally certain that the trouble would have been settled without an outbreak. Troubles of minor importance were constantly occurring on the reservation, which were quieted down by the officers in charge by reporting them to me and receiving my instructions."

TELEGRAM FROM LIEUT, DAVIS, MAY 15TH, 1885.

"There was an extensive tismin drunk here last night and this morning; the following chiefs came up and said they with their bands were all concerned in it: Geronimo. Chihuahua, Mangus, Natches, Fele and Loco. The whole business is a put-up job to save those who were drunk. In regard to the others I request instructions. The guard house here is not large enough to hold them all, and the arrest of so many prominent men will probably cause trouble. Have told the Indians that I would lay the matter before the General, requesting, at the same time, that their captives in Mexico be withheld. I think they are endeavoring to screen Natches and Chihuahua.

"(Sgd.) Davis, Lieut.

"The above is the telegram which has caused so much comment. When I reached San Carlos, the commanding officer told me that he had received the telegram, but did not forward it.

"(Sgd.) Davis, Lieut."

Embodied in the reports of General Crook are the interesting reports of Capt. Allen Smith. 4th Cavalry, commanding a squadron sent to pursue the renegades and head them off if possible before they left the reservation, also Lieut. Davis' report of his pursuit with Indian scouts.

The Indians retreated, however, without loss to themselves, but leaving a trail of blood behind them, until they finally escaped into Old Mexico.

REPORT OF GENERAL CROOK.

"Within an hour after the renegades left their camp on Turkey Creek, two troops of Cavalry (the 4th) and a party of White Mountain and Chiricahua Scouts, under Lieuts. Gatewood and Davis, left Fort Apache in pursuit, but such was the rapidity of their flight that it was impossible to overtake them. It subsequently appeared that they traveled nearly one hundred and twenty miles before stopping for rest or food. Capt. Smith's report is attached (marked "B").

As soon as the departure of the Indians was known, troops were immediately put in motion to endeavor to overtake or intercept them. Capt. Pierce, with a party of scouts from San Carlos, moved towards Ash Park The Commanding Officer of Fort Thomas, without waiting for orders, sent two troops of Cavalry towards Clifton. The Commanding Officer of Fort Grant was ordered to send all his available force of five troops of Cavalry towards the Gila, with orders to cut their trail if possible, and to pursue vigorously regardless of Departmental or National lines. The Commanding Officer of Fort Bowie was directed to ambush his Cavalry at proper points in the Stein's Peak Range, which had been a favorite trail in former years. The Commanding Officer of Fort Huachuca was instructed to send three troops to Guadalupe Cañon to scout the whole country in that vicinity. Information was sent to the Commanding Officer, District of New Mexico, of the departure of the Indians and the movements of the troops, and finally, every effort was made to warn citizens at all points within reach of danger."

A few days before the outbreak of the Chiricahuas I was ordered, as Provost Officer of the reservation, to take two packers and what riding and pack mules were needed, and make an inspection of the Indian camps on the Aravaipa Cañon and San Pedro River. En route to the Aravaipa we stopped to examine a fine spring, reported by the Indians as flowing through

a rough, rocky cañon a few miles north of the Aravaipa. I found the spring as reported to be of clear, pure and cool water, a treasure indeed in Arizona.

Just after leaving camp in the morning for the Aravaipa, my saddle mule was struck by a rattlesnake and, having no remedies, after lacerating the wound I made one of the packers lead the mule back to the spring and tie her in the mud near it with a weak rope. That the remedy worked was proven by the ... mule being found, twelve months later, among the Indians on the San Pedro. The delay caused by the accident caused me to meet the mail carrier at the foot of the trail into the Aravaipa, and from him I learned that the Indians had broken out and started southeast from Fort Apache. I concluded that they would endeavor to elude the troops and escape into Old Mexico, in eastern Arizona or western New Mexico, and that my best chance to join an expedition against them was to strike diagonally across through Fort Bowie, Arizona, get the latest intelligence, and continue to the east until one of the pursuing columns was met. At the mouth of the Aravaipa a courier from Lieut. Walsh at San Carlos overtook me, suggesting that my return to San Carlos was advisable, but as he was junior to me I could not resist the temptation to continue on my way and follow out my original plan.

Our route took us up the San Pedro, as long as possible on the wagon road, then across country towards Fort Bowie, laying a course as nearly straight as possible in such a rough country, using the stars at night, as a guide.

The first news was obtained at Wilcox that the Indians were in the mountains near the Gila, but trying to work south. At Fort Bowie I secured all the supplies that my mules could carry and started southeast, going by the Double Adobes in Los Animas Mountains, across the line and to the Janos River in Old Mexico. There I found that I was south of the Indians and started north towards Deming, N. M.

At the noon camp on the Janos River an incident occurred rather characteristic of the country. We had killed, on an average, more than one rattlesnake a day, traveling across the country, but had never encountered one in camp. The cook had just spread our meal on a canvas manta, near a water hole, and we were setting to in good earnest, when, with an exclamation in Spanish, the Mexican packer jumped over the improvised table. I looked around and saw about sik inches of the head of a rattle-snake appear between where he had been and myself; as quick as thought the American packer, with one stroke of the ax, cut off the snake's head. We had spread our table directly over the hole of a five-foot rattlesnake, but in breaking down the fennels to make a level place had not been able to see it. Sleeping on the same ground was not pleasant, but excessive fatigue is a good sedative.

While we went north from the Janos the hostiles went south within a short distance, just when or how far apart we passed in the night I am unable to say.

I found that a battalion of the 10th Cavalry, under Major Biddle, which had returned from pursuit of the band gone south, was camped near the Florida Mountains. Gen. Crook had gone to Fort Bayard, N. M. I reported to him by telegram and awaited instructions.

Capt. Pierce, who had succeeded Capt. Crawford in command at San Carlos, was expected in from the east with his Indian scouts, the command to which I belonged, by rail from near the Ojo Caliente. Capt. Crawford had been ordered back from Texas to organize and command an expedition composed of Indian (100) scouts and one troop of the 6th Cavalry, and pack train, to pursue the Indians into Old Mexico.

REPORT OF GENERAL CROOK.

"Capt. Crawford, 3d Cavalry, who had reported to me, was ordered with the battalion of scouts which had been operating in the country about the Warm Spring Reservation to Separ by rail, and thence to move with a troop of cavalry to the south end of the Animas Valley, with the hope that the Indians might cross into Mexico through the Guadalupe Mountains. The result proved that the main body of the hostiles crossed the line to the west of the Mule Mountains, though a small party surprised a camp of the 4th Cavalry in Guadalupe Cañon, guarded by a party of seven enlisted men, killing four of them, and another small party crossed the line near Lake Polomas. Lieut. Davis, who, with sixty White Mountain and Chiricahua scouts, had been following the trail of the Indians as rapidly as possible, was

ordered to report to Capt. Crawford, and on June 11th the combined force consisting of ninety-two scouts and Troop 'A,' 6th Cavalry, followed the hostiles into the Sierra Madre."

My duty while waiting at Deming was to collect and forward to Gen. Crook all information possible about the movements of Indians, especially that gathered from the employes of the two railroads running into Deming. The shameless lies told by some of the employes, who would go into the most minute details about seeing a band of Indians breaking camp and moving south, caused me to ride many useless miles in the hot sun and to learn by experience that residence in New Mexico and Arizona, if too prolonged, produces the champion breed of liars.

Lack of veracity on the part of the civilians in reporting movements of Indians was frequently the cause of unnecessary loss of life among themselves, by causing the troops to go on a fruitless search, in the wrong direction, for Indians raiding and killing elsewhere. In a sparsely settled country, with few railroads, few roads, high and very rough mountains, with water long distances apart, information was hard to obtain, and when wrongly given many weary miles were necessary to discover the error.

The campaign now opened in real earnest; all the troops in both territories were on the move. Our command was loaded on cars and taken to Separ on the Southern Pacific railroad. From that point the course lay south towards the Animas Valley, the scouts covering the country on both sides for signs of, the trail of the hostiles. News reached Capt. Crawford that the hostiles were to the west of us and that the troops from Fort Huachuca had left their camp in Guadalupe Cañon in pursuit of them, the Indians working to the south. He took his command over to Skeleton Cañon, but seeing no signs of the hostiles went to Lang's Ranch, N. M., and from there crossed the line and mountains into Old Mexico. The band of hostiles, soon after crossing the Guadalupe Cañon, evidently noticed the whitetopped army wagons in the camp at Guadalupe Cañon, and rightly concluding that they belonged to the command that they had just eluded and left behind, doubled back, crawled up on the camp down the backbone of a ridge, terminating in a steep bluff just opposite it, watched the soldiers until the sentinel on duty was called to his dinner, and, contrary to specific orders, left his post to get it; then the Indians got within a few feet of the unsuspecting men, and opened fire on them. The soldier acting as cook and two others were, I think, killed instantly. The sergeant in charge was shot, but Private Snitzer of "C" Troop, 4th Cavalry, took him on his back and climbed with him out of the cañon on the north side. The sergeant was shot a second and third time while on Snitzer's back and killed. The Indians took what they wanted and burned the rest. On the return of the troops the men that had been killed were buried, their graves remaining as a warning to the soldiers in that camp during the rest of the campaign. Private Snitzer was duly rewarded for his gallant conduct.

The first camp made by Capt. Crawford in Old Mexico was at Sierra Media (Middle Mountain), the scene of a severe engagement between the 6th Cavalry and Indian scouts under Major Tucker and the Chiricahuas during a former outbreak. Some of our scouts had then been hostiles, and during the night of our camp on their old battleground celebrated, by the most fiendish singing, their former successful escape from a rather desperate position. From Sierra Media, no signs of hostiles having been seen, the command went northwest towards the mountains south of Guadalupe Cañon. The scouts still failed to develop signs, so we turned south towards the Sierra Madre, camping at Dos Carretos Creek. Capt. Crawford's intention now was to get south of the Indians, keep a sharp lookout for signs of them and, if possible, surprise and capture them, as it was nearly impossible to get a fight out of them otherwise. In pursuance of this design the command crossed into Sonora, notifying the presidentes of all towns of the outbreak and asking that any movements of the hostiles be communicated to it at once. The country was very thoroughly covered and it was evident that the hostiles were in the mountains to the north of our position. An incident occurred about this time that resulted in the killing of one of our scouts and the wounding of another by an American living in Mexico. The scouts were, as usual, well ahead of the command and spread out, looking for signs. The American, who had heard of the Indian incursion into Mexico, was driving his cattle to a place of safety, when suddenly he saw coming towards him three Indians. He took up a favorable position, bided his time, killed one, wounded another and put the third to flight. He did not know that we were near with Indian scouts and thought he had run into the Chiricahuas. The heat at this time was frightful.

The following is Capt. Crawford's report:

CAMP ON BATEPITO RIVER, Six miles above Oputo, Mexico.

June 25th, 1885.

General Crook, Whipple Barracks, A. T.

Camped in Texas Mountains, vicinity of Guasaoas, on the 19th instant, and was informed the following day that Indians had been seen near Oputo the night of the 19th. Acting on this information I ascended the river to this point, and on the morning of the 22d discovered the fresh trail of about eight or ten Indians leading into the Bavispe Mountains northeast of here. That afternoon Chatto left camp with a picked body of scouts to overtake and capture the men whose trail we had seen, or, failing in that, to locate the camp and hold the hostiles, if possible, until the rest of the command could overtake them. Some of the scouts returned night before last and the rest yesterday morning with the following report:

After leaving camp they marched until about dark, when it began to rain heavily and washed out the trail, when they camped. Starting again the next morning, they entered the range of mountains toward which the trail had been leading, and about 9 o'clock came in sight of the rancheria. The camp was in such a position that Chatto thought it impracticable to surround it without being seen by the hostiles, in which event the chances of capturing any of them would have been very poor. The best position practicable was obtained and Chatto then opened the fight. As soon as the firing commenced the hostiles fled and endeavored to escape, with their women and children, through several deep cañons which joined near the camp. The scouts followed as rapidly as the nature of the ground would permit, and for several miles a running fight was kept

up, but the canons were so very rough that the pursuit was slow, and the bucks, eight in number, with four boys and three women. escaped to the mountains. Fifteen women and children were captured, and one of the women was sent by Chatto to see if she could not induce the surrender of the others of the party. This woman has not yet returned. There was also captured all of the property belonging to the party, five horses belonging to the 4th Cavalry, three saddles, two revolvers, cartridge belts, ammunition, etc., belonging to soldiers killed in Guadalupe Cañon, one white mule, branded "U. S.," and other property of less value. One Indian was killed and several others wounded in the fight. Two of the captives, one a squaw and the other a child, were wounded; one scout, a White Mountain, known as Big Dave, was shot through the elbow, his arm being broken. The camp was that of Chihuahua, whose entire family is among the captives. Natches is supposed to have left him several days before the fight, and is now thought to be with Mangus and Geronimo on the eastern slope of the Sierra Madre. Expect to leave here tomorrow morning, continuing to follow Natches' trail into the Sierra Madre. Country through which trail has led so far is extremely rough and with scarcely any water, so that time will be necessary to accomplish satisfactory results.

The Mexican citizens and officials of the different towns have shown us every consideration and attention, expressing themselves as more than pleased to have us here protecting them. The Mexican troops are said to be south fighting the Yaquis.

(Signed) EMMET CRAWFORD, Capt. 3d Cavalry, Commanding.

The command had been subject to every possible hardship up to this time, excessive heat, very little water, poor rations, bacon made rancid by unusual heat, and at night were pestered not only by mosquitoes, but by ants, large and small, with an occasional centipede. I killed one of the latter at Dos Carretos Creek that measured eight inches. At the camp on the Bavispe River, while waiting for the return of the scouts with their captives, the insects had been particularly annoying. Due to the rain mentioned in Capt. Crawford's report, the river has risen a foot or more and then receded. I concluded to spread my

rubber poncho on the wet ground near the river, put my head in a pillow case that I was fortunate enough to have, and try to get a little sleep. The air was rather vibrant with suppressed excitement; the scouts in camp knew the hostiles were not far off and seemed to think they would try to recover their squaws or run off some of our stock. The mule pack train was herded across the river from where I went to sleep. I was awakened out of a sound sleep by loud cries all around me and a great splashing in the river. It flashed across my mind that I was just in the way if the mules stampeded towards camp. Of course, the pillow case stuck, but I could not allow a small thing like that to stop me, and, being young and active, I went blindfolded for the high ground. When in a place of safety from mules I got the pillow case off and found Lieut. Davis, Al Seiber and all hands armed and ready to receive an enemy. What I had heard coming through the water were our scouts, some of whom had camped across the stream, who had imagined that the Chiricahuas were upon us and had stampeded to our side of the river to join forces. All of the excitement was caused by a lone burro crossing the river just below where we were.

The following morning the captives were brought in. Capt. Crawford directed me to go to Oputo to get a guide and some grain, if possible, as he wished me to go by forced marches to Fort Bowie with his report to Gen. Crook. I succeeded in getting a Mexican smuggler for a liberal consideration who undertook to take me by the shortest possible route. Capt. Crawford allowed me my choice of all animals in the command, as he wanted the dispatch to get to Fort Bowie in three days.

With my smuggler guide, one pack mule, loaded with a half sack of corn, a loaf of Dutch oven bread, a piece of bacon and a coffee pot, we left camp at 8 a. m. June 25th.

The first part of the route was entirely unknown to me, in, fact, I had never been into Bowie from that direction, but near the post is a prominent landmark visible for miles down the valley towards Mexico, and I knew if my guide would get me out of the mountains that I could be independent of him. About two hours from camp a deer jumped up in front of me, ran a short distance up a side cañon and stopped in easy range. I shot it from my mule, cut off a hind quarter and hung the carcass up

on a tree for the pack train that I knew would follow me. Had we not been engrossed with the deer we would undoubtedly have noticed that the hostile bucks had crossed the cañon just before we got there and the officer in charge of the train said that finding the signs all mixed up together he expected at any moment to find our mutilated remains. However, I was spared to make one of the hardest and most trying rides of my life.

By riding sixteen hours a day in two periods of eight hours each, as nearly as possible, stopping to water the mules and make coffee, where possible, the ground was covered quite rapidly. Making camp consisted of taking the saddles and blankets, wet with sweat and rain, off the riding mules and the aparejo with its light load from the pack mule. With the ground or a wet blanket to lie on and a saddle to rest your head on, your housekeeping arrangements were soon completed.

I had the satisfaction of delivering my dispatch to Gen. Crook at Fort Bowie at 8 a. m. on June 28th, on time. I had to finish the last stage on foot, leading my mule, worn out and unable to bear my weight. The Mexican and the pack mule did not turn up until the afternoon. The distance covered was between 190 and 200 miles.

Gen. Crook was glad to learn of the whereabouts of the hostiles and ordered me on the second day to go with a fresh mount and a packer to Lang's Ranch to await the arrival of fresh supplies and a fresh cavalry troop for Capt. Crawford, Troop "A," 8th Cavalry, having been worn out by the work with the scouts. The ride to Lang's Ranch was made in two days, the distance from 90 to 100 miles.

Within a few days of my arrival at Lang's Ranch the pack trains with fresh supplies for Capt. Crawford's command were ready to start for Mexico, with Troop "C," 4th Cavalry, under Lieut. Guy Huse, 4th Cavalry, as escort. Nothing of consequence had occurred since the time of my leaving Capt. Crawford, near Oputo, and my reporting to him with the new supplies.

Being now thoroughly equipped for further scouting, the search for hostile Indians was resumed with fresh vigor. The heat in the deep, rocky cañons of Northern Sonora was something frightful, and water, except on the rivers, was scarce and poor when found.

On the 9th day of August, near Nacori, in Sonora, Capt. Crawford met Lieut. Day, 9th Cavalry, with a detachment of Indian scouts, who had just attacked and captured a camp of Chiricahuas, women and children, back in the mountains from where we were. Capt. Crawford took up the trail of the bucks of the party and our pursuit of them across the Sierra Madre is well described in the report of Lieut. Britton Davis, who led in the pursuit:

"The mountains at that point were so abrupt that we experienced great difficulty in crossing them; a detachment of packers and scouts was kept continually ahead of the pack trains for the purpose of making a trail; but even with these precautions the difficulties of proceeding were so great that several mules were killed and injured each day through rolling down the mountains.

"After reaching the summit of the Sonora slope of the Sierra Madre, I was detached and sent forward with a party of scouts, under Seiber, to follow the trail of the hostiles, who were moving east and traveling rapidly. We took with us six days' rations, which, with the aid of horse meat, beef and game, when obtained, lasted us eleven days. Heavy rains fell almost daily, and at times it was almost impossible to keep the trail. The hostiles, on the contrary, had nothing to carry but themselves, and were also driving a number of fresh animals. As soon as their horses would give out they would kill them and mount the fresh stock they were driving. They lived upon the flesh of the horses they had killed, and upon such wild fruit as they could gather along the route. Fearing that we would run upon them at any moment and be discovered before we saw them, it was necessary to keep a few scouts eight or ten miles in advance each day, and our progress was necessarily slow. The country through which we passed was so soft that our mules, with even their light loads, sank to their knees in the mud, and riding at times was out of the question. Had the Indians caught sight of us they would have scattered in every direction and further pursuit for the time being would have been useless.

"After leaving the scene of the fight (with Lieut. Day) the hostiles moved nearly due east across the Sierra Madre, a distance of nearly two hundred and fifty miles, reckoned from Nacori on the western slope to Via de Bueneventura on the eastern slope. Arriving in the vicinity of Via, the trail turned towards the southeast, avoiding the larger towns and ranches until the town of Santa Clara was reached, at a point, following the Indian trail, about a hundred miles further to the east."

We must also leave Lieut. Davis' trail here, however interesting it may be, and return to the main command under Capt. Crawford. The difficulties encountered by Lieut. Davis, with his small command of selected mules, not too heavily loaded, were of necessity less than those of the main column. Mules hate mud, and the more that go through it the worse the mud becomes, and the more they balk at it. For eight days in succession we were wet through all the time, and with no shelter at night, in those high altitudes, the cold went to your very bones.

There was only one compensation, and that was the view we got from the high points on the west of the Sierra Madre. I shall never forget the scene that was unfolded to us one morning that broke clear, after a very severe rainstorm the day and night before. We were then camped on the top of the range with a view limited on both sides only by the length of your vision and the rotundity of the earth. We were above the clouds, which filled all of the valleys with a mass of white, billowy vapor, the rough and forbidding mountains of Sonora falling in tier after tier toward the Pacific Ocean, which we imagined that we could see. Capt. Crawford was much impressed with the grandeur of the scene, and, as fate would have it, within less than six months lost his life on one of the cloudenvironed mountains at which we were looking. It soon became evident to him that at the rate we were traveling it would be impossible to overtake Lieut. Davis, with the whole command, within double the time, six days, for which Davis was rationed. The captain therefore detached me, with two good packers, six selected pack mules and eight Indian scouts, to push forward and overtake Davis before he got out of food, as it was of the utmost importance that some of the command should keep in touch with the hostiles, touch meaning on a hot trail, a hot trail being less than 24 hours old.

I started out as directed, and had no difficulty in following rapidly the plain trail left by Davis and his mules, except in such places where he had experienced trouble, due to the nature of the country. As the trail led east we were bound to get out of the mountains sooner or later, and at noon of the day on which we finally emerged from the main range and got into the foothills three of Lieut. Davis' scouts, coming back on the trail, met me with a request to Capt. Crawford to forward supplies to him, Davis, at once. On reaching a cattle range in the foothills I put my small detachment into camp at the same place where Davis had camped with his scouts a few days before. They found the remains of three head of cattle that Lieut. Davis had killed and butchered for his Indians. Before killing them he had tried in vain to communicate with a Mexican cowboy, whom he saw on the range, but the sight of the Indians with Davis was too much for his nerves, and the valiant greaser vanished. Both Davis and I had orders to kill what cattle were necessary for food and to give receipts, to be taken up by Capt. Crawford on his arrival. Whether the receipts were ever taken up is more than I know; but there can be no doubt about my having been, and it is only due to execrable marksmanship on the part of the Mexicans that I am here to tell of it.

The Mexican herder who had seen Lieut. Davis and his scouts did not stop until he reached San Miguel, many miles from the camping place. There he roused the town and turned out the Voluntarios to suppress the invasion of the Tejanos (Texans) and Broncos (as they called the wild Indians).

Lieut. Davis had broken camp very early and had followed directly on the Indian trail across a range of high hills. Neither he nor his scouts, who had come back to guide me, by a short cut through a cañon, and had thus missed the Mexicans on his trail, had the faintest idea that he was being pursued.

On breaking camp at 4 a. m. I was guided by one of the Indians through the cañon in question and drove my mules to their utmost capacity. At about 2 p. m. the Indian guide could not be found; he and the other two had slipped off to look for

game whose sign they had seen. The trail became faint just here, and rather than get off it or overrun it I determined to take the packs off the mules and give them a rest for an hour or so, knowing that I could make Davis' camp before night with an hour or two of daylight.

While we were pushing down the cañon the Mexicans had followed the trail over the mountains and were just in advance of us. They had formed an ambush just a few yards ahead of where I stopped and would have murdered us beyond doubt had we not stopped just where we did.

While helping the packers to unload and cover the cargoes from an approaching rainstorm one of my Indians said in Apache, "Nantan, No-ki-ai," "Captain, Mexican," pointing to a mounted man against the sky-line. I looked at him, and he was like any other range rider in a similar country riding on high points to look for cattle. I reassured the Indians and went on with my work, arranging the rations under a cottonwood tree, when a volley burst from the crest of the hill where the Mexican had been seen and the leaves were cut from the tree over my head. I had put my rifle and revolver on my bed roll and started for them, but concluded it must be a mistake on the part of the Mexicans, ordered the packers to take cover; the Indians had needed no warning, had gotten in a strong position, and the two tame Chiricahuas who had come back from Davis to me promptly returned the fire. I ordered them to stop firing, but, knowing the Mexicans better than I, when they could not shoot, they lit out for Davis, as soon as my back was turned. I ran from under the tree to open ground and towards the hill, calling to the Mexicans that I was a friend and American officer. In a moment the firing ceased and I went and stood on a small bare mound, waiting for the commander to come down. While I was standing there, alone and unarmed, the fire was by command, for I heard it, concentrated on me. It was a noble sample of Mexican chivalry, and profanity was the only weapon I had to meet it with. The vigor of my remarks had the desired effect and the firing ceased. Three men detached themselves from the main body and came towards me. On seeing them start, I called to one of my packers, who spoke Mexican fluently,

to come to interpret for me. The Mexicans came up, shook hands most cordially, passed the compliments of the day and season, and just as I was about to warm up into friendship and forgive them for having tried to pot me, with one accord they raised their carbines on us and wanted to know why we had killed those three head of cattle. At once it flashed over me that they had mistook me and my little squad for Davis and his fifty scouts. I told them I had killed only two and that the man they wanted was just over the hill with fifty Indian scouts. That made them think quick and hurry. They had me where I could do nothing to help myself, and my Indians could do nothing to help me. Finally we were all started, the two packers and I mounted bareback on our mules, the Indians tied together on foot, toward Bueneventura. I declined to go unless they untied the Indians, whom they had forced me to disarm, and they did so.

En route to Via we met Lieut. Col. Mesilla of the 11th Mexican Cavalry, with cavalry and infantry marching to repel the invasion of Mexico by me and my poor little eight Indians.

My explanations were listened to, but evidently doubted. We were marched to Via, where the entire population turned out to see the show, and I was called many vile names, which, fortunately, I did not understand.

We were turned over to the Mexican Regulars, the officer of the day, a courteous Mexican gentleman, giving us into the charge of the officer of the guard.

The Indians were put in the barracks and the two packers and I were allowed to remain in the room of the officer of the guard. On entering the compound, a little Mexican soldier, moved by pity, handed me a very nice looking ear of green corn, roasted to a turn. I accepted with thanks and slipped it into my pocket. It was my only ration from 4 a. m. that day until the next morning.

The officer of the day kindly gave us a large giass of aguardiente; as I needed my head, I gave my share to the two packers.

The two Indians who went from me to Davis, when the firing started, confirmed a report made to him by one of his own scouts, who had seen the trouble from a high point, and

Davis at once started with his command to my assistance. Before he could reach us we had been hurried towards Via, no guard even being left over my property. He followed with his scouts just over the crest of the hills, beyond which we were being taken, and halted just outside of town, concealing his command. He had seen the meeting with Col. Mesilla from a distance. At dark, Davis, who spoke Spanish with ease, entered town and placed himself in communication with the presidente. That official refused to act until the return of the military commander. Upon his return, my statements having been proven true by the marks on the property and aparejos, after a consultation between Col. Mesilla, the presidente and Davis, I was paroled and ordered to report to headquarters at 9 a.m. It was then a great pleasure to hear Col. Mesilla give the Voluntarios "Hail Columbia" for the part they had taken in the affair, made them restore what they had tried to steal, and express his regrets for what had happened and his pleasure at my not having been killed, to all of which I heartily agreed, especially the latter.

My love for Mexico and the Mexicans had not been added to by my experience, and when, after joining us, Capt. Crawford told me that he wanted me to take dispatches north to Gen. Crook at Fort Bowie, I was very keen for the start.

I am happy to state that Capt. Crawford complimented me very heartily on getting out of the scrape as well as we did, saying that had I allowed my Indians to return the fire and open a fight. Davis would have been drawn into it, then Col. Mesilla would have joined in the battle, and as we were two hundred miles south of the line and with nothing but Indian scouts, Troop "C," 4th Cavalry, having been sent north from the west side of the Sierra Madre, we would have been in a desperate state, even if victorious, not to mention international complications.

The ride north with dispatches was uneventful, except that we stood, the packer and I, and counted ninety-five antelopes file slowly down to a small stream to drink and did not fire a shot. We were under orders not to shoot on the trail. It was not the first time. Once on the west side, in Sonora, Capt. Crawford and I, while riding in the lead, came upon a buck and two

does within twenty yards, standing perfectly still and looking at us with wonder in their eyes. They had probably never seen man or mule before. I begged to be allowed to shoot; fresh meat had long been a stranger to us. He only laughed at me. Finally I dismounted and threw a rock at the buck to ease my feelings. Within a few days we returned over the same trail; the order about shooting had then been revoked, and the packers were busy all day picking up deer left by the Indians on the trail, to be packed into camp.

Once while in the heart of the Sierra Madre, while the shooting embargo was on, I had a most exciting chase on muleback after a flock of young turkeys. They got mixed up and I very nearly caught one. The Apaches are reported to have frequently run them down on foot. That I have never seen, but I have had them bring to me a well-grown fawn that had been run down by them and caught.

After crossing the stream where the antelope went to drink, we knew of no water for many miles to the north of us, none, in fact, short of Media, on the Janos plain. We rode all day, and as the sun was sinking caught sight, over to the left of our course, of the vivid green of the cottonwood. It did not necessarily mean water that we could get at, but we had to camp somewhere. On reaching the spot we found the worst looking brown mess, wet, and by filling the coffee pot and cooking its contents we got a half potful of stuff soft enough to flow and the color of black coffee. By making a strong infusion of coffee we were able to moisten our dry mouths and tongues during the night. The mules had to take theirs straight.

The next morning we started out very early with no hope of water within twenty-five miles. Just before noon my mule, that was in the lead and was beginning to show symptoms of great fatigue, suddenly sniffed the air, pricked up her ears and took a smart trot. The other mules, the packer and I knew she smelt water. Within a short distance she came to a beautiful, clear spring of pure water, bubbling up on the open prairie. The mules kneeled and stuck their heads in nearly to the eyes, and we were not slow in assuming a position where gravity assisted the flow of an elastic fluid. Oh, how good it was—the remaining twenty-five miles of the day's march seemed a mere step

compared to the same number of miles from the cottonwood mudhole to the spring.

Capt. Crawford did not return to the United States, but went with his command to the Carretos Ranch, where I joined him later with fresh supplies and with Lieut. Faison, 1st Infantry, to replace Davis, who had requested to be relieved, in order to resign and take advantage of a good business offer.

The hostiles had led Davis a dance after he left us at Via de Bueneventura and had finally escaped into New Mexico, where they stirred things up for a while.

Soon after my return to the command at Dos Carretos news came to us that Major Wirt Davis, with his command of soldiers and Indian scouts, had had an engagement in Sonora with a band of Chiricahuas and that the hostiles were heading east towards Dos Carretos. I was ordered to get rations for fifty scouts ready at once and scout towards the north for signs. I left camp at 3 a. m., and at 4 a. m. came within sight of a campfire too large for Indians, and found Major Davis with his command just come out of the mountains, having left the trail of the hostiles about four miles to the north of where we were. I at once moved on, and at daylight my scouts picked up the trail. We followed it on the open prairie until noon. I say we, but a large part of the time I saw no sign, but my Indians could run on the trail, it was so plain to them, and led as straight as a crow flies towards the water hole which we reached at noon. My mules and men both needed water and rest, having been on the road since 3 a. m., so I concluded to take off the packs for an hour or so. At half past 1 we started to pack up, and at 2 took the road. On leaving camp the Indians started out ahead, as usual, and traveled straight across the prairie in our original direction. I will say here that we left the Indian trail about a half mile to the north of the waterhole. I took it for granted that the leading Indian had the hostile trail and was following it. After a while I noticed that the Indians in front spread out and hesitated. I at once rode forward to ask what was the matter, and found that they had assumed that the hostiles would keep on as they had been traveling, but had not really had the signs since we left the water. I told them that when they had found and followed the proper trail we would think about making

camp, but not before. I was mortified at my own carelessness and mad at the Indians. We picked up the trail and camped on it when it was too dark to see farther. Major Davis with his command, and Capt. Davis with his, joined us early the next morning and started as lively a chase across the mountains as had ever been seen in Arizona. The hostiles when abreast of the waterhole where my Indians made their noon camp had turned at right angles to their original direction and started due north for Arizona. It is safe to say that my Indians covered at least fifty miles during the day's march.

The nature of the pursuit of the Indians from the Janos plain is clearly set forth by the following extracts from the reports of Major Wirt Davis, 4th Cavalry, and Gen. George Crook:

"At 8 o'clock p. m. Sept. 25th the command camped on the Dos Carretos Creek. Just before daylight on Sept. 26th Lieut. Elliott, 4th Cavalry, with fifty Indian scouts, who had just been sent out by Capt. Crawford (whose command had been camped on Dos Carretos Creek, four miles above my camp, and who had received my dispatch about 10 p. m. Sept. 25th), passed my command, going in the direction of Middle Mountain to cut the hostiles' trail. Just as I was leaving on the 26th Capt. Crawford joined me with the balance of his command. After considerable work and much time spent in following the trail of single horses, we struck the main trail in the Raton Mountains, ten miles west of the point where they had scattered. Here I sent a courier to Lang's Ranch with dispatches for the commanding officer, and also dispatches for Gen. Crook, stating that the hostiles were traveling in a northerly direction towards Guadalupe Cañon. His trail again led out four or five miles in the plain and then returned back into the Guadalupe Mountains. It is probable that they saw Lieut. Elliott's scouts, who, coming from the Middle Mountain, joined me on the 27th. The whole command followed the trail as rapidly as possible. We reached Guadalupe Cañon Sept. 28th. The hostiles had crossed the cañon some time in the morning, about five miles above the cavalry command stationed there. Before daylight on Sept. 29th Capt. Martin, 4th Cavalry, with his troop ('H') and some Indian scouts, started in pursuit. As my scouts had followed the trail rapidly about two hundred and seventy miles, and had torn moccasins as well as torn feet, I sent Capt. Crawford and his scouts (who were comparatively fresh, as they had been in camp on Carretos Creek, so Capt. Crawford told me, for two or three weeks) on the trail. I sent a courier to Gen. Crook, at Fort Bowie, informing him of my whereabouts and of the situation. and stated that it was believed that the hostiles (between twenty and twenty-five) intended going to the reservation to get recruits, or to make a raid on other Indians, Chatto and several of the other Indians concurring in this belief. This party of hostiles (Chihuahuas) killed on the trail, between Macosari Mountain and Guadalupe Cañon, while my command was pursuing them, thirty horses, mules and burros."

EXTRACT FROM REPORT OF GEN. GEO. CROOK.

"The Indians, having been driven out of Mexico by the scouts, crossed into the United States through Guadalupe Cañon within a few miles of a camp of two troops of cavalry about daylight on the morning of Sept. 28th. They were closely followed by both Major Davis and Capt. Crawford. It being evident that the hostiles intended to raid the White Mountain Reservation or go into the Mogollones or Black Range in New Mexico, dispositions were made to prevent this. Cavalry were directed from different points by converging routes toward the Gila. Troops were established in positions to prevent the Indians crossing the San Simon Valley into Stein's Peak Range; others were placed along the railroad. where they would be available for instant transportation by rail to threatened points. The scouts followed the hostiles, and several troops of cavalry were moved to points where it was thought possible they might ambush them. The renegades took the roughest possible trails over the Chiricahuas, twice endeavored to cross the San Simon Valley, but each time were frightened back into the Chiricahuas either by seeing the dust of moving columns or discovering their trails across the valley. They then crossed the Sulphur Spring Valley, by night, into the Dragoons, whither they were followed by Crawford's scouts. Through this range back into the valley, south towards the Mule Mountains, where their trail suddenly turned sharp to the east

and went back into the Chiricahuas, Crawford's scouts following them persistently.

"The stock of the hostiles by this time was worn out, and though they had gathered all possible along their route, they were finally absolutely dismounted, and troops were in such a position that it seemed probable the entire band would be captured or killed. But just at this juncture they succeeded in remounting themselves with the best stock in the country, and, finding that it would be impossible to get north of the railroad, they returned to Mexico. Capt. Viele, 10th Cavalry, followed them with two troops as far as Ascension, Chihuahua, from which point, further pursuit being useless, he returned with his jaded command to his camp in Cave Cañon.

"The remounting of the Indians was, in this instance, particularly exasperating.

"The cattlemen of the San Simon had gathered in the White Tail Canon on the east side of the Chiricahuas for the beginning of their fall round-up.

"In spite of the warning they had received the evening before, that Indians on foot had been seen in their vicinity, they lariated their cow ponies, the best stock in the country, around a ranch in which they all slept. In the morning all of their stock, with the exception of two or three, were gone, and the Indians had secured about thirty of the best horses in Arizona. Several times before and since parties of Indians have been dismounted by persistent pursuit and escaped in the same way by securing remounts; and this, too, in spite of constant warnings and importunities to ranchmen to secure their stock. The Indians acted as if they could secure stock with perfect impunity. At one time they took a quantity of stock from a corral belonging to the Sulphur Springs Cattle Company under circumstances that made it evident that several men who were in the ranch knew what was going on, and although there were only three Indians in the party, no attempt was made to prevent the stock being taken.

"At another time, early in June, a party of Indians, numbering perhaps a dozen men and forty or fifty women and children, drove up and shot down several beeves within a mile of the largest ranch in Arizona, in broad daylight. There were twenty cowboys in the ranch at the time and all fully armed, and yet the

Indians went into camp and cooked the meat, and some time during the night left; and during all of this time not the slightest attempt was made to interfere with them, or even to give information to troops.

"The Indians having returned to Mexico, the troops were sent back to their proper stations. The scouts having been constantly on the march since the beginning of the operations, and the terms of service of many of them having expired, it was thought best to discharge them and enlist others, and while the new commands were being organized as thoroughly as possible refit and reorganize the pack trains, which by this time were almost worn out."

* * * * *

The chase described in the above extracts was lively in the extreme. On turning north from the water hole in the Janos plain, where my scouts lost the trail, the Indians made for the Raton Mountains, entered them, circled again out into the open plain, re-entered them and took up a position on a point, which they, as usual, fortified with stone breastworks, commanding all approaches from the front and with an open line of retreat along the hogback from the point to main range in case of attack. They left this position during the night and started as straight as the country would permit for the Guadalupe Cañon, both commands following in hot pursuit, in the early morning. The trail was warm, aye, redhot, the coals still glowing in what fires they had made. Though there were many chances to ambush and kill the leaders of our party, had they wished to do so, the Indians made no stand, and the nature of the country was such that it was impossible to take precautions against being ambushed. One or the other of the younger officers was always in the immediate advance with the leading Indian, and at no time did any of our Indians show the least disinclination to drive ahead, and all seemed keen for a fight, which the hostiles seemed as keen to avoid. Luck was against the two troops of my regiment stationed in Guadalupe Cañon, otherwise they would have had a pretty fight with the hostiles and could have probably struck them on open or nearly open ground north of Guadalupe Cañon. Major Davis had sent word to Lang's Ranch how the Indians were heading; this message was transmitted to the commanding

officer at Guadalupe Cañon. By one of those circumstances fortuitous for the hostiles, but fatal to the chances of the officer in question, a sleepy head on the shoulders of the officer in charge of the Indian scouts in his camp prevented two scouts being sent out with the couriers scouting for Indian signs between Guadalupe Cañon and Lang's Ranch, as was always done, and the two soldiers rode over the trail and did not notice it.

'As soon as I reached Guadalupe Cañon in the lead I saw at once that no troops had taken up the trail, rode forward on it to make sure, and then sent word back to Major Davis to that effect. On his arriving there, where we had been ordered to stop, he sent word to the camp four miles below me on Guadalupe Cañon and the commanding officer knew for the first time that the Indians had slipped by. Major Davis was rather wroth and made a few caustic remarks, but the Indians were gone. Our trains were somewhat demoralized by the forced marches, and as they did not come in late at night I returned over the trail to bring them in. They were wrecks when I found them, but a little discipline soon put them in shape and we returned at once to our camp in the cañon. From there, as shown in Major Davis' report, we took up the hostile trail, following it to the south end of the Chiricahuas Mountains, where the Indians nearly ran over a camp of the 10th Cavalry, who immediately pursued them hot foot. Nothing yet invented has ever caught a Chiricahua in the mountains, certainly not from the rear, and the hostiles got away. Other troops of cavalry took up the cry, dashed in, were distanced, and the twenty or twenty-five bucks seemed to enjoy the sport. We were constantly on the trail, and as our Indians were good trailers and had not forgotten the lesson when they overran the trial on the Janos plain there was no similar occurrence, and the hostiles knew we were always after them and would stay. We chased them out of the Chiricahua Mountains over to Cochise's stronghold; from there across Sulphur Springs Valley, within a mile or two of White's Ranch, back into and across the highest part of the Chiricahuas, and out of them near White Tail Cañon, where they got new horses and near where Capt. Viele with the two troops from Cave Canon, over whom they had nearly run on their excursion north, took up their trail and ran them back into Mexico.

Having been absent from my regiment and troop since July. 1884, and Troop "H," 4th Cavalry, of which I was second lieutenant, being left, by the absence of the first lieutenant on recruiting duty, and of the captain, on sick leave, without a commissioned officer, I applied, upon the reorganization of the command, to be relieved from duty with the Indian scouts and placed in command of my troop in Guadalupe Cañon. The application was at first refused in the most complimentary way, but upon my making it plain that service in Mexico, where I had suffered such indignity at the hands of the treacherous natives, would not be at all agreeable to me and might tend to spoil my usefulness with scouts in that country, I was allowed to join my troop. Within four months Capt. Crawford was attacked in Sonora. Mexico, by Mexicans from Chihuahua, Mexico, and murdered. Though he was the only support of his widowed mother and sister, no reparation was ever obtained from Mexico for the outrage against an American officer acting under orders from his government and under international agreement.

Though Gen. Crook did not write this, the closing paragraph of his report, until he was about to leave Arizona, I will quote it here:

"Before closing this report I desire to express my appreciation of the conduct of the officers and men during the many months they have been engaged in the discouraging and wellnigh hopeless task. Where all have done well it seems invidious to mention individuals, but while my thanks are due to all, it seems proper to mention the names of Capt. Wirt Davis, 4th Cavalry; the lamented Crawford, who sleeps in a soldier's grave; First Lieut. M. W. Day, 9th Cavalry; First Lieut. M. P. Maus, 1st Infantry; Lieuts. Britton Davis, 3d Cavalry; Charles P. Elliott, R. D. Walsh and H. C. Benson, 4th Cavalry; Leighton Finley and W. E. Shipp, 10th Cavalry, and S. L. Faison, 1st Infantry, who commanded expeditions or scout companies in Mexico, and bore, uncomplainingly, the almost incredible fatigues and privations as well as the dangers incident to their operations.

"Assistant Surgeon Henry P. Birmingham, U. S. A., at his own request, was sent with the expedition into Mexico under command of Capt. Wirt Davis, and earned the thanks of the department commander by his efficient and valuable services."

THE STRUCTURE AND FUNCTIONS OF THE HORSE'S BACK AND THEIR RELATION TO THE FORM AND USE OF THE MILITARY SADDLE.

By OLOF SCHWARZKOPF, VETERINARIAN, THIRD CAVALRY.

WHILE the improvement of the military saddle has been an old and never-ceasing theme with officers of European armies, which has led periodically to changes in the construction of their saddles, the question whether we should change our own army saddle has been of rather recent origin. The writer can think back to a time of army opinion, when it was a sacrilege to criticise the McClellan saddle. Even today we have many older officers, and young officers as well, who faithfully believe the McClellan to be the best army saddle in the world, and they would never be reconciled to any change in pattern that may be radical.

On the other hand, there can be little doubt that the way is being gradually cleared for a modification of our present saddle. That there is cause enough for improvement is admitted by the most conservative among us. Several recommendations have already been made in what direction changes should be undertaken, and no less than seven articles on the subject have appeared in the CAVALRY JOURNAL alone during the last two years. So far, the subject has been mainly approached from the standpoint of experience with the saddle and in the saddle. This constitutes the tale of the rider. I wish to add here a few words in behalf of the horse, as it were, going a little more definitely than is usual into the construction and functions of his back, which carries, balances and moves the combination of dead and live weight implanted thereon by the saddle, pack and rider.

If the several scientific facts and principles, enumerated below, are steadily kept before our eyes, then the formal construction of the saddle, generally speaking, comes almost by itself, and only the arrangement of special features can lead to differences of opinion. Such may never be permanently adjusted to the satisfaction of all concerned, because they often spring from temporary necessities or changing standards and are much subject to individual preferences.

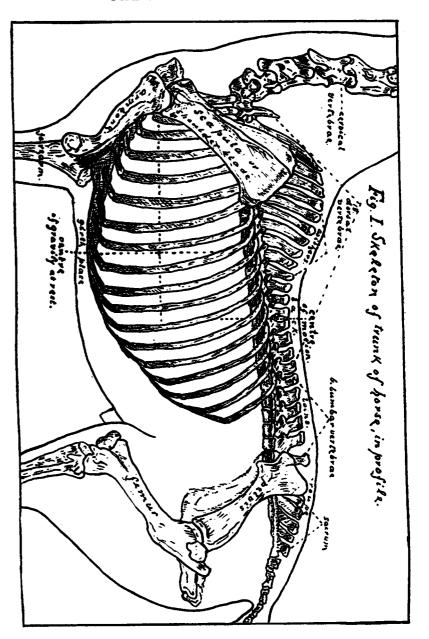
STRUCTURE OF THE HORSE'S BACK.

The trunk of the horse, of which the upper part forms his back, consists of the bony vertebral column, the bones of the chest and of those of the pelvis (haunch-bone). Bones consist of hard, unyielding material, and are classified as the passive organs of locomotion. They serve as supporters and levers, brought into diverse angles by the contractile action of the muscles which connect them.

The bony spinal column is the principal carrier of the skeleton. It is neither straight nor horizontal, as one may judge from the outward appearance of the living horse, but is perceptibly curved downward from rear to front. Comparatively speaking, it forms a tube, because each bony segment (vertebra) has a hole in its center for the reception of the spinal cord. Each vertebra, moreover, has several bony branches, one high spinous process and two shorter transverse processes for the attachment of ligaments and muscles; also articular processes which lock by joint with their neighbors. By this two-fold connection the segments form the vertebral column as a whole.

The back of the horse, as spoken of in hippology, consists of the last fourteen dorsal vertebrae and the first five lumbar vertebrae. It is subdivided into the withers, made prominent by the high spinous processes of the fourth to the tenth or eleventh dorsal vertebra, according to the varying conformation of the horse, into the back proper from the twelfth to the eighteenth dorsal vertebrae, and into the loins consisting of the first five lumbar vertebrae. The arrangement of the spinous processes of the back is remarkable in that those of the fore-part of the back incline backwards, while those of the hind-part incline forward—all towards the fourteenth vertebra as a common center.

The barrel-like chest and the greater part of the belly (abdomen) are formed by eighteen ribs which spring from the eighteen dorsal vertebrae. The first eight ribs, flat and fairly straight downward, are termed true ribs, because they unite firmly with the breast-bone (sternum) from in front of the chest to the girth



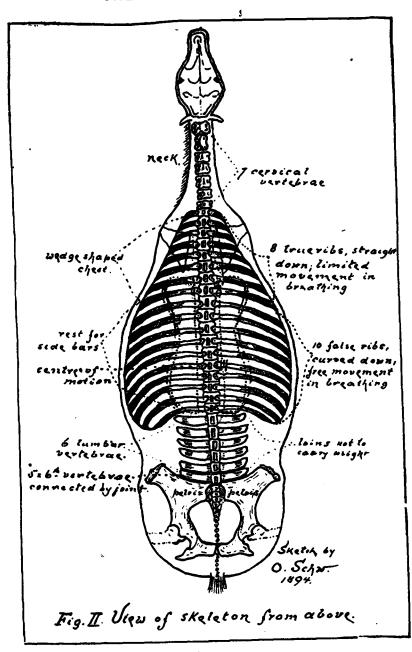
place; the other ten ribs, narrower and more curved downward, are called false ribs, as they only unite with each other by elastic cartilages and have no support from below. The first two ribs are almost completely covered by the shoulder blade, the third to fifth ribs partly so in their upper curvature.

The side view of the skeleton, as given in part above, is fairly well known, while a view from above is new to the uninformed, often almost a revelation. It is at once seen that the trunk of the horse does not exactly form a barrel, a name applied to it by some horsemen, but that it resembles a cone, a fact which is seldom fully grasped because difficult of demonstration from any other view. It is best seen in a horse thrown and rolled on his back, when the wedge-shaped form of the chest is apparent. This illustration also shows that the vetebral column lies true in the median line of the body and that the descent of the ribs downward begins much closer on the first vertebra than on the last. This gradual but steady expansion of the ribs from front to rear presents one of the difficulties in finding a proper rest for the under surface of military saddles, as the curvatures are hardly ever alike in any two horses.

The impressions gained by looking at the skeleton from above are further confirmed by views of vertical sections of the chest behind the shoulder and of the abdomen behind the last false rib. The difference between the egg-shaped (pointed) section through the chest and the round section (semi-circular) through the belly are, indeed, very marked. The dissimilarity in the curvature of the ribs may again be noted here from another view. The dotted lines on both sides of the upper ribs indicate the thickest layers of muscles on which the side bars of the sæddle can be safely placed to prevent greater injury.

FUNCTIONS OF THE HORSE'S BACK.

The functions of the back of the horse are not as well worked out in veterinary physiology as are the functions of the extremities, of which we have quite accurate knowledge. In fact, some fundamental points regarding the value of the horse's back for carrying weight are still under dispute. Some authorities maintain that the horse is not designed to carry weight, but is built for draught, because a horizonal spine is not as well adapted to that purpose as is the upright spinal column of man. Other authori-



ties point to the fact that the incline of the spinous processes, backward and forward towards a center, resembles the construction of arches in architecture. (See Fig. I.) The latter contention is upheld by the cross-section of the fore-part of the back which represents a pointed arch, and of that of the hind-part of the back which exhibits a semi-circular arch. (See Fig. III.)

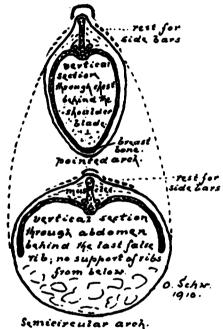


Fig. M. Sectional views of chest.
and abdomen.

This scientific dispute is mentioned because one can yearly hear divergent opinions of officers discussing the subject of saddles and sore backs after the annual marches and maneuvers. One will maintain that the whole trouble is that the horse is not fit to carry saddle and weight, while another argues that it is a wonder that he does carry the absurd loads planted on his back. Both can cite facts to sustain their contentions.

ELASTICITY AND STABILITY OF THE SPINAL COLUMN.

Going back far enough, we find that each vertebra is covered on both ends by elastic cartilages which may be likened to a piece of rubber inserted between each bony section. It is easy to understand that the bending of a few joining vertebrae must thus be limited in any direction, but the curving of the spinal column as a whole can be considerable. The lateral flexion of the spine can be observed when a young horse scratches his ears with a hind hoof, or when we note the practice of some horse-shoers—in civil life, of course—tying the tail of a refractory horse to his halter to lessen the danger of kicking, which is insured by the stretching of the muscles of the back. In both cases the neck is bent most, but the back proper so much so as to approach a semi-circle.

The upward bending of the spine can also be considerable, but depends somewhat upon the conformation of the back. The well performing bucker generally has arched loins, and when he throws himself up into the air with all four legs stiff, and the head, neck and croup bent low, his spine curves upwards to a remarkable degree, as seen in instantaneous photographs.

The downward bending of the spine is the most limited in normally built horses, principally because the vertebral column presents a natural curvature upwards. The elasticity of the spine is greatest in young horses under 6 years of age, and decreases with age.

The lumbar vertebrae, constituting the loins, serve as a bridge between the fore-part and hind-part of the trunk. If they are shor and broad, a horse is "well-coupled." Their transverse processes are wide, comparatively thin and somewhat springy, and are not supported from below, as are the true ribs, but stretch out free into the abdominal cavity. It is evident from their structure and position that they are not intended to carry weight. The movement of the lumbar vertebrae is restricted because their bodies join with each other by sockets. This prevents lateral flexion. But the fifth and sixth lumbar vertebrae form joints with each other and with the sacrum, which explains the "giving-in" of ticklish horses when pinched with the fingers, or the so-called "weak kidneys" of horses that flinch when mounted by an un-

THE MILITARY SADDLE.

elastic rider. In neither of these cases is there a flexion of the whole spinal column.

The stability of the vertebral column, so necessary in cavalry horses, depends upon its direction and, not the least, upon the size of the spinous processes of the vertebrae. If these are long and wide, then the ligaments connecting them are large and have ample space to tie them firmly together. They can then also serve properly as fulcrum for the muscles of the back. It is very necessary that the vertebral column be normally arched in its direction, because weight can then be carried by the back with the least muscular strain.

The stability of the spine is greatest in full-grown horses. In cavalry horses over 15 years of age the articular cartilages are sometimes partly ossified, as found on *post-mortem* examination.

FUNCTIONS OF THE MUSCLES OF THE BACK.

It is always a difficult task to describe the functions of the muscles, even with the aid of illustration. A practical demonstration on the prepared cadaver is the only means to properly show their varied courses, their intermingling with each other, and their single or double action. The subject is so fundamental, however that it cannot be merely pointed at, and an attempt is made here to briefly explain the functions of the muscles of the back with a special view of the use of the saddle as affected by the movements of the back.

The muscles, classed as the active organs of locomotion, accomplish by their contractile power the movements of the skeleton. Their importance in the economic life of the horse is so great that they represent 45 per cent of the body weight. All muscles are supplied with two kinds of nerves, motor and sensory, and their functions constitute complicated processes dependent upon the peculiar minute structure of the muscles. The sensibility of the muscles is normally limited, but if they are injured and inflamed they evince great pain. The muscles of the back are interwoven with tough, tendinous tissue to offset the great strain imposed upon them in all movements of the horse.

The lever action of the muscles upon the bones is very interesting and peculiar. The lever of the second class produces force and extension; those of the first class and third class, speed and flexion. While the lever is a machine, this animal lever differs from the ordinary and still more from the mathematical. It must never be forgotten that the horse is an organized animate machine, producing intelligent force by making the muscles obedient to his will power.

Looking now at the bony skeleton, so much at variance with the contour of the horse, one wonders how the large, empty spaces produced by the junction of the various bones are filled out to make the outline resemble the animal. This is well accomplished by the several layers of fleshy muscles. On the upper back there is a long, triangular space formed by the spinous and transverse processes of the vertebrae (Fig. I), which is first occupied by a

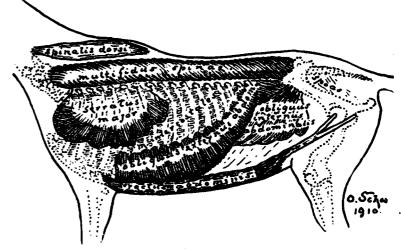


Fig. IV. Deeper layer of muscles of trunk.

muscle of great strength, resembling a twisted rope (multifidus spinae). It springs from the sacrum, runs all along the back and ends on the first part of the neck, thus binding together the dorsal and lumbar portions of the back. Opposite and below, springing from the breast-bone and ending on the haunch-bone, runs an abdominal muscle (rectus abdominis) which binds together the lower part of the trunk from the chest to the pelvis, and under certain impulses also acts as a flexor to the spine above. Both muscles supply the primary upper and lower cords holding the trunk in position. Between these two are located other abdominal

muscles, which respectively hang up the flanks upon the pelvis or connect the ribs with the pelvis, while the first ten ribs are covered by the *serratus major*, which connects the shoulder with the back and regulates the pendulous motion of the shoulder so plainly visible when riding in the saddle.

These deeper situated muscles are overspread by upper layers of others, some of which have separate action, while others assist and accommodate each other by forming groups. In this manner an injured muscle may be supplanted by another. The twisted muscle of the back is first covered by a fleshy muscle (longissimus dorsi); by another, which is first fleshy, but becomes tendinous on the rear part of the back and loins, and finally by a third, which principally covers the withers and part of the neck. Combined. these three muscles act as extensors of the spine, and assist in raising the trunk and fore-quarters in the movements of gallop. jumping and rearing, provided that the fixed point lies in the hind-quarters; if the fore-quarters are fixed, then these same muscles act in kicking, and if their contraction is one-sided, then they curve the spine laterally. The first of these muscles are ultimately covered by the m. latissimus dorsi, made known in books on hippology as the muscle upon which the saddle rests; its chief function is confined to flex the armbone towards the back.

It will now be seen that the fore-part of the back is covered by five fleshy muscles, while the hind-part and the loins are only covered by two fleshy muscles and tendinous extensions of two other muscles, points of note in the use of unpadded saddles.

The withers are provided only with two deeper layers of muscles and with the superficial m. trapezius, which lifts the shoulder blade. The deeper muscles on the abdomen, referred to above, are covered by several pectoral muscles, which have the function to pull the trunk forward during progression.

Both the muscles of the shoulder and of the croup have more or less relationship with those of the back in the various movements. The psoas and glutaeus muscles of the croup act as a sort of a steering gear to the back, the first springing directly from the lumbar vertebrae, the latter from the long muscle of the back. But we must confine ourselves to the back as under consideration.

FATIGUE OF MUSCLES.

When the muscles are at work during the locomotion of the horse they are at first energetic, but become gradually fatigued with the continuance of work. Undue wear and tear of muscles is largely the result of outside difficulties, such as rough roads, climbing hills, great heat, fast gaits, restless riders who punish the horse by bit and spur, and, not the least, ill-fitting and heavily loaded saddles.

The fatigue of the muscles of the back, particularly, is not

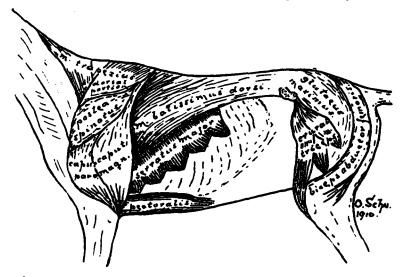


Fig. V. Upper layer of muscles of trunk.

yet fully appreciated. A horse is called "leg-weary" when he is often really "back-weary." The value of the periodical halts during march lies not so much in the cessation of work as in unloading of the weight of the rider. "Leg-weary" or "played-out" horses show often instant relief when unburdened of their packed saddles and being led, when they briskly march on. If a "leg-weary" horse is allowed to roll and shake his back he recovers from fatigue as by magic from the simple relief to the muscles of his back.

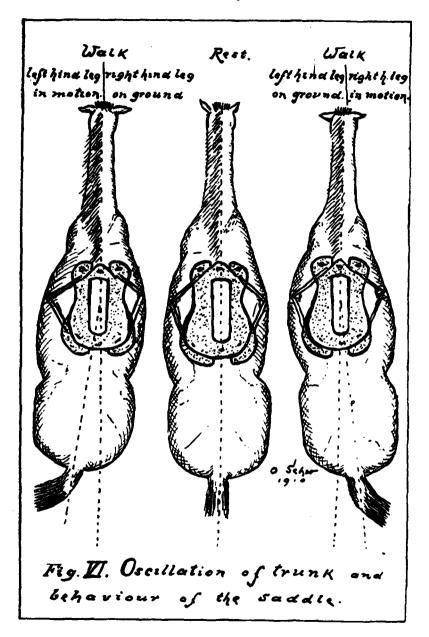
Yet it is only just to the much criticised rider and saddle to remember that the cause of early and untimely fatigue is often within the horse himself. A lame horse fatigues rapidly on the march because he overtaxes the strength of the three legs, and is straining the muscles of the back. Horses with "high action," as also too short-gaited and well-rounded horses, which please the inexperienced eye and convey an erroneous idea of vigor and strength, tire out sooner, because of lost motion from undue muscular wear and from pounding the ground with the hoofs, than low and smooth steppers, which preserve their strength. Untrained horses, often in prime condition so far as appearance indicates, but with soft muscles and unsteady for economical body work, do not only soon fatigue, but are liable to break down. Much depends here upon the proper circulation of the blood, which replenishes the muscles with energy, and upon unrestricted respiration. Both prevent the accumulation of sarcolactic acid in the tissue of the muscles, which is chemically the cause of fatigue. The lungs must be taught to stand strain, and the heart more so; really, "wind" is begotten of a large and well-working heart. Moreover, horses must first learn how to carry the neck and back straight, to move the legs regular like the pendulum of a clock (if they are built right), and to avoid the small obstacles of the ground. Good marchers have common sense; at least, they make proper use of the sense of equilibrium and the various instinct movements, all of which are physiological attributes. For finer points on this subject the analysis of animal locomotion teaches much that cannot be gone into here.

OSCILLATION OF THE SPINE.

One phase of this subject, however, that should not be left untouched here is the "swinging of the back" in progressive movements. It is natural to all horses, both in the lateral and diagonal gaits, but is greatly less so in some horses than in others. It is partly due to the fact that the body and the feet do not advance with the same velocity, because the center of gravity tends to move in a uniform manner; partly due to the greater or less broadness of the hip in comparison with the narrowness of the shoulder (Fig. II), from which the plane of movement

of the hind legs is not parallel to the axis of the body. It must not be confounded with the "rocking" or "rolling" in the walk and trot, as frequently observed in cavalry horses with a broad chest or croup, sometimes in the front alone or in the hindquarters. This rocking consists in balancing the body by a lateral displacement of the center of gravity due to the excessive width of the base of support. But the natural oscillation of the spine during movements is not very visible on ordinary observation. It can be best felt by riding bareback, and its reflection can be seen by the motions of the pack. The packed aparejo shows it rather in an exaggerated form, because the high, dead weight swings by itself, but the impulse to it is given by the spine. Some horses and mules, particularly those with a long back, bring their load forward in an undulating motion from rear to front, but all show an aberration of the spine from the median line of the body. A whole lesson in hippology can be learned here by trying under saddle all the horses of one troop only, which test is also bound to awaken full sympathy with some men who are looked upon as poor riders.

The writer has experimented with simple means to demonstrate these oscillations of the spine. One simple test is to mark the median line (spine) of the back with white chalk, put the McClellan saddle on the bare back, connect the pommel and cantle with a string, to the center of which is fastened a light white stick long enough to reach from the withers to the high point of the croup. If the horse is led underneath a high porch or low stable roof for observation, the swinging of the spine can be demonstrated to a class of students. In some horses this test is not convincing, owing to errors of this primitive method. For individual study it is most instructive to tie a white string to the saddle of a harness, long enough to take the end into a buggy, holding it horizontal. If a cross-piece of white cotton, marked in inches, is pasted on the high point of the croup, the oscillation of the back can be approximately measured, and was found to be between one inch to more than three inches in different horses. The swinging of the trunk is accompanied by swinging of the tail. (See Fig. VI.)



It is evident that this swinging of the spine must have a direct bearing upon the behavior of the saddle. To prove this it is only necessary to saddle a horse with the McClellan saddle without blanket and have him led under a high point for observation, when the vacillation of the saddle becomes strikingly apparent. This is less visible with a blanket and rider mounted, undoubtedly more from obscured observation than from fact.

No less noteworthy is the change in the natural contour of the back during the extended gaits, as seen in profile in instantaneous photographs of unsaddled horses. At the trot the neck and withers are kept in an even position, while the back and croup are alternately elongated towards a plane, from whence they change in form to that approaching a sway-back with a high-pointed croup.

At the gallop the neck is alternately raised and lowered, the back and loins are periodically straightening or sinking, and the croup changing from a horizontal to a greatly sloping form.

The most violent changes in the form of the back are naturally observed during the jump, where at the moment of passing the obstacle the whole back and croup are strikingly horizontal, while the same horse, at rest, has a high-pointed and wellsloping croup.

Again, it must be evident that such great changes in the form of the back during trot and gallop, unperceived by the human eye as they are, must, nevertheless, have a direct bearing upon the behavior of the saddle during these movements, particularly under a heavy pack.

* WEIGHT, WORK, SPEED, ENDURANCE.

Around the question, what weight the cavalry horse can effectually carry, centers much that has made or unmade mounted commands in war, according to history. It has many times been gone into, but has seldom been fully answered anywhere and cannot be until it is treated from the scientific standpoint and not alone from the practical. If the question were only what total weight an individual horse can carry at the walk (or Western jig) for a certain distance and over good and known roads, this could be easily ascertained. Some records of heavy loads car-

ried are on hand. Smith (*) cites that horses have been known to carry 650-750 pounds for seven or eight miles without resting, and that one horse at Stowbridge carried 1,232 pounds of iron for eight miles. This, however, is only interesting so far as to know what dead weight one horse can carry under exceptional circumstances. Further than that, if our horse would be only a subject for transporting the rider and pack at a defined gait and daily distance, and some assert he can do no more, then the limit of weight could still be correctly established.

But we all fully realize that cavalry no longer marches at the walk alone, and that the military evolutions at our maneuvers and in war are now performed at the fast gaits of trot and gallop by all sorts of horses, fit and unfit, and over all kinds of ground. True to our spirit, we are already overdoing our horses to excel our European prototypes, but in order to continue this unpunished we shall have to look for more real saddle horses, adapt a more elastic saddle, and learn how to apply a detailed and rational care of horses during campaign. Thus the question is no longer what it used to be and will have to be so formulated as to broadly ask: What average weight can our average cavalry horse carry, at what speed can he do so, and how long can he endure it?

We must revert here a little to answer briefly the several points of this question. A horse that carries a rider and pack on the march moves weight, or, in the physiological sense, it performs work. This work is mechanical and is the product of three quantities: Effort (or force), velocity (or speed), and continuance (or endurance). The effort exerted during work under the saddle varies with the velocity. Taking Weber's calculations as a basis, Smith finds that, at three miles per hour on level ground, one-twentieth of the weight carried is the force which moves it along; one-twentieth is, therefore, the co-efficient of resistance. Taking, as an example, a dragoon in marching

order, man and kit complete weighing 250 pounds, the force a horse has to exert to carry him at the different velocities given is as follows:

Miles per hour.	Co-efficient.	To carry this weight the horse has to exert a force equal to:	
5	1/14	18 pounds	
6	1/12	21 pounds	
7	1/10.7	23.3 pounds	
8	1/9.6	26 pounds	
9	1/8.6	29 pounds	
10	1/7.9	31 pounds	

But the horse has to carry his own weight in addition to that of the rider and pack, and it was found that the exact amount of force which he has to exert at five miles an hour, his own weight being 1,000 pounds, is as follows:

To carry the rider the horse exerts a force of	18 lbs.
To carry itself the horse exerts a force of	72 lbs.
10 carry reserve the market serve	

so that every foot of ground over which the horse passes to perform the work of moving five miles an hour on level ground

costs him ninety pounds of muscular effort.

Smith comes to the conclusion, after experiments at Aldershot, that the most proportionate weight a cavalry horse can carry is one-fifth of his body weight, and Goldbeck states that the weight the average horse can safely carry is forty-five per cent of his body weight at a walk, and thirty per cent at the trot and gallop. He adds that the German cavalry horses carry in average between twenty-five per cent to thirty per cent of their body weight.

The records of speed of horses, both in trot and gallop, are too well known to be considered here, particularly as they are mostly track records of individual horses, made on prepared ground and at limited distances. They are not applicable for bodies of cavalry, because individual speed at short distances is seldom called for in the military service.

^{*}Colonel F. Smith, Army Veterinary Staff, Veterinary Physiology, London, 1908, Also: Goubeaux et Barrier, L'exterieur du Cheval, Paris, 1904, and Dr. Goldbeck, Stabsveterinar, Die Gesundheitspflege des Militaerpferdes, Berlin, 1902.

From these three books are cited most of the statistical and experimental data given in this chapter.

Of greater value are the "long distance rides," records of which are abundant. Youatt* gives a long list, going as far back as 1793. The earlier rides of this kind were mostly made on Arab horses and English thoroughbreds, and seem to have been the fashion of the times. Noteworthy is the feat of Captain Horne of the Madras Horse Artillery, who rode in 1838 an Arab, named "Jumping Jenny," 100 miles daily for eight days, and this in the hot season; the captain succumbed to dysentery, but the horse survived. During the year following, similar feats were attempted, but not equaled, and these rides did not attract the attention of cavalry circles due them. In June, 1898, however, the Frenchman Cottu startled experts by his famous ride from Paris to Vienna on an Anglo-Norman horse, partly through mountainous country, during which he fed his horse on a daily ration of 24 litres of oats mixed with 15 litres of milk, an entirely new venture. It was not long before this record was duplicated by Captain Spielberg of the German army, riding a Trakehner mount from Saarbrucken to Rome in 12 days, taking the Alps as an obstacle and feeding his horse on the field ration only, in emergency using a cake of pressed oats and molasses. These rides were no longer trials of long-distance speed, but became "endurance rides" performed at middle-speed at a great distance. Of these quite a number have since been undertaken by squads of officers and lately by bodies of cavalry. They have led to valuable records for the use of cavalry and have demonstrated that properly bred horses, with lighter equipment and under intelligent care, can show almost limitless endurance. Captain Spielberg himself put it this way: "A further increase in the endurance of our horses is not to be thought of in the field of equitation, but in that of horse hygiene" (equipment and care). This point has been gradually acknowledged, and no endurance rides are now considered successful unless the horses ridden come out of it in a serviceable condition, including absence of sore backs, as attested to by veterinary examination.

Of course, many of the facts brought out in these rides were not exactly new, but they were substantiated and became renewed knowledge in a more detailed and scientific form. To be brief, it has been found that only strictly healthy horses can be used in trials of endurance; that previous overtraining is to be avoided, but that horses must be of hardened muscle and of good condition and spirit; that nutritious, easily digestible, unbulky food, given at intervals of 5 to 6 hours, prevents disease of the digestive tract and keeps the horse in continued strength; that saddles must be sufficiently springy to lessen the shock of the rider upon the back and legs of horses, and that cinches are best of elastic material, to allow free respiration; that the pack must be of waterproof material, as leather, canvas, wool, etc., absorbs rain and increases the weight of the pack; that light steel shoes are the most durable and comfortable, and that daily washing of the hoofs with water is the simplest and best preservative.

Goubeaux and Barrier give exhaustive statistics showing the limit of power of the horse at the trot and gallop, and their relative effects upon the internal economy of the horse. Here are a few in extract: In marching at the walk and trot at a velocity of 8 kilometers per hour, including halts, if the trot is kept up for more than 2,500 meters, some horses will start to forge, a noise indicative of fatigue, and a sign to resume the walk. Between 28 and up to 50 kilometers two halts should be made, and examination of the horse will show that the respiration has risen to 60 per minute (normal 10 per minute), and it will take five minutes to re-establish normal breathing at a stop and ten minutes during walk. In time of war, the distances so traveled should be:

> 12 kilometers in 1 hour 22 kilometers in 2 hours 32 kilometers in 3 hours 40 kilometers in 4 hours 45 kilometers in 5 hours 54 kilometers in 6 hours

60 kilometers in 7 hours

Then a rest of 2 to 5 hours should be taken, according to circumstances, when the march can be resumed; the next 60 kilometers should not be completed in less than 10 hours.

If the gallop is used in combination with the other gaits, the distances have to be reduced in proportion to the saving in time. As far as pure gallop is concerned, the following tabulation may

^{*}Youatt, The History of the Thoroughbred Horse; London.

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be of interest to the advocates of charges: Horses can start at a charging gallop and travel fast for 1,000 meters. For longer distances, charges can be run only in the following proportion:

For 1,500 meters, 800 at the ordinary gallop, 700 at the charging gallop.

For 2,000 meters, 1,500 at the ordinary gallop, 500 at the charging gallop.

For 2,500 meters, 2,200 at the ordinary gallop, 300 at the charging gallop.

For 3,000 meters, 2,800 at the ordinary gallop, 200 at the charging gallop.

For 3,500 meters, almost the whole distance at the ordinary gallop, the rest charge.

For 5,000 meters, gallop slackened for the whole distance; no charge is possible at the end.

After 1,000 meters of charge a stop should be made; the lungs will be found to be engorged, respiration has attained 74 per minute and the pulse is rapid. From 10 to 20 minutes will be required to re-establish normal respiration in all horses, but in emergency, after 10 minutes' rest or walk, the horses have still enough freedom of respiration to make another charge of 400 to 500 meters. After a gallop of 3,500 meters the muscles are fatigued and the lungs engorged, and a stop is necessary, while at the end of 5,000 meters the maximum power of the horse has been called into activity and the physical effort used has been equal to the work of a whole day at a walk; the respiration is found to be 74-80, pulse very rapid, internal temperature registers a rise of 1 to 2 degrees. Whatever the fatigue, a troop can always continue to march at a walk; 20 minutes after walk, calm of the internal organs is restored.

The writer is in sympathy with those of our officers who believe in the immense power of the gallop of the horse. Those who do not yet acknowledge it should once see, hear and feel the charge of cavalry divisions, when the earth vibrates as by an approaching cyclone, and they will be converted. The above quotations show the limits of the endurance of the horse. No doubt there will be instances in war when they will be over-

stepped, for supreme effort does not fit into tabulation or regulation. As De Brack has said: "A horse that can still serve, must serve." But may we emphasize the other acknowledged fact that judicious use of horses, according to their limits of power and endurance, will preserve a cavalry command to an army when otherwise it might be blighted out of existence? There are historical records both ways, and there is no lack of them in our own army.

RÉSUMÉ OF THE PRINCIPLES FOUND IN THE FOREGOING PAGES.

- 1. The bony vertebral column is the principal carrier of the skeleton; it is neither straight nor horizontal, but curved.
- 2. The back of the horse, as spoken of in hippology, consists of the withers, the back proper and the loins. The high spinous processes of the dorsal vertebrae form a sharp ridge on the back of the average horse which cannot bear weight and is easily injured.
- 3. The first 8 or true ribs run fairly straight downward, are connected and supported from below by the breast bone, and have only limited expansion during respiration; in cross-section they represent an equilateral arch; the last 10 or false ribs are well curved, but have no support from below; in cross-section they represent a semi-circular arch.
- 4. The trunk of the horse does not form a barrel, but resembles a cone; this anatomical shape causes a problem in saddle construction.
- 5. The elasticity of the spinal column is limited between neighboring vertebrae, but can be considerable for the whole spine.
- 6. The stability of the spinal column depends upon the strong or weak construction of the vertebrae and upon its direction, normally arched.
- 7. Weight can be borne on a comparatively small space of the back; the loins are anatomically unfitted to bear weight.
- 8. The movement of the lumbar vertebrae is restricted, but the last two form joints with the pelvis, which explains flexion at that point.

- The fore-part of the back is covered by five fleshy muscles, while the hind-part and the loins are only covered by two fleshy muscles and tendinous extensions of two other muscles.
- 10. The three strongest muscles of the back, combined, act as extensors of the spine and raise the trunk in gallop and jumping; for these forced movements, therefore, saddles must be so constructed and secured as to permit of freedom of muscular action.
- 11. During the function of the muscles laws of physics are applied (lever-action), but they work differently from ordinary mechanics because the horse is an organized, animated machine, producing intelligent force.
- 12. Early fatigue of horses is the result of unproportionate weight or weight uncomfortably placed. "Leg-weary" horses are often really "back-weary."
- 13. Some horses are unfitted by conformation, disposition or lack of training to carry packed saddles on the march.
- 14. The swinging of the trunk of the horse during walk and trot is due to a natural oscillation of the spine, and is more or less reflected by the motion of the saddle and this in proportion as the cinch is faultily placed.
- 15. In the walk the horse can carry almost its own weight for short distances; for cavalry marches in walk, trot and gallop, one-fifth of the body weight of the horse is the most proportionate weight that can be carried.
- 16. Experimental endurance rides, at middle speed but for long distances, have led to valuable observations and statistics on the capacity of the horse at the different gaits, and have resulted in the improvement of horse equipments and horse hygiene for field service.

THE FORM AND USE OF THE SADDLE.

A critical examination of our present saddles cannot well be fair and of comparative value, unless their historic origin and development are considered. Historians state that the saddles of today originated from two ancient sources, quite unlike in idea of construction. The Moorish saddle, which is the more ancient type, is said to constitute a development of the pack-tree of remote times for carrying burdens on ponies and donkeys. It is still seen today in Oriental countries. It is characterized by the combination of two wooden side-bars with sticks of wood crossing each other above the back in front and rear, tied together and connected by strips of rawhide. Perhaps, very early, a cushion for a seat was spread over this contrivance, stirrups were attached, the whole girthed by a surcingle, and a crude riding saddle came into existence. Being an invention of a hot climate, it left the back of the animal free for the circulation of air and raised the rider considerably above the horse's back, a practical seat for mounted combat. This saddle has survived in a primitive form among mounted tribes of Asia. By the conquering Huns it was brought into Europe, and in a modified and greatly improved form has survived and has long been known as the Hungarian saddle, which until recently, was used by all light cavalrys of Europe. The Spanish (Mexican) saddle, our stock saddle, and the McClellan, can be traced to the Moorish saddle.

The other type of ancient saddle, variously termed the Gallic or Teutonic, has no clear history. Some authorities consider it the offspring of the thick quilts used by the Greek and Roman cavalry, while others speak of it as an original invention of the colder climate of ancient France or Germany. Caesar alludes to it. In its oldest form it consisted of a strong wooden front arch and a weaker hind arch, connected by two pieces of springy wood on both sides of the back, all heavily padded and the whole covered by a flat cushion as a seat. It was necessarily of clumsy appearance, and attained great weight and formidable appearance in the Middle Ages when the Mounted Knights were actually propped up in the saddle and, standing in the stirrups, charged with the lance. With the invention of the firearms, these saddles became smaller and lighter, and so modified were used by the cavalrys in the Thirty Years War, by the heavy cavalrys of Frederick the Great and Napoleon, and almost up to date by the Cuirassiers of France, Germany, Austria, Russia and Sweden. The light and graceful English saddle of today is the most perfect development of this ancient flat type of saddle.

The wonderful strides made in the improvements of modern saddles are largely due to military experience in war, and to the -The Moorish type, high Tie Gallie · Trutonic type, Flat tree of 10th century. The saw-buck ar Cavalry seddle 30 years war The Moorish sadale The Hungarian sudule ern military addle of Europe 0 50/10 1910

Fig VIII. Historical development of sadales

masterly producing machinery. In the museums of Europe one can see all the different types of historic saddles briefly mentioned above and many others, and in comparing them by periods of time, constant improvement can readily be recognized. Yet, anything like perfection in the construction of military saddles was not reached until after the experiences of the War of 1870-1871, up to and including the Boer War, which set experts to studying and experimenting with newly constructed saddles according to our better scientific knowledge of the day.

It cannot be said that the principal armies of Europe use today one type of saddle, but all are more or less similar, and appear to be a compromise between the high Hungarian saddle and the old, flat saddle, embodying the good features of both types as far as they can be combined.

American critics of these modern European saddles pronounce them as too complicated and lacking of durability, while our European friends return the compliment by saying that we have no saddles, but ride on a tree. Indeed, the difference in construction and general makeup of these new European saddles and our own McClellan is so great, that one may well hesitate to recommend how the better features of one type may be practically applied to the other. Perhaps our European friends have a little the better of us, as they claim that their saddles are used a great deal harder than ours, with less injuries to the back and legs of horses, and that their saddle construction is based on the principles of applied science.

There is no secret about these principles, if we wish to know them, as they can be found in many foreign military text-books and regulations. Some of them we know ourselves quite well, but in several instances we have not been consistent enough to put them into actual application. As we have a Cavalry Equipment Board now meeting, it seems timely to recapitulate the maxims on saddle-construction and saddle-fitting, as laid down by acknowledged authorities on the subject, in order that we may better understand and appreciate the changes that may be the outcome of the deliberations and experiments of the experts constituting this board.

ESSENTIAL POINTS OF SADDLE FITTING.

U. S. CAVALRY JOURNAL.

Rritich Marine .*

- 1st—The withers must not be pinched or pressed upon.
- 2nd—The central line of the back must have no pressure imposed upon it.
- 3rd-The shoulder-blades must have free and uncontrolled move-
- 4th—The loins are not intended to carry weight.
- 5th—The weight must be imposed upon the ribs through the medium of the muscles covering them.
- 6th-The weight must be evenly distributed over a surface which extends from the play of the shoulders to the last rib. German Maxims:†
- 1st—A military saddle must conform to the anatomical outlines of the back of the horse.
- 2nd—The saddle-rest extends from the withers to the loins, and no further.
- 3rd—The ribs, covered by muscles, fascia and skin, form the foundation for the bars to rest on. The spinous crest of the back must be left free of friction and weight.
- 4th—The seat of the saddle, while giving security to the rider, must be gently elastic.
- 5th—The springy hollow formed by the cartilage of the breastbone (girth-place) is the natural rest for the cinch.
- 6th-Remounts must have normal backs as well as rormal hoofs. French Maximst
- 1st—The carrying surface of the horse's back is limited to 11-18 dorsal vertebrae; no weight must be distributed over the loins or the downward curvature of the ribs.
- 2nd—The normal movement of shoulder and loins must not be impeded by the saddle or pack; the padding of bars facilitates the movements of the back.

- 3rd—The seat of the saddle must be slightly elastic to lessen the shock of the rider upon the back and legs of the horse during trot and gallop.
- 4th-Too long side-bars receive muscular action and cause injurious friction upon the loins.
- 5th—The girth is best slightly elastic.
- 6th-The shape of the horse's back has much to do with the saddle remaining in proper position.

American Maxims:

Major McCormick, Journal U. S. Cavalry Association, July 1904.

The ideal cavalry saddle would be one to give the greatest comfort to the horse in carrying the unavoidable great weight, the greatest comfort to the rider, and be of sufficient strength and durability to prevent frequent renewal. (It must have) sufficient bearing surface and be so shaped as to properly distribute the imposed weight of saddle, pack and rider over those portions of the horse's back which nature has prepared for carrying loads. Backs of horses vary so much that no positive rule can be laid down..... for a good or bad shape of the bearing surface of the tree.

Major General W. H. Carter:

The following rules should guide in the selection and arrangement of saddles:

- First: Each horse should have a saddle fitted to his back when in medium condition, the upper surface of a size to accommodate the rider.
- Second: The cinch should be attached opposite the center of the bearing surface of the saddle.
- Third: The stirrups should be attached slightly in front of the center, so as to be under the seat of the rider and maintain such equilibrium as will prevent one part of the saddle pressing more than another on the horse's back.
- Fourth: The pack should be reduced to the lowest limit consistent with efficient service, and be so adjusted as to preserve, as far as possible, the equilibrium of the horse and

^{*}Animal Management. Prepared in the Veterinary Department for General Staff, War Office, London; Harrison & Sons, 1903. †Goldbeck.

[‡]Chardin, Hygiene du Cheval de Guerre. Paris, 1905.

rider and to prevent one part of the back from being saved up at the expense of other parts.

Fifth: The center of the saddle should be placed on the back over the center of motion of the horse.

CRITICAL EXAMINATION OF THE PARTS OF OUR SADDLES.

With the above maxims of saddle-construction and saddle-fitting as a guide, let us proceed to examine how far our army saddle complies, or does not comply, with the requirements of a modern military saddle.

The McClellan Saddle.

The pommel of this saddle clears the withers of the majority of our horses, but there are in each troop horses with exceptionally high withers, either from natural conformation or by wasting of muscles from old age or hard usage. This latter class of horses may not be troubled by the pommel during garrison service when they are in good condition, but after marching a week or more the whole saddle fits lower than formerly and the pommel commences to press on the top of the withers. Double folding of the blanket, no matter how ingeniously arranged, gives only temporary relief and has other injuries in its train. Another and more serious and frequent injury inflicted by the pommel is the result of the pinching upon the sides of the withers, in turn resulting from the triangular ascent of the branches of the pommel. This faulty shape is the more censurable, as it injures horses with prefectly normal withers and generally well adapted for cavalry purposes. The pressure on top of the withers and the pinching of the sides, singly or both together, frequently develop into "fistulous withers," one of the worst injuries to deal with. The pommel is, therefore, both too low and too narrow for general use and should be constructed higher and of a semi-circular form.

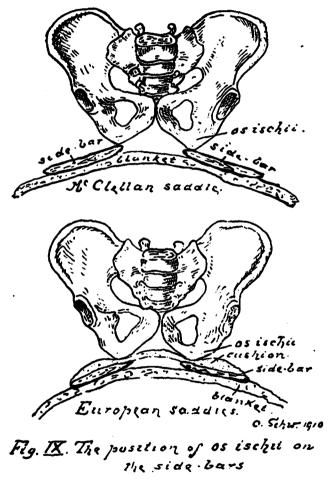
The cantle. There is no injury upon the horse's back that is directly traceable to the cantle, but displacements of the rear pack buckled to the cantle are of ordinary occurrence, and by friction they cause sores that are annoying enough on the march. It is doubtful whether the raising of the central point of the cantle would alone in itself prevent these injuries; in foreign armies it

is higher in conjunction with elongated side-bars on which the pack rests.

The seat of the saddle. One of the inconsistencies between theory and practice in the construction of our army saddle can be found in the uncovered aperture of the side-bars, which forms a part of the seat of the saddle, exposing the ridge of the back of some horses to injury. From time immemorial this part has been carefully protected, not from mere custom or blind imitation, but from never ceasing untoward experience. Nature has left this part of the horse's back as delicate as the withers, and in addition it is a great deal more flexible and, therefore, more susceptible to injury.

Several modern authorities have been quoted as specifically upholding this old maxim and our own General Carter repeats it in his text book by stating: "The strip lying over the horse's backbone should remain altogether out of contact." Notwithstanding this well founded rule, we put the rider down into this open and divided seat, who fills it out by two-thirds of its space, completely covering the cantle and most of the side-bars and their aperture. Little harm is done hereby to those of our horses that have a round back, except by unnecessarily heating it, because such horses have very low spinous processes and some of their kind even show the depressed central line of the back of the draft horse. But the horses approaching nearer to a saddle type, be they troop horses or private mounts of officers, are of a build more lean and flat because they are of bone and muscle first and of fat only next. Their back has a normally high ridge (See Fig. I), which protrudes more or less through this aperture of the side-bars, exposing it to injuries in several ways. Firstly, the surcingle buckled tightly by our men, in spite of the everlasting warning of our officers, produces a gall right in the lowest part of the seat of the saddle, whereto it naturally slips. Being an injury born of ignorance and carelessness and, therefore, preventable, its true cause is never admitted, but is generally ascribed to the rolling of the horse upon a rock or to a bite of another horse. Anatomical evidence is against this supposition, as these surcingle galls occur with unerring regularity in the lowest part of the back, which is protected by the higher withers from this kind of injuries. Secondly, the blanket works up into the aperture, folding itself, and the movements of the rider in trot and gallop produce sores from friction that generally end in the permanent enlargement of the heads of the spinous processes, an unsightly blemish if nothing else. There are officers who condemn this class of horses as unfit for the saddle, thereby testifying unconsciously how deep rooted the prejudice in favor of the McClellan saddle has become when it prevents them by evesight or riding from detecting the true cause of the trouble in our saddle instead of in the horse. Lastly, there are many men in the cavalry so narrowly built in the pelvis, that if they sit straight in the McClellan saddle, the ends of os ischii (ordinary name unknown) directly rub upon the upper edges of the side-bars. These edges are quite sharp in new saddles and produce pain to the superficial nerves or direct sores from pressure little known, because no cavalryman of pride will ever admit that he is sore from riding. To illustrate this point, the writer once witnessed a soldier, so injured, pleading with the surgeon not to call it saddlesore, but begged: "Please put it down in the book in some Latin name, Sir." The good natured surgeon smiled and found some diagnostic term that was Greek to the barrack-room critics. It is clear that men so built can only sit straight in our saddles by continued will power, but as soon as this relaxes or discomfort or pain sets in, they instinctively shift in the seat, from one side to the other to prevent injury to themselves, but giving it to the horse instead. Cause and effect are here so plain, that no forcible argument is needed to recommend that this aperture of the sidebars be covered by a leather seat sufficiently stretched to clear the ridge of the horse's back and at the same time to provide a seat that is more humane to our men so built, even if they were only in the minority, which perhaps they are not.

In the "old army," which spent most of its days in the field. many cavalrymen were the proud possessors of a bear-skin, buffalo-skin or at least a sheep-skin, which covered this aperture of the saddle in correction of its defect; the American stock-saddle has a wholly or partially covered seat, and all foreign military saddles have either a stretched leather seat or cushion. It is realized that by providing such a rational seat for our saddle we would lose a part of the simplicity of the McClellan saddle, so highly prized, but this would be more than counterbalanced



by the prevention of the unavoidable injuries to horses and men traceable to the several sources mentioned above.

The side-bars. Much of the criticism of our saddle is centered about the side-bars. Our officers have variously pronounced them to be too short and recommend that they be lengthened four inches; that they are too broad or too narrow and should be made adjustable (Wint saddle); that new measurements and plaster casts should be taken of the backs of our present horses, as they have evidently changed in conformation since the Civil War; that the skirt of the stock saddle be adapted for our side-bars to give a larger supporting surface and soft padding, etc. All these recommendations go to show that the side-bars of our saddle are considered as quite defective. It is unquestionably true that they are hard, unyielding and sharply bordered so that they cannot give to the form of the horse's back nor to his movements, nor can the horse accommodate himself or assume a position that lessens the discomfort, if not pain, although he often tries to do so by lowering his neck or carrying it sideways, as seen on long marches. Moreover, the ends of the side-bars produce our "regulation sitfasts," that can be treated only by operation, and bill so many horses for the sick list well into the winter after the summer marches or maneuvers. Finally, a comparison with foreign military saddles shows that these sitfasts produced by the front ends and rear of our saddles are practically unknown elsewhere, and that sores are confined in other cavalrys to the middle of the back, as shown by foreign veterinary statistics. Why all this is so, can be fairly demonstrated by carefully lifting the McClellan saddle off the blanket moist from perspiration after hard riding, when the cast of the side-bars appears almost true to form; if then the blanket is carefully removed, the imprint is still perfectly clear on the moist skin of the horse, but is sharpest defined on the front ends and rear ends of the bars.

Or to come to the point by stating facts, it is peculiar and pertinent that formerly the front end sitfasts, caused by the weight of the carbine, were mostly confined to the left front side of the back, while almost simultaneously with the change of the rifle to the left side these sitfasts were shifted to the right side. Of course, the rear end sitfasts have remained stationary because our soldiers continue to lean against the high and well rounded

cantle, thereby pressing the rear ends of the side-bars into the back of the horse, helped along by the weight of the rear pack.

The writer would gladly join in the several recommendations for a change in pattern of our side-bars, if he could see ahead a radical cure of the present evils encountered. All shapes of side-bars have their advantages and disadvantages. Our present bars fit the back of round-backed horses, but play havoc with the lean and longer backed. For these, narrower and elongated bars are indicated, but a timely warning must be sounded that they produce the "papulous eczema" by friction of the loins (oscillation of the spine), which is today more dreaded in the Continental armies of Europe than is the sitfast. The problem of a suitable side-bar must revert for its solution to the differences in the anatomical makeup of different horses. The backs of our horses are so unlike in form, presenting as they do all the shades between extreme roundness or narrowness, between the extremes in length or shortness, and additional, more or less indefinable and individual defects or characteristics of conformation, that it must appear well nigh impossible to try to find an average shape for a side-bar when there exists no average form of the back of our horses. To quote a verbal verdict of one of our officers: "Our horses range in form all the way from the rhinoceros to the greyhound." In this respect the solution of our saddle problem is more complicated than that of most other armies, and yet some of their authorities emphasize the need of examining the backs of remounts as carefully as their legs and hoofs.

Much relief, perhaps the best relief, from our situation could be expected by the adoption of the skirt of the stock saddle. This is an old contrivance of military saddles of the Hungarian type, although it has been superseded in the foremost European armies by padding of the under surface of the bars or other pads of different pattern. With us, the skirt of the stock saddle is best known and best appreciated because our Western stockmen have never ceased to praise its good points to our officers and men. Of course, the objection to this proposition of additional weight is heard within our ranks, but with a better base to build upon we could quickly reduce weight or entirely abandon weight somewhere else; to start in with, the saddle-bags can be superseded by

pockets in the skirt and the blanket could be abandoned in case of urgency.

Those of our officers who advocate the skirt are perfectly correct when they see in it a larger supporting area for the saddle, and it would in addition facilitate the functions of the muscles of the horse's back, secure play for the oscillation of the spine and prevent tight cinching. That it would do away entirely with sore backs, however, is a false hope, for the writer has often seen large and deep sitfasts on the middle ribs of cowboy horses that were as large as a man's fist, exposing the ribs, the movements of which could be seen in breathing. This skirt would largely prevent the very objectionable sitfasts of the front ends and rear ends of the side-bars, because it is thicker and less elastic than the blanket and stands out in front of the bars of the stock-saddle about two inches and in rear of the bars about four inches. At the same time, it would cause us new troubles in large rib pressures similar to the aparejo, unless modified in form.

No, saddle sores will never be entirely obliterated by any scheme whatever; they were already known before saddles were invented, for Xenophón tells his cavalrymen of 2,400 years ago: "The quilt must be of such material and so sewed together as to give the rider a comfortable seat and not gall the back of the horse." Caesar, in his Gallic War, was so much troubled with sore backs of his pack animals and riding horses, that he established "veterinaria," regular veterinary field hospitals. Frederick the Great reprimanded his "veterinary farriers" for the slow cure of sore backs and ordered the use of the hot iron. Napoleon was so agitated about the many and severe sore backs among his mounted contingents, that he added to his staff an "artiste veterinaire" with the rank of adjutant, to report to him daily the condition of the horses. We know today that horses become sore merely from prolonged bareback riding in the riding halls. These remarks are interspersed to encourage our pessimists to face the inevitable sore back of the future, and we may in addition invite their attention to the troubles of others by a comparison with the sore foot of the infantryman, likewise mentioned by Xenophon long before marching shoes were invented.

The quarter straps and the girth place. The next inconsistency in the construction of our saddle is found by some alert

officers in the quarter straps as a means of girthing the saddle. There are two theories about the proper location of the girths. One is to buckle a surcingle only over the center of the saddle and perpendicularly downward, which gives the most freedom to the center of motion of the horse and his other natural freedom to the center of motion of the horse and his other natural movements of the back, so well described and advocated in that classical treatise of Major Dwyer on "Seats and Saddles." The other theory sustains the *forward* girth of the English saddle, which fixes the fore part of the saddle on the horse's back and thus allows freedom for the hind part of the back, from which emanate the more disturbing movements. We have accepted neither of these theories in our McClellan saddle.

Perhaps adverse experience in keeping older patterns of saddles securely on the back of the horses before and during the Civil War has led the inventor of the quarter straps to find in them a means to have the "saddle stay on the horse's back." This they do, in so far as they prevent a rolling off of the saddle sideways, which is experienced in padded saddles fastened by one central girth or forward girth only.

The quarter straps do not prevent the mounting of the saddle upon the withers, nor its slipping backwards on those horses so built as to favor the displacement. The only remedy for these troubles imaginable to the soldier is tight cinching, in which he is encouraged by the forcible working of the cinch strap in conjunction with the cinch ring, against which the resisting abdominal muscles of the horse (bloating) are powerless, while in the buckled girth the horse comes out the winner.

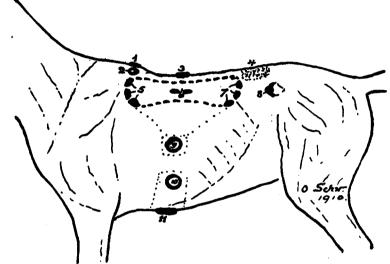
Nor do the quarter straps favor tight cinching alone, but tight saddling generally. They help to bore the front ends and rear ends of the side-bars into the horse's back, and successfully prevent all finer movements of the back, and after a good trot or gallop they interfere grievously with the deepened breathing of the horse.

To sum up, they work as a veritable "straight-jacket." appropriately so termed by Lieutenant Gordon Johnston in the CAVALRY JOURNAL of April, 1908. One can only wonder how the horse endures all these grievances inflicted upon him by our saddle. But, he does at least object to them. The bugle call

"boots and saddles" sounds melodious and inviting, but it is quickly followed in the stables by disharmony between horse and man. The blanket and saddle are put on the back without trouble, but the scene changes at once when the cinching commences. One can hear a groan of horse here and there, all are willfully shaking their heads, their eyes are fiery, the ears, laid backwards, and the more resentful among them attempt a grip or two on the human perpetrator, which is quickly responded to by unkind words, if not deeds. There is no peace until the torture of tight cinching is over, the end of which is announced by the horses by snorting with apparent relief. Such stable observations are often valuable indicators for reforms in customs and needed changes in equipment.

The above criticism of faults in the construction of the Mc-Clellan saddle, found in the light of modern standards of saddles, and the changed requirements of cavalry riding, should justly be followed by an acknowledgment of its good points. The simplicity and durability of this saddle are far superior to any other military saddle and greatly favor a simple arrangement of the mounted pack as we have it. This fact is easily ascertained by a comparison with foreign military saddles. Besides, if we take into consideration the character of our soldiers, who abhor anything that appears impractical or cumbrous to them, as would most foreign saddles, and their carelessness in handling equipments, our saddle appears to have been evolved to fit their peculiarities, for it calls for no tedious attention to details of adjustment and is practically unbreakable. In this respect it will be difficult to replace our saddle, as it is, by any other pattern known or likely to be devised in a short time.

The pack. The arrangement of the pack for field service is a problem to be solved by mounted officers as the proper experts, as it relates to carrying the necessities of the soldier and his arms for warfare. The pack has little relationship to important injuries of the horse, except that its great general weight tires out and early ruins many horses, so that a change to a lighter and simpler pack is ardently hoped by everyone in the mounted service. If the carriage of the rifle is to remain as it is, the writer begs to suggest that experiments be made with one saddle-bag only, to be carried in front and containing the heavier articles, to offset



1. Pressure from pommet, Whitman saddle

2. pinching . . . , and McMellan

3. Surcingle gall.

4. pustulous regema by the clongated side-bars of European military saddis

S. front-sit fasts from pressure of side bars

6. centre-sitfasts

7. rear-sitfasts " . "

8. friction from saddle-bags.

g. quarter strap ring gall.

10. cinch-ring gall.

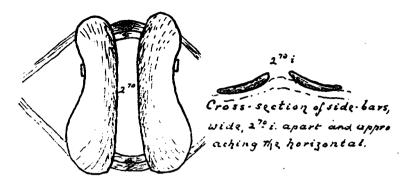
11. cinch . gall

Fig. X. Points of common saddle-sores.

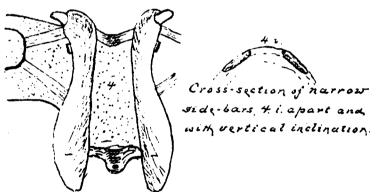
the one-sided weight of the rifle. He has tried it on the march by having some farriers and horseshoers carry their tools in this manner, and although it is a well founded dictum not to overburden the forelegs of the horse, it is no worse to have a forepack than to overburden the hindquarters. All foreign armies have a fore-pack much heavier than our rifle and saber weigh combined.

The Whitman saddle, as furnished by the Ordnance Department, is now quite extensively used by our officers, particularly by those who have become acquainted with the flat English saddle, of which it is an imitation. It is comfortable for the rider after he has learned to ride his horse and more comfortable for the horse if it fits. But the very low and triangular ponimel must and does press and pinch the withers of every horse that has withers, a fact which has given many officers and veterinarians no end of trouble by annoying injuries in spite of never ceasing attempts to counterbalance this fault by padding and elevating the saddle and by all other kinds of schemes on the march. Lean horses are likewise injured on the sides of the spinous processes of the back by the extremely narrow slit of the side-bars, which is only 1½ inches in width, while in the McClellan it measures 234 inches, and in other saddles still more. This narrow slit is, however, a great relief to the rider with a narrow pelvis. If. further, the extremely high-joining quarter straps could be replaced by a more rational front girth, and the other faults corrected, the Whitman saddle has all promise to become the officer's saddle of our army.

The stock saddle is only used by packers and teamsters of the Quartermaster's Department, but its adoption for the cavalry service has been periodically recommended, and many officers of the "older army" obstinately refused to use any other saddle in field service. But these days have passed by and few of our younger officers today can see in the stock saddle a military saddle, no matter how altered. However, the good features of the stock saddle are several and worthy of careful consideration. The skirt removes the problem of the shape of the side-bars, for any kind of side-bar will fit with it, as seen by the widely different patterns used in this saddle; it lessens the danger of sore



Under surface of McClellan saddle, showing short and wide side-bars, fitted for round-backed horses. Quarter-straps on bok ends



Under surface of British army saddle with narrow and clongated bars, suitable for lean and stanting backs. Quarter-straps front and center.

Fig. XI. Comparative forms of the side-bars of the McClellan and British saddles.

backs and is real comfort to the back of the horse, even in violent movements. The pommel is unusually heavy and high because adapted for roping cattle, which is no longer a military occupation, but its general form is nevertheless ideal for the comfort and safety of the withers. The seat of this saddle is either wholly covered or in part, thus protecting the ridge of the horse's back from injury, but is now made so hard, by inserting a metal plate, that the would-be cowboy of today habitually rides sideways, a fad imitated by our soldiers on their Sunday pass rides when out of the eyes of the garrison.

The cinch is located well forward and comes to rest on the xiphoid cartilage, as it should; a second or hind-cinch has been invented since the extinction of the fleet, often blooded, little cowboy pony, because the clumsy, round-backed and round-bellied cow-horse of today needs extra girthing if roughly used at work for which he is not adapted by nature.

We shall refrain from discussing the construction of foreign military saddles for the sake of brevity and because they are the result of experiences in highly civilized central European wars, in which we are not likely to share, as ordinary human foresight can tell. Whatever alterations may be made in our army saddle, they will naturally be along an attempt to combine the best features of the McClellan saddle, the Whitman saddle, and the stock saddle. These three are characteristic American products, evolved on our soil by the peculiar needs of the past and they are thus endeared to our army by popular prejudice and patriotic pride, both of which are bound to counteract against the introduction of foreign ideas of saddle construction.

TRAINING THE POLO PONY.

By VETERINARIAN G. E. GRIFFIN, THIRD FIELD ARTILLERY.

THERE is such a vast difference between the good polo pony and the indifferent one that even the most casual observer of a polo game cannot fail to observe it.

Unthinking onlookers, or those whose knowledge of equine lore is but superficial, are frequently inclined to place the blame for poor maneuvering on the rider, where it seldom belongs, forgetting for the moment that indifferent riders are never seen on the polo field; principally because it is the last place a poor horseman would select to make an exhibition of himself when he can have free access to the back roads and more or less secluded places of the neighborhood.

As a rule, polo players are men of temperate habits, good morals and even tempers; but place the best of them on a spoiled or untrained pony, induce him to play one or two periods while thus mounted, and at the end of that time I will, if necessary, be in a position to present you to a peevish, stammering, nervous person who has suddenly acquired a fluency in profane expletive supposed to belong only to a muleteer. The responsibility for this change in the player can readily be traced to the untrained pony.

Place the same man on a well trained animal immediately and he becomes normal at once, and although his side may be defeated sixteen to minus two, he will view the score with a smile, congratulate his opponents, and will inform you he has just had the time of his life on that little brown pony with the N bar 6 brand; and will probably inquire in the course of the evening if you desire to dispose of him.

You who play the game know what I mean; while those of you who do not play but know what a trained horse means to a good rider will readily understand.

The training of the polo pony has, beyond a certain point, little connection with the equitation of the schools; such as the one at Fort Riley, which, by the way, is second to none. The schools, as a rule, are not eager to encourage the playing of polo among their pupils, the main reason being that the game takes the attention away from the hands, legs, seat and mount to such an extent that it produces a more or less pernicious effect on the work in the riding hall, where the pupil meets with problems that never present themselves in the game.

It does not necessarily follow that because one is an excellent polo player he is a good horseman, as viewed from the standpoint of the schools. In fact, I am convinced that polo playing alone is not good practice for acquiring the hands, legs and seat of the school expert, and the finished horseman; but I know it is a practice that develops quickness of decision and a fearlessness and self-reliance that is not without value to a military man.

He who is fortunate enough to be a graduate of the Fort Riley School of Equitation before taking up polo is to be cravied, especially if he possesses what is known among horsenun as "horse sense."

The task of bringing the pony to perfection emails the expenditure of an amount of time, labor and patience, not to mention skill, which will not be credited except by these who have been actually through it. And after all it is problematical whether the pony will eventually prove satisfactory: for not all of us possess the God-given gift of horse training, and few of us the temperament, hands, legs and seat and instincts of the horseman.

When choosing a pony for training always remember that temperament should be the primary and conformation the secondary consideration. Never purchase a pony for polo solely on account of perfection of points, for with it, only too often, goes a fault of temperament. The prospective polo pony should be ridden and have his temper tried to the limit before the purchase is made. If it (the temper) is not a decent one, do not buy him for the game, no matter how symmetrical the conformation may be.

What is meant by bad temper is vicious kicking, refusing to stop, poking out the nose and walking away in a headstrong manner, refusing to back, rearing, laying back the ears, grinding the teeth, and pawing with the fore feet when required to stand in place, etc., etc. Nervousness may be overcome by judicious handling. Bad temper will probably be intensified during training.

As to conformation—a first-class pony may be pleasing to the eye or he may not. He may appear out of proportion for that matter and still play the game. I agree fully with Lieutenant Colonel Charles G. Treat of the Field Artillery, who says: "They play the game in all shapes if they have the speed and temperament and are up to one's weight."

There are many splendid polo ponies of poor conformation and good temper, but there are more so-called polo ponies with faultless conformation and the temperament of a stubborn mule.

When it becomes necessary to make a choice between conformation and temperament remember the latter is indispensable on the field. Disregard of this will cause disappointment and regret.

Of course it is understood that selection will be made from "broken" ponies. He who invests in an unridden one is taking many chances.

Having satisfied yourself as to age, soundness and condition of the heart and having made your purchase, your first object should be to give your pony a good mouth, by no means a trifling undertaking. Bad mouths and, in many cases, bad tempers, are the result of placing the pony in the game before he is ready.

The keel-hauling an untrained pony receives in his first game ruins his mouth for many months, and the bullying necessary to get any sort of a game out of him utterly sours him and gives him such a bad impression of the field and everything in connection therewith that he rarely forgets it.

I am an advocate of the snaffle bit for training, and for riding the pony in the game, and I believe that if the training is properly carried out with this bit the use of the curb will not be necessary except in rare instances.

The first step with the new pony should be a preliminary training—dismounted—by means of the long reins, with the ob-

ject of teaching him to obey the indications from the bit, the four words of command, viz., "Whoa!" "Steady!" "Back!" and "Hup!" and of rendering him nimble on his feet.

The long reins is a continuous, flat, leather strap about one inch wide and forty-five feet long, having no buckles except the two used for attaching them to the bit rings. It should be used in connection with a broken, bar snaffle and a leather surcingle, the latter being not less than four inches wide and having four rings; one on each side on a line with the upper third of the shoulder blade; the other two lower down, one on each side on a line with the elbows.

Having the pony in the riding hall or in a suitably inclosed place, commence operations by putting on the bar snaffle and surcingle; the long reins should then be passed, one on each side, through the lower rings of the latter and attached to the bit rings. Now take the reins in your left hand as deftly and securely as possible, place yourself in the center of the hall and take up a position parallel with the pony, that is facing his side. The inside rein will then be in a direct line to you from the ring in the surcingle, at right angles to the pony's head, whilst the outside rein will pass along the farther side of the animal and come around his quarters above the hocks.

Start the pony at a slow walk and let him make a circuit, yourself always occupying the center and moving around gradually so as to be always parallel with him and facing his side.

Assuming the pony has been sent to the left to commence with, you might, if you consider it essential, command "Right turn!" when he has completed a circle; in any event you should at this point place your right leg forward, plant its heel firmly in the ground, hold the right rein firmly and pull the pony around, allowing the left rein to slip through your hand. When the animal has turned sufficiently, close the left hand on the left rein to prevent his turning toward the center of the ring; now regrasp both reins firmly, taking hold with the right hand, the left holding the left rein about a foot from the right. When the circuit to the right has been completed the manipulation of the body, hands and reins should be reversed.

Continue this exercise for several days, first at a walk and then at a trot. If the pony be a colt or has a bad mouth you

should use a long, droplash whip and gently flick him on the inside shoulder when first teaching him to turn.

To teach him to halt the command "Whoa!" should be given with decision and it should be prolonged a little; simultaneously with this command ease up on the reins slightly and standing still abruptly yourself allow the pony to go on the bit. Do not pull back, simply keep your arms bent and rigid and grasp the reins firmly at the right moment. Should the pony refuse to halt repeat the exercise until it will do so. Very frequently half a dozen halts properly executed will cause the pony to obey the command without going on the bit at all.

Having progressed thus far, you now proceed to teach the pony to back. In this operation you will need the aid of an assistant. Let your assistant take the reins, adjust them evenly and take up a position to the rear and in line with the animal while you pass to his head. When you are both in position command "Back!" in a calm tone of voice, while your assistant at the word makes a steady pressure on the reins. If the pony does not respond, put your left hand gently on his nose and press slightly. Do not interfere with his breathing, however. Should he prove stubborn, place your right hand on his near shoulder in addition and give a backward push with the left as before and a side push with the right while you at the same moment again command "Back!" and have your assistant again put the pressure on the reins. Do not permit the pony to run backward indefinitely. Simply make him back a step or two and halt him immediately pressure on the reins is relaxed. The rein pressure should be relaxed promptly when any fair sign of an attempt to back is made.

You next should proceed to teach the pony to stand perfectly still when brought to a halt. Should he show any tendency to fidget or even turn a little to one side after obeying the command "Whoa!", he should instantly be corrected by use of the reins and even the whip, but the former should not under any circumstances be used for "flapping" purposes. The pony should be straightened out at once and compelled to return to the original stopping position and the command "Whoa!" repeated without any evidence of peevishness on your part.

The command "Steady!", used in a friendly tone, should be the only one used to calm the pony and give him confidence. It is often advisable to accompany this command by a hand pat on the neck when considered necessary.

When dealing with a difficult subject, one that bores and shakes his head, it is often necessary to pass the reins through the bit rings and buckle them to the upper side rings of the surcingle. This puts the animal more in your power and prevents his throwing his head.

Having progressed thus far the next step is to teach the pony to take up the canter at the command "Hup!" This word should be given in an energetic, sharp tone of voice, while at the same instant the feel on the reins should be slightly increased. It may take a few days to teach the animal to take up and hold a steady canter and to reverse at this gait, but the good results obtained will repay you later.

Persist in the commands "Whoa!" "Steady!" "Back!" and "Hup!" until the pony will obey them readily, and during the training use no other words and do not substitute one of these commands for the other at any time.

Having succeeded in teaching the animal to perform satisfactorily with the long reins, executing promptly and perfectly all of the exercises mentioned without exhibiting any inclination to rear, sulk or fidget, you may now proceed with his training under the saddle.

It might, with advantage, be remarked here that it would be advisable to practice with the long reins on an old horse for a day or two to gain manual dexterity in using them before commencing operations on the pony.

How do you know when your pony has had enough of the long reins training? When you can control him while he is excited.

To test your work in the ring excite the pony by loud cracking of the whip, firing off of a pistol, beating on an oil can, throwing an empty sack on his back unexpectedly or doing anything calculated to cause him to bolt. If under these conditions you find you can control him perfectly by means of the reins and the word of command you may rest satisfied with your work.

I believe that when the pony will back, almost without as-

sistance, for about twenty-five yards, three or four yards at a time, he is about two-thirds trained.

When the riding in saddle commences, do not change the form of the bit unless you consider it imperative. If a change must be made, due to a hard mouth, try some other form of snaffle before committing yourself to the curb.

Commence operations under saddle by riding in circle, an equal length of time each way, principally at the walk, progressing cautiously to the canter. Use both hands on the reins in the manner advocated at the Fort Riley School, but be sure you apply the pressure of the rein to the neck properly and at the right moment. Keep the pony's head in a good position and be sure he takes the correct leads at the canter—right leg leading when cantering to right, left leading when cantering to the left. Gradually decrease the size of your circle each day, collecting the animal well between your hands and legs, at the same time giving him the proper impulses by means of the aids and the inclination of the body. The body inclination, when riding the polo pony, should always be in the direction in which you desire him to move and so kept while moving in that direction.

Keep off his mouth. Make it a religious duty to keep off the pony's mouth.

In changing direction the animal should be taught to obey the slightest pressure of the reins on the neck in conjunction with the indication of the legs and inclination of the body. It is at this point that many ponies are given bad mouths and the habit of boring is confirmed. Of course at first, say in turning to the left, the right hand will be slightly elevated and carried somewhat to the left; the left hand will be lowered considerably and carried in the direction of the left knee, while at the same instant the pressure of the legs is increased, the left (which should be carried slightly to the rear) more than the right. The body from above the hips should be inclined steadily in the desired direction, but as progress is made in the training the reins must be used entirely by the left hand and pressure on the neck applied, without any pull on the mouth, in the direction in which we wish the animal to proceed.

In teaching the pony to rein quickly, using one hand, I find that a double snaffle and two sets of reins are best adapted for the purpose. One pair of reins should be crossed under the neck, the left rein coming to hand on the right side and the right rein on the left, while the other pair comes to hand in the ordinary manner.

Those who have any knowledge of bitting at all will readily see that with the crossed reins, in turning to the left for instance, a pressure on the right side of the neck will also cause a pull on the left bit ring, thus giving two indications from one rein. The double snaffle accustoms the pony to two bits and prepares him for the curb which may be considered necessary later, while the reins coming up in the ordinary manner may be used at intervals to accustom the pony to their indications.

We may now proceed to working on the figure eight, and this figure should be decreased in size from day to day as the pony becomes more handy and responds readily to the rein pressure and aids.

A good schooling in the circle and figure of eight is absolutely necessary, but the lessons should never exceed thirty minutes in duration; in fact, they should be discontinued the moment the pony loses interest or shows resentment.

Do not force the training when he becomes "hall sick." Give him a walk in the open for a change.

You should now proceed to cantering on straight lines, halting frequently and then taking up the canter directly from the halt; all at the word of command.

To get the pony to halt instantly no matter how fast he may be going is one of the most important and essential objects of the training. He must halt with the head up if anything, rather than down; there should be no reaching on the bit, for to halt properly the pony must do so from the hind quarters; whereas, if the head is down, the halting is done mostly from the shoulders. From this it will be readily seen that a pony which has been given a course of head flexion, direct and lateral and consequently arches its neck at the poll, will, with the aid of the rider, come to a halt from the gallop by the proper use of his posterior extremities and be in a position to immediately take up any given direction at high speed without having to regather himself.

Should the pony carry his head too high, a standing martingale may be necessary; if too low, an overcheck may be needed. The latter appliance, however, I consider dangerous to both horse and rider, as the overcheck interferes with the free movement of the former.

For direct and lateral flexion of the head at the poll I would refer you to the book on horse training by James Phillis.

From the commencement of training you will find it to be of great advantage to hang a polo mallet in the stall where the pony can see and nose it, and to place a polo ball or two in his feed box or manger.

You now come to the point where the animal is to be trained to the mallet, and if you have been careful thus far and the pony has confidence in you, you will experience little trouble here. At first have the mallet handed to you while mounted and if any fear or fidgeting is manifested place it across your shoulder as if nothing were the matter and whistle or hum a tune in an unconcerned manner. Further progress is made by gently swinging the mallet fore and aft on the off side in line with the stirrup, next calmly changing it to the left hand, reins to the right, and swinging it on the near side, progressing very gradually from the walk to the trot and canter. When the pony has become accustomed to the mallet, the strokes should be practiced while at the halt, progressing by easy stages to the canter, great care being taken that the animal is not hit by the mallet during these exercises and that the pressure on the bit is not increased. At each stroke the rein hand should be lowered to the withers, as in playing the game, but a delicate feel should be kept on the mouth until the animal becomes accustomed to the maneuver and learns the connection between the stroke and the descent of the rein hand. Do not attempt the "cross" or "under the tail" strokes until you are sure of your mount.

When the mallet can be used freely without causing restiveness, a rubber ball may be called into requisition and "dribbled" gently about. With a soft rubber ball there will be no noise and should it strike the pony it will not hurt or frighten him. He soon gets the idea of following it and will apparently become much interested. Avoid missing the ball as much as possible, for there is nothing that irritates a polonomy so much as the constant returning after misses. When you do miss, advance as if you had hit and return on a wide circle, or after going thirty or

forty yards. Do not teach the pony to slow up or stop when vou make a miss, for should you do so you will make a hesitater out of him. You will often find at this stage of the training, when the regulation ball is introduced and you begin to work more at the canter, that the pony will develop a tendency to "rump" away from the ball as the stroke is about to be made. I think this fault is due to an unsteady seat and an unequal pressure of the legs and hands, for in making the right forward stroke many riders are prone to lean well out over the right shoulder. thus bringing the rein hand in the same direction and putting on extra pressure with the right leg, all of which operates to turn the pony to the right on his forehand; however, this is a riding matter. When this fault has progressed to an undesirable extent it may be corrected by steadying the rein hand on the withers and closing, well back, the leg opposite to the side on which the disturbing stroke is about to be made.

All of this time you should use the established words of command, the recognized aids and keep off his mouth.

After you are able to approach and mount the pony with the mallet in your hand, begin to touch him with it on the neck, body and legs until he takes it as a matter of course at all gaits.

And now you come at last to the final steps in training, before a game with the pony is even thought of, viz.: "riding off," "Squeezing" and "Worming." For these purposes one or two old pomies ridden by steady men should be used and your pony should be calmly worked to shoulder off from right and left, the head being slightly turned away as in playing push ball. To encourage the pony in shouldering he should be given the best of the "riding off" frequently, and should be made much of by patting on the neck each time he does his work well. This training should be continued daily until the animal becomes efficient, Next place him between a pair of old ponies and accustom him to being squeezed and bumped, beginning gently and daily becoming rougher. Train him to worm in between two ponies; to stand still while they pass and repass him at the gallop, front and rear and as close as safety will permit; while the riders swing their mallets or make the strokes. Train him to meet others while he himself is at the gallop and to jump in and out of bunched formations readily; all of which has a tendency to make

him strong in scrimmages; a situation, by the way, in which too many ponies are cowards.

Now you are, having him well bandaged, ready to go into a short, mild game, playing preferably No. 4, and at no time forgetting the pony so far as to attempt to extend him in your eagerness to hit the ball. Play your preliminary games at the canter and be as careful with him as it is hoped you were in the earlier stages of his making. Play him at the canter until you are sure of him and of yourself.

If you have had your heart in your work and yourself and pony are blessed with good temperaments. I believe you ought now to be the possessor of a fair polo pony after your labor of love of six months, but you must still be careful and continue the schooling at intervals until the second season, when you should have a polo pony you are not ashamed of. Be careful to whom you loan him; be careful of his feet, mouth and digestion.

After six months' training as above the pony should be able to play three quiet games a week, depending on his condition and endurance, but he should not be abused by forcing him to, at any time, play two periods in succession. Your "horse sense" will be your guide here.

You must have spent many long months in preparing the pony to be a reliable, good tempered partner in your preferred amusement; be as careful of him as you would of a dear friend; cherish and watch over him, for it you have succeeded in producing a good one, he will be well worthy of your confidence, attention and esteem.

I cheerfully give credit to the Fort Riley School of Equitation, Sidney Galvayne. James Phillis, M. Bouchette, Major Dwyer and to many others whose excellent works on equitation I have read with pleasure these many years and from which I have stored up much valuable information.

THE CAVALRY SADDLE

By First Lieutenant A. M. GRAHAM, First Cavalry.

THIS article is not written with the intention of putting myself forward as an authority on saddles, nor do I consider. that the statements made herein are not open to argument. It is merely an expression of my own personal opinion of the Mc-Clellan saddle, and the improvements that can be made thereon, based on eighteen months' use of a saddle modeled after my own ideas.

I consider that the chief requisites of a cavalry saddle are comfort for horse, security and comfort for the rider, durability, and construction for carrying the required pack. The McClellan saddle has the two latter requisites to a high degree; the other requisites I consider are greatly lacking.

First of all, I will state that my whole idea in the saddle which I had made was to combine the advantages of the Mc-Clellan saddle and those of a first-class stock or cowboy saddle, without retaining the disadvantages of either.

I will first deal with the question of the comfort of the horse, as that is, probably, the most important of all. The present saddle is not a good saddle for the horse, due to the fact that the bearing surface of the bars is too small. This is partly due to the size of the bars and partly due to their shape and the way they are put on the saddle. The bars are not long enough by nearly two inches. A McClellan saddle placed on an average horse in ordinary flesh, over a saddle blanket, sets on the lower part of the bars, the top part of the bars not bearing at all. That is, the bars are somewhat on edge. This defect could probably be remedied by adjustable bars. The saddle does not set well on the ordinary horse's back for another reason. The bars of the present saddle are too convex where they come in contact with the horse's back, both lengthwise and from the center outwards. This gives somewhat of a rocker motion to the saddle, and does

not allow all parts of the bars to bear on the horse's back equally. These defects in the bars of the McClellan saddle can be remedied by adopting the bars used on good stock saddles. Most of the weight carried by a cavalry horse is, I think, back of the center of the saddle, therefore why not have the bars project further behind?

At Camp Stotsenburg, P. I., while on duty with Troop "H," First Cavalry, I received the saddle which I had made for



NEW SADDLE.

me by the Ordnance Department at Manila, P. I. One of the sergeants of the troop, Sergeant William J. Boyle, had an excellent horse, of which he was very fond. At some time this horse's back had been made sore just under the cantle and if ridden even once at drill with a McClellan saddle and ordinary saddle blanket, this back again became sore. To prevent this, I had Serg't Boyle take some condemned blankets, fold to six thicknesses, cut to proper size, and sew it all together. Then a hole was cut entirely through this pad, leaving the edges slanting.

With this pad the horse could be ridden regularly without injury to his back. After I got my new saddle, I had Sergeant Boyle use it for about a week instead of his own saddle. This saddle was put on with an ordinary saddle blanket and no precautions at all were taken not to hurt the sore back. During this time Sergeant Boyle used the horse for drill, etc., every day, and the scab was not rubbed off the sore.



NEW SADDLE.

Most of the sore backs on practice marches are cantle sores, except when sores are made in other places from the heavy rifle being on one side with nothing to counterbalance it on the other. The conformation of a horse often makes the saddle cause him discomfort. Some horses are low in front, and then the saddle slips forward, making the back tender on top of the shoulder blades and causing elbow sores and cincha sores. For

this kind of a horse a crupper would be a fine thing. Some horses are high in front and low behind; for this kind breaststraps should be issued. For any horse being ridden in rough, mountainous country, both breaststraps and crupper should be issued and worn.

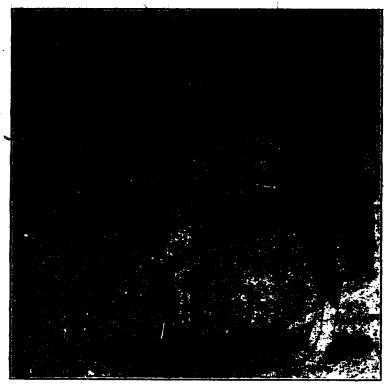
The McClellan saddle is a light saddle and holds its shape well; still if all saddles were turned into the arsenal once in five years to have new rawhide covers put on the trees, I think our horses would have less sore backs due to the trees having spread.

As to the security and comfort of the rider, there is probably a large diversity of opinion. I think it is generally conceded in the service that even a good rider can not ride a bad horse with a McClellan saddle. My observation has been that when a troop has a bucker to be ridden, a stock saddle is generally borrowed from the pack train or elsewhere, and the regulation saddle is not considered for this purpose at all.

I consider the security of the rider's seat in the cavalry service to be a very important matter if he is to fight mounted. Security of seat is one of the requisites which is lacking in the present saddle when compared to that in a good stock saddle. The whole saddle (McClellan) slopes forward and downward from the cantle nearly to the pommel excepting the two upper edges of the bars, which slope upward toward the pommel. The tendency, when the saddle is gripped with the legs, is to work the body forward away from the cantle and toward the pommel and thus getting on top of these two sharp edges of the bars. On a plunging or bucking horse or one that is pulling hard on the reins, this is exactly what the rider wishes to avoid, as he is much more secure if he can retain his position against the cantle of the saddle and still grip his horse with the thighs. On a horse which is behaving badly if the rider once gets shaken loose from his position against the cantle he is easily thrown.

The cantle of the regulation saddle, when viewed from side to side, is flat; that is, a straight edge laid on the inside of the cantle horizontally would touch all the way across. I can see no reason for this, as it is not the shape of a person's body where it touches the cantle.

The cantle of the saddle starts slanting upward at least three inches too far forward, and the slope of the cantle is at no time abrupt enough to conform to a rider's buttocks when sitting in the saddle. There are two nearly constant slopes to the cantle, and these two slopes form an angle, instead of being uniformly concave, so as to conform to the shape of the rider. These defects detract both from the comfort and security of the regulation saddle. With the present regulation saddle a rider having



MCCLELLAN SADDLE.

the regulation seat is sitting with the two bones of his buttocks resting exactly on the two edges of the bars, which have an opening between them from cantle to pommel. He is also sitting on a slope from the cantle forwards. Why not fill in this crack in the seat of the saddle as it is filled in on a stock saddle? It certainly is much more comfortable filled in, and adds very little to the weight of the saddle.

There are two other good reasons for filling in this crack: one is that it is cooler for the rider, and the other is that with it filled in, the blanket and saddle cloth cannot work up between the bars and cause discomfort. The heat from the rider's body is not as great as the heat which comes up from the sweating horse, and it can make little difference in heat to the horse, as the crack is only filled in where the rider sits.

I think that it is generally conceded that many of the sore backs among cavalry and artillery horses are due to riders lounging in their saddles, either from fatigue or carelessness, or both.



NEW SADDLE.

McCLELLAN

If the saddle were more comfortable and supported the back better, wouldn't the rider stand a longer march with less fatigue, and so avoid some sore backs?

It is said that the poor rider has to hold on with the reins to keep from falling off. Wouldn't he be able to stay on better and so cause the horse less discomfort if he had a saddle which he could grip more securely with his legs?

The bars of the McClellan saddle at the places where the thighs grip them slope abruptly downward until they come to the horse's back; from that point the horse's back and side bulge out, leaving a place between the bars and the horse's side where no grip is obtained. This also is wrong.

All of the above defects are corrected in the stock saddle. There are definite places hollowed out for the thighs to grip; the cantle is concave both horizontally and vertically, and is abrupt enough to conform to the rider's figure; the seat is filled in and is oval; the grip of the thighs is continuous to the knees.

The pornmel of the regulation saddle is excellent in shape for military purposes, but is not high enough in the arch, as with a very high withered horse it may touch and so make sore withers.

The saddle which I had made in Manila was not exactly what I wanted, due entirely to my own lack of knowledge, and due in no way to the Ordnance Department, as the officer in charge there and his workmen helped me in every possible way.

The seat of this saddle was a little too wide, and the pommel was not quite as high as I desired. I also desired the cantle to be about one inch higher than the regulation saddle, so as to raise the cantle pack higher from the horse's back. I am now having another one made with these conditions corrected.

Another bad thing about the present regulation saddle is the manner of attaching the foot staples which hold the rifle and saber on the front of the saddle. Sometimes the screws holding these foot staples pull out of the wood and the rifle drops. By riveting these staples to the quarterstrap this is avoided.

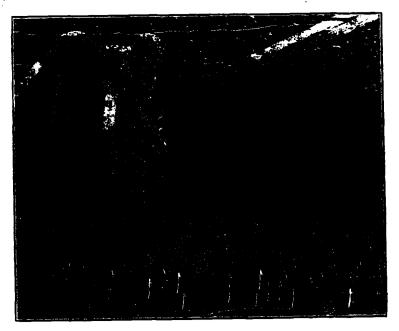
The saddle which I have been using and the one being made both have sweatleathers and jockeys. Sweatleathers without jockeys pinch the leg slightly with every movement, getting the leg between the sweatleather and the saddle cloth. The jockey being, as it is, part of the seat of the saddle, laps over the sweatleather and prevents this pinching.

I find the open stirrups, wood, leather covered, to be much more comfortable and much easier to keep on a plunging horse, or when leaning out of the saddle for saber exercises. To obviate the danger of being hung in the stirrup in case of accident or fall, I have had safety stirrup loops put on the saddle.

The saddle which I am at present riding weighs two pounds more than a regulation saddle with sweatleathers.

The bars of this saddle are lined with sheepskin, with the wool on, which is an excellent thing when no saddle cloth is used. With a saddle cloth the wool does not prevent the cloth from slipping back from under the saddle and thereby neces-

sitating frequent adjustment. To prevent this slipping back of the cloth and blanket, which stick together. I had small leather pockets just the shape of the front end of the bars sewed to the saddlecloth and the ends of the bars are slipped into them. The pockets require a very close scrutiny to detect them when the horse is saddled. This device entirely did away with the cloth and blanket working back from under the saddle as well as preventing them from working up over the withers under the pommel.



The saddle is "rigged" exactly like a regulation saddle, with shields, foot staples, rings, adjustable quarterstraps, saddlebag stud, etc. The present regulation saddlebags fit it just as well as they do a McClellan. In appearance, with rider, the saddle looks exactly like a McClellan. When dismounted the difference in the seat is evident. When a man is mounted, a slight difference is noticeable when viewed from the rear, due to the difference in shape of the cantle.

MOUNTED SPORT AT FORT HUACHUCA.

Ways present elements for good sport such as is conducive to better horsemanship and to genuine interest and affection between men and their mounts. Moreover such sport as will be indicated in this short paper has an important bearing in teaching officers and men to put horses in condition for varying tests, to estimate pace in connection with distance, and above all in giving them an opportunity of studying breeding, conformation and size in relation to weight-carrying, to distance and to speed in rough going. Fortunately the army's ideal of a troop horse or charger has greatly changed within the past ten years. The short backbig-barrel was carried to that point where an overgrown pony became a charger. In fact such an animal would be distressed if made to keep apace with a proper type at leisure gallop.

For the most valuable race, the two mile one, the early tryouts eliminated all the horses that did not possess a liberal infusion of blood (thoroughbred), barring two Fifth cavalry horses whose pedigrees are unknown and of whose blood only surmises can be made.

Furthermore the system of recording pedigrees of horses on the descriptive cards was vindicated here. We had no pedigrees of the horses that we received upon arrival at this station from the Fifth cavalry, but the pedigrees (good, bad or indifferent) were matters of record of those horses brought from Montana and those afterwards obtained from the Reno remount station. The following is the order of events for the two days, April 15th and 16th:

FIRST DAY.

1. Galloway Steeplechase:

Big Moccasin Course; half mile; three obstacles; top weight 170 pounds; five pounds for each half inch.

2. Cow Pony Race:

440 yards, from second water jump to finish.

3. Rescue Race:

Four men from each troop; 200 yards and back.

4. Bending Race:

Eight stakes 20 feet apart; 40 foot start; through and back.

5. Indian Scout Race:

Big Moccasin Course, without obstacles.

6. Burro Race:

Little Moccasin Course.

7. Troopers' Steeplechase:

Catch weights; twelve obstacles; two miles.

8. Polo Game:

Reds vs. Greens.

SECOND DAY.

1. Driving Polo Ball:

Length of field and back.

2. High Jump for Horses:

Start four feet high.

3. Form Jump:

Only performance to count; horse 75 per cent, man 25 per cent.

4. Galloway Race:

Little Moccasin Course; 600 yards; no obstacles; top weight 170 pounds; five pounds for each half inch.

5. Officers' Steeplechase:

Catch weights; two miles; twelve obstacles.

6. Mule Race:

For Quartermaster's employes; Little Moccasin Course.

7. Consolation Race:

Six furlongs; five obstacles including in-and-out; for all horses, galloways and ponies that have not been placed.

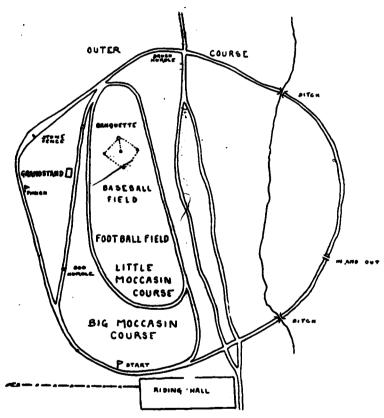
8. Polo Game:

Winner first game vs. Whites.

There was an average of a little more than five starters for all of the races and jumps.

By reason of the systematic training that had been pursued the events were well contested and gave most interesting proof of improvement in riders and horses.

The following diagram will give a better idea of the various courses and of the steeplechase course in general than would any pen picture:

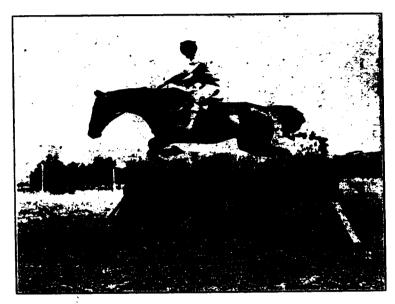


STEEPLECHASE COURSE FORT HUACHUCA ARIZONA

The two mile course was twice around the outer course, once around the Big Moccasin and then over the finish, with the

following obstacles: rock hurdle three feet six inches high, brush hurdle same height, in-and-out three feet three inches, two ditches six feet and six feet six inches wide, sod hurdle three feet three inches and banquet three feet six inches high and ten feet wide. Five of these jumps were on the outer course and two on an inner track.

The diagram and program taken with these details sufficiently explain the other races. The photographs are unfortunately very unsatisfactory.



POPPY.
CORPORAL TOWET UP.

The high jumping contest was over the regulation horse show fence and three horses cleared four feet six inches; one four feet nine inches.

The jumping for form was over the sod hurdle, a brush hurdle four feet high, and the banquet—the second being placed between the first and third.

The following are the best horses developed during the training and their work and conformation certainly suggest them

as good horses for modern cavalry. The same has been demonstrated on two recent practice marches, one to Tucson and back; and the other to Willcox and back, each approximately 150 miles over some of the driest country in Arizona (arida zona):

Poppy........16 hands; sorrel; half bred; dam a thoroughbred, sire a standard bred; girth 73 inches, weight 1045, 7 years.

Baldy Hornet...16 hands; sorrel; nearly thoroughbred; sire imported Pacapluie, dam three-fourth bred; girth 7534 inches; weight 1105, 8 years.



RAZZLE DAZZLE. PRIVATE ELLIS UP.

Brownie II.....15.2½; brown; half bred; sire thoroughbred Arthur, dam half Morgan, half standard bred; girth 74, weight 1065, 8 years.

Buck.......15.3; bay; breeding unknown, but appearances indicate chiefly standard, with some thoroughbred and possibly some saddle bred; girth 71, weight 1010, 11 years.

Regent......16 hands; thoroughbred; sorrel; girth 72¾, weight 1090, 6 years.

Stockinet.....15.3; bay; three-fourth bred; sire a thoroughbred, dam a graded mare with running blood; girth 73, weight 1030, 6 years.

Razzle Dazzle. 16.1½; sorrel; nearly thoroughbred; sire thoroughbred; dam seven-eighth bred range mare; girth 77½, weight 1150, 7 years.

Cracker Jack...15.3; brown; half bred; sire Imp Bawbee, dam range mare; girth 73¾, weight 1030, 7 years.



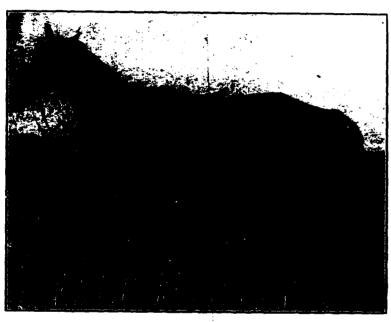
BROWNIE. SERGEANT CRAIG UP.

The average weight was 1063 pounds and all of the horses were in trained condition.

Each of these horses is a good weight carrier and barring one, all are of good temperament; in fact they are excellent cavalry mounts, capable of galloping a good distance without being pumped out.

The most suggestive feature connected with the above exhibit is the very large infusion of thoroughbred blood.

The troopers' two mile steeplechase was won by Buck, but



BALDY HORNET.

two others would probably have led him at the finish but for being crowded off the track at the last obstacles.

The time was four minutes and twenty-five seconds.

In the six furlongs (1354 yds.) the pace was a trifle better than a two-minute gait and was won by Baldy Hornet. By comparing these times and the greater weights carried here with those of the Eastern steeplechases it will be seen that this showing is quite remarkable.

In a subsequent race for two miles over twelve hurdles in which five of the above were competing each carrying 161 pounds Razzle Dazzle and Baldy Hornet were the first two to finish.

In both jumping contests Brownie II was first and Regent second.

The conditioning of horses for the two mile races was a most interesting and valuable training to all concerned.

Unlike flat racing there is but a small chance here for spoil-



BOB.

ing horses by making them bolters for the very simple reason that riders must at all times keep their mounts well in hand.

As an indication of the degrees of training of both men and horses, I cite the fact that at the taking of the in-and-out the second time, after having gone a mile and a half, all the horses (8) were between the jumps at the same time and not a fault was made by any one.

In the minor events blood also showed telling results.



*

MORAL IN WAR.

By "DENKMAL,"

From the United Service Magazine, August, 1910.

authors, each having his own individual style, the whole being served up by the writer, who professes to no style at all, and it therefore pretends to no literary merit. But, it is thought that, by quoting leading opinions, one can best show the great importance of the moral aspect of war, and it is further hoped that the reader to whom the quotations are new may be led to study the originals from which they are taken. In treating of moral in war, it is perhaps most convenient to take Clausewitz* as our guide, and to touch briefly, first on the moral forces in war, next on the moral powers which help us to cope with those forces, and finally to point out some methods of fostering these moral powers, and of turning the moral forces to our advantage and to the enemy's disadvantage.

. Moral Forces.—In discussing moral forces and their effects, Clausewitz deals with—

- 1. Hostile feeling. He says: "We are apt to regard the combat in theory as an abstract trial of strength, without any participation on the part of the feelings, one of the thousand errors which theorists commit."
 - 2. The impressions of danger, as affecting one's courage.
 - 3. The extent of the influence of danger. This, in the case

of the lower ranks, affect them merely as danger to themselves; but in the case of the higher ranks, it affects a man's power of taking responsibility.

- 4. Other powers of feeling. Envy, generosity, pride, humility, fierceness, and tenderness, all may appear as active forces in the great drama of war.
- 5. The "fog of war" caused by lack of certain information. In war we are always groping in the dark. Clausewitz says, of "Information,"—"Great part of the information obtained in war is contradictory, a still greater part is false, and by far the greatest part is of a doubtful character." The doubts and perplexities caused by this want of information must affect the minds of all engaged in war, and the more so as they approach the higher ranks.
- 6. Chance. "There is no human affair, which stands so constantly and so generally in close connection with chance, as war."
- 7. "Friction in war," i. c., the thousand and one things which may happen to upset one's calculations. Among other causes of friction, Clausewitz includes bodily exertion, which may affect some men or units to an unexpected degree.

All the above are moral forces affecting the mind of a commander of any body of troops, and most of them affect the minds of subordinate leaders and rank and file.

We thus see that although the principles of war are few and simple. yet that, to quote Clausewitz, "in war the simplest thing is difficult," the reason being that human nature is the governing factor.

Moral Powers.—Clausewitz defines the chief moral powers as—

- 1. The talents of the commander.
- 2. The military virtue of the army.
- 3. The national feeling.

In discussing the military talents of the commander, he points out that boldness and perseverance are most important.

"First ponder, then act," as Moltke said. When you have pondered your plan and proceed to put it into execution, then

^{*&}quot;On War," translated by Colonel J. J. Graham, from the third German edition. Kegan Paul, French, Trubner & Co.

the difficulties begin to arise, caused by friction, fog, danger, etc.

You may then, if you are not careful, be influenced by local events. You will think, because something near you seems to be going wrong, or because you get bad or disquieting news, that perhaps your plan was not sound.

This is where military talents, boldness, and perseverance come in.

Do not allow these seeming difficulties and mishaps to affect your moral. Realize that, after all, your plan was carefully thought out before you came under the influence of these disturbing surroundings, and that your plan was sound and is still sound. Carry it through. That is to say, carry it through up to the battle which you are trying to bring off. After the battle, things may be completely altered, and, as Moltke says, it is only the layman who can pretend to forsee events beyond that.

We have spoken, so far, of the perseverance required to carry out a preconceived plan; but in tactics, in battle, one may often have no time to "ponder." In situations where instant action is required, our chance of acting correctly will depend chiefly on the extent to which we have striven, by previous study and practice, to make ourselves masters of our profession. In the words of Sir John French, "all knowledge on the battlefield, to be of any use, must be instinctive knowledge." But even on the battlefield, the commander can foresee events to a certain extent, and, whilst others are acting, he must be thinking.

Of perseverance Clausewitz says: "The reader expects to hear of lines and angles, and finds, instead of these citizens of the scientific world, only people out of common life, such as he meets with every day in the street. And yet the author cannot make up his mind to be a hair's-breadth more mathematical than the subject seems to him to require, and he is not alarmed at the surprise which the reader may show. In war, more than anywhere else in the world, things happen differently to what we had expected, and look differently, when near, to what they did at a distance. With what serenity the architect can watch his work gradually rising and growing into his plan. . . In war, on the other hand, the commander of an immense whole finds himself in a constant whirlpool of false and true information, of mistakes committed through fear, through negligence, through

precipitation—of contravention of his authority, either from mistaken or correct motives, from ill will, true or false sense of duty, indolence or exhaustion,—of accidents which no mortal could have foreseen. In short, he is the victim of a hundred thousand impressions of which the most have an intimidating, the fewest an encouraging tendency.

"By long experience in war, the tact is acquired of readily appreciating the value of these incidents; high courage and stability of character stand proof against them, as the rock resists the beating of the waves.

"He who would yield to these impressions would never carry out an undertaking, and on that account, perseverance in the proposed object, as long as there is no decided reason against it, is a most necessary counterpoise.

"Further, there is hardly any celebrated enterprise in war, which was not achieved by endless exertion, pains, and privations; and as here the weakness of the physical and moral man is ever disposed to yield, therefore an immense force of will, which manifests itself in perseverance, admired by present and future generations, can conduct us to the aim."

Again, in his Summary of Instruction for the Crown Prince, under the heading "General Principles to be Observed in War." Clausewitz says, "The great object of the theory of war is to guide us to the way of obtaining a preponderance of physical force and advantages at the decisive points, but if this is not possible, theory teaches us how to speculate upon the moral powers; upon the probable errors of the enemy, upon the impression made by a bold spirit of enterprise, etc., etc., even ubon our own desperation. All this is by no means beyond the province of the art of war in its theory, for that theory is nothing but rational reflection upon all the situations in which we can be placed in war. The most dangerous positions in which we can be placed are just those which we should look upon as most likely to occur, and those about which we should most distinctly make up our minds. That leads to heroic resolves founded on reason.

"Whoever represents the affair in any other manner is a dangerous pedant, who can only do harm by the views he advances. In the critical moments of life, in the tumult of battle, you will one day feel clearly that no other view can give any help, when help is most necessary, and when a dry pedantry of figures leaves us to our fate.

"Naturally in war we always seek to have the probability of success on our side, whether it be that we count upon a moral or physical superiority. But this is not always possible; we must often undertake things when the probability of succeeding is against us; if, for example, we can do nothing better. If, in such a case, we despair, then our rational reflection and judgment leave us just when most wanted, when everything seems to conspire against us.

"Therefore, even when the probability of success is against us, we must not, on that account, consider our undertaking as impossible or unreasonable; reasonable it will always be, if we can do nothing better, and if we employ the few means we have to the best advantage.

"In order that, in such cases, we may never lose equanimity and firmness, two qualities which in war are always the first to be in peril, which in such a situation are difficult to maintain, but without which, with the most brilliant qualities of the mind, we can effect nothing, we must familiarize ourselves with the idea of falling with honor.

"Amongst all the operations left to your choice in any given case, amongst all the measures which are open to adoption, there will always be a choice between the bold and the prudent. Some people think that theory is always on the side of the prudent. That is false. If theory could give advice in the matter, it would counsel the most decisive, consequently the boldest course, as that is most consistent with the nature of war; but it leaves the general to choose according to the measure of his own courage, of his spirit of enterprise, and confidence in himself.

"Choose, then, according to measure of these inner powers, always remembering that there never was a great general who was wanting in boldness."

History teems with examples of success consequent on adopting, and of non-success consequent on failing to adopt, the bold course; as instances of the former may be noted Wellington's landing at Figuera in August, 1808, his passage of the Douro in 1809, Moore's bold stroke at Napoleon's communications in 1809;

and as instances of the latter we have only to turn to the conduct of their opponents, e. g. Soult and Victor in the beginning of 1809, Massena and Soult in 1810.

But we must not mistake for boldness unreasoning rashness. such as that of Junot's ill-timed march and headlong onslaught at Vimeira; nor must we confuse perseverance with stupid pigheaded obstinacy, such as Cuesta displayed on the 24th and 25th July, 1809, when he insisted on following Victor. Again, when deciding on a bold course, we must take all possible steps to minimize the risks, as Moore did by forming an alternative line of supplies via Astorga to Coruna, when risking his line of retreat to Lisbon; we must neglect no opportunity of gaining information, and, if necessary, we should modify our plan; as Moore did, firstly, when on the 13th December, 1809, in consequence of an intercepted despatch, his hitherto vague threat at the French communications developed into a definite aim at Soult, the defeat of whom would be more likely to attain the end in view (viz., to draw Napoleon after him and thus gain time for the Spaniards in the south); and, secondly, on the 23rd, when he found that he had achieved his object, without attacking Soult, and that further time could be more surely won by retreat than by advance.

What Clausewitz means is that we must not resign the initiative to the enemy. We must not give up our plan and follow the enemy's plan just because something seems to be going wrong. It is possible that had Bennigsen made another push at Eylau on the morning after the battle, he might have won.

Again, on the 17th of June, 1815, Wellington was waiting for the Prussians to continue the battle, unfinished overnight. If they had done so, Napoleon might have been overwhelmed on the 17th, instead of which, victory trembled in the balance on the 18th. So far as we can see at present, Kuropatkin might perhaps have won at Liau-yang or Mukden, had he formed and carried through a definite plan of battle with the idea of winning, instead of conforming, as he did, to the Japanese lead, merely to avoid defeat; and at the Sha-ho and Heikoutai he seems to have lacked the perseverance to carry through his plan.

A bold, decided course of action might have brought victory to McMahon at Worth, Bazaine at Vionville, Bennigsen at Pultusk and Friedland, Benedek in Bohemia, 1866.

Clausewitz, as we have seen above, considers that only by means of an immense force of will can a general persevere. But it is doubtful whether this force, if the mere will power of a human being relying on himsels, can lead to such great things, as the force engendered by a trust in the guidance of a Supreme Being.

If we turn to history we find that it is this trust in a Higher Power that has actuated most great leaders in war. Mahomet is a remarkable instance of this; and, in more recent times, Cromwell, Marlborough, Stonewall Jackson, and Lee. The author of "Napoleon as a General" points out how the great Corsican's "iron will" "changed into unyielding obstinacy... as he never would conquer or restrain himself, all his successes ended eventually in unsuccess."* And he instances Cromwell as a great example, on the contrary, of a man whose "power of will in spite of durable successes" was evinced in the "preservation of a spirit of moderation even when on a pinnacle of human greatness."† But is not this precisely because Cromwell, unlike Napoleon, regarded himself as an instrument of God?

Of Marlborought we read, "There can be no doubt of the strong faith in God which influenced his conduct"; his letters "teem with expressions of trust in God, of belief in God's constant watchful care over him, and of unqualified reliance upon His aid and support. In every undertaking he looked for the particular blessing of the Almighty, and saw His hand in all that happened. It was God who gave him the victory, and it was by His mercy that he was preserved through the dangers which he encountered. He spent hours of the night before Blenheim in prayer, and, as was ever afterwards his custom, he received the Sacrament before going into action. . . . He certainly possessed a childlike belief in the efficacy of prayer, which in a mind of his calibre, so often confounds the reasoning of the ablest sceptic."

"Divine service was regularly performed in all his camps, both morning and evening; previous to a battle prayers were read at the head of every regiment, and the first act, after a victory, was a solemn thanksgiving. 'By these means,' says a contemporary biographer, who served in his army, 'his camp resembled a quiet, well-governed city. Cursing and swearing were seldom heard among the officers; a drunkard was the object of scorn; and even the soldiers, many of them the refuse and dregs of the nation, became, at the close of one or two campaigns, tractable, civil, sensible, and clean, and had an air and spirit above the vulgar.'"

"During the whole of his active career he retained a constant sense of the superintendence of the Supreme Being, and was ever the first to ascribe the successes which he had gained to Divine protection; a disposition which shone forth with peculiar grace amidst the din of arms and the flourish of trumpets for his own mighty achievements." †

Henderson's "Stonewall Jackson" is too well known to quote on this point, nor need we do more than refer to Robert Lee's implicit trust in the Almighty.

With regard to the second moral power, as defined by Clausewitz: "the military virtue of the army," he says, "War is a special business (and however general its relations may be, and even if all the male population of a country, capable of bearing arms, exercise this calling, still it always continues to be) different and separate from the other pursuits which occupy the life of man."

"To be imbued with a sense of the spirit and nature of the business, to make use of, to rouse, to assimilate into the system, the powers which should be active in war, to penetrate completely into the nature of the business with the understanding, through exercise to gain confidence and expertness in it, to be completely given up to it, to pass out of the man into the part which it is assigned to us to play in war, that is the military virtue of an army in the individual."

With regard to the military virtue of the army as a whole, he says, "An army which preserves its usual formations under

^{• &}quot;Napoleon as a General," vol. i. p. 25.

[†] Ibid., vol. ii. p. 419.

^{*} Wolseley's "Life of Marlborough," vol. ii. p. 440.

[•] Alison's "Life of Marlborough," p. 393.

[†] Ibid., p. 394.

the heaviest fire, which is never shaken by imaginary fears, and, in the face of real danger, disputes the ground inch by inch; which, proud in the feeling of its victories, never loses its sense of obedience, its respect for, and confidence in, its leaders, even under the depressing effects of defeat; an army with all its physical powers, inured to privations and fatigue by exercise, like the muscles of an athlete; an army which looks upon all its toils as the means to victory, not as a curse which hovers over its standards, and which is always reminded of its duties and virtues by the short catechism of one idea, namely, the honour of its arms—such an army is imbued with the true military spirit."

He goes on to say that military virtue can only be generated from war, and by the highest pitch of training for war. After a war, it may be kept up in an army for some time, but will gradually disappear in a prolonged peace. He says that, as in the case of the Spanish guerrillas (and, as we have seen lately, the Boers) its place may be supplied by the third moral power, the national feeling, the natural qualities of a warlike people, bravery, aptitude, powers of endurance, and enthusiasm.

Such was the case as it presented itself to Clausewitz: but it may perhaps be worthy of consideration whether we should not look upon the national feeling as the proper complement rather than as the alternative, of what Clausewitz calls the military virtue of an army, and especially so in these days of national armies. It appears to us that the highest possible state of moral can only be produced by a careful training for war, grafted on to a strong national feeling, and with a finishing touch of actual war experience. We are convinced that, other things being equal, an army thoroughly imbued with some strong feeling, such as warlike enthusiasm for what it considers to be a just cause, parciotism, or religious fervor, will be capable of greater deed, and more proof against adversity, than an army not so imbued. It was warlike enthusiasm that brought success at first to the French revolutionary armies, and it was the religious fervor and patriotic enthusiasm roused by the Tsar's proclamation in 1807 that brought to the field of Eylau a foe worthy of the Frenchman's steel.

Bushido was a great power in the Japanese army, and moreover the whole nation had for ten years been educated up to war with Russia. Patriotism wrought wonders for the Prussians of 1866 and the Germans of 1870. But true patriotism, rendering a nation capable of unselfish sacrifice, not only in actual war, but in peace time—a patriotism which shows itself by cheerful peace preparation—can only be brought about by careful national education. It is not a natural instinct, and must be taught. The natural instinct is selfishness; and that must be combated with all our might.

We have already put forward a suggestion that a trust in a Higher Power may be the surest guide to the commander in moments of doubt. May not this apply equally to the army? May not a sense of the righteousness of one's cause, and a deep religious feeling, be the strongest incentive to heroism in the army itself? History does not lack examples in support of the theory that the religious feeling is the strongest of all which can sway the human race. The Israelites of old, Cromwell's Ironsides, the Russian peasants of 1807, who, contrary to the usual custom, when drawn for the army, "joyfully left their homes, and marched with songs of triumph, amidst the blessings of their countrymen, towards the frontier, the anticipated scene of their glory or their martyrdom";* Marlborough's army, in every regiment of which "Divine service after the Protestant form was regularly performed morning and evening; who prepared for battle by taking the Sacrament, and terminated their victories by thanksgiving";† the Sikh sect, whose religious fanaticism joined to military ardor has won them a reputation as first-class soldiers; the heroic dervishes of Omdurman; all these examples may be cited. And the question may well arise, to what extent their religious fervor was an asset, and to what degree of success they might have attained without it. It may be urged perhaps that religion was not a strong point in the pressed men who fought so gallantly at Trafalgar, or in the ranks that stormed Badajoz. But, on the other hand, would an army of the stamp of Cromwell's have become so demoralized

Alison's "History of Europe," ch. exliv.

[†] Alison's "Life of Marlborough," p. 447.

by retreat as was the case in Moore's retreat to Coruna, and Wellington's retreat from Burgos?

We leave the point for the consideration of the reader, and pass on to the question as to how we can foster the moral powers. And we should remember that our object is not merely to enable us to rise superior to adverse moral forces, but also to so make use of the moral forces as to adversely affect the enemy.

Amongst the means of raising the moral of the commander, we must perhaps give the first place to knowledge that he has carefully thought out every possible move beforehand, and eliminated chance as much as possible, and that therefore he is not likely to be surprised.

He must try to see the enemy's disadvantages and his own advantages, and not fall into the error committed by McMahon in 1870, Clam Gallas on the Iser in 1866, Bennigsen after Eylau, of seeing only the worst side of things in his own situation, the best in that of the enemy.

He should rest secure in self-confidence, in the knowledge that, come what may, he has done his best, and in the feeling that he is thoroughly versed in his business.

Confidence in his own troops will also increase the moral power of the commander, e. g. Wellington's strategy in the Peninsula became bolder and of wider scope, as he gained confidence in his troops. Moltke's strategy in 1866, cautious at first, became extraordinarily bold after the initial successes leading up to Sadowa.

A good intelligence system is an essential factor. The more we can pierce the fog of war, the higher becomes our moral, and, conversely, the more we can envelop the enemy in this fog, the lower will become his moral. Want of information was largely responsible for the hesitation and want of vigor which allowed the cup of victory to slip from the nerveless grasp of Soult and Victor in 1809, Soult and Massena in 1810. Had the Prussians known the full extent of the situation on the evening of the 16th June, 1815, it is possible that they might have stood firm on the 17th instead of retreating.

Then, again, we may lower the enemy's moral by surprising and defeating him, spreading rumors to cause him to make needless tiring marches. Stonewall Jackson's methods are a model for this. We read that, in June, 1862, "the successive surprises of the valley campaign had left their mark; he had gained something more than the respect of his enemies. He had taught them to fear his name; and from the Potomac to the Rapahannock uncertainty and apprehension reigned supreme. Not a patrol was sent out which did not expect to meet the Confederate columns, pressing swiftly northward; not a general along the whole line from Romsey to Fredericksburg, who did not tremble for his own security."

'One of the most important qualities is unselfishness. If we are unselfish, and if we know that our colleagues are unselfish, that will go a long way to raising every one's spirits and insuring that all do their best. We must "play the game"; play for the side and not for ourselves. The Germans did this in 1870 with conspicuous success. Perhaps the chief cause of French failure in the Peninsula in 1809-13 was the jealousy between their marshals. The Turks might have won in 1877 if their generals had not been so jealous of each other. The Russians seem to have failed at Heikoutai partly, if not chiefly, owing to jealousy among the higher commands, whereas the Japanese conduct was marked by the supreme unselfishness of all ranks; in fact, to quote Sir Ian Hamilton, "To change our characters, so that we may become less jealous and egotistical, and more loyal and disinterested towards our own brother officers, this is the greatest lesson of the war." *

We must learn to look on selfishness as the most deadly enemy to success. A small war, such as our last war in South Africa, may foster this miserable feeling, but there will be no room for it when we are fighting for our national existence. Hand in hand with unselfishness go loyalty to superiors and trust in one's subordinates.

It is well, also, to remember Wellington's remark touching Craufurd's action on the Coa 24th July, 1810. "If I am hanged for it, I cannot accuse a man who I believe has meant well, and whose error is one of judgment and not of intention; and, indeed, I must add, although my errors, and those of others also, are visited heavily upon me, that is not the way in which

^{• &}quot;Staff Officer's Scrap Book," ii. 46.

any, much less a British, army can be commanded" (Supplementary Corr., 31st July, 1810)..

With regard to the troops, their moral power may be increased by initial successes, and by getting them to trust their leaders. Thus, the Confederates under Stonewall Jackson learned to trust him to such an extent that they cheerfully underwent difficult and trying marches, of which they did not know the object, as they had found that he knew what he was about, although he did not let them into his secrets.

Good staff work will foster the troops' moral, for it will work out moves so that they are not paraded too soon (unnecessarily early for a march, etc.); also, a general who knows his own mind, and a good staff who will see that his plans are carried out, will avoid needless orders and counter-orders, needless marches, useless attacks, etc., all of which tend to upset the men's moral. Officers should always be cheerful under hardships and dangers, and never show their fears even if they feel them. If the troops are of an excitable nature, like the French. their moral may be raised by proclamations such as Napoleon used to issue; and, although this is not supposed to be a British trait, this point is worth bearing in mind, for it falls to the lot of the British officer to command men of many diverse races. It is, perhaps, worth bearing in mind, that, although we should try to establish amongst our men a feeling of well-founded superiority over the enemy, yet at the same time we must not fall, or allow them to fall, into the grave error of despising the enemy without reason. We may think with justice that we have reached a high pitch of efficiency, but we can seldom reckon safely on the enemy not having reached the same level.

With regard to training, Clausewitz, putting moral forces before all else, says, "we should practice bodily fatigues, less to accustom the body than the mind to them."

We have said above that we must try to foster the troops' moral by initial successes. And one success will probably lead to another; for the success itself, by raising our moral, increases our force. Now, to attain success, our great aim is to bring superior numbers to the decisive point; but in discussing numbers, Clausewitz says that of course to bring superior numbers to the decisive point is a question as a rule of time and space.

"But the calculation of time and space, although it lies universally at the foundation of strategy, and is to a certain extent its daily bread, is still neither the most difficult nor the most decisive one. . . . The right appreciation of their opponents, the audacity to leave for a short space of time a small force only before them, energy in forced marches, boldness in sudden attacks, the intensified activity which great souls acquire in the moment of danger, these are the grounds of such victories" (as beating several opponents in succession, e. g. Cross Keys and Port Republic, the campaign in Italy in 1796, the battle of Ostrolenka 1807); "and what have these grounds to do with the ability to make an exact calculation of two such simple things as time and space?" Clausewitz goes on to show that numbers are not everything. Surprise is one of the great factors in war: it may enable us to bring superior numbers to the decisive point; but, quite apart from the question of numbers, surprise may be a great factor of success in itself.

Again, with regard to numbers and moral, Clausewitz says, in his Summary of Instruction for the Crown Prince, under the heading "Strategy," "The first and most important maxim which we can set before us, is to employ all the forces which we can make available, with the utmost energy. . . . Even if the result is tolerably certain in itself, it is extremely unwise not to make the utmost efforts to make it perfectly certain; for these efforts can never produce injurious effects. Let the country suffer ever so much by it, no disadvantage can arise from that, because the pressure of the war is the sooner removed. The moral impression produced by vigorous preparations is of infinite value. Every one feels certain of success; this is the best means of raising the spirits of the nation."

Preparation includes education of the army and people. Then the general can contemplate retreat and temporary surrender of territory should such be advisable (as Moltke was able to in his projects for war with Austria). For the people will realize the value of concentration. The diversion of the Russian cruisers off the Japanese coast caused no popular clamor in Japan, detrimental to the strategic concentration of the Japanese forces; a remarkable contrast to Wellington's situation in

August, 1810, and in May and June, 1815; also to the feeling along the American coast in 1898.

In considering the chief moral forces, our thoughts may stray instinctively to material things, which affect the moral. Thus, food, clothing, numbers, superior weapons, all affect the moral, although they are solid material things. But this apparent straying from the point is not surprising. In fact the moral and physical are inseparable in considering war; and if we start discussing one, we are almost bound to stray into the other. And, as Clausewitz says, it is mere pedantic theory to attempt to treat one without the other. For "the effects of the physical forces and the moral are completely fused, and are not to be decomposed, like a metal alloy, by a chemical process." He says, therefore, that the subjects which he treats of in his book "On War," "are composed half of physical, half of moral causes and effects, and we might say the physical are almost no more than the wooden handle, whilst the moral are the noble metal, the real bright-polished weapon."

It is obvious that as moral is predominant in the conduct of war, war must be regarded as pre-eminently an art and not as a science. True, the art of war involves a certain amount of science, just as music, sculpture, and painting; and perhaps a greater knowledge of the science is requisite in tactics than in strategy. Speaking of the attempts (evidently not confined to the present day) of some people to reduce war to a theory, or science, Clausewitz says that, taking into consideration friction, fog of war, danger, etc., this is absurd. Some one has formed an ingenious theory of war, all on the idea of relative bases. This, Clausewitz says, was "a geometrical result utterly useless." Of the "interior lines" theory he says, "Although this principle rests on a sound foundation, on the truth that the combat, the fight, is the only means of war; still, it is just on account of its purely geometrical nature, nothing but another case of onesided theory, which can never gain ascendency in the real world." That is, that though lines and angles have their part, they must always be considered in conjunction with the moral forces. Thus, if we force the enemy to fight with his lines of communication running to a flank, it is not in itself an advantage, as he may win the battle. But the knowledge that he is in a critical position and will be driven off his lines of communication if beaten may affect his moral. This loss of moral may affect his fighting power and assist us to beat him. On the other hand, the straits in which he finds himself may make him fight all the harder. From this we see the necessity of correctly judging the enemy's character and moral condition.

In the "sickly artistic conception of war" (Clausewitz) indulged in by the mercenary armies of the eighteenth century, lines and angles assumed an undue importance. But if we take Napoleon's campaigns, the Peninsular War, the American Civil War, the war in Bohemia in 1866, the Franco-German War, or the war in Manchuria, 1904-5, we shall find that it was not the mere fact of being on interior lines, or on exterior lines, that gave the victory. We shall find the victor sometimes employing the one form of operations and sometimes the other. But in almost every case, victory rested with that side which had the best information, and the highest moral, and which acted with the greatest vigor, perseverance, and boldness.

Modern French and German writers are prone to compare and contrast Moltke's "principles of strategy" with Napoleon's. This is absurd. For the principles of strategy are unchanging. Each of these great masters used the means at his disposal and the methods best suited to the conditions of his day, to apply the same great unvarying principles. These principles are few and simple, and as Clausewitz says, people who have not seen war, but merely judge of it by books on tactics or strategy, think that it is simple, and cannot imagine wherein lies the difficulty. "But if we have seen war, all becomes intelligible." We then see that, since the governing factor is human nature, "the simplest thing is difficult."

However, by a careful and correct study of military history, not judging after the event, but trying to realize the doubts and difficulties as they appeared at the time to the commander, we can to a certain extent make up for lack of experience in war. We are all familiar with Napoleon's maxim, "The moral is to the physical as three to one"; and no more remarkable instance of the truth of that remark can be found than the way in which General Robert Lee in the American Civil War, by playing on President Lincoln's fears for the safety of Washington, par-

alyzed for so long the movements of the Federal hosts. But it is not enough to glibly repeat Napoleon's words or note historical examples, if we do not attempt to make practical use of the maxim. Let us take, for example, the great principle of war, concentration for battle. As often as not we find that we have to seemingly fly in the face of this principle, and make detachments. In this making of detachments, as Colonel Kiggell points out in Hamley, two questions have to be answered: (1) Will the detachment assist us to be superior at the decisive point and time? (2) What is the irreducible minimum of strength to be detached? If the answer to the first of these questions is in the negative, then we should not detach. Now, in seeking solutions to these questions, we shall certainly go astray, unless we give due heed to the moral factor-how we can best play on the enemy's fears and anxieties; how we can best surprise him; how best guard against surprise ourselves; the physical and mental state of our own and the enemy's troops, etc., etc.

We read in "Staff Rides and Regimental Tours": "There are four methods of imparting military instruction to officers, and their value may be indicated in the following order:—

- "1. Practical experience in front of the enemy in war.
- "2. Practical experience on the ground with troops in peace.
- "3. Practical instruction on the ground without troops in peace.
 - "4. Theoretical teaching from books or instructors indoors.

"Every one of these is essential to the creation of efficient commanders, staff officers, and regimental officers in war."

Now, the value of these methods is in inverse ratio to the chance that we have of making use of them. But, by the terms of the "general" and "special ideas," and the information given in those "ideas" and during the exercise itself, the moral element can be introduced to a certain extent in peace maneuvers, and even in staff tours and paper schemes. And unless we learn to master the moral forces in peace they will certainly master us in war. Moreover, as Colonel Haking says, "it should be remembered that the experience of one individual, even in war, is very limited, and that if we hope to master our profession and

become able commanders, we must have recourse to books." Books are within the reach of all. And if, in conjunction with our field service manuals, we study history, and always in the course of that study keep moral in mind, we cannot fail to get some good out of it. On this point Henderson says, "Theory is of two kinds. First, there is speculative theory. . . . Second, there is theory based on the actual experiences of war. Speculative theory is without doubt of very great value. . . . But theory based on experience is the more useful, for it is only by studying the records of the past that we can acquire a true idea of what we may have to face in the future. How, where death reigns supreme, human nature is affected: to what extent training, discipline, and habit may be relied on to counteract the instincts of self-preservation: how leading is to be carried on amid the excitement, the losses and the din of battle, are questions of paramount importance, and no mere effort of the imagination will help to solve them. If we would learn what men can do, and what they cannot do under stress of fire, we must turn to history."* By that only can we realize "the influence of moral."

To the same effect is the following passage of Colonel Kiggell's: "Every war has its special local conditions; and deductions hurriedly drawn, without due allowance for these conditions, are generally exaggerated, if not altogether wrong. And in the midst of all these bewildering changes there is only one reliable guide, and that is history. From it we may learn, not only the primary factors which have always been the foundation of success, but 'the true direction in which improvement can be maintained.' What are the primary factors? First among them are the moral attributes. . . . Courage, energy, determination, perseverance, endurance, the usefulness and discipline that make combination possible—these are the primary causes of all great success." †

Again, Clausewitz, commenting on the fact that the difficulty in war lies in the execution of principles in themselves simple, says, "In this difficulty of execution a great deal depends on the certainty and firmness of our convictions; on that account

[·] Henderson's "Battle of Worth," Introduction.

[†] Hamley's "Operations of War," new edition, p. 406.

the study of military history is therefore important, because by it we learn the thing itself, we see the development of events themselves. The principles that we have learned by theoretical instruction are only suited to facilitate the study of, and direct our attention to, the points of greatest importance in military history. You must, therefore, make yourself acquainted with these principles, with a view to proving them by a study of military history. But, besides this, the study of military history is the only means of supplying the place of actual experience.

. . . Much reading of history is not required for the above object. The knowledge of a few separate battles, in their details, is more useful than a general knowledge of several campaigns."

If in our study of history we seek for what has stood the test of time rather than for what has changed, we shall see the great principles running like a continuous thread through the narrative; and for the study of moral we shall find it advantageous, as Clausewitz says, to study journals and diaries and particular narratives, rather than the leading events.

We have seen that actual war experience is required to put the finishing touches to the true military spirit of the army, and that this spirit will gradually disappear in a prolonged peace; but if the army is the nation, this military virtue may take some time to die out, as the whole nation will have become imbued with it. It can probably be kept up, to a certain extent, as long as there is some one in the army responsible for its training, who has seen war, and can put preparation for war in the first place. The Japanese training manuals since the last war are an example in this respect, laying great stress on moral, danger. courage, fear, etc. They impress on the soldier that even when matters seem to be going very badly, they probably seem to the enemy to be going equally badly or even worse, and that if the soldier does not lose heart the enemy may. Our own Field Service Regulations place moral above everything else in order of importance (vide Field Service Regulations, Part I, Secs. 1. 2).

But above all, the nation as a whole must be sound. One can only build an efficient military organization on to a-nation which is itself sound physically and morally, as Fichte pointed out to the Prussians a hundred years ago, when they were smarting under the humiliations following Jena. In other words, war is, as Clausewitz says, a part of politics, and it is only sound politics that can initiate, and conduct, sound war. This lesson, learned by Prussia in the stern school of adversity, and put to practical proof in 1866 and 1870, was not lost on Japan, as the last war in Manchuria showed. If we turn to Hamley's "Operations of War," new edition, we read: "The Japanese owned their extrication from a very difficult situation, in July and August, 1904, to the qualities of energy, endurance, and resolution, which all ranks displayed in such a remarkable degree, and in which they were supported by the Government and people of Japan. It is in such qualities and such support that the most certain road to victory lies." *

Apart from the fact that only by adopting some form of universal service, can this country regain the strength commensurate with her duties and responsibilities in the world, and take once more the place in the council of nations, which she held a hundred years ago; apart, too, from the fact that a fleet, in the hands of an island power, is merely a defensive weapon, and that a defensive attitude alone never has won a campaign, and never will do so (even if that attitude consists in blockading the enemy's coasts); apart from all that, few can doubt that universal training would improve the manhood of the nation, by instilling into them ideas of duty and discipline, and, as Athens and Carthage bear witness, nothing caps the moral fiber of a nation so much as absolute dependence on the fleet, the mysterious something which the bulk of the populace in England has never seen, but which (as they think) absolves them from all need to be ready to fight for their country.

We have quoted at length from Clausewitz, but that needs no apology. We must remember that it was the dark days after Jena that made Clausewitz think. Jena brought out men like Clausewitz, and Scharnhorst, L'Estocq, and Gneisenau. These men started German military thought on right lines. The good work, begun by them, was carried on by Moltke. They studied the methods of Napoleon and their own great Frederick. As a

^{*} Hamley, p. 384.

result, 1866 saw an educated army in the field. The methods of painstaking study and practice which produced the German army are now being applied to their navy. Europe may be suffering from an "optical illusion," as an ingenious writer has recently set forth; but, as long as human nature remains the eame, and as long as the balance of power is the only international policeman, war must always be a dread possibility. If we want peace, we must prepare for war. Nothing short of disaster may rouse the slumbering British lion; but we of the regular army, officers' Training Corps, and Territorial Force, can at least follow the example set by Stonewall Jackson in those ten quiet years at Lexington, and try to make ourselves masters of our profession.

THE EMPLOYMENT OF CAVALRY IN BATTLE.

BY LIEUTENANT COLONEL G. DE S. BARROW.

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HERE are three ruling factors in war—the Physical, the Intellectual, and the Moral. Any one or two of these qualities, however highly developed in an army, will never bring a war to a successful conclusion; the possession of all three is essential. A greater development of one will, however, counteract, to a certain extent, a deficiency in either or both of the others. But this is true only to a limited degree. For instance, the most perfect plan theoretically is only actually perfect so long as the army is morally and physically capable of executing it. That army which possesses these three qualities in a greater degree than its antagonist, and at the same time properly balanced, so that the desire does not outrun the performance, will be the victor, as far as it is humanly possible to foresee. There is one other factor, equally present and equally powerful and against which man cannot contend, viz.: Fortune, "that name for the unknown combinations of infinite power."

All that the soldier can do is to leave to Fortune as little as possible, by developing to the utmost the physical, mental, and moral qualities of all those who are placed under his authority.

As regards the material on which the officer has to work, it naturally depends in the first place on the national characteristics. Confining ourselves to a consideration of the question from the point where the soldier first comes in, we find that the physical quality depends on peace training, peace preparation, good staff and regimental arrangements during war (insuring, as far as the exigencies of war permit, shelter, rest, regular rations, and no unnecessary fatigue), and, where mounted troops are concerned, good horse management.

The intellectual quality also depends mainly on the peace training, i. e., good education and training in the various formations and in the military institutions of the country; on a proper system of decentralization which forces men to take their proper share of responsibility and to fit themselves accordingly; and on the moral feelings which inspire men with a desire to improve themselves through sheer love of their work and pride in their profession. And, lastly, we get the moral quality, which on its part is largely based on the other two; for a deficiency in one or both of these will lower the moral tone, just as a consciousness of physical and intellectual superiority does, per contra, raise it. Patriotism, national honor, the magnetism of a great leader, and other similar causes also affect it.

Not only is it evident, therefore, that all three factors are necessary, but that they are also interdependent, and must act and react on each other.

In developing the physical and intellectual qualities by a sound system of training we are developing the moral quality also.

There is now and has been at all times a certain number of persons who give an exaggerated importance to the physical factor to the exclusion of the other two. It is the physical factor which is determinate, which can be actually seen, and therefore it appeals more readily to the superficial observer.

In the history of war the evidence in favor of the decisive influence of the moral and intellectual qualities are overwhelming; but human nature is so constituted that it is infinitely more affected by what appeals to its physical senses than by the abstract forces. A man may be stricken by a mortal malady which, if comparatively painless, will cause him much less active concern than a toothache:

But the axis on which—all the other factors—physical, moral, and mental—revolve is human nature. The rifle is still fired by a human finger and the sword wielded by a human hand, and man is at least as susceptible to surprise today as history tells us he was 2,000 years B. C.

It is not necessary, however, to furnish arguments here to show that there is still a place for the Cavalry on the modern battlefield. The readers of the CAVALRY JOURNAL are not likely to be influenced by the false prophets who have at all times tried to prove the contrary. I say "at all times" because we find in the year 1543 the French Cavalry armed with the Infantry pike and arquebus, because certain Frenchmen of that period had arrived at the conclusion that in face of the deadly fire of the arquebus shock tactics were no longer possible, and that the only thing to do was to turn the Cavalry into mounted arquebusiers, corresponding to the mounted rifles into which some people would like to convert the British Cavalry in the present day. And we read in Fortescue that "The mounted service had become strangely unpopular with the English at this time (1626), whether because the eternal sieges of the Dutch war afforded it less opportunity of distinction, or because missile tactics had lowered it from its former proud station, it is difficult to say." How surely does history repeat itself!

What it is important for us to knows is:-

- (a) What results may be expected from the tactical employment of the Cavalry with the other arms, and whether these results will be in any way commensurate with the sacrifices which, admittedly, will generally be entailed.
- (b) In what ways the Cavalry can best assist the other arms.

Let us see what the lessons of the past have to teach us on these points. They seem to bring three main facts prominently to our notice, viz.:—

- 1. That, as in strategy so in tactics, it is the massed action of Cavalry that produces decisive results; or, as put in "Cavalry Studies," "The war of masses necessitates mass tactics."
- 2. The extraordinary results attendant on suddenness and surprise, results which on occasion justify a departure from the principle of mass action.
- 3. That the losses incurred by Cavalry in battle and when attacking the other arms have relatively very little to do with the result.

After the first Silesian war, Frederick the Great rearranged his ideas on the employment of Cavalry, and after the second Silesian war this arm appeared on the stage as a principal character after a long period passed in supernumerary rôles. In short, it was rediscovered that Cavalry was an instrument which could decide battles. And this being so, Frederick, with the big ideas of a great soldier, shaped this instrument in such a manner that when it struck it did so with the weight of a sledge hammer. And the Austrians were not long in following his example. At Lowositz, which has been described as a model Cavalry battle of the eighteenth century, 69 Prussian met 71 Austrian squadrons; at Prague 80 Prussian fought against 70 Austrian squadrons; at Kollin Ziethen attacked with 65 squadrons; at Rosbach the 43 squadrons under Seydlitz broke up the whole of the enemy's line; and at Leuthen Lucchesi made a successful attack with 80 squadrons and was then himself borne down by Driesen with 60 squadrons. In order to get an idea of what these numbers meant it may be noted that our Cavalry division of 4 brigades contains 36 squadrons, or, if the squadrons were of the same size as those of the Prussians and Austrians at that period, the equivalent of 48 squadrons.

When circumstances called for it Frederick engaged his Cavalry without any consideration of losses, as at Kollin and at Hochkirch, where it was sent forward, as the Austrian Cavalry was at Königgrätz, in order to save the remains of an army. And Napoleon acted in the same way. With him the object of the battle was the *first thing*, to be attained at all costs. "At Aspern his Infantry was inferior to that of the enemy, he had no reserves in hand to fill the gaps, a hostile counter stroke was

what he most feared. He, therefore, launched 5,000 Cuirassiers against the unbroken Austrian lines. These horsemen did not break through a single battalion they left 3,000 on the ground behind them, but they checked the Austrian offensive till reinforcements could be brought up during the night, and a disaster was averted" (Director's Comments, Cavalry Manœuvres, 1909). Again, "At Wagram it was Napoleon's plan to pierce the Austrian centre. For this purpose he sent forward a mass of horsemen under Bessières against the Austrian infantry and artillery. The losses were terrible, and still the Austrian lines maintained their position. But so occupied were they by the furious and repeated charges of the French Cavalry that Napoleon was able to carry out his object of advancing his great battery of 100 guns to close range, and it was this battery which prepared the way for the two infantry attacks which subsequently decided the day" (Director's Comments, Cavalry Manœuvres, 1909). These are instances of where the casualties, terrible as they were, weighed nothing in the balance against the results obtained.

After Aspern and Wagram tome Somosierra and Borodino. On the Somosierra was posted the Spanish force of 10,000 or 12,000 men. Sixteen guns were placed in the neck of the pass and swept the road leading up from the plains, which was very steep. The French infantry was deployed for the attack, when Napoleon suddenly arrived on the scene and immediately ordered the Polish Lancers of the Guard to attack up the Causeway. The leading ranks were cut down by the fire of the Spanish batteries, and there was some confusion, but they were soon rallied, and continuing the attack put the whole Spanish Army to flight. "This exploit," says Napier, "so glorious to one party, so disgraceful to the other, can hardly be matched from the records of war." The most significant fact connected with it is not that these Polish Lancers attacked up a mountain pass nor that they put a whole army to flight, but that they were ordered to attack in order to save the delay and the losses which the infantry would have incurred in advancing more slowly over this fire-swept zone! One wonders what some modern-day critics would have said of this charge had it failed. Napoleon would have been worse than a fool in ordering it. As it is, they are silent concerning it.

At the Battle of Borodino the second Cavalry Corps of Montbrun was sent deliberately against the Great Redoubt, and "then," says Marmont, "was seen something unprecedented in the annals of war—a fort defended by many guns and several battalions attacked and captured by a Cavalry column."

The Cavalry "intervenes in the prologue, in the principal act, and in the dénoûment" ("Cavalry Studies"). Here are examples of its employment during the opening stages. The Italian Army is deploying for the Battle of Custozza when, on one flank, Bechtoldsheim, with three troops of Cavalry, rides through the Pisa Brigade, already deployed, and falls on the head of the Forli Brigade, which is still in column of route, and which is put to flight in irretrievable confusion (for a more detailed account see "Cavalry Studies," pp. 300-302). On the other flank, Pulz, with fifteen squadrons, charges an Austrian corps of 30,000 men, and, though the actual method of attack is not above criticism, the results are such that these 30,000 men retire to Villafranca, at a distance from the battlefield, and there they remain, too shaken for employment, during the remainder of the day.

It is true that neither Pulz' nor Bechtoldsheim's squadrons were fit for any further use for some time after these exploits, but what did that matter when they had succeeded in placing 30,000 men hors de combat at the very outset of the battle? Four years later the French had a similar chance between Vernéville and St. Privat, which they failed to take.

My only reason for referring now to such a well-known action as Bredow's charge is that there are certain points connected with it which cannot otherwise be conveniently dealt with. It was between 1 and 2 p. m. of that long summer's day when the 3rd Prussian Corps had drawn on to itself four hostile Army Corps. The 6th Division (11th and 12th Brigades) is still clinging to its ground, opposed by the whole of the 6th French Corps, of which two divisions are still intact, and is also threatened by the 3rd Corps. The 24th Regiment of Prussian Infantry is extended in a single line of skirmishers from the Rezonville-Mars-la-Tour road to the Roman road. There are no supports, ammunition is low, the men are exhausted. The nearest assistance, that of the 20th Division, cannot be

hoped for before another hour. Vionville must be held. It is essential that the French should not obtain the moral ascendency of a success in this part of the field before the arrival of reinforcements. It is suggested that the situation might yet be saved by an attack of Bredow's Brigade. Von Bruddenbock, commanding the 6th Division, says "What! Cavalry charge unbroken infantry! Impossible!" Colonel von Voigts Rhetz, C. of S. of 3rd A. C., at first says, "Cavalry charge unbroken infantry! Impossible!" and finally Bredow, on first receiving the order says also, "Cavalry charge unbroken infantry and artillery! Impossible!" However, there is nothing else to be done, it is the last chance, and so Bredow makes his preparations and carries out the attack, the details of which are too well known to most cavalrymen to need description here. In spite of the fire with which the brigade was met in front and on the flank from the Roman road during the crossing of the 1,000 yards which separated it from the enemy's line (2,400 vards was the total distance traversed), not more than 50 men and horses were left on the ground. Skillful use was made of the cover afforded by the ground in order to carry out the approach march and first deployment. Had it not been for this the charge would doubtless have failed. Whether the credit is due to Bredow for having utilized the time while he was waiting and doing nothing to reconnoitre the ground in his vicinity, or whether it is due to Voigts Rhetz who pointed out to him the line he had better take, does not very much matter—the lesson remains the same as to the necessity of reconnoitring all the country in the neighborhood of a Cavalry formation while it is awaiting the moment for action.

The chief points to notice with regard to this action are:-

- 1. That the Cavalry was well to the front, and therefore at hand when required. It had not to be sent for, when it would probably have arrived too late. It was there on the spot, and, according to Kaehler, a whole division might just as easily have been placed there also.
- 2. The use made of the cover afforded by the ground, the result of previous observation.

- 3. Everyone seems to have taken it for granted, as so many would do nowadays, that the charge was an impossible one against the French infantry and artillery, and only justified by the desperate nature of the situation.
- 4. In spite of this belief the small number of casualties incurred during the advance. The total losses out of an effective force of 800 horses was 16 officers, 363 men and 409 horses, by far the greater proportion occurring during the return journey.
- 5. The effect of suddenness of action and partial surprise, from which great results were obtained with small means; and, finally,
- 6. The result. The offensive movement of the 6th Corps was stayed, and during the remainder of the day the French did not attempt any further offensive on this side. The situation was saved.

The French official account itself admits that the charge of the German Cavalry had really attained the object of the commander of the 3rd Prussian Corps, that the moral of the Prussian troops was greatly raised by the feeling that a serious crisis had been averted, and that, on the other hand, the moral effect on the French, as well as the material disorder resulting from the charge, was the principal cause of the evaporation on their part of any desire to return to offensive operations throughout the remainder of the day.

Bredow's six squadrons had lost half their strength, and if they had lost every man and every horse it would have been nothing compared with the magnitude of the success achieved.

On another part of the same field and at another hour, viz., about 5 p. m., the Cavalry once more intervened in what was fast becoming a hopeless situation for the Germans. "The 4th French Corps was advancing in great force on Mars-la-Tour, the 10th German Corps was approaching the battlefield, and the 38th Brigade was endeavoring meanwhile to hold the French in check. The brigade had, however, after desperate fighting, been thrown back with a loss of 57 per cent of its strength. The German chiefs look round once again for the Cavalry to save them, and there to hand, near the southeast of Mars-la-

Tour, stands the 1st Regiment of Dragoons of the Guard. It is ordered to charge the advancing French infantry. It is represented to General Voigts Rhetz (not the same Voigts Rhetz as was C. of S. to the 3rd A. C.) that the charge cannot succeed, and his reply is, 'Yes, the regiment will not succeed, but if it stops the enemy for ten minutes only and every man is killed it will have fulfilled its mission!' The regiment receives the order to attack. An officer having reconnoitered to the front reports dense masses of French infantry following after the 38th Brigade. The ground is unfavorable, being intersected by several lanes. The regiment forms columns of troops and moves forward, coming under a heavy fire. Front has to be diminished to column of route in order to get over the difficult ground; then reform troops and wheel into line and attack.

"The enemy's skirmishers run into groups and pour a heavy fire into the ranks of the Dragoons. A mitrailleuse battery also joins in. Result: one-third of its effectives lost to the regiment, and the salvation of the 38th Brigade, together with the avertion of all those difficulties and dangers in which its overthrow would have involved the German forces now hastening to the battlefield. Here we have an example of a Cavalry charge delivered over unfavorable ground in order to save, by delaying the enemy, a desperate situation and delivered against an infantry advancing in the full tide of victory. The reinforcement of the 38th Brigade by two weak battalions (equivalent to the utmost number of rifles the brigade could have put into the firing line had it been so armed) would never, under the circumstances, have checked the onward course of the 'dense masses' of French infantry." (Director's Comments, Cavalry Manœuvres, 1909.) The American Civil War is sometimes referred to in order to support the contention that the rifle is always and everywhere more useful than the sabre. I have already alluded to the fallacy of basing all one's military conclusions on one war, whether that war be called normal or abnormal; otherwise the sword and lance might well have been discarded in the sixteenth century, if not much earlier. But surely the American War cannot justly be brought forward to prove the ineffectiveness of the arme blanche. In a recently published book dealing with the armament of cavalry we find these words, having reference to the American Civil War: "Infantry on both sides learnt to despise the sword. . . . " Do the facts justify so sweeping a statement? No, they do not. The writer of the above-mentioned book invokes the name of the late Colonel Henderson in support of his own pet theory. But when Henderson's convictions are not in accordance with his own the reason is attributed to "a strange logical hiatus." There is no logical hiatus as far as Henderson is concerned. The truth is he had studied war too well not to know that, however much one may argue about it, there is such a thing as "terror of the cold steel." He tells us of this thing himself more than once. He tells us, for instance, in graphic wording how "250 Virginia horsemen, resolutely handled and charging at exactly the right moment, had the honor of bringing in as prisoners 600 Federals, including 20 officers and a complete section of artillery," besides killing and wounding 154 more while their own loss was only 11 killed and 15 wounded.

In war it is the pitiless logic of facts, of the things done, not of the things which have not been done or attempted, which outweighs all other logic. The historical examples just quoted (and there are numberless others to draw from if required) are sufficient to establish the validity of the statement that it is the massed employment of Cavalry which must, as a rule, be looked to for decisive results; that suddenness of action (or surprise) on the part of small bodies has sometimes a like effect, though the results will probably be not as far-reaching; and that the question of the losses incurred is quite a secondary one.

It is very necessary, in order to keep our ideas clear on the subject of Cavalry on the battlefield, that we get these three points, especially the last, firmly fixed in our minds.

There are people, however who, while admitting the possibility of the results, provided one has the means, deny the feasibility of procuring these means, because of—

- 1. The impossibility of posting large bodies of Cavalry, such as divisions, so close to the fighting line that the right moment for action can be seized when it comes.
- 2. The difficulty of bringing up large masses of Cavalry towards the attacking point, owing to the long range and quick-firing weapons of the artillery and infantry.

- 3. The intersected nature of modern battlefields; and
- 4. The absence of a marked objective on which to charge.

It may be replied to these arguments—

- 1. That they are mere assertions unsupported by facts, whereas the whole of military history up to a recent date goes to disprove them.
- 2. That they are the same sort of arguments as have been brought up over and over again during the last 500 years and which have just as often been shattered by actual facts.
- 3. That an examination of the battlefields of the wars of the last fifty years will show that half of them afforded opportunities of posting, in many places, brigades under cover at 1,200 yards to 1,500 yards from the firing line and bringing them up to this in comparative shelter and of deploying for the attack. That which two brigades at Custozza and one at Vionville were able to do, might just as well have been done in each case by three brigades or a division, as far as the ground was concerned.

We admit the difficulty, but we deny the impossibility, of employing Cavalry on the modern battlefield. Had Frederick, Napoleon, and the German commanders on August 16, 1870, been influenced by the arme blanche critics of their days, and of the old times before them, Rosbach. Aspern and Wagram would not have been victories; Eylau and Mars-la-Tour would have been bitter defeats.

And as to the absence of a "marked objective." If the long extended lines of to-day, with their supports in rear, do not offer a sufficiently solid objective to Cavalry, the less dense these lines are the more chance is there for the Cavalry to get through them on to the artillery, as Bredow did at Vionville, or on to the formed bodies, as Pulz did at Custozza. It may be possible on occasions to avoid the enemy's advanced lines altogether, and it is quite sufficient to attack the lines in rear in order to check those in front; in fact, this is the more efficacious method.

And whilst on the subject of the "objective" it may be pointed out that Cavalry must have a definite objective in tactical as well as in strategical operation, and that the want of one leads to certain failure. I would instance, with reference to

this, the charges of the Light Brigade at Balaklava and of the 3rd French Lancers at Vionville. In the former case Nolan was the bearer of a written order from Lord Raglan to the effect that the Cavalry was to advance rapidly and prevent the enemy from carrying away the guns (i. e., the English guns taken in the line of the Turkish redoubts). Lord Lucan was so situated that he could not see the enemy or the guns indicated. He said to Nolan, "Attack what? What guns, sir?" Nolan replied, with some asperity, "There, my lord, is your enemy; there are your guns," at the same time pointing, according to Lord Lucan, in the direction of the left-hand corner of the valley, instead of towards the Causeway heights, which was the direction Lord Raglan intended. Nolan's gesture was evidently intended to be a general one; but Lord Lucan chose to interpret it as definite, and, in this way, i. e., owing to the objective not being indicated in a manner which allowed of no misinterpretation, the Six Hundred were sent on their fatal ride.

In the second case, viz., the charge of the 3rd Lancers, we read in the French official account that "the regiment should have received the order to charge 'the Prussian batteries,' but without their being, so it appears, especially designated. . . Unhappily no precise objective had been given to the Colonel. . . . On crossing the Rezonville crest the Lancers had certainly been able to discover on the horizon the batteries of Vionville, but having arrived at 400 mètres from the enemy the two squadrons found themselves face to face with an infantry square without being now able to see any artillery." An attempt was made to change direction to the right, with the result that the extreme left wing of the regiment alone struck the square and suffered very severely, whilst the remainder charged the air only, and finished up in the ditches which lined the main road. The F. O. A. says, "the charge had been delivered into space, whilst at the same time suffering from the effects of enfilade fire, happily of short duration."

The possession of a rifle and the ability to fight on foot have enormously increased the value of Cavalry on the battle-field as well as in the strategical reconnaissance, for it is now able to fill many rôles which were formerly denied it, and of which some of the principal are:—

- 1. The temporary occupation of a position pending the arrival of the other arms.
- 2. The delay of hostile columns marching towards the battle.
- 3. As a mobile reserve in the hands of the C.-in-C. for the purpose of rapidly reinforcing any portion of his line which is hard pressed.
- 4. For the counterstroke, when the opportunity is not favorable for mounted action.
- 5. For the occupation of defiles or strategic points till the infantry can come up.

All being duties in which it cannot permanently replace, but in which it can be of material assistance to, the other arms.

Examples of the employment of Cavalry in some of the duties enumerated above will be found in General Haig's "Cavalry Studies," especially in "The Attock Staff Ride."

There is no question of the employment of Cavalry, mounted or dismounted—it must fight on horse or on foot, and also combine the two methods as the circumstances require, and when to use the one or the other form is what we have to practise ourselves in.

But this is certain: if we ignore the power which the possession of a modern rifle gives us and decline to make use of this power when the situation demands, or if, on the other hand, obsessed by the physical factor, we neglect the mental and moral factors and refrain from shock action when the psychological occasion is calling for it, then we shall lose 90 per cent. of our value in war.

"To every thing there is a season, and a time to every purpose under Heaven."

THE PRIMAL HORSE AND HIS DEVELOPMENT.

From BIT AND SPUR.

JORSEMEN of the present generation are so accustomed to seeing and having to do with the finished product of the equine species that few ever stop to consider from what source in the mysterious realms of nature the primal horse had its origin. For what information we have today upon the subject, the world is largely indebted to Professor Henry Fairfield Osburn of the American Museum of Natural History. Professor Osburn commenced his research into the origin of the horse in 1891, and by reason of a rich endowment by the late Honorable W. C. Whitney, made a few years afterward, was able to prosecute his investigations so successfully as to produce the skeleton of what is claimed to be the original animal from which the present-day horse has been evolved. This specimen, called "The Eohippus," was found in the Wasach exposures of the Big Horn Basin of Northern Wyoming, near the famous Jackson's Hole shooting country. This little animal is but sixteen inches, or four hands high at the shoulder, and each front foot is ornamented with four toes and each hind foot with three. Scientists claim that this animal existed on this continent about three million years ago, and that his habitation covered a stretch of country running from British Columbia on the north to Texas, and probably Mexico, on the south.

Many of the best scientists who have expressed opinions on the subject declare that if there was a race of people of any kind on this continent at the time of the existence of these "dawn" horses, it must have been the mound builders. There is, however, no evidence that this pre-historic race made any use of animals either for business or pleasure. Scientific investigation has demonstrated the fact that at the so-called glacial period, a great number of horses of different sizes existed in different parts of the American continent. Professor Osburn is

it is estimated lasted about one hundred thousand years, not a single horse remained either in North or South America, and that, after the glacial period, horses, or the animals from which they are supposed to have sprung, were found only in a region of country extending from Central Asia over North Africa and down to the southern extremity of South Africa. It will thus be seen that the evolution of this unusual looking, small, fourtoed animal into a present-day horse, which had been going on for centuries, was completely arrested, at least so far as this continent is concerned. But the American continent was not the only place where such animals are proved to have existed. Specimens of petrified animals in all respects similar to the one found in Wyoming, and which is believed to have existed at the same period, have been found in France and England, and it therefore must be from them and their descendants that nature evolved the modern horse. At an events he did not develop in America.

It is claimed by scientists that in the evolution of the horse, Nature gradually discarded the toes that were prominent features of the supposedly primal horse and finally the solid hoof of the present-day horse resulted. How many thousands of years were consumed in this process of elimination, no one as yet has been able to hazard a satisfactory opinion.

Just when, and among what people the horse first became the servant and companion of man must necessarily rest very largely in conjecture. The early supposition that the horse originated in Arabia and was first used by the people of that desert country has been exploded by comparatively recent investigation, wherein it has been established by indisputable evidence that horses were used in Africa, Armenia and Asia many hundreds of years before there was ever known to be a horse in Arabia. The first mention made of cavalry horses being used in war was when the Armenian army, in a war with the Medes, about seventeen hundred years before the birth of Christ, were to a large extent mounted on horses. It seems that, at that period, the process of evolution had so far progressed that the horses used were in all respects as perfectly formed as they are today, the chief difference being in their size. Until within the past three hundred years, the average of all European horses was considerably less than fourteen hands, and many of them were much smaller than this. Without stopping to trace the history of the horse from the time he was first discovered and used in Armenia until a thousand years later, when he was used in Spain and her colonies, it is interesting to determine when and from whence came the horses to the American continent after their forefathers had been obliterated by the glacial period. So far as any historical data is concerned, there is nothing to show that there were any horses in any stage of development either in North or South America from the end of the glacial period until early in the beginning of the Sixteenth Century as all prior species had been obliterated.

Cortez invaded Mexico in 1519 and it was captured by him and his followers in 1521. They took a few horses along with them in their expedition, and it seems probable that some of these horses escaped and were probably the foundation stock which resulted in giving to Mexico a great many wild horses in its early history. In 1539 the Spanish explorer, De Soto, sailed from Florida toward Mexico in search of gold. He had in his command 237 horses, which he had presumably taken from Cuba. In one of his first battles with the Indians he lost twelve horses and had seventy wounded. He died and was buried in the Mississippi River, which he discovered. His followers then resolved to push on westward, and reached as far as the boundary of Texas, when they became discouraged and determined to return and seek an outlet by water. The remaining horses which they had, had not been shod for over a year, and many were lame and unable to travel. These horses were turned loose on the banks of the river; they soon became wild, and it was probably from them and their descendants that the hordes of wild horses that for generations inhabited the plains of Texas and other Southern and Western states, as well as some of the South American states, sprung.

About the only change that has been wrought in the conformation of the horse since he first came into use as a domestic animal, nearly four thousand years ago, has been his size. Such horses as existed in the colonies for a hundred years or more prior to the Revolution, and which were not descended from the wild horses that came from the De Soto expedition, had been

shipped here from Holland and England, and were uniformly small. Thus, in Virginia the average was 13.1; New York, 14.1; Massachusetts, 14.1; Connecticut, 13.3; Rhode Island, 14.1; Pennsylvania, 13.11/4; New Jersey, 14; Maryland, 13.2; North Carolina, 13.1; South Carolina, 13.2, making the general average a little more than 13.2. Animals of such sizes nowadays are regarded as ponies and of insufficient size for use by anyone but children. Partly because of better feed and treatment and partly because of care and judgment exercised in breeding, the size of the horse has greatly increased since the close of the Revolution, as some of the most prominent trotting animals clearly demonstrate, vis.: Abdallah stood 16 hands; Hambletonian, 10, 151/2; Electioneer, 15.21/2; George Wilkes, 15.1; Bourbon Wilkes, 16; Robert MacGregor, 15.2; Almont, 16; Daniel Lambert, 15; Maud S, 16; Sunol, 16; Kremlin, 16; Stamboul, 16; Goldsmith Maid, 15; Flora Temple, 14.2; Rarus, 16; Dexter, 15.1; Lady Thorn, 16; Lou Dillon, 15.11/2; Hamburg Belle, 15.11/2; Sweet Marie, 16; Alex, 151/2; Lillian R, 15.21/4; Crescus, 16; Major Delmar, 15.3; Uhlan, 16; The Abbot, 15.11/2. With a few exceptions, all the champion trotters have been what are now regarded as small size horses, although they are much larger than the ones in use for business and pleasurable purposes during our colonial days. Experience and observation seems to justify the belief that as regards size and other desirable characteristics, the horse of the Twentieth Century has reached the meridian of its splendor, and it hardly seems possible that nature, in the process of evolution, can do anything more for him.

Some theorists have advanced the suggestion that nature never ceases to improve the animal kingdom as well as the human race, and therefore it is reasonable to suppose that the horse in use a hundred years hence will be a much improved animal over what we deem the finished product of the present day. As viewed by this generation, this suggestion seems to have more foundation from a theoretical than from a practical standpoint. Of course, it is possible that, as times goes authority for the statement that at the end of that period, which on and scientific breeding becomes more universal, some refinement in certain features of the horse may be developed.

But, as a general proposition, it may be stated that the consensus of opinion of practical horsemen is that it is not possible to improve the present day horse as respects size and conformation for the restrictive service for which the different types are adapted. That the future may develop horses of greater strength and greater speed at both the running and trotting gaits than anything we have yet seen, is among the possibilities, although the chances of this being accomplished are decidedly faint as compared with what they were a generation ago. Experience has demonstrated that a horse for road work or for use under the saddle, as well as for racing purposes, that stands from 15 to 16 hands, is sufficiently large. While it would be an easy matter, by the application of the principles of scientific breeding, to increase his size much beyond this, yet it is more than doubtful whether anything would be gained by such increase, and the fact that there has been no practical increase in the size of the horse in this country, at least for nearly or quite half a century, is substantial evidence that he at least serves his purpose.

WAR AND THE "ARME BLANCHE."

From the BRITISH CAVALRY JOURNAL, July, 1910.

M. CHILDERS, at the beginning of his book, quotes two passages from page 187, "Cavalry Training" (1907), as constituting an epitome of the case he wishes to combat.

The first is: "It will be seen that thorough efficiency in the use of the rifle and in dismounted tactics is an absolute necessity. At the same time the essence of the Cavalry spirit lies in holding the balance correctly between fire-power and shock action, and while training troops for the former they must not be allowed to lose confidence in the latter."

He challenges the assumption (1) that thorough efficiency in the use of the rifle and in dismounted duties is compatible with thorough efficiency in shock action; (2) that thorough efficiency with the rifle is confined to dismounted tactics; (3) that the essence of the Cavalry spirit is here correctly defined, because he declares it to be, as so defined, a hybrid spirit, impossible to instill and impossible to translate into balanced action.

The second quotations runs: "It must be accepted as a principle that the rifle, effective as it is, cannot replace the effect produced by the speed of the horse, the magnetism of the charge and the terror of cold steel."

He challenges both the form and essence of this; its form, because the words imply that the speed of the horse and the magnetism of the charge are exclusively connected with the use of the cold steel; its essence, because he declares the principle laid down to be fundamentally unsound.

An Introduction by Field Marshal Lord Roberts expresses entire agreement with the author's main thesis. He would not, however, entirely do away with the sword. He recommends a sword-bayonet that can be used on horseback as well as on foot. He grants that mounted attacks may be made against Cavalry caught unawares or against broken Infantry. But he adds his opinion that "all attacks can now be carried out far more effectually with the rifle than with the sword"; presumably by means of mounted fire.

Thus weighty professional support is given to this attack on the principles of Cavalry action as laid down in our training manuals; principles accepted by Cavalry opinion in all armies of today.

The author founds his case chiefly on the South African and Manchurian wars, fought with modern weapons and under present-day conditions. Earlier wars he regards as not sufficiently up-to-date. We are specially bidden to study our own great war.

Following his own advice, he carefully traces the part played by the Cavalry in South Africa, and shows that our successes were mainly due to the rifle. The results placed to the credit of the arme blanche are (1) Elandslaagte, (2) Klip Drift, (3) Diamond Hill, (4) Welgevonden; accounting for 100 Boers put out of action, or, allowing for possible unrecorded instances, 200 at most; and, he states, the opportunities lost through overtrain-

ing in the use of the steel and inexperience in the firearm are without number.

He cites, on the other hand, many cases of successful mounted attacks or charges by Boers, Geduld, Vlakfontein, Mooifontein, and eight or nine others. These engagements were very like each other. The Boers generally galloped up on to our men, who tried to beat them off with dismounted fire. In superior numbers, they carried our screen of scouts with them, sometimes shooting from the saddle and sometimes not.

It is on his deductions from these Boer charges that Mr. Childers bases his idea as to the right way of handling mounted troops in the attack. The instances he quotes really prove nothing more than that mounted men, if unopposed by swordsmen, can gallop to close range and inflict great loss on parties inferior in strength. In none of these cases were the British armed with swords, with which they could make a counter-attack.

Now, take one of the four British cold-steel charges—Diamond Hill.

Here some sixty or seventy British Cavalry charged at least 200 Boers, and drove them back.

Mr. Childers, counting heads, says that the casualties here practically equaled each other. They did; but he overlooks the object of the charge. It was made to save some guns, against which the Boers were closing in, unstopped by our inferior number of rifles. The handful of swordsmen stopped them at once. At the same time, the moral effect of this counterattack was very obvious, as a fresh party of the enemy, who had a good opportunity, made no attempt to cut off our men while returning.

This action shows that the arme blanche can win against odds. In the instances quoted above, the Boers were as a rule superior in strength.

We may ask: Could not the Boers have done as much or more in their charges if they had been armed with and expert in the use of the sword?

The author fails to prove that a mounted counter-attack with swords, if we had had them, would have been useless against the Boer charges. On page 247 he dismisses the idea somewhat contemptuously. But is the idea so preposterous?

Take the Boer charge at Roodeval; which, under the fire of 1,500 rifles and six guns, on an open plain, though faltering at 300 yards, "stumbled on in fragments to within 100 yards." He says the extraordinary thing about this "piece of brilliant recklessness" was not its failure, but "that it came so near success and met with so little punishment."

The British losses are given as seven killed, fifty-six wounded, and 150 horses wounded.

Mr. Childers is ill-advised to bring forward this example as an argument against the sword. No stronger case could be made for the arme blanche.

What would have happened to this line of swordless horsemen, faltering within 300 yards of the British, if Grenfell had had, say, 150 swordsmen to slip into their flank; and how would the value of the 150 swords in this case have compared with that of the 150 rifles? The author gives the Boer loss at roughly 100. There were 1,500 rifles against them. We may therefore credit the 150 rifles with ten Boers.

Apparently, this aspect of the question does not occur to Mr. Childers. He dilates on the British losses, which, according to his account, were caused mainly by fire from the saddle. From these he exhorts the reader to judge "of the moral effect of this form of fire, coupled with the spectacle of the charge balking the aim of the defense."

Surely, the lessons to be drawn from this episode are all in accordance with the teaching of our manuals. These enjoin the use of fire in conjunction with the mounted attack. And what would have been the result had the Boers been steel-armed Cavalry, bent on killing, supported by a battery of quick-firing guns, whose fire would certainly have had a far more damaging effect than that of rifle fire from the saddle?

Mr. Childers derides shock tactics, insisting on the literal interpretation of shock, as mass striking mass.

The intention to kill is the soul of Cavalry action with the arme blanche; and it is the sharp point of the steel weapon, in the hand of a skilled and resolute rider, that counts in shock tactics.

Mr. Childers denies that there is any analogy with the bayonet. But it may be argued that, as fire facilitates the move-

ment of the Infantry soldier and clears his way to the bayonet attack, so the speed of the horse, assisted by fire, renders possible the decisive use of the sword. The enemy may refuse to stand, but something has been gained, and we will have at him again, now or later.

Reliance by Cavalry on the rifle alone will not bring decisive results. A strong Cavalry will always seek rapid decision by the sword. A Cavalry weaker, physically or morally, will resort to the defensive power of the rifle. But these tactics cannot give victory; they can only defer the issue. Either we must surrender our will to that of the enemy or at last meet him with the steel.

All Cavalry leaders who have seen war know that only confidence in the steel weapon can keep alive the spirit of eager offense; the longing to get to close quarters. That fact alone would justify the insistence of our manuals on the importance of the arme blanche; that fact only would explain why America, Japan and the Continent of Europe still maintain the sword and lance.

The late Colonel Henderson has been freely quoted to support the views of Mr. Childers; but he says in the "Science of War," that the Cavalry soldier must be taught to consider himself as "first and foremost a soldier of the charge and mêlée." "If he is not sometimes allowed to lose himself in the exhilaration of a charge, his dash invariably deteriorates."

Mr. Childers thinks that skill with the sword and rifle combined is beyond achievement. Our Cavalry teachers think otherwise. They are men who have seen, practised and studied war, and their opinion is not lightly to be put aside.

It should be remembered that our system of training in the use of cold steel is moving with the times. It is now vastly more practical than in the days before the South African campaign. Ceremonial display has been abandoned. The value of the deadly point is taught. But the lesson of all for Cavalry to learn is that great results in battle cannot be had without loss. Our many little wars, where easy victories are gained at a small price in blood, are apt to make us forget this truth. In South Africa the losses of our Cavalry in action were very few, considering the long duration of the war. Compare them with those incurred in the great Cavalry fights of history. And there is no instance

in the South African war of a British Cavalry charge being stopped by fire.

The arguments of Mr. Childers, his deductions and conclusions, at least show that mounted men can sometimes get home against rifle fire. He thinks that, having got in, they should use the rifle in preference to the sword; and this is where his views clash with those of the Cavalry school of thought.

The charge—we mean the charge with the cold steel—will not be an affair of every day. Occasion must be watched for keenly. It is quick to come, and quicker to go. It will often be prepared by fire, and helped by clever use of ground. But it will only be seized by the quick opportunist leader, and it will only be consummated by horsemen well trained, drilled and disciplined, who are united by the determination to ride in and kill.

Herewith is a review of this book by the British General Staff: *

In this book Mr. Erskine Childers maintains, and claims to have proved, that for mounted troops in modern war the arme blanche is "as dead as the dodo." The essential points of the theories he advances are—that the rifle is always the master of the sword; that although the latter may be of use on some occasions those occasions are very few, and that even then the rifle can be used instead of the sword, with better results; that it is as impossible for mounted traops to become efficient in the use of both rifle and sword as it is for a man to serve two masters; and that the only way to insure the efficient training of our Cavalry in the use of the rifle is to deprive it of lance and sword altogether. Mr. Childers favors bold offensive action, but always with the object of overwhelming the enemy by fire and never with the object of using cold steel. Cavalry charges he believes in, but not the charge as now understood; in his view Cavalry should charge to "within 5, 10, 50, or 100 yards" of the enemy, and then shoot him down, either from the saddle, or dismounting to fire. In the term "Cavalry" he would include all mounted troops, maintaining that all should be armed alike and act on the same principles. Fire from the saddle should be freely used, even, it would appear, when moving at speed, as in pursuit.'

Mr. Childers bases his views mainly on the experiences of the South African War, but he quotes the Russo-Japanese War in confirmation, and he claims that the American Civil War and the campaigns of 1866 and 1870-71 also illustrate the truth of his contentions. The fact that a decided majority of the leaders of military thought throughout the civilized world are believers in "the terror of cold steel" is an argument to which he attributes no importance. He is quite satisfied that their judgment is misled either by the glamour of cold steel, or by a mistaken belief that the South African War was abnormal, a view with which he is in entire disagreement.

Before discussing Mr. Childers's theories, it will be well to consider the value of the evidence on which they are based. It has been claimed that his arguments are historically correct. This claim cannot be admitted. He quotes historical facts, certainly, but the deductions he makes from them are his own. Facts, as a great lawyer has said, "cannot lie, but they can and often do deceive." The point which the reader of "War and the Arme Blanche" has to decide is whether, in this case, they have deceived Mr. Childers or those who differ from him. Judging by the official training manuals, the ruling military authorities of every civilized nation are numbered amongst the believers in cold steel. Amongst them are many able, earnest and experienced soldiers, by no means all Cavalrymen. They have as deep a knowledge of historical facts as Mr. Childers has. They have even more at stake to induce them to weigh deductions carefully, since they may be called upon to act on them at any moment. They have more practical knowledge of human nature in war to guide them in drawing conclusions from history, and human nature in war is a consideration on which the practical applicability of all military theory depends. Remembering that it is deductions from facts that are in dispute, and not the facts themselves, we cannot think that any impartial reader will be prepared to follow Mr. Childers in throwing the opinions of such men aside as being biased and

^{*&}quot;War and the Arme Blanche," by E. Childers, with an Introduction by Field Marshal Earl Roberts. London, 1910. Edward Arnold. 7s.6d.

worthless. We claim no infallibility for them, but neither do we concede any to Mr. Childers. We cannot agree that Mr. Childers has established his charge of undue bias in favor of the sword, and we cannot see that he is any less open to a charge of undue bias in favor of the rifle. Having said so much as to the value of the evidence to be weighed, we may now turn to the matter in dispute. A careful perusal of "War and the Arme Blanche" leaves us under the impression that the difference in opinion between Mr. Childers and our Training Manuals is by no means so great as he seems to think it is. His views on the value of vigorous offensive methods and on the combination of fire power with mobility are, up to a certain point, in agreement with "Cavalry Training." No one is likely to deny-"Cavalry Training" certainly does not do so-that the general principles of fire action are the same for all mounted troops, although the degree of skill with which they may be able to employ those principles must be expected to vary with the duration and thoroughness of the training they have undergone. No one can deny that favorable opportunities for the use of the arme blanche are not numerous in modern war as compared with the number of opportunities for using the rifle.

Mr. Childers is not one of those who consider it impossible for Cavalry to charge home, under favorable conditions, in the face of modern rifle fire, and he clearly recognizes the need to charge home in order to force a decision. So far, therefore, no great principle seems to be in dispute. The first real point of difference that we can find between Mr. Childers and "Cavalry Training" is his statement that when Cavalry has charged home it will always find the rifle a more effective weapon than cold steel. The next is the statement that Cavalry cannot be trained to efficiency in both rifle and sword. If the first of these two statements be true it is unnecessary to examine the second, since there would obviously be no further need for the sword if the rifle is always more effective at close quarters. If the second theory be true, we agree that the rifle is so much more generally useful than the sword that the latter should be abandoned in its favor. These two questions are, therefore, worthy of very close consideration. A decision on the first of them seems to depend a good deal on the value of fire from the saddle. If it is really possible effectively to use the rifle from the saddle at close quarters, we can believe that Cavalry would soon throw away sword and lance in war. If it is not possible, however, then mounted Cavalry without a steel weapon has no adequate means of offensive action at close quarters or of self-defence if surprised when in motion.

Turning to such facts as we have at our disposal we cannot find that the efficacy of saddle-fire has been established. It was used in the American Civil War. It was also used by both sides in South Africa. In both wars its use appears to have been exceptional, while its material effect is stated by those who experienced it in South Africa to have been very slight, although the Boers who used it had had exceptional training, and were probably greater adepts than town-bred soldiers could ever become. The most claimed for it by British officers who used it is that it may sometimes have a useful moral effect.

To fire from the saddle at the halt and in motion would necessitate the prolonged and habitual training of the horse as well as of the Cavalry soldier, and we can find no grounds for a belief that such fire would prove effective, except, perhaps, in the case of individuals in special circumstances. The difficulty in shooting with any degree of accuracy from a horse moving at speed requires no explanation. The difficulty in shooting from a horse pulled up short from a charge and under fire—since the enemy must be presumed to be resisting—does not seem likely to be less.

For these reasons it seems to us that Cavalry, charging on the principle advocated by Mr. Childers, must dismount to fire on reaching close quarters. When the enemy is sufficiently accommodating to leave cover close to him unwatched and unguarded, to which the Cavalry can gallop, and behind which the horses can be left, this operation is feasible. If he does not do so—which we take to be the normal case—it seems to us that it would be more difficult for Cavalry to pull up and dismount in the open, under close rifle fire, than to charge home, led by its officers. It is worthy of note that troops using a rifle cannot be so led. Further, it seems to us that this pulling-up and dismounting at the last moment—even if men could be got to do it, which we doubt—would be likely to prove a very costly proceeding, and that the

enemy, if he could be given a choice, would prefer to meet such a manœuvre rather than a charge home with cold steel.

In considering the question of weapons, it is not sufficient to confine our investigations to the original attack. We must also consider possible counter-attack. For instance, Mr. Childers's analysis of the Boer charge at Roodeval is incomplete. He considers what might have been the value of the steel weapon and a knee-to-knee formation to the Boers, and he concludes that they would have been useless. We agree. The failure of the Boers on this occasion must be attributed to the absence of any moral ascendency over the enemy. The surprise failed; they had no numerical superiority, and there was no fire preparation except the totally insignificant saddle-fire during the charge itself.

Grenfell met the attack by fire; but if his force had been armed with sword or lance, and trained to rapid manœuvres combined with cohesion, it is an interesting speculation whether he might not have gained better results by means of a "shock" counter-attack. It seems to us that Grenfell's most effective reply to the Boers would have been to meet them by fire from a portion of his force till their attack faltered, and then to clinch the matter by a charge of the remainder with the arme blanche.

This is one of the examples quoted by Mr. Childers. It seems to us to show the value of a training in which various tactical methods and various weapons can be utilized and combined. It provides also an example of the failure of Mr. Childers's method, and affords an opportunity of illustrating how an effective use can be made of the arme blanche against that method when wrongly applied.

We will next consider an example of the success of Mr. Childers's proposed methods, namely, Bakenlaagte; but before doing so we desire to say a few words as to certain conditions on which the chances of success of any method of attack seem to depend.

Mr. Childers is emphatic in his view that it is not necessary or even desirable for the form of offensive which he advocates, to depend on covering rifle fire of artillery support to enable the objective to be reached. He disclaims the need for any such assistance for his charges, and bases this belief on the invulnerability to rifle fire on the horseman moving at speed. Here we are in direct conflict with him. We believe that charges against riflemen, whether made as he proposes or with cold steel, can only be successful, in the face of opposition which is not altogether insignificant, if the conditions allow the attack a certain moral ascendency. This moral ascendency may result from surprise or overwhelming numbers, but where these conditions are absent it can only be obtained by establishing superiority of fire as a preliminary step. The mere movement at speed aided by saddle-fire is, we contend, insufficient to produce it.

We believe, further, that when once sufficient moral ascendency has been gained the nature of the weapon with which Cavalry is armed will not affect the chances of its being able to charge home. The question at issue is as to the most effective means of obtaining good results after charging home.

On this point Bakenlaagte seems to offer some evidence. On the British side there was a harassed rear-guard which had been withdrawing for many hours in the face of vigorous attacks, and was, in addition, facing a cold driving rain. On the Boer side we have the arrival of reinforcements at the critical moment in sufficient strength to give it an overwhelming numerical superiority. The arrival of these reinforcements was quite unknown to the British till the charge actually took place, so that a certain element of surprise was introduced.

For the details of the action we must refer the reader to the Times "History of the War" and the map contained in that work. According to the author of this account, Botha initiated his charge at the very moment that he saw the British rear-guard rise and mount in order to withdraw from Ridge A to Gun Hill. The moment was admirably chosen, and the circumstances all contributed to increase the *moral* of the attack while reducing that of the British rear-guard.

As to the opposition encountered, we read that Greatwood's and Lynch's detachments of the Buffs (infantry) were overwhelmed between Ridge A and Gun Hill, the Boers "dropping a few men to disarm their prisoners." It is a small point, but we doubt whether this slight weakening of the attacking force would have been necessary if these detachments had been ridden over, say, by a Lancer brigade.

The description of the remainder of the charge is worth

quoting in full: "With scarcely a check the charge continued; it caught, swallowed up and captured both the covering sections of Scottish Horse and Mounted Infantry, and ended finally in the hollow at the foot of Gun Hill. This was dead ground both from Ridge B and Gun Hill, and here the Boers flung themselves from their ponies and pressed on foot up the hill, firing and shouting as they came."

No account could illustrate more clearly the essential difference between Cavalry action and that of Mounted Riflemen. The Boers, in the full tide of success, judged it necessary to dismount at this critical moment. The result was that they were obliged to enter into a fire struggle which lasted twenty minutes before the hill was captured. We are told that during that time "no reinforcements reached the hill," and that the only counter-attack attempted during the action was an effort made by two companies of the Buffs under Major Eales, after the hill had been captured, when the conditions were entirely unfavorable; but it is easy to conceive what a difference the twenty minutes' delay in the attack might have made in the results of the day.

We claim that a Cavalry force as ably led would not have dismounted at the foot of the slope and afforded the enemy the opportunity to recover his initial disadvantage. We are told the dead ground reached to within thirty yards of the British firing line. We do not believe that a charge of disciplined Cavalry which had reached the foot of the slope would have pulled up, or could have been stopped by fire in the last thirty yards. We must remember the absolutely overwhelming numbers and the elation of the initial success. In our opinion Cavalry handled on the principles inculcated in "Cavalry Training" would have ridden over the hill inflicting many casualties on the British on the way; the original line would have swept'on to the farm at Nooitgedacht, and spread consternation and havoc amongst the convoy, while the supporting squadrons dealt with any resistance that might be left in the defenders of the hill. In fact, a partial success might have been turned into a complete victory.

Our conclusions from the facts of Bakenlaagte are that the success was due to causes other than the armament of the Boers and the formation in which they charged, and that the limitations

in the measure of the success is evidence in favor of the arme blanche and of the methods laid down in "Cavalry Training."

It may be claimed that if the Boers, armed as they were, had not halted they would have gained a complete success. The reply seems to us to be that they would not have halted if they had been armed with steel and trained to depend on it under such conditions.

In fact, the example we have just quoted illustrates an important virtue claimed for the arme blanche. The tendency of human nature under fire is to seek cover and hold on there, since to rise from it increases the danger. This tendency works in two ways when both sides are under heavy fire; just as the defending side inclines to hang on in its trenches, so the attacking side tends to remain under cover and to seek to shoot the enemy out of his position without exposing itself. If proof of this tendency under modern conditions is required, a study of the operations in Natal for the relief of Ladysmith will afford it.

The chief reason why Infantry soldiers are given a bayonet is to foster in them the desire to close with the enemy. They are taught that this must be their object and that the primary use of fire is to assist their forward movement in the direction of the enemy with a final bayonet charge in view. The actual amount of killing done by the bayonet in modern war has been comparatively small. After South Africa many theorists recommended its abolition. Yet deeper thinking has led to the conclusion that the moral effect of the bayonet is out of all proportion to its material effect, and not the least important of the virtues claimed for it is that the desire to use it draws the attacking side on. This theory has been accepted by those best qualified to judge by experience of human nature in war. There seems to be a great similarity of thought btween those who favored the abolition of the bayonet and those who desire to deprive Cavalry of the arme blanche. We also think there would be a similarity in the results. To take the sword from Cavalrymen would be, to some extent, to take away their desire to close—to encourage them to seek for effect by long-range fire. It might constitute a serious obstacle to the realization of Mr. Childers's methods of charging.

This encouragement of an offensive spirit is one effect of a steel weapon. What is its effect on the enemy? Is the "terror of

cold steel" really a myth? On this point let us examine, for example, the battles of Worth and Gravelotte. Time and again the Germans held on to the ground they had won under a devastating fire. Time and again they fled before French bayonet charges, without awaiting them. Are foot soldiers charging with bayonets more terror-inspiring, or more difficult to stop by bullets, than charging Cavalrymen, who believe in their ability to charge home?

Mr. Childers may not agree in the value of examples taken from a war which was fought before the introduction of the magazine rifle, but if the magazine rifle is to be upheld as a nerve soother where cold steel is concerned, we must not ignore the effect of the same weapon in producing nerve tension when in the hands of the enemy. We hold that this attribute of the magazine rifle will in reality tend to maintain if not to enhance the terror of cold steel in the battles of the future. In fact, we look to the magazine rifle to produce the situations in which the fear of cold steel will give us the victory. This is indeed the basis of all modern tactics.

Although we maintain that the arme blanche is by no means obsolete, it must be admitted that if Mr. Childers's contention could be upheld as to the impossibility of training Cavalry to the efficient use of both rifle and cold steel, there would be a strong case against the retention of sword or lance. The arguments given in the foregoing pages refer more particularly to the battle-field, on which the results of all military operations are decided. Even on the battlefield, however—still more in the operations preceding the battle—it cannot be denied that for one opportunity of using cold steel effectively there will be many of using the rifle. For this reason there can be little doubt that, if Cavalry cannot be made efficient in both weapons and must be restricted to one, that one should be the rifle.

Mr. Childers maintains that experience shows that Cavalry cannot be trained to both weapons. He appeals to history. Has history spoken definitely on this problem? In what campaign, up to date, has Cavalry been employed that had been carefully trained in the use of both weapons? We are not aware of one. The Boers were not trained in the use of the arme blanche. Our own Cavalry in South Africa had not been seriously trained in the use of the rifle. It was armed with an inferior firearm, and had fired

a few rounds with it annually, but rifle shooting and rifle tactics held a very different position in its training, and in its regard, from what it holds now.

Mr. Childers quotes the American Civil War. In his reference, however, to this war, he omits to mention that, although a rifle was added to the equipment of the United States Cavalry soldier shortly after the war commenced, the sword and revolver for use at close quarters were not discarded, and that this equipment, as a result of the experience gained in the American Civil War, has been retained ever since.

It would be out of place here to discuss the merits and defects of the breech-loading pistol in addition to or in substitution for the arme blanche, as the main point is whether the mass of the Cavalry employed in that war was trained at all before the war.

It is useless to claim that history has given a final verdict on this problem. So far as history has spoken, its voice appears to us to be in favor of the possibility of Cavalry being trained to use both weapons, i. e., the rifle and the arme blanche. Our Cavalrymen, trained to arme blanche work, adapted themselves, with considerable success, to the use of the rifle in South Africa. Although there seems to be a good deal of popular misapprehension on the point. Cavalrymen used the arme blanche freely in the American Civil War, and it appears that the use of it tended to increase as the war went on; they also used the rifle with considerable efficiency.

We believe that Cavalry which is capable of using either weapon, as occasion may demand, will be more useful in war than Cavalry which can only use one of the two. We believe that the possibility of becoming efficient in both must remain a matter of opinion until Cavalry which has been carefully trained to both has been fully tried in war. And we believe, meanwhile, that the opinion of experienced Cavalry officers on training is a sater guide to follow than the opinion of Mr. Childers. Their opinion is that regular Cavalry can be trained to both. It must be remembered that our present peace training aims at producing dash, cohesion, and discipline, combined with an offensive spirit and good horsemanship; and that, even if Mr. Childers proves correct in his views, the time spent in inculcating these qualities cannot be said to have been thrown away unless it can be proved that the

training in fire tactics has been neglected in consequence to a dangerous extent.

The truth seems to be that the real difficulty of the problem lies less in training the men to be capable of using both sword and rifle than in educating their officers to judge rapidly which weapon to employ at any given movement. No doubt errors of judgment must be expected in this matter, as they must be expected in all operations of war; but we cannot afford to abandon a valuable weapon for that reason. Moreover, it does not seem to us that there will be much—if any—more difficulty in judging when to charge with the arme blanche than there would be in judging when to undertake the style of charge that Mr. Childers recommends.

The judicious selection of opportunities for, and the skillful execution of, a charge undoubtedly call for much previous study, thought, and practice; but, so far as our regular Cavalry is concerned, the necessary attention can, and will, be given to the problem. Professional officers, and men who serve for seven or eight years with the colors, have both the time and the opportunity to learn. It is different with our mounted troops other than regular Cavalry, however. There can be no reasonable doubt that neither the officers nor the men composing these troops can learn the use of both rifle and arme blanche in their short peace training. This being so, it seems obvious that they should train in peace with the rifle only, that being far the more generally useful arm.

It may be argued that it is illogical to claim that the arme blanche gives additional power to Cavalry, and then to recommend that mounted troops, other than Cavalry, should be armed with the rifle only. The reply to such a contention is that Yeomanry and similar bodies of troops, who train only for a few days in the year, cannot be expected to meet highly-trained regular Cavalry on equal terms, however we arm them; and matters cannot be equalized by any increase in the number of weapons they carry. On the whole they will stand a better chance armed with one weapon which they have acquired some skill in using, than if they had more than one, were unskillful with each, and lacking in judgment as to which to use. Moreover, there are other factors which considerations of space forbid the discussion of here, such as the nature of the country that Yeomanry are primarily intended to

fight in, the nature of the duties that would be allotted to them in war, and the possibility of arranging for them to work with regular Cavalry, thus combining fire power with the sword. Moreover, if time were available after embodiment, it would be possible to equip Yeomanry with the sword and to instruct them in its use.

The combination of the power of the two weapons seems to us the ideal to aim at, and we cannot agree that it is beyond our reach.

It may be that there is sometimes a tendency to favor training with the steel weapon at the expense of training with the firearm. We agree that this is unsound, but we do not agree that it is necessary to take away sword and lance altogether in order to correct this tendency, and we think that in proposing such a remedy Mr. Childers has rushed into the extremes that he complains of in others.

THE REVOLVER AS A CAVALRY WEAPON.

By Major MOLYNEUX, D.S.O., TWELFTH CAVALRY,

I T may be safely asserted that the revolver is not much in favor with cavalry officers; and it is unfortunately true that their districts is only too well founded. The reason is not far to seek: real proficiency with any firearm is impossible without the expenditure of a good deal of time, money, and ingenuity, and the revolver has been, and still is, the most neglected of our firearms, never having received a tithe of the attention lavished upon the rifle by the cavalry and infantry, or upon their own weapons by the artillery.

I have often heard cavalry officers assert that the revolver is almost valueless for mounted use; and the annual exhibition by gun-shy horses and untrained shots only tends to confirm them in that belief.

On the other hand, few will be found to deny the value of

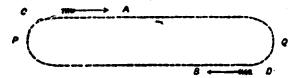
the revolver in the hands of a "Buffalo Bill" who can make a practical certainty of hitting his man, at a dozen yards distance, when riding at any pace.

It is the purpose of this article to show how easily this proficiency can be obtained, by those who are armed with the revolver and consequently bound in duty to obtain at least an adequate degree of skill in its use, if only a fraction of the attention be given to the subject which we give, as a matter of course, to the attainment of proficiency in hitting moving objects with the rifle.

The horse must first be made absolutely reliable, by the use of blank cartridge fired from his back until he takes no notice of it. A convenient method of determining whether the horses are sufficiently steady is to make those armed with revolvers advance in single file, on their way back from parade, firing blank from their revolvers as they advance. It is easy, from the front, to see whether any horse swerves from the covering alignment. If he does, he should be ordered extra practice. Australian horses require very little of this training, Indian country-breds are more troublesome.

The best training for the man is the mounted duel. This is far more interesting, as well as far more useful, than any kind of target practice. It can be carried out in perfect safety by the use of the wax bullets used by the French dueling clubs, provided that proper precautions are used; and the expense is very small, compared with the results obtained. One thousand shots can be fired for about 55 francs, or 34 rupees. The methods of practice which I have found best are the following:

(1) Mark out a track, as under, with a broad line of chalk or tape:



The track to be about 100 yards long by 12 yards broad. The combatants start from C and D respectively; on passing

one another at A and B, they fire at one another at 12 yards distance, continuing to move round the oval track, and firing each time they pass one another.

(2) Using the above track, one combatant fires mounted at the other dismounted; the latter being stationary at A or B.

In both the above practices, the superintending officers station themselves at P and Q, where they can examine the coats, etc., of the combatants at the finish. Hits on the man alone count; hits on the horse count neither for nor against. Regulation revolvers only.

The following precautions are necessary in the case of each combatant, when firing at so close a range as 12 yards:

- (a) A special mask, with plate-glass front, on the head.

 This has also protection for the neck.
- (b) A small metal shield on the revolver, to protect the right hand.
- (c) A leather glove on the left hand.
- (d) A soft goatskin coat, covered with whitewash, reaching to the knees, split up behind.
- (e) A blanket all over the horse, tied with tape behind his quarters and round his neck; and cheap blinkers.

At first, very few hits will be registered, even at a walk. The improvement, however, is extraordinarily rapid, and the canter will soon be found no more difficult for aiming than the walk.

A list of requisites for this training, with prices, is given in tabulated form below:

2 special masks, with plate-glass front, at 20	francs
francs	40.0
1,000 wax bullets	40.0
1,000 caps (appareil d'amorcage)	14.25
6 false cartridges	
2 hand shields (for pistol hand)	
1 uncapping block (appareil pour desamorcer)	2.0
Totalfr.	122.25 or Rs. 80.

All above may be had from Messrs. Lepage Freres (Piot-Lepage), 12 Rue Martel, 10 ieme Arrondissement, Paris.

The following can be procured locally:

One pair soft goatskin coats, to be whitewashed so as to show the splash of the black wax bullet; cost about 6 rupees each.

Blinkers.

Eighteen false cartridges, to be copied by any mistri, in brass or iron, from the French pattern.

One pair of false sights to go just over backsight, as wax bullets tend to shoot a little low.

The total cost will thus be seen to be under Rs. 100 (initial). Rs. 70 per annum, expended annually on the 2,000 caps and bullets per regiment which should be ample, with care and supervision, to secure a high degree of skill, is the only recurring expense. It would not seem that the result obtained is dear at the price. £6 10s. for initial expenditure, and £5 per annum recurring, will cover everything. No powder is required, for the cap alone propels the bullets.

A NEW GAME. (IN THE ENGLISH ARMY.)

From El Mundo Militar of July 31, 1910, Madrid.*

THE British army, always working for the physical education of its men, from time immemorial has taken special care to organize instructive games for the troops, with the double object of taking their attention away from pernicious habits, and at the same time developing adequate corporal vigor.

Foot-ball, foot-races and throwing of the discus are practiced in most of the barracks, in addition to the regulation exercise for development of strength and agility in the soldier.

Certain cavalry corps have recently adopted a curious game, an excellent one to familiarize the cavalryman in the management of his horse and at the same time give him needful sport and exercise. This game is called "Aviation Push-ball."

It is played on horseback, employing racquets similar to those used in tennis. The balloon is filled with gas of less density than the air, so that in spite of the weight of its cover, it will remain nearly stationary in the air, or fall very slowly to the



ground. This ball the players, arranged somewhat as in football, endeavor to pass from one to another, evading the resistance of their opponents, and without allowing the ball to touch the ground. Their object is to traverse the opponents' territory with the ball and finally make a goal by driving it through a

^{*}Translated by First Lieutenant W. E. Mould, U. S. Army, Retired.

large iron hoop which takes the place of goal-posts.

The new game, thus generally described, lends itself to numerous and varied incidents; grand races from end to end of the field, skillful evolutions to pass the opponents' horses and often precarious situation in the saddle when the attention has been fixed solely on the ball, the horse guided with one hand.

Besides these advantages of instruction in riding, the right arm is kept moving constantly in using the racquet to hit the ball and deceive the enemy, and thus receives exercises which will render the soldier very skillful in handling his saber in a charge.

The new game has been very favorably received in the various English cavalry corps, each of which is now organizing its equipment and beginning its training for the first inter-regimental matches soon to take place.

THE CHARGE OF THE ALPHONSO JÄGERS AT MELILLA.*

An Instance Where Mounted Action and Cold Steel Saved the Fortunes of the Day.

THE 20th of September, 1909, was a glorious day for the Spanish cavalry. A small detachment of intrepid troopers saved a brigade from annihilation and changed defeat of the Spanish arms into success.

Early in the morning of this day General Tovar's Division started from Melilla in a southerly direction for the purpose of punishing the hostile tribes under Beni Sicar, Beni Said and Beni Gugafar. The Brigade Morales (four battalions, two mountain guns and the Jäger squadron of the 21st Cavalry Regiment Alphonso) reached its march objective Taxdirt about noon without having encountered hostile opposition.

During a reconnaissance made in the afternoon the advance

guard battalion Cataluna was fired on from high hills in front. The battalion, though being exhausted by the march, succeeded in taking four of the hostile positions. The Jäger battalion had dismounted to fight on foot to the left of the battalion and supported it effectively in its advance. The attack, however, soon came to a stand. The enemy appeared in greatly superior numbers on the left flank of the brigade and forced it to deploy two additional battalions. The battalion Tarifa remained in reserve.

The situation of the advance guard battalion become more and more critical; entirely exhausted, without food, and in the hot glare of the sun this battalion was confronted by an enemy who became more and more offensive. Annunition began to run low and there was no hope of replenishment. There was little hope that the dearly bought position could be held any longer and consequently the battalion received orders to fall back, the squadron to cover this retreat by its fire. The reserve battalion was ordered to relieve the retreating battalion.

As soon as the enemy observed this retrogade movement he threw a force of about 1.500 men on the retreating Spaniards. The rear guard had only their bayonets to fall back on and were soon cut off from the rest of the battalion. The entire annihilation of the battalion, and even of the brigade, seemed unavoidable.

At this critical moment Major General Tovar turned to his adjutant, the young cavalry Lieutenant Colonel Jose Cavalcanti, with the words: "Hurry, Calvacanti; place yourself at the head of yonder cavalry and charge the enemy."

The squadron, also long since out of ammunition. had mounted in the meantime and stood, unperceived by the enemy, in a narrow gulch. Lieutenant Colonel Cavalcanti galloped to the squadron and took command. Carefully utilizing the cover of the terrain, he succeeded in reaching with his squadron a low hill lying on the flank of the hostile advance, from where the 90 troopers composing the squadron gained a clear picture of the dangerous situation of the battalion Cataluna. With a few inspiring words to his men, Cavalcanti gave orders to charge. The squadron threw itself on the enemy, the officers. Captain Alvarez, Lieutenants Gasco, Martos and Prudan being far in front of it. The enemy was completely taken by surprise; he tried to defeat

^{*}Translated from the Austrian Cavalry Monthly, by Harry Bell, M. S. E., U. S. Army.

the attack by irregular fire and by cold steel, mainly endeavoring to disable the horses, but there was no stopping these brave Spanish troopers. The hostile line was pierced and the moral effect of this charge was such as to bring the hostile attack on the infantry battalion to a stand.

The squadron had no sooner rallied than a renewed rallying of the Moors was observed. The squadron, this time but 40 troopers strong, did not hesitate a minute to charge again. This second charge brought the Moors into complete disorder and as just then the leading elements of the battalion Tarifa arrived on the scene of battle and as also the mountain guns went into action the hostile offensive was completely broken. But the Spanish troopers did not content themselves with what they had so far achieved, for with the remaining 18 troopers the squadron attacked for the third time and thus put the enemy completely to rout.

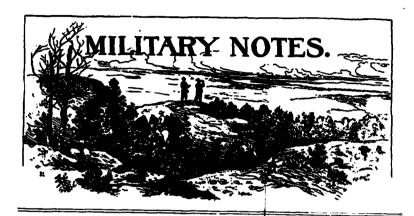
The squadron, the horses of which had been for more than 14 hours without food or water, lost eight killed and seventeen wounded; the enemy lost more than 100 men, all of them being killed by cold steel. It was a splendid success: an entire battalion was saved from annihilation and the original defeat of the brigade was changed into victory by this action of the cavalry.

The day of the Taxdirt was decided not by the Mauser rifle nor by quick firing artillery, but by the sabers of a well led and well schooled squadron.

All honor to the brave Alphonso Jägers.

C. H.





THE CAVALRY EQUIPMENT BOARD.

HE work now being done by the Cavalry Equipment Board at the Rock Island Arsenal is probably the most important peace project that the cavalry arm has been concerned with for years. A realization of this fact is growing throughout the cavalry service and many important recommendations have been sent into the board. While it is entirely too early for the board to make any announcement as to its recommendation of any particular device in exact detail, it has made splendid progress along the line of reducing weight of equipment and at the same time has had much success in tests of devices which will solve several problems which have heretofore proved most vexatious. In fact, the outlook for a surprising improvement throughout the equipment is most promising. Certain articles which have been decided upon tentatively will be sent out for use at some of the maneuver camps and on certain practice marches before the expiration of the present season.

The recommendations which have been sent in to the board present so many different views as to the utility and the method of using certain articles of equipment, that cavalry officers can scarcely expect to find all of their ideas adopted by the board. Such recommendations as are finally made will be based upon trials and tests of the most thorough nature, under the direct supervision of the board.

It will be interesting to the cavalry at large to note that recommendations which may be considered radical have been submitted to the board by officers of considerable experience. Among these suggestions are: to utilize the saber as a bayonet by a device attaching the saber to the rifle when necessary; to provide each trooper with an intrenching tool, the champions of this policy claiming that the mobility of cavalry need not be reduced by the addition of this equipment and by its possession the cavalry will be given, in addition to its greater mobility, every quality of offense and defense possessed by any foot troops. Another proposed departure is to dispense with the gun-sling in order to do away with its weight and in order to better utilize an excellent method of carrying the rifle mounted, adequate provision being made for the existing convenience of the gun-sling as a method of carrying the rifle on the person when the soldier is engaged in tasks requiring the use of both hands, such as carrying wood, forage, etc. A nose-bag has been devised which promises much better results than are obtained with the present model and which may also be used as a grain-roll, by means of which noon-feeding on the march will be facilitated, thus meeting the growing demand for three feedings per day for the cavalry horse.

The board feels confident of producing an equipment which will eliminate the sore-back evil and will at the same time provide a full pack, which will not only be much better arranged than the present pack as to convenience and weight, but will be very superior in appearance. With this hopeful prospect before the board, all officers of the cavalry arm should continue to give the subject of equipment earnest thought and a great deal of discussion, communicating freely and directly with the board, to the end that the new equipment may represent the most finished degree of excellence.

PROPORTION OF NEW HORSES ASSIGNED TO FRENCH MOUNTED REGIMENTS EACH YEAR.

BY AN OFFICER ABROAD.

IRCULAR of January 2, 1910, prescribes that the replacing of horses in the cavalry, artillery and service schools shall hereafter be made at the annual rate of 2.17 of the total strength, instead of 2.16, as has for a long time been the rate. In other words, each mounted organization having, say, an effective of 68 horses, is entitled each year to receive eight new horses.

Every autumn the captain of a troop or battery selects, up to the number of his allowance, the horses in his organization least fit for service. These he presents to the colonel of the regiment for inspection. If he approves the selection, these horses are condemned and sold as with us. A requisition is then made by the colonel on the depot charged with remounting his regiment for the total number of horses to which the regiment is entitled. These are sent, and the colonel distributes them amongst his organizations, and then each captain begins the education of these new horses and continues it for nearly two years, when they are considered as fully grown and trained. As the horses are bought at 3 years and receive one year's training at the depot before being sent to a regiment, it can be seen that when a horse is turned in for full duty and assigned to a trooper, he is between 6 and 7 years old and has had three years of careful progressive training.

THE HORSE'S PRAYER.

(Associated Press Telegram.)

PITTSBURG, July 28.—A square deal for the horse is the petition which the Western Pennsylvania Humane Society has put into a fervent equine prayer, and has posted in stables all over the city. It reads in part as follows:

"To thee, my master, I offer my prayer:

"Feed me, water and care for me, and when the day's work is done, provide me with shelter, a clean, dry bed and a stall wide enough for me to lie down in comfort. Talk to me. Your voice means as much to me as the reins. Pet me sometimes, that I may serve you the more gladly and learn to love you. Do not jerk the reins, and do not whip me when going up hill. Never strike, beat or kick me when I do not understand what you want, but give me a chance to understand you. Watch me, and if I fail to do your bidding, see if something is not wrong with my harness or feet.

"Examine my teeth when I do not eat. I may have an ulcerated tooth, and that, you know, is very painful. Do not tie my head in an unnatural position, or take away my best defense against flies and mosquitoes by cutting off my tail.

"And finally, oh my master, when my useful strength is gone, do not turn me out to starve or freeze or sell me to some cruel owner, to be slowly tortured and starved to death; but do thou, my master, take my life in the kindest way and your God will reward you here and hereafter. You will not consider me irreverent if I ask this in the name of Him who was born in a stable. Amen."

THE HORSE SUPPLY OF ENGLAND.

(From The Broad Arrow of August 12, 1910.)

THE Secretary of State for War is very fond of expressing the opinion that the whole question of our horse supply teems with controversial points. In the report of the Royal Commission on Horse Breeding, now presented after an interval of considerably more than two years, two matters at least are particularly brought to notice whereon the Earl of Granard and his colleagues are absolutely unanimous, and in regard to which they certainly have the support of the bulk of expert opinion. The commissioners again draw attention in the current report, as they have done in former ones, to the fact that since the agents of foreign powers buy our horses suitable for

military purposes at the age of three years—and, it might be added, pay for them prices remunerative to the breeder—the best of the remounts have been sold out of the country before the British authorities come into the market at all. The commissioners express their regret, in which we share, that these repeatedly expressed views have been systematically disregarded, with the result that the difficulty of providing suitable army horses has not been lessened.

Attention is again invited to the totally inadequate sum, £5,100 per annum, voted by Parliament for horse-breeding, and it is stated that all the efforts of the commissioners to help the breeder are frustrated by lack of means. Mr. Haldane is one of . those people who, having the bump of caution rather largely developed, would proceed by gradual and progressive but dangerously slow steps. He would first have a horse census, conducted in an amateur fashion by the county constabulary, then he would find out how many horses he really requires for the army, followed up by an elaborate calculation of class deficiencies. After this the whole question will be referred to the County Associations for report to the War Office. If we had plenty of time such cautious measures would no doubt be wholly admirable, but meanwhile, as pointed out by the commissioners, "the difficulties which confront an interest of so much importance to the welfare and even the safety of the nation are increasing every year, and with every day's delay in dealing with the question they will continue to increase more seriously in the future."

The census of horses that is now being taken by the War Office is probably not worth the paper it is written on, and serves only as an excuse for delaying matters as long as possible. It is fairly well known how many horses of sorts exist in the United Kingdom, but the absurdity of the thing is that the police and other people who are entrusted with the work of classifying the horses on the cheap know little or nothing about the work that has been thrust upon them with practically no remuneration. As to subsidies, the paltry sum of about £5,000 is all that Parliament is asked to vote annually, so anxious is the government to save money for its Socialistic schemes. In short, the commission declare that no efforts on their part will be of the slightest use in formulating schemes unless adequate funds are pro-

MILITARY NOTES.

vided to carry them out, and in the meantime further delay is only increasing the future difficulties we will have to contend with should we be involved in a serious war. It is all a question of money, and, to put the case in a nutshell, our vote of £5,000 for horse-breeding purposes contrasts in a scandalous degree with the £250.000 and the £180.000 provided by the German and French governments respectively for improving the class of horse that is necessary for military purposes.

THE ORGANIZED MILITIA OF ENGLAND.

THE Territorial Forces of England, which correspond in many respects to our organized militia, have been having recently their course of annual training. This year they consisted of a series of "invasiou maneuvers, and from its published accounts of them it would appear that they have their troubles, as in this country, with complaints as to their management, etc. The following extracts regarding them are from the Broad Arrow.

"The Territorial training this year was more like the real thing than usual, and, by a curious coincidence, never have there been so many complaints. It is hardly the fault of the men that many of them seem to have imagined that they were out for a pleasant picnic. They have been taught that soldiering can be acquired with ease. Hence their disillusionment and consequent indignation. The result is likely to be a further reduction in the numbers of the Force. Men who have no stomach for roughing it in any form are not much loss, it is true, but there is reason to believe that there are many others who have good grounds for complaint. It is not to the conditions they object, but to the manner in which the War Office provided for them. In fact. they accuse the authorities—not, perhaps, for the first time—of mismanagement. Independent witnesses, indeed, admit that the state of some of the camps were deplorable. The attempt to treat the Territorials as if they were seasoned soldiers gives the most reasonable ground for criticism. The same principle was applied to them which is so disastrous to education in civilian life. They were to acquire military fitness, not by the slow processes of training, but all at once. They were to demonstrate to scoffers that they were more than the raw material of soldiers, they were almost equal to the finished article. In short, they were to justify the military policy of the present government.

"The limit of endurance in forcing the body is sooner reached than the limit of endurance in forcing the brain. The Territorials, in spite of their zeal and energy and spirit, have not been able to play the part of professionals. They were good amateurs, but there was no mistaking the fact that they were That the truth should come out in this particular way is a good thing. The Territorials at last know by bitter experience the difference between themselves and the Regulars, and no amount of smooth talk from political platforms will ever again mislead them. They are civilians who, for the most part, lead sedentary lives. To suppose that they can, without any hardening process, march and bivouac exactly like trained soldiers is a miscalculation so gross as to be dangerous. It has been honored long enough. Let us have a few more annual exercises in which the Territorials are asked to act as Regulars, a few more annual exercises in which official optimism is put to the test, and the shams of our military system will be no more tolerated.

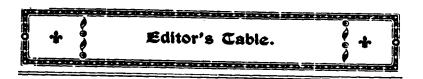
"Judging from the accounts which have been received of some at least of the Territorial maneuvers carried on in the south, the staff work seems to have left a good deal to be desired. We hear of units and even columns crossing each other on the march, owing, no doubt, to calculations of time and space not being reckoned with the necessary margin which should be allowed for insufficiently trained troops. We hear also of the baggage and supplies of the invaders being permitted to push unconcernedly through the columns of the defenders and of responsible staff officers unaccountably forgetting to notify in orders where units were to draw the next day's supplies. If the Territorial Force furnished its own staff one might be inclined to make allowances for shortcomings due to inexperience or lack of proper staff training, but with the whole of the staff of the Force provided by the War Office we have a right to expect that mistakes which would not be tolerated for one moment in the operations of the Regulars should not be permitted to add to the difficulties incidental to the maneuvers and training of a purely citizen army.

"Strictures have also been passed upon the marching powers of some of the London battalions, but from inquiry it appears that those which are particularly singled out for adverse criticism had been bivouacking in the open for two consecutive nights, and had in three successive days been called upon to march an average of eighteen miles a day. This is a good deal to require of men, many of whom are mere boys, and nearly all of whom follow for fifty weeks of the year purely sedentary occupations. whilst even in the preliminary period of this year's training they had not been directed to 'break in' themselves, and their feet, for a marching strain to which they are quite unequal without proper preparations. These men, moreover, were carrying, in addition to their ordinary equipment, their greatcoats and mess tins, so that the fact that some units were, on the third day, marched to a standstill is perhaps less a matter of surprise than that the directing staff should have utterly failed to grasp the limitations of town-bred soldiers.

"There is no doubt that a great deal of the so-called training of the Territorial Force during the summer camp is carried out on the principle of trying to teach an infant to run before it can walk. If the bulk of the Territorials were out in camp for several weeks it would no doubt be desirable that a short period of the training should be devoted to maneuvers on a fairly large scale. It is manifestly absurd, however, to launch units which are only out for a week or a fortnight into complicated tactical schemes when a large portion of the infantry have not acquired shroughout the year a decent knowledge of company and battalion drill. Marching large bodies of Territorials along roads and across country teaches the untrained soldier next to nothing. Anything like cohesion is impossible, and where extensions are limited to even a few yards between files in a very short time chaos and confusion must, result. We believe ourselves that there is too much theory and too much lecturing in the Territorial course of instruction throughout the year, to the detriment of more simple essentials.

"The men are not well grounded in simple company and battalion movements; indeed, the latter take place only at rare intervals, especially when companies are located in small towns several miles apart. If it is impossible for the Territorials to receive a sufficient amount of tactical instruction throughout the year, it might at any rate be expected that the units should be fairly proficient in 'barrack-square' drill."





CAVALRY TRAINING.

In the July, 1910, number of the Infantry Journal there appeared an article under the above title which, to again quote from our esteemed contemporary, the Journal of the Military Service Institution, "has strayed from the cavalry corral."

The article is a reprint of a letter from Arthur Conan Doyle that appeared in the *Pall Mall Gazette* of April 6, 1910, and which is evidently in reply to another letter from a correspondent of that periodical, criticising Mr. Erskine Childers' recent book entitled "War and the *Arme Blanche*."*

Mr. Doyle concurs with Mr. Childers in his opinion that the days of the cavalry charge have passed never to return and states that, in the first edition of his book, "The Great Boer War," he had asserted "that there was, outside of artillery, only one weapon in the world, the magazine rifle, and that the only place for swords, lances and revolvers was a museum."

The following are additional quotations from this article:

"I said, also, that good mounted riflemen must always dominate cavalry, and I gave my opinion that the whole cavalry force with its splendid personnel should at once be rescued from impotence by being rearmed and put on a level with their foes.

"This was the practical lesson shot into us on the veldt, a land which, when compared to any European country, is a perfect terrain for cavalry. What has occurred since then to alter it? I claim that everything has been in the direction of enforc-

ing the lesson. The 'arme blanche' can never improve, but the riflemen has been reinforced by quicker fire and lower trajectory. If he dominated in South Africa, he has increased his superiority since. And yet our cavalry, while, it is true, retaining their rifles, have gone back to the sword and the lance, with those pre-historic shock traditions which these implements imply. It is indeed a sad thing that we should put aside our dearly won experience and follow German theorists who have never seen a shot fired in anger.

"Your correspondent follows the cavalry manual in the opinion that a soldier must be trained to be equally expert with sword, lance and rifle. But the tactics of the shock horseman and of the mounted rifleman are absolutely contradictory and it is not possible to train a habit of mind to take two irreconcilable shapes. The shock horseman is always looking for bad ground and some one to charge. The mounted rifleman is looking tor bad ground where he and his horse can both be concealed, with a good fire field. You can have it either way, but you cannot have it both. Which is the better wav for extracting the most value from the soldier has surely been shown by all modern warfare, but most of all by the American civil war and the African war, where men of our own blood faced with the practical conditions of a long campaign, evolved in each case the same form of mounted soldier. In the past we would have been wiser to study the methods of Americans like Sheridan and Stewart (sic) than those of the Continental cavalry. Now that our African lessons have reinforced those of America, it would indeed be sad if the traditional conservatism of our cavalry were permitted to overlook them.

"The cavalry prejudice is continually evident in your correspondent's remarks. For example, he talks about 'lowering the cavalry to the level of mounted infantry.' But why lowering? The object is to produce the most formidable soldier. If, as South Africa showed, the mounted rifleman is so, then it is not to lower but to raise the cavalry when they are converted to that type.

"Your correspondent's chief argument is the old one that cavalry can charge and that mounted infantry cannot. Both propositions may be disputed. Neither in the Boer war nor in

^{*}See article on this subject and a review of this book on page 341 of this number of the CAVALRY JOURNAL.

that of Manchuria has the cavalry ever shown that they could charge under modern conditions. On the other hand, mounted infantry have charged in the Boer service again and again, and, indeed, the charge on horseback was their normal method of attack during the last year of the war. Your correspondent mentions Potgieter's charge which was arrested. But he does not mention the Boer charges of Vlakfontein, Tweebusch or Bakenlaagte which got home with deadly effects. The mounted rifleman's charge does not depend upon shock, but it is none the less deadly, arresting itself at the last moment for the use of the rifle. Botha at Bakenlaagte stopped his horsemen only thirty yards from the British line, but under a fold of ground, with the result that our force was annihilated. What could sworg or lance do more? And is it fair to say that if cavalry become mounted riflemen they can never hope to charge? I believe the reverse is the fact and that it is not until they have become mounted riflemen that they will ever be able to play a spirited role in modern warfare."

While it is true that there are many cavalry officers in our service who believe that, with our short term of service of three years and the many distractions in the way of practice marches, maneuver camps, tournaments and the altogether too much time spent on the rifle range, not sufficient time is found for the proper training of our cavalrymen in the use of his four arms, the rifle, saber, revolver and horse—yet there are few or none who believe that our cavalry should be converted into mounted infantry, pure and simple, by discarding the saber and revolver.

It is also true that some of our cavalry officers, in view of the above mentioned lack of time and other reasons, are in favor of doing away with either the saber or revolver, but not both. As to which of these two weapons should be relegated to the scrap heap they are not agreed, and it resolves itself down to the old, old question of the saber vs. the pistol.

Others, and it is thought the majority, of our cavalry officers are decidedly of the opinion that, if many of the useless or overdone functions or exercises which now occupy the larger part of each year were eliminated, the problem of finding enough time would be solved. They think, as do, also, many officers in the other branches of the service, that entirely too much time

is wasted on the rifle range, that practice marches could be largely cut down or entirely done away with, and that the side-show, or whole-show, business, at county fairs or city tournaments, should be cut out entirely. If this could be done and the soldier could be relieved of the other details that should be performed by a service corps, time could then be found to make our cavalrymen efficient even as now armed.

Regarding the remarks of Mr. Doyle as to the experiences gained from the Boer war, the comments of General Bernhardi, in his discussion of Mr. Childers' views, as given in a recent number of the Militar-Wochenblatt, and which we quote from a recent number of the Army and Navy Gazette: "He remarks in his opening article that Mr. Childers' book bears the impress of a want of experience in conduct of war, and a practical understanding of the questions of peace training and the possibilities of war. The General does not, however, diminish the value of the book as a capable and reasoned statement of the case, but he cheifly attaches importance to it because it has received the approval of Lord Roberts, 'the first soldier in England,' while it is opposed to the views of Sir John French, the 'cavalry leader par excellence of the South African war.' The German General finds some difficulty in understanding Mr. Childers' distinction between the 'shock' and the 'charge.' He thinks it unwise for us to regard the war in South Africa as a lesson in the whole art of war and protests that the 'cavalry duel' will be a feature of future wars. He does not deny the necessity of a firearm, nor attempt to explain away all that has been said by Mr. Childers against the 'arme blanche.' He says, indeed, that the question is one of great importance to German soldiers, who have to decide how far it is possible to go with the firearm and what is the true role of sword or lance, but he holds that it would be a great error to deduce all experience merely from the events in South Atrica."

Also, regarding the experiences gained from our civil war, Mr. Doyle has not studied the history of that war carefully if he failed to find numerous instances in which the saber and revolver were effectively used. It is also doubtful if he could have found any of the veteran cavalrymen of that war who, at its close, would agree with him that these weapons should be con-

signed to a museum. The writer joined one of these veteran cavalry regiments, whose record was second to none in the Army of the Potomac, during the last year of the war, and he never heard then, nor has he ever heard since among his associates in that war, any talk or hint but that the saber and pistol were valuable adjuncts to their armament, although the regiment was armed with repeating carbines.

A book, now in press,* gives many interesting accounts of cavalry charges during that war where the saber and revolver were effectively used.

This question of the armament of our cavalry and consequently of cavalry training is an important one and it is to be regretted that the Cavalry Equipment Board, now in session, has not been authorized to take up this subject as well as the other questions before it. In fact, it is hard to conceive how this board can properly devise an equipment for our cavalry entirely without going into the question of the rifle vs. a carbine and how they are to be carried as well as that of the saber and revolver.

P. F.

THE CAVALRY EQUIPMENT BOARD.

As has been stated heretofore in the CAVALRY JOURNAL, no action of such vast importance to the cavalry branch of the service has been taken in over a quarter of a century as is that of detailing the Cavalry Equipment Board now in session at the Rock Island Arsenal.

Their field of work is so broad and so much depends upon the results of their deliberations that the final outcome will be looked for with great interest by every progressive cavalry officer.

This Board has asked for and is entitled to the assistance of all concerned by submitting suggestions on the various points involved, principally as to defects in the present cavalry

DRINK



FALSTAFF

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^{*&}quot;Cavalry Tactics as Illustrated by the Civil War," by Captain Alonzo Gray, 14th Cavalry. Published by the U. S. Cavalry Association.

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equipment but more particularly as to schemes or ideas regarding its betterment. It therefore behooves our thinking cavalry officers to bear this in mind and in every way possible help this Board in its efforts.

Attention is asked to the note on this subject on page 365 of this number of the JOURNAL.

A COMPLAINT.

In the July, 1910, number of the Cavalry Journal, there appeared two articles, reprinted from the United Service Magazine, under the titles of "On Writing Military History" and "'Stonewall' Jackson: Some Current Criticisms," which have brought forth a complaint from Major G. W. Redway, of the British Army, who is the author of a recent work entitled, "The War of Secession."

This is, in part, as follows:

"London, August 2.

"Dear Sir:

"Your July number contains two articles reprinted from the United Service Magazine (London). Both articles are in effect criticisms of my book on the 'War of Secession' which has been favorably noticed in America.

"I specially requested my publisher to send you a copy of the book for review when it was published last March.

"I was hoping to see an expert opinion of the book in your JOURNAL and was surprised to find instead the reprint of two articles written by people who are by no means well acquainted with the subject.

"Yours truly,

"G. W. REDWAY, Major."

The copy of his work mentioned by Major Redway as having been ordered sent us for review was never received and it has never been seen by the Editor. However, complimentary notices of this work have appeared in other United States military journals which have been read with interest.

The two articles in question were reprinted, not because they were criticisms of any particular book or articles, but on account of their being discussions of two important campaigns of our Civil War in which our readers are or should be interested.

In fact, it was not noticed, nor does a second reading of the articles in question show that they were criticisms of Major Redway's book but rather of two articles that had previously appeared in the *United Service Magazine*.

Of course, it was not the intention to do Major Redway or any one an injustice in reprinting these articles and when the promised copy of his book is received, a careful and extended review of the same will appear in the CAVALRY JOURNAL.

BOY SCOUTS.

The "Boy Scout" movement which was inaugurated in England about two years ago by Lieutenant General Sir Baden-Powell has made wonderful strides not only in that country but has taken root in nearly every British colony and in many other countries as well.

In the United States many of these "Boy Scout" organizations have already been instituted and a national headquarters has been established in New York City for the purpose of encouraging the formation of others in every city and town throughout the country and to have eventually state organizations somewhat on the lines of those abroad.

The object of this movement, as stated in their circulars urging the formation of these organizations, is to "inculcate the military spirit in our youth for the purpose of disciplining the boy with a view of making him a more competent man."

The character of this movement is more fully set forth in the following extracts taken from the "Army Annual" for 1910:

"Although the founder of the 'Boy Scouts' has more than once announced that the movement is in no sense of a military

nature, there can be no doubt that the lessons of duty and discipline inculcated in youth will be of the greatest value in later life, should any national emergency arise.

"There is no military meaning attached to the name scouting. Peace scouting comprises the attributes of colonial frontiersmen in the way of resourcefulness and self-reliance and the many other qualities which make them men among men. There is no intention of making the lads into soldiers or teaching them blood-thirstiness. But under patriotism they will be taught that a citizen must be prepared to take his share among his fellows in the defence of the homeland against aggression in return for the safety and freedom enjoyed by him as an inhabitant. He who leaves his duties to others to do is neither playing a plucky part nor a fair part.

"Patriotism means love for one's country and one object of the 'Boy Scout' movement is from early years to instill this virtue in the youth of this great Empire and thus cause its spread throughout the dominions under the sway of our King-Emperor.

"It is a method of developing among boys the manliness and character which are so much needed among our future citizens. It consists, briefly, in giving them scout-craft in place of loafing or rowdiness which are now becoming so prevalent. To drive out a bad habit it is necessary to inculcate a substitute and scout-craft is the substitute we suggest. By scout-craft is meant an education in character outside the school walls, as distinct from mere book-learning learnt within the school.

"Scout-craft includes the attributes of our best colonial frontiersmen, such as resourcefulness, discipline, self-reliance, unselfishness, physical activity and development, chivalry, loyalty and patriotism. These and kindred qualities are taught entirely by practices and games such as really attract and hold the boys; that is, they are taught through the medium of camp life—with its details of pioneering, hut building, felling trees, fire lighting and cooking, etc.—by campaigning or life in the open, finding the way in strange countries, boat-cruising, map-reading, judging heights and distances; conveying messages by signals and signalling; observation of animals and all details of every kind, of tracking and stalking, knowledge of plants and trees

and astronomy; health and endurance, including sobriety, nonsmoking, continence and the general preservation of health and the development of body.

"Chivalry is taught by the example of knights, including helpfulness to others, courtesy to women, self-discipline, courage, honor and cheerfulness.

"The whole scheme and the methods of carrying it out are described in the handbook 'Scouting for Boys'* and further instructions are given weekly in the Scout newspaper which now has a circulation of over 100,000."

ALUMNI ASSOCIATION OF THE FORT LEAVEN-WORTH SERVICE SCHOOLS.

In June last, at a meeting of many of the graduates of the Service Schools at Fort Leavenworth, an alumni association of such graduates was instituted.

A Constitution was adopted which gives the objects of the association to be: First, to increase the military efficiency of its members by affording opportunity for the interchange of professional knowledge and ideas. Second, to perpetuate and foster the Fort Leavenworth spirit among its members by professional and social intercourse.

All officers of the Army who are graduates of these schools, as well as all officers of the Army who have been instructors at the schools, are eligible for active membership in the association, upon assenting to the Constitution and By-Laws. Associate members include all former officers of the Army who have been either instructors or are graduates of the schools. The honorary members include all who are or have been commandants or assistant commandants of the schools.

The following were elected officers of the association for the year 1910-11: President, Major General J. Franklin Bell; Vice-President, Major J. F. Morrison; Secretary and Treasurer (ex-officio), Captain A. E. Saxton; Executive Council, Lieut. Colonel W. A. Nicols, Major W. P. Burnham, Captain J. W. McAndrews, Captain O. L. Spaulding and Captain LeR. Eltinge.

SONGS OF THE SERVICE.

A communication has been received from Captain Selwyn E. Hampton requesting an announcement that he is attempting to compile a volume of "Songs of the Service." These are to include only such songs as are known by and are of interest to a considerable part of the army. Those intended only for special occasions or that endure but for a day cannot be included. In case any regiment has any song claimed as its own or of any lasting interest, he would be pleased to receive a copy of the words and, if practicable, of the music also. In such cases he desires that the name of the author be given if known.

Captain Hampton's address is at present: Fort Bayard, New Mexico.

SUBSCRIPTION AGENCY.

Since the Cavalry Association instituted its Book Department some two years ago, we have had frequent requests for prices on subscriptions to periodicals, particularly for troop libraries, and have received quite a few orders to place subscriptions for members when they were ordering books or remitting for dues, etc.

For the accommodation of our members and subscribers, especially for those stationed abroad, we have recently arranged with one of the leading and largest subscription agencies in this country for handling all such orders and are now prepared to quote prices on all foreign and domestic

^{*&}quot;Scouting for Boys." By Lieutenant General Sir R. S. S. Baden-Powell, K. C. B., published by C. Arthur Pearson, Henrietta Street, London. Price, 1s.

periodicals. We guarantee as low rates as those given by any reputable agency.

Particular attention will be given to subscriptions to foreign military journals and the lowest possible terms will be procured.

BACK NUMBERS.

The Cavalry Association has on hand a full supply of back numbers, with the exception of No 47, of the CAVALRY JOURNAL and can furnish copies to such of our members as may require extra numbers to complete their files. These will be furnished without charge to those who have been persistent members when desired for this purpose. Complete sets of the CAVALRY JOURNAL can be furnished, bound or unbound as desired.



NON-COMMISSIONED OFFICERS' PROBLEM No. 3.

The Editor:

Seven solutions of this problem were received. All were considered of a high order of merit, but in three of them a misconception of the words "the spur just north of U. S. Pen." in 2 (a) of the problem affected their solutions, probably causing their distances to be too short for cavalry in such open country.

In four solutions, the support was halted on the crest of Long Ridge in the solution of 3 (b), the question of cover not being apparently considered.

In all solutions to 3 (c), well worded messages were sent but in five of the solutions they were verbal. It is believed that, in view of the importance of the information to be transmitted, the short loss of time required to write the message would be more than compensated for by the certainty of the information being accurately delivered. The message is considered too long for verbal transmission by messenger,

In one solution, through faulty map reading, the support was placed in the railroad cut at XXVII, dismounted for fire action against "both Prison Lane and the road from U. S. Pen. to Atchison Cross." The steep spur to the south of the cut in question, however, shuts off nearly all view of the roads. The field of fire from there would be consequently extremely limited.

In another solution, the support, on reaching the crest of Long Ridge, consisted of but one man, with four other men coming in from patrol duty on the flanks—if nothing has happened to prevent their arrival.

The solutions considered the best were those of "James," "Watson" and "X Y Z," in the order named, the first being the one selected as the prize winner and for publication.

In the solution by "James," it is believed that the Corporal and two men might well be enough for the advance party of such a small advance guard. The remarks above as to a verbal message apply to this solution.

COMMITTEE.

In accordance with the above report, the prize for the best solution of Non-Commissioned Officers' Problem No. 3 is awarded to Lance Corporal Prentice Strong, Troop III, Squadron "A," N. G., N. Y.

The solution signed "Watson," noted above, was submitted by First Sergeant Alfred W. Booraem, Troop III, Squadron "A," N. G., N. Y., and that signed "X Y Z" was submitted by Sergeant Isham Henderson, Troop III. Squadron "A," N. G., N. Y.

SOLUTION.

- 1. Nothing more has been heard of the enemy. Our troop is going to Prison Hill via Prison Lane. We are the advance guard of the troop. Numbers 1, 2 and 3 of the first four will form the advance party under Corporal James who will be my second in command. Number four will act as link. The advance will keep not more than 500 yards ahead of the support and will keep in close touch with the latter at all times. It will take its distance at the gallop and after that will regulate its pace on that of the support. There will be no flankers. I will send men to make any necessary observations on the flanks. I will be with the support.
- 2. "A" Point, one man on ridge of spur, 400 yards north of U. S. Pen. Advance party, Corporal and two men at bridge,

Corral Creek and Prison Lane, south of Railroad Crossing. Link one man at Railroad Crossing. Support four men top of Long Ridge. Temporary flanking patrols, two men at railroad bridge at XXVII and two men on Corral Creek, 400 yards due east of Prison-Lane-Corral-Creek bridge.

- "B." I will be with the advance party, temporarily, in order to take charge of the reconnaissance of the U. S. Pen.
 - "C." 200 yards south of 8.
- 3 "A." I judge that this is the advance guard of a detachment of the enemy, probably of a regiment.
- "B." I halt my men under cover of Long Ridge, send a report to the troop commander, look over the country on all sides and await instructions.
- "C." Am at Long Ridge. Can see about 100 Infantry in advance guard formation moving from Metropolitan Avenue and 9th Street toward U. S. Pen. Dust is rising on Metropolitan Avenue behind them. Have halted and await your instructions.

Owing to the necessity for haste I would send the above message verbally by a messenger.

- 4 "A." When the troop has passed XXIII I will send Corporal James with eight men, as rear guard support, west along the Creek, north of Long Ridge with instructions to keep in touch with the troop and to follow them at an interval of not over 600 yards. I will keep four men with me on Long Ridge and will take the lower 74-XXIV road, starting when Corporal James and his men reach the XXIII-XXIV road. I will stop on the top of the hill north of XXVII for a moment for an observation.
 - "B." None. These men are all with me.
- 5. I continue to follow the troop. My orders are to act as rear guard. I am not instructed to engage an enemy in our rear who cannot follow us, nor am I in charge of the reconnaissance.

Respectfully submitted,

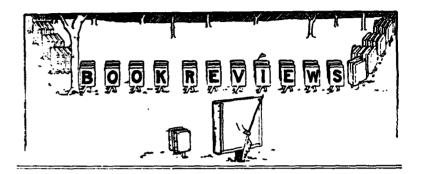
JAMES.

August 8th, 1910.

NON-COMMISSIONED OFFICERS' PROBLEM NO. 4.

Owing to the absence at the various maneuver camps of such of the members of our Executive Council as are farmiliar with the preparation of problems and who have heretofore been charged with that duty, it has been found impossible to procure a problem, under the above title, for publication in this number of the JOURNAL without delaying the issue much beyond the usual date.





Night Operations for Infantry.*

A little book of 64 pages which, according to the advertisement, "is principally designed for the use of company officers."

The author first deals with the importance of training troops for night operations. While he neither advocates nor deprecates night attacks, he believes that if one side does not make them the other probably will and that there is, therefore, necessity for training for night work.

The author suggests a course of training for the individual soldier and for an infantry company. This course is, on the whole, good.

The general principles that should govern night work of this kind are well brought out.

The following quotation, while sound advice if engaging in night fights, it seems to me is a good reason for keeping out of them if practicable:

"Every infantryman must be imbued with the idea that at night the bayonet is the only weapon which he can trust, and that the more promptly he uses it the better his chance of success will be. In the dark every advantage lies with the side that

^{*&}quot;NIGHT OPERATIONS FOR INFANTRY." By Colonel C. T. Dawkins, C. M. G., A. Q. M. G., Eastern Command. Gale and Polden, London, 1910. Price, 1s/6d.

takes the initiative: numbers are of little account, for a resolute bayonet charge delivered by even a single picket, may, if it comes unexpectedly, demoralize and throw into disorder a strong attacking column."

While there is little that is new in the book, it is well arranged and well expressed. The time required to carefully read it will be well spent.

M.

Cavalry

in

the CAVALRY JOURNAL that the English
translation of this new book by that celebrated writer on Cavalry, General V.

Bernhardi, was in press and that an extended review of the same would appear in this number. Unfortunately the promised review has not yet been received, nor are the books ready for sale. However, it is expected that they will be received from the printer within the next month, when the advance orders will be filled as rapidly as possible.

The following extracts from a review of this work that recently appeared in the *United Service Magazine* will give an idea as to its scope:

"A study of this book leaves a reviewer in something of a difficulty. Considerations of space forbid so important a work being noticed at the length and in such detail as it deserves, while it would be hopeless to attempt to note even in brief all the points, worthy of study by British officers of all arms, which it contains in such abundance. At the outset the reviewer may perhaps mention that he had the advantage of reading the original work, 'Reiterdienst,' when first published in January last, and he would desire to heartily congratulate Major Bridges on his wholly admirable translation. It is probable that a great many people may in the first place be desirous of knowing how the book affects the question of cav-



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^{*&}quot;CAVALRY IN PEACE AND WAR." By General V. Bernhardi. Translated from the German by Major G. T. M. Bridges, Fourth Dragoon Guards, with a Preface by General Sir John French, G. C. B., G. C. V. O. U. S. Cavalry Association, Fort Leavenworth, Kansas. Price, postpaid, \$2.25.





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alry armament and employment, in regard to which we have recently had an expression of somewhat revolutionary views, supported by a certain measure of expert military opinion. But those who expect to hear something on the other side will not find anything very startling in the book itself—nothing even so pronounced as may be discerned in the preface contributed by Sir John French, who, like his protagonist. Mr. Childers, is equally able to produce a field marshal in support of his more orthodox opinions.

"General von Bernhardi is very careful in many places and with reference to differing circumstances, to warn cavalrymen of the danger of blindly drawing lessons from peace maneuvers, whereat he contends, and many will agree with him, that the conditions are often unreal and the resulting efforts misdirected. Particular attention should be paid to what the General has to say on the subject of reconnaissance by the army, or independent, cavalry, the organization and duties of the reconnoitering squadrons and distant patrols, and of the increased tactical value of the divisional cavalry.

"General Bernhardi is not in agreement with his own regulations in regard to 'Raids.' which are therein rather discouraged as tending to distract the cavalry from its true battle objectives: the author, however, holds that the disturbance of an enemy's rear communications by Stuart-like raids may often do an opponent more damage and contribute more to a favorable decision than the intervention of a few cavalry divisions in the decisive battle itself.

"Bernhardi is far in advance of his own leaders of cavalry opinion in the importance he ascribes to a combination of the different methods of fighting even in the battle action of cavalry; he would have cavalry fight dismounted in the offensive, not only on the defensive, merely stipulating that such an attack should only be entered upon when it is clear that the results justify the loss, not only in *lives* but also in *time*, which must both be regarded as lost in estimating the further operative value of the mounted force. He would give the cavalryman the best of firearms, yet leave him his sword which, indeed, he seems to rate far higher than the lance; he sees no object in

arming the cavalry soldier with the bayonet, since the hand-to-hand fight on foot must be most exceptional. But perhaps this brief review may best be concluded by quoting the following words which give an altogether just view of the author's opinions as to the employment of the arm of which he is so distinguished an ornament: 'It is not a question as to whether we cavalrymen are to fight mounted or dismounted; but that we must be prepared and determined to take part in the decision, and to employ the whole of our great strength and mobility to this end.'"

Trumpter's inches), which is designed for the instruction of Trumpeters and Buglers in the Military and Naval Forces of the United States. It covers the subjects of Rudiments of Trumpet Music; Trumpet Exercises; Instructions for Trumpeters; Drill Signals; Instructions for Field Musicians; Instructions for Bands; Ceremonies; Honors Rendered by Trumpet; Braiding Trumpet Cords; History of the Trumpet; Table of Trumpet Calls, and finally the trumpet calls, set to music, for the Army and Navy, consisting of the calls and signals proper and marches, quick-steps and flourishes.

Judging from the numerous and flattering testimonials that the author of this book has received from Chief Musicians of the Army and Bandmusters of the Navy as to the merits of this work, it would appear that it would be a valuable aid to our trumpeters of cavalry.

F.

Field Gunners' A booklet of fifty-eight pages (4x5 Catechism.† inches), with linen cover, which is designed for the instruction of gunners in the field Artillery in the British Army. It is arranged in the form of

questions and answers and covers the following sub-heads: Gunnery; Cordite; Gun and Carriage, 18 Pd'r, Q. F.; Ammunition, etc.; Knotting, Tackles, etc.; Care of Horses; Drill; Juard Duty—N. C. O.'s and Miscellaneous.

While there is much of this book that relates entirely to the particular gun used by the Field Artillery of the British Army, yet there is a great deal that is general and which applies to field artillery of any service, such, for instance, as the subjects of the care of horses, etc.

This is a second edition of this work, corrected and brought up to date.

P.

Free This is one of the numerous manuals **Gymnastics.*** issued by Gale and Polden, Ltd., of London and Aldershot, on athletic training and physical development. It is a small book of 67 pages, bound in paper (4½x7 inches), which is fully and well illustrated.

The first 43 pages are devoted to the subject "Free Gymnastics" and the remainder to dumb-bell exercises. It is based on the Swedish system as practised at the Army Gymnasium at Aldershot and is by the Sergeant Major in charge of that gymnasium. Of the book, Colonel John Scott Napier, Inspector of Gymnasiums, says: "I have gone through this little book very carefully and have much pleasure in stating that in my opinion it is the best Manual on Free Gymnastics I have seen. The illustrations are from life and accurately show the correct positions of the body in each exercise. I can strongly recommend the work to any one interested in physical culture."

^{*&}quot;THE TRUMPETER'S MANUAL." By Nathan C. Lombard, Chief Trumpeter, C. A. C., M. V. M. The Lombard Co., Boston. Price, \$1.50.

^{†&}quot;THE FIELD GUNNER'S CATECHISM." By Major A. T. Anderson, Royal Field Artillery. Gale and Polden, Ltd., London and Aldershot, 1909. Price, 1s/6d.

^{*&}quot;A System of Free Gymnastics Based on the Swedish System, Including Dumb-bell Drill." By Sergeant Major J. B. Betts, Army Gymnastic Staff. Gale and Polden, Ltd., London and Aldershot. 1909. Price, 1s/6d.



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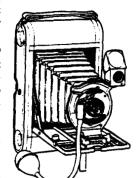
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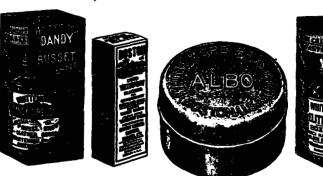
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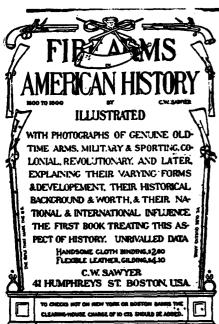
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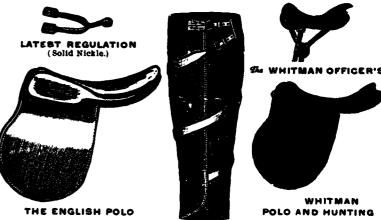
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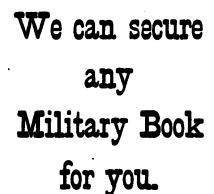
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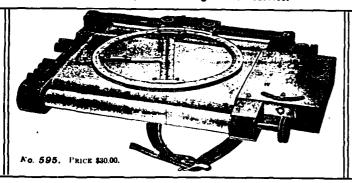
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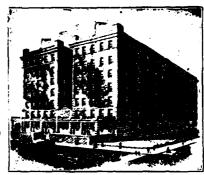
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KANSAS CITY, MO.

NOTICE!

The next Regular Annual Meeting of the U. S. Cavalry Association will be held in Grant Hall, at Fort Leavenworth, Kansas, at 4:00 P. M. on Monday, January 16, 1911, as provided in Section 1, Article VI, of the Constitution of the Association.

A list of the members of the Association who are on duty at Fort Leavenworth will be found on the back hereof.

Please fill out, sign and return the proxy hereon below and mail the same to the Secretary without delay. Cavairy officers on duty with their regiments can save trouble by handing the same to the regimental member of the Sub-Council.

Very respectfully.

EZRA B. FULLER.
Lieut. Colonel U. S. Army. Betired,
Secretary

	1910.
I being	a REGULAR member of the U.S. Cavalry Asso-
ciation, in g	ood standing, do hereby constitute and appoint
of theme at the ne	U. S. Cavalry, as my proxy, to represent ext Annual Meeting of the Association.
For th	e improvement of the Journal of the Association od of the cavalry service generally. I suggest the
following:	

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W. T. Littebrant, 15th Cavalry,

W. T. Johnson, 15th Cavalry,

E. M. Leary, 11th Cavalry,

A. E. Saxton, 8th Cavalry,

H. S. Hawkins, 4th Cavalry,

M. O. Bigelow, 8th Cavalry,

LeR. Eltinge, 15th Cavalry, G. W. Moses, 15th Cavalry,

H. O. Williard, 5th Cavalry,

S. M. Kochersperger, 2d Cavalry,

A. G. Lott, 6th Cavalry,

Wm. Kelly, Jr., 9th Cavalry,

.H. C. Whitehead, 10th Cavalry,

G. E. Mitchell, Signal Corps,

C. R. Day, 5th Cavalry,

J. F. McKinley, 11th Cavalry,

8. Heintzelman, 6th Cavalry,

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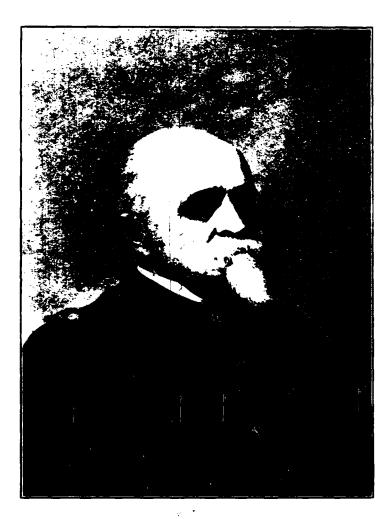
J. Cocke, 15th Cavalry,

Wm. S. Barriger, 8th Cavalry.

SECOND LIEUTENANTS.

E. S. Hand, 15th Cavalry,

T. DeW. Milling, 15th Cavalry.



BRIGADIER GENERAL JAMES BIDDLE
United States Army.
Died June 9, 1910.

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No. 81.

THE FORT RENO REMOUNT STATION.

BY CAPTAIN W. C. SHORT, THIRTBENTH CAVALRY.

I HAD the pleasure during August of this year of making a visit to the Fort Reno Remount Station, and I feel that the mounted service would be interested in knowing of the great progress that has been made by the Quartermaster General and the remount officers towards the betterment of the class of horses furnished the Army.

I visited the Reno Remount Depot two years ago and saw it in its infancy, and upon returning there in August I was very much surprised to see what had been accomplished in the short period of two years. I saw about 650 horses from 2 to coming 5 years old, all in magnificent condition and properly cared for; 450 of these horses were 4 years past. These horses are the best average lot that I have ever seen purchased for our cavalry, and are far different from the class of horses that have been furnished us of late years. They have evidently been selected on a good standard of conformation with the view of their suitability for saddle purposes. I saw the majority of the 4-year-olds under the saddle.

The equipment used on these horses was the snaffle covered with leather, and a cow saddle with a single cinch, rider without

spurs. I did not see a single horse that was not perfectly gentle and kind, and, what was more pleasing than anything else, not a single horse was carrying his head in the air with his nose stuck out to get away from the bit. These horses were trained to go to the front very deliberately at a walk, trot and canter, and to stand perfectly still while being mounted on either one side or the other. In the majority of cases the rider threw down his reins and slid over the croup as an example of the kindness of his mount.

When one considers that formerly we were accustomed, in the mounted service, to receive horses that had been mishandled by the contractor in order to be able to show the inspecting officer that the horse could walk, trot and gallop, it should be a pleasure for a troop commander to receive his quota of remounts thus properly started on their training, and in a frame of mind to receive higher instruction before entering the ranks.

In going into the fields I noticed a great sign of proper handling in the fact that the horses all came to meet us, showing that their first impression under training was kindness. I found also that they handled very gently under the herders. Any cavalryman will be able to appreciate how much this means. I found the 2-year-olds were a very superior class, this being due to the fact that the buyers are able to purchase a 2-year-old at a reasonable price.

The service at large should appreciate the fact that this system will soon provide a very much superior horse than it has ever been furnished before, and this because it is possible to buy a superior colt at a reasonable price before the breeder has been under the expense of keeping and breaking him.

Nobody can understand how difficult it is to find horses suitable for saddle purposes at the present day unless he has had experience in purchasing them. Having spent several years trying to locate some section of the country where I could procure suitable saddle horses that could be purchased at a reasonable price. I found it more difficult each year to find them.

If General Aleshire had not taken up the matter when he did, and if he had not so ably handled the herculean task at this moment, the prospects of bettering our mounts would be very slim indeed. I believe the question has been solved in the only

way possible, i. e., to purchase colts (and older horses when possible) and put them on a remount farm until they are old enough (4 years) to break to ride. They then have learned to be content away from their homes, to live in a herd, to be stabled under the same conditions that they would meet in the service, and in all probability will have gone through all the distempers and ailments that are sure to come to the young horse after being taken away from his home life. He will have received the proper start in his training, as the first impressions of a horse are the most lasting ones.

With this system it is up to the troop commander to continue the training so well begun, and if the horse does not turn out well the officer has no kick coming.

When the system of condemning not exceeding 10 per cent of the horses per year has had time to bring its results, the young remount can be kept out of the ranks long enough to have him properly prepared before he is put into troop work.

Two years is the cast iron minimum training period of the remounts in the European armies. I do not hope to see regulations requiring as long a period of training as two years go into effect in our army, but I do hope to see a strict regulation prohibiting a magnificent 4-year-old going into ranks two weeks after arriving at a station, handicapped with a curb bit, a recruit and a pair of spurs.

One of the most pleasing sights at Reno was the condition of the horses; their coats were shiny and they were in good flesh. Saying that means much. It was not the soft, flabby fat of the horses formerly furnished by the contractor, which was put on with molasses and alfalfa in order to cover faulty conformation and to make the weight, but good oat flesh and muscle from reasonable exercise. The horses obtained from the remount depot are ready to go to work; the horses formerly obtained from the contractors were not.

All this system that obtains at Reno has not been easily accomplished. Upon returning from my visit two years ago I told my comrades that I was sorry for Captain Hardeman, who is the officer in charge at Reno, as I considered that he had the biggest job on his hands of any one man in the Army, and I be-

lieve he did have. How well he has handled the proposition certainly speaks for itself. He has had only one assistant, but a very able one, Lieutenant W. P. Ennis, 1st Field Artillery.

The pastures have been enclosed with woven wire; wells have been sunk; feeding sheds constructed; stables for the horses in training have been built, and a modern veterinary hospital is in good running order. The old barracks are used as bunk houses for employes. An excellent mess for the employes is maintained. A considerable oat and corn crop and all the hay is raised on the reservation. This year seventy acres have been sown to alfalfa. This acreage is to be gradually increased so as to supply all the alfalfa hay needed and to provide sufficient pasturage.

But not the least of Captain Hardeman's troubles is the civilian personnel—I mean the riders. At first he tried the professional bronco busters and cowboys, but soon found that they, especially the wild west show riders, spoiled more horses than they were worth. It finally settled down to the few among the cowboys who could adapt themselves to handling horses gently, the farm-raised type, and a few discharged soldiers. But the constant change which is bound to occur in a body of men where they are not obliged to remain is very trying, especially after much time and patience have been put into their training for the work.

But, notwithstanding the many difficulties experienced in getting and retaining the proper kind of men, there are a few of the riders who have been at the depot practically since it started and who have contributed not a little to the successful handling of the horses. During the past year there have been upwards of 450 horses broken, every one of which had to be ridden bareback before a saddle was put on him. I note these items to show a part of the immense task which Captain Hardeman has so successfully handled.

Another difficulty has also been solved. It is known how hard it is for officers to obtain a suitable mount, from the number of letters I receive from all parts of the Army requesting authority to purchase horses from the Mounted Service School. The Remount Depot affords an opportunity for an officer to

choose a horse from a great number at the first cost to the government, an advantage which few outside of the service could hope to have. Since the Remount Depot was started there have been sold to officers sixty-three horses to date.

It must be understood that not only cavalry horses are handled at Reno, but artillery horses as well. I saw teams of 4-year-olds in the different stages of training hitched to caissons with the regulation artillery harness. As a test of the efficiency of the training two caissons were loaded with sand, making the weight to be drawn 5,000 pounds. The teams crossed a very deep ravine with very severe slopes. On the slopes coming out of the ravine the teams were halted and then started. I have never seen young horses go into their collars more deliberately and together. I asked the average weight of these 4-year-old teams and was told that one team was 1,130 and the other 1,170. These horses were not of the slow draft type, but were of the quick draft type, and had shoulders with the proper conformation to bear a collar.

I have asked the Cavalry Journal to publish this article because I have always been a kicker regarding the class of horses furnished our mounted service, and I feel that the Army should know what strenuous efforts are being made by the Quartermaster's Department to help us out. I did not know this myself until I visited the Fort Reno Remount this time. I understand that the Remount Depot at Fort Keogh is fast being put into the same condition.



CAVALRY TRAINING.

BY LIEUTENANT B. K. EDMUNDS, EIGHTH CAVALRY.

N the history of warfare there has been no time when more was demanded of a cavalryman than there is today. He must not only be an expert with its own peculiar weapons, the horse and the sword, but must rival the foot soldier's steadiness in dismounted fighting, and must equal or excel his skill with the rifle. In addition he must be a horseman in the broadest sense of the word, must be an experienced and trustworthy scout, and, in our own service at least, must be able to render a good account of himself with the pistol. To educate men up to this standard in these days of short enlistments, some system of training must be adopted which will make use of every minute to the best advantage.

This is well understood in Continental Armies, and the training of the Cavalry in France and Germany has reached a high standard of excellence. We, however, cannot blindly follow their methods, for the conditions which confront us are radically different from those which exist in the nations of Europe. To be successful, our system o instruction must be in harmony with our history, traditions, organization and government. To adopt for a republican and volunteer army methods which are used in a nation having universal and compulsory service, a highly organized reserve, and an elaborate remount system, would be obviously absurd.

The things in which the Cavalry should be trained fall naturally into three classes, viz.:

- 1. Training for mounted action.
- 2. Training for dismounted action.
- 3. Training for marching and reconnaissance.

The first of these classes will include horse training, the schools of the trooper, troop, squadron and regiment. The sec-

ond class will include dismounted training in attack and defense and the use of the rifle. The third will include practice marches, training in patrolling, outposts, messages, map reading, etc. To the third of these classes we have lately been devoting much attention, but the first has received little encouragement from higher authority, and the troop officers have, through lack of time, been forced to neglect it. In so much of the second class as relates to the use of the rifle we have been remarkably successful, and while the tendency of our regulations has been to develop individual target shots rather than trained units for battle, still it can safely be said that our Cavalry now shoots better than any troops in the world except our own infantry.

However, much as we may excel in this one particular, it does not excuse us from our neglect in other directions, for it is but reasonable to believe that troops which are equally and symmetrically trained in all the branches of their profession, must in an extended campaign have the advantage over those which excel in one branch at the cost of others equally important. Our mistake in failing to provide a system of training in mounted work becomes more apparent when we consider that we are the only nation where the horses are trained by the men that ride them, where recruits join their troops without training in riding or even the dismounted evolutions of cavalry, where there are no riding schools or riding masters, where, in short, the troops must do all the work.

It has already been said that we have attained a high degree of success in rifle practice. We can reasonably suppose that if certain methods give success in one branch of training, similar methods judiciously applied will give success in other branches. Let us see what methods have been used to improve our records in rifle practice. We find that:

- 1. A certain fixed period in each year is set aside for target practice; a progressive schedule of training is laid down for this time. Each man starting with the extremely elemental work each year, and gradually progressing to the more difficult as the season advances.
- 2. Substantial pecuniary reward is given for excellence displayed by individuals.

- 3. Emulation is encouraged between the organizations by publishing their relative standing.
- 4. "Interest is kept up" by competitions, in which the crack shots participate.

These are the methods which have been used to improve our shooting; let us see if similar methods could be used to improve our mounted work. I take it that the first essential to improvement is that a specified time be set aside for mounted training, for under present conditions no progressive work is possible. A recent order required, in this Department at least, that each troop spend six days in each month on "field training." Two night maneuvers are required each month, on the days following which the troop may be excused from drill. When to the time thus taken up is added the time used in practice marches, the time spent in the supplementary target season (about two weeks in each fall), and the days lost due to inclement weather, it becomes apparent how little time can be spent on horse and man training; indeed, a troop will not average three days' instruction a month in these essentials during practical season, and the lessons are so far apart that both men and horses forget what they learned in each preceding lesson and no progress is made.

The question now arises, what proportion of the year should be devoted to each of our three classes of training (dismounted training, mounted training and field training)? There are seven months in the practical season, and of these three are already assigned to target practice. Considering first the years on which no maneuvers are held, there are four months remaining, and of these I believe that three should be devoted entirely to mounted training. The three best months would be July, August and October, leaving September for the field training, which is, all things considered, the best for this purpose throughout the country, being neither too cold in our Northern states nor too warm in our Southern to work comfortably out of doors. On maneuver years the time spent on mounted training will be reduced to two months.

As our target practice starts each year with elementary drills in sighting and aiming—so our mounted work should start with elementary drills in riding and horsemanship—for horseman-

ship is the absolute foundation of all cavalry work, and we can expect neither cohesion in maneuvering nor endurance in the field unless both men and horses have received a previous thorough individual training. The mounted season should then start with three weeks' work with the longe and snaffle, giving the men seat, hands and aids and teaching the horses to go up to the bit, the regulation gaits, and to answer to the aids. Some training in jumping should also be given here both on the longe and with the snaffle, until the horse has learned to move freely against the bit; practice in passaging, backing and turning on the forehand should be delayed. At this period it would probably be better to have two short mounted drills (about an hour each) rather than one long one. At the dismounted drills the men should be given the preliminary work with the saber and pistol, as well as close and extended order drill with the rifle. During the first month of the season the troop commander will have an opportunity to pick the men best qualified to handle recruits, and new and backward horses.

The first three weeks of training should be followed by a careful inspection by the squadron commander or other senior officer, to decide what men and horses will be continued in the preliminary work.

From this point we can go on to the training with the curb, making the horse ready to take his place in ranks, and the man thoroughly familiar with his mounted weapons-the saber and pistol. The training of a troop horse need not be extensive, but should be thorough. He should know the three gaits, should move freely on the bit at all times, answer quickly to the aids, change lead in the gallop, passage and back readily, jump anything up to four feet high and six feet wide-these are the essentials; anything beyond is superfluous, and may be harmful. In this stage of his training the soldier should have his saber or his pistol almost constantly in his hand, and should practice with them until their use becomes automatic. This period of training should last until the third week in August, and should be followed by an inspection in the use of the saber and pistol and the training of the horse for work in ranks. The training in jumping must be completed in the fall, after the field work.

If the practice march comes in September, there remain two weeks for the school of the troop, and with the individual training which the men and mounts have received, on which excellence in close order work depends, this should be sufficient. It would be well to gradually increase the weight carried during this time so that when he leaves the garrison the horse will be accustomed to the full pack.

October should be devoted to troop, squadron and regimental drills and minor tactics. The horse's education in jumping should be continued, and cross-country rides made. Squadron and regimental drills should consist for the most part of field exercises; that is, each movement should be made in conformity with the ground, an assumed object, and often an outlined enemy. To a limited extent the formal squadron drill at the drill ground is useful in teaching formations, gaits and distances, but it can safely be said that to lay down and drill any fixed and formal formation, either mounted or dismounted, for use in attack or defense or on service, cannot but work harm. This instruction can generally be continued well into November. Some time in October the annual inspection should be made, and it should be a comprehensive one. It would be well to have the property inspections and the troop inspections made by different officers. The one inspecting troops should spend at least a week with the command to which he is assigned, and his report should be thorough and critical. It is on the comparisons made on the various inspections that we must depend for the incentive to do well among the troop commanders; without some incentive to work, little can be accomplished.

On maneuver years everything in the beginning of the season must be subordinated to the effort to get the horses and men in condition quickly for the march. If the march is made to the maneuver grounds, the troops should not start before August, thus giving a month to harden the horses. This will throw the maneuvers in late August and September, which is a good time as regards weather. The practice of starting troops on a long march immediately at the close of the target season is faulty, because neither men nor horses are prepared for it. During target practice the officers are so continually on the range and the pit details are so large that almost nothing can be done

with the horses but an hour's leading or an afternoon's herding a day, and they are not fit either for weight carrying or marching by the first of July. A month's training before taking the field would save us many sore-backed and foundered horses, and enable us to do much better work in maneuver problems.

It is too early to discuss the new firing regulations at present. They seem much more practical than the old, and the field firing prescribed fills a long felt want, in training our troops as units and under conditions approximately more closely to those of the battlefield. One thing the new regulations do not do, and that is make the individual course shorter and simpler. With the more intricate and more numerous targets used, the pit details must be larger and more time must be consumed, thus making it harder than ever to keep a cavalry command in shape during the target season.

Competitions, if held at all, should be held during the target season. They should not be allowed to encroach on the time which should be devoted to mounted training and field training. Competitions, in any case, are of doubtful value. They are a great expense to the Government, and cause the absence from their posts of a large number of trained men. The men who receive the training they give are for the most part those who would not fire a shot in battle, being almost invariably high ranking non-commissioned officers, and the training they receive is given under such artificial conditions that it is doubtful if it is of any practical value.

Let us consider now the training in field work. We have assigned a month for this purpose, and, if properly utilized, this time should be sufficient to teach the principles of castrametation, cooking, transportation and field hygiene. Thirty days would seem to be enough for this without the monthly marches. These latter, on account of the limitations of time, camp sites, water, forage, etc., must always cover nearly the same ground, and the problems of one month have all been solved a month or two before. In the long march, on the contrary, each day presents a different problem.

It is becoming recognized in our service that the best and most practical way of learning the service of security and information is by participation in minor tactical problems. The 410

thirty-day march will offer many opportunities for these under the most varied conditions of terrain. Problems in outposts, advance and rear guards, patrolling, convoys, etc., can all be made both interesting and instructive. Marches of not over five or ten miles should be made on days when these problems are held, and they should be followed by a short criticism by one of the senior officers before the officers and N. C. O.'s participating. Further instruction on the same lines can be given during the regimental exercises in the fall. Additional instruction can be given to officers during the theoretical season by means of the map maneuvers. In this regiment two troops have extended this form of instruction to the non-commissioned officers' school. The one-sided map maneuver is well adapted to the teaching of the handling of small patrols, writing messages, etc., and it is certainly superior to the mere "specking" of the rules and plates in Wagner and the Field Service Regulations.

The changes in our method of training which have been so far suggested could all be accomplished by orders from the Army itself, and would cause no additional expense to the Government. They would require no additional legislation.

It is difficult to leave this subject without referring to other changes which would be of benefit to the cavalry. One of the most pressing needs at present is some change in the method of training recruits for the mounted service. Recruits now joining their commands do so often with six or nine months' service, yet they cannot take their place in ranks even at dismounted formations. It would seem that recruits enlisted for mounted service might at least be trained at the depots in the dismounted drill of the arm to which they are to be assigned.

Perhaps owing to additional expense, the establishment of separate recruit stations for the mounted service would not be looked on with favor, but there can be no question that this would greatly increase the efficiency of our cavalry. Under competent commandants, which the school at Fort Riley can now furnish, three months' training at such a station would not only make each recruit much more valuable to the organization which he joins, but would in a short time greatly improve the standard of horsemanship throughout the service. A few years would develop at the depots an organization and a personnel fitted not

only to train recruits, but also remounts, and our cavalry could be kept up to standard both in peace and war.

It is well known how our regular regiments deteriorated after the Santiago campaign owing to the vacancies being filled with raw recruits. Under present conditions a year's hard service would make our regular cavalry little better than volunteers, for, unlike most of our possible adversaries, we have no trained reserves to fill the gaps in the ranks.

The systems of rewarding excellence in marksmanship by increase in pay might well be extended to include other weapons besides the rifle. One Master of the Sword in each troop, selected from among the non-commissioned officers, with increased pay, would do much towards improving our swordsmanship. A grade for pistol shots could be established as well as one for horsemen who are able to pass a theoretical and a practical examination.

That the changes herein suggested would not turn us into perfect cavalry is freely admitted, but that they would make a great improvement is not the less firmly believed. It is not to be expected, for instance, that six weeks' horse training will make either perfect mounts or perfect horsemen, but six weeks' systematic and continuous training would be worth three years of our present haphazard methods.

What we most need is to realize and to act on the fact that Cavalry has several functions, all equally important; that perfection does not lie in a high figure of merit, or in marching a thousand miles a year



THE TACTICAL AND STRATEGICAL USE OF DIRIGIBLE BALLOONS AND AEROPLANES.*

BY COLONEL JOHN P. WISSER, COAST ARTILLERY CORPS.

INTRODUCTION

My interest in the subject of dirigibles dates back to the beginnings of that new element in warfare. As editor of the Journal U. S. Artillery I became interested in the earlier attempts of Count von Zeppelin and have followed his various efforts ever since.

For about three years past, while on duty as military attaché in Berlin, I had occasion to see a great deal in this line—day after day for weeks and months I used to see the Parseval and the Gross balloons sailing over Berlin past my house, and had opportunity to study them on their maneuver grounds at Tegel; moreover, I visited Friedrichshafen to see the Zeppelin balloon and its great balloon halls on Lake Constance, and witnessed the wreck of the unfortunate one at Echterdingen on the Neckar.

HE conquest of the air by the invention of dirigible balloons and flying machines or aeroplanes is not only the greatest invention and discovery of the century in a general sense, but is also a matter of vital importance to the military world.

The phenomenal improvement in firearms of all kinds, including cannon of all calibers, as regards fire effect and rapidity of fire, and the introduction of improved powders and explosives

which have taken place in recent years (improvements still going on constantly) have entirely changed our original conceptions of the terms "distance" or "range" in battle, and extended them far beyond the old limits. The result is that a modern battlefield presents a very different picture today from that which was seen only two or three decades ago—the points of difference becoming more and more marked every year—and the commander-in-chief of an army, as well as the subordinate commanders, will not only find greater and greater difficulty in keeping in communication one with another and obtaining reliable information of the enemy's movements and measures, but the importance of so doing is constantly increasing.

In other words, the relations of time and space constantly play a more and more important role in a campaign as time goes on, and the army that excels in bridging over the greatest space in the shortest time is very apt to be victorious. To accomplish this the armies of the world utilize every available means of communication, and the dirigible balloon and the aeroplane are the latest developments along these lines and constitute factors of the highest importance for this purpose.

The increased effect of fire above referred to has, however, had a result which is of great significance in this connection, namely, the tendency of armies to leave the landscape empty of troops, even on the battlefield, either by doing their work beyond the enemy's range, or, if within that range, by screening the troops as much as possible from his view or fire action by making full use of natural cover, by using so-called war colors for uniforms and material, or by means of protective armor shields. As time goes on, less and less is actually visible on the battlefield or in the theater of war, and this makes reconnaissance and observation of the enemy all the more difficult. These conditions at once emphasize the vast importance of dirigible balloons and aeroplanes as powerful elements in the service of security and information.

The advantages of these new elements in reconnaissance become particularly apparent when we consider the difficulties in the way of ordinary reconnaissance by cavalry or infantry. For example, in observing a column on the march, such as a division,

^{*}Lecture delivered before regular and militia officers at Camp of Instruction, Chickamauga Park, July, 1910. and before Georgia National Guard Officers' Association.

which can be approached only to within a certain distance, it is practically impossible to see another division in rear marching on the same road, and yet the knowledge of this fact may be of vital importance. Again, in reconnoitering a position, it is impossible, even by using a number of observers at different points, to tell with certainty whether the enemy's force is merely one for holding the position or represents a concentration preparatory to making an attack with a view to breaking through the opposing front; the *importance* of this knowledge is too evident to require comment.

These difficulties in reconnaissance have led commanders in the past to make use of demonstrations in order to keep the enemy occupied either at one point or all along the entire line with a view to concentrating at another point or on the flank of the line. But in heavily wooded country, like the wilderness in Virginia, for example, it is impossible to get any definite insight into the enemy's measures by the old methods from a point on the earth's surface. Moreover, such demonstrations are often costly in men and exhaust the troops. Dirigible balloons or aeroplanes solve the difficulty by affording the commander a view of events transpiring behind the veil that screens his front, and this without any losses.

These new means of reconnaissance, therefore, change many elements in modern tactics, and the present system of screening and all the old methods of deceiving the enemy will be greatly limited in their effects, while the consequences of the relative strength of the forces engaged will be more severely felt.

Reconnaissance in war will hereafter be more thorough than in the past, and commanding generals will obtain more accurate information of the enemy and keep up better communication between the subdivisions of their own troops, but this will not always make their ultimate task any easier, because of the graver responsibilities resting on their shoulders. On the other hand, neither will ignorance of the enemy's positions or actions (as it has so often been in the past) be an excuse for making mistakes in strategy and tactics in the future. Indeed, as in all other innovations in the art of war, the commander-in-chief who is a good strategist and tactician will profit by this new war material, whereas one who is weak in one or both respects will

necessarily suffer by their use in the theater of war, provided his adversary has the ability to properly utilize the better information he receives.

Dirigible balloons and aeroplanes, therefore, will not make strategy as an art, or tactics as a science, any easier, but will facilitate the execution of sound strategical or tactical plans, by furnishing better, more definite, more complete and more comprehensive information regarding the enemy's positions and forces.

As a means of communication or of obtaining information, the aeroplane and the dirigible balloon surpass not only the older means, like the telegraph, telephone, bicycle, etc., but also the later developments of these, such as wireless telegraphy, motorcycle and automobile. Wireless telegraphy enables the automobile, in spite of the great distances run, to keep up communication with the base, without laying the long lines of wire required by the telegraph or telephone, but the dirigible balloon or the aeroplane combines the respective advantages of both automobile and wireless, in that it possesses great speed, the possibility of direct personal communication, as well as freedom from long lines of wire, and over the automobile it has the further advantage of being independent of bad roads and of all natural obstructions, such as rivers and other waterways, etc.

These are the general principles and characteristics common to all air machines, whether dirigible balloons or aeroplanes. We will now consider the special characteristics of each.

DIRIGIBLE BALLOONS.

The number of dirigible balloons in existence at present is very limited: there are twenty-eight in all, of which Germany has thirteen, France seven, Italy two, and the United States, England, Belgium, Austria, Russia and Spain each one. Their size or capacity varies from 700 to 15,000 cubic meters, their length from 100 to 450 feet, and their diameter from 19 to 40 feet. Most of them have but one gondola, but the Zeppelin airships have two. The number of motors varies from one to four, the strongest being of 135 horse-power. The greatest speed was attained by the German military airships of Major Gross, which

made about 36.7 miles an hour, and the greatest height was reached by the Parseval airship, which rose to 5,000 feet.

About twenty-five dirigible balloons are now building in the different armies of Europe.

Germany is therefore far in the lead of all other nations in the matter of dirigibles.

Three distinct types of dirigibles are generally recognized, differing in construction, portability and other qualities, and therefore in their military use, namely, the rigid, represented by the Zeppelin airships, in which the balloon body or envelope is enclosed in and supported by a rigid framework of aluminum rods, to which the gondolas and other parts are attached; the semi-rigid, represented by the French airship La Patric, which was lost, or by the German military airship of Major Gross, in which only the framework of the gondola and its attachment to the buoyant body or envelope is rigid; and, finally, the non-rigid, the best example of which is the Parseval dirigible, which has no rigid parts whatever.

The German airship fleet at the beginning of the present year comprised three of the rigid, five of the semi-rigid and six of the non-rigid type.

The rigid type will find its principal application in strategy, over the entire theater of war, or along the entire front of strategic deployment of the enemy on the frontier, while the semi-rigid and non-rigid types will be used mainly in the domain of tactics, and the non-rigid more particularly with the advance troops of the field army.

The rigid type requires balloon halls to be established at convenient points for its safe housing, but has great carrying capacity and theoretically there is no limit to its possible size. It has an average speed of 30.2 miles an hour, but has made 35½ miles an hour, and has shown itself capable of remaining in the air for twelve hours continuously. It could therefore have covered the entire front of strategic deployment of the French Army in 1870 from Muhlhausen in Alsace via Belfort to Trives, and reported back at headquarters within twelve hours with a full report of the situation, giving the German commander-inchief a complete insight into the French strategic deployment; or in the Civil War it could have gone from Washington via Fred-

ericksburg and Richmond to the Shenandoah Valley and back again to its base, bringing a detailed report on the entire Confederate position. It is hardly necessary to emphasize the importance of such information in these or similar cases.

The Zeppelin airship can carry from eight to twelve persons easily and has taken as many as twenty-six; consequently there is no difficulty in quietly taking observations from on board, and the photographs taken during the various trips of the different Zeppelins are excellent and give all necessary details.

The great defect of the rigid type of airship is its liability to injury or destruction when exposed in the open to the elements, and airship halls at various points are absolutely necessary for its protection. The German War Department proposes to construct such airship harbors in all its principal fortifications. Strassburg. Metz and Cologne on the western frontier already have such harbors of refuge, and the next places to receive them will be Königsberg and Thorn on the eastern border. France has established her airship harbor at Epinal.

These harbors are to contain all arrangements necessary for assembling, filling, housing and protecting airships, including airship halls, gas plants, workshops, etc.

The semi-rigid and the non-rigid types (particularly the latter) are designed especially for portability, so that they can be carried along by the field army. The rigid portions of the former are made so that they can be folded up for compact packing in transportation; nevertheless, the non-rigid is by far the more easily portable.

The performances of these types have thus far been at least equal to those of the rigid type, in spite of their much smaller volume and lower cost. The Zeppelin, with a capacity of 15,000 cubic meters, has made a speed of 33.5 miles an hour, and its longest trip has been 12 hours; the German military (or Gross), with a capacity of only 4,800 cubic meters, has made a speed of 29 miles an hour, and its longest trip lasted 13 hours, but the latest model (M. III), which has had a number of trials, but has not yet completed its final tests, has a speed of over 30 miles an hour. Finally, the Parseval, with a capacity of only 3,200 cubic meters, has made a speed of over 34.6 miles an hour and

an endurance trip of 11½ hours, and the latest model is far superior to this.

The semi-rigid balloon must be taken apart for transportation and some time is required for assembling it and preparing it for action.

The non-rigid, on the other hand, can be carried on wagons to any point in the field of operations, unloaded, filled and prepared for action in a short time, and after making its flight can land anywhere in the open, be emptied, packed on wagons again and carried to any other desired point.

The Military balloon, therefore, is more suited for the work in fortified places, or the more permanent headquarters in the field, while the Parseval can directly accompany the field army in all its movements.

The latest model of the Military balloon (M. III) has a capacity of 6,500 meters, and has four motors installed in it, with a total of 300 horse-power.

All three classes of airships are fitted with wireless telegraphy for the rapid and constant transmission of important messages during a reconnaissance, and they are also provided with arrangements for firing grenades and explosive shell. They can all rise to a height of nearly 5,000 feet, or out of reach of small-arms or artillery.

AEROPLANES.*

Among the great discoveries of recent years the aeroplane, in its present efficient form, must be included, and, in view of its latest performances, it has a right to be regarded as a service-able war material. It can travel by its own power for over four hours continually, making over 125 miles, taking its own course through the vast ocean of atmosphere without once resting on earth, attaining a maximum speed of sixty miles an hour, and rising easily to a height of 3,000 feet or more. (At Indianapolis recently Brookins rose to 4,384 feet.)

The rapid progress already made in the development of the aeroplane leads us to believe that the maximum performances above referred to will very soon be average performances for

such machines, and experts in this subject predict that before the end of the year the following records will be made, namely, a maximum endurance flight of ten hours, a range of 450 miles, a speed of 62.5 miles an hour, and a height of 6,000 feet. The only factor that interferes with its development now is the aeroplane motor, and it is only a question of time when this will be made as perfect and reliable as the present automobile motor.

The grave question affecting the military value of the aeroplane at present is whether it is capable of coming into action promptly in any locality in the field. It requires a certain amount of level ground in order to make a good start, but, inasmuch as these machines in their latest forms can be readily taken apart, packed on wagons or pack animals and transported to any point desired, there is no reason why the needed level stretch should not be quickly found.

It must be remembered that other war material on the march is very rarely at the desired point at a given time and perfectly prepared for action—siege artillery or what is now designated as heavy field artillery or artillery of position, for example, and even field artillery itself—consequently we must not expect too much of the aeroplane; but when once the latter has left the ground it will soon make good the time required to bring it into action, in the first place by its great speed and in the second by taking the air line (or shortest possible way) toward its object.

Another objection to the aeroplane (and this has also been raised against the dirigible balloon) is the opinion that it cannot rise except in calm weather, but this is a mistake as regards the former. The German dirigibles have shown that they are capable of making flights on three-fourths of the days of the year, and in regard to the aeroplane, moderately strong winds offer no difficulties; indeed, some pilots prefer strong winds up to a certain limit of strength. In time of war, however, greater chances will be taken and aeroplanes will probably rise, no matter what the wind may do, provided the necessity exists—soldiers must risk their lives in this as well as in other branches of the service. It will largely be a question of the capabilities and the training of the pilot, consequently all the world's armies are working hard to build up a corps of experts in this line.

^{*}France has already produced over 800 aeroplanes, the market price varying from \$3,000 to \$5,000 apiece.

France has perhaps the greatest number at present, and our own army already possesses a goodly corps of experts in its Signal Corps. The other nations are somewhat behindhand. Germany, however, is rapidly improving, having acquired a number of American and French machines and imported French teachers to instruct the personnel; moreover, volunteer corps for aeroplane flights are being organized, and a subsidy law, to encourage the construction and importation of flying machines of all kinds (by paying a certain amount for each serviceable machine owned by a citizen of the country), is now proposed.

The great requirement for a military machine is easy transportation, and for this reason the American machines, especially the Wright and similar types, and the French Bleriot machines, which, when assembled ready for flight, take up no more room than an automobile, and which can also be taken apart for more compact packing, and can be readily assembled again for use, are well suited for tactical work.

The proper organization to be given the aeroplane troops has already been considered by military authorities, and the following has been decided tentatively:

Every army headquarters and every army corps division and brigade should have attached to it one or more aeroplane detachments, composed of three or four men as crew, two as pilots (one to relieve the other), and an officer well trained in observing from such rapid-moving machines to make the actual reconnaissance.

For use in the field the aeroplane should be mounted on an automobile body carrying the material necessary for repairs to the aeroplane, and manned by chauffeurs to run the automobile. This automobile body will serve to carry the aeroplane on the march, and, when required to go into action, to take it quickly to suitable ground for rising; moreover, should the aeroplane be forced to land for any reason the automobile body can hasten to its assistance; and, finally, it will serve as its repair shop, refuge and base of supply at all times in the open.

The great value of the aeroplane lies, of course, in its speed, the fact that it can rapidly pass over the enemy's troops and get an unobstructed view from above, and, if need be, rise out of the range of small-arms or field artillery, but, in order to fulfill

its mission properly, it must enable the observer to take detailed observations and record them for his report. But in this respect the aeroplane cannot, as yet, compare with the dirigible balloon.

It is very difficult, under the high speed, a quality inherent in this machine, even with a separate observer, to note details with any degree of accuracy, and it has been found impracticable thus far to take good photographs of the landscape from an aeroplane in flight; consequently, the aeroplane will probably be used in war not so much for detail reconnaissance, but more especially for rapid, superficial and general reconnaissance, furnishing information in broad outline only, and giving merely approximate data regarding the movements of our own or the enemy's troops at particular points, or the positions of the enemy's earthworks, etc., while the dirigible balloon in the air and the cavalry on the earth's surface must supply the details. But, in spite of the fact that the reports from aeroplanes will be limited largely to generalities, the information furnished will still be of great value to the commanders.

The cavalry in modern war has all it can do, and its burden of work is constantly increasing; consequently, every means of relieving it as much as possible must be resorted to, and the aeroplane promises to be one of the most effective means. The importance of using new means of reconnaissance is becoming greater and greater as the enemy becomes less and less visible on the battlefield, as the extent of the battlefield becomes greater and greater and as the relations of time and space in battle become more and more important, indeed, until the invention of the aeroplane and dirigible balloon there appeared to be great danger that the old means of reconnaissance would soon be entirely inadequate.

In the attack and defense of fortifications the acroplane will have full scope and will be supreme as a means of reconnaissance. The defense can also use dirigibles, but the attack will find it difficult, due to the fact that its dirigibles would soon fall an easy prey to the balloon guns which will undoubtedly be installed in great numbers in all forts; the aeroplane will be far less subject to destruction in this way. The attack will, therefore, necessarily prefer the aeroplane, but the defense will also be well provided with such machines, inasmuch as permanent

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rising places can be readily established in every fortified front in time of peace.

These are the leading facts regarding the military use of the aeroplane, and it is evident that this machine is largely limited to the domain of tactics, while the dirigible balloons are useful both in strategy and in tactics.

CONCLUSIONS.

The rigid type of dirigible balloon will find its greatest use in the domain of strategy over the entire theater of operations; the semi-rigid and non-rigid types (although also efficient for strategical work) are more particularly useful in the domain of tactics, and the non-rigid is especially suitable to accompany the field army.

The aeroplane is largely limited to the domain of tactics, and is especially suited for rapid, superficial reconnaissance and for use in the attack and defense of fortifications.

Besides reconnaissance and the service of security and information in general, these air-machines are particularly useful in reporting the effect of our fire on the enemy's troops or material, and may, in an emergency, serve to rapidly transport a few men or a small quantity of ammunition or of provisions to points of great importance. Moreover, they will be most useful in keeping up communication between the separated parts of a modern field army. The opinion has sometimes been expressed that the dirigible balloon and aeroplane will greatly reduce the value of cavalry in war, but this is absolutely incorrect and untrue. Both methods and means of reconnaissance have their respective advantages and disadvantages, and our armies need both.

Reconnaissance from an air-machine is dependent primarily on being able to see; consequently, this means of reconnaissance is out of action every day from evening to dawn, and at other times in fog or in very cloudy weather. On bright, clear days the air-machines have considerable advantage over the cavalry in that they can make accurate, connected observations and render prompt reports, but the more detailed but slower reports of cavalry, which can work by night as well as by day, in foggy or cloudy weather, by hearing as well as by seeing, disconnected although they may be, are still of as vital importance as ever.

The strategic reconnaissance by air-machines must stand constantly in close relation to and in direct connection with the reconnoitering cavalry, because the very information the air-machine obtains will facilitate the work of the cavalry in clearing up for it doubtful points. Otherwise, time and energy will be wasted. In this respect the work of air-machines is particularly valuable, inasmuch as they can float at ease in certain localities, readily changed from time to time, and remain secure in quiet observation. To be of use in this way, however, they must always be available when needed, and this condition is best fulfilled by the non-rigid dirigible balloon, because of its portability, and the fact that it can be quickly emptied of gas, packed up and transported to the rear when no longer required.

The aeroplanes are destined to carry on their reconnaissance side by side with the dirigibles, to assist the latter in their work, to keep them supplied with fuel and provisions, to carry messages over difficult ground, swamps, water areas, etc., where there is no telegraphic communication and for a great variety of other work. Wireless telegraphy is being installed on these machines, and if it proves successful their radius of action will be greatly extended.*

The use of dirigibles or aeroplanes offensively is now regarded as practicable, but rather by the use of high-explosive grenades and shell than by ordinary artillery fire effect dependent on weight of projectile, the purpose being rather to annoy the enemy and disturb his rest than to effect actual destruction.

When two opposing armies come in contact the first contest in future will probably be between the air-machines on either side, and here the aeroplane again has a decided advantage over the airship, in that it can (due to its greater speed and more rapidly acting vertical steering) rise above and pass over the airship, getting out of the view of the occupants of the gondola, and thus will have an opportunity of injuring the airship either by mechanically tearing its envelope or destroying it by means of firearms or grenades from above.

From the surface of the earth all air-machines are best reached by means of the modern balloon guns capable of firing

^{*}Since the above was written McCurdy, in August, 1910, sent a wireless message from his aeroplane while in flight.

vertically upward and using illuminated projectiles to mark the line of flight, thus furnishing a means of ranging on the balloon. Aeroplanes will be very difficult to hit, and even the airships, on account of their cellular structure, cannot be put out of action by a single hit, while both classes can rapidly rise out of the range of artillery.

Neither airship nor aeroplane has altered the principles of strategy or tactics, but to the strategist they furnish a clearer and more comprehensive view of the theatre of war in a shorter time, and they enable the tactician to again see the enemy on the battlefield where he had become well-nigh invisible to the older eyes of the Army, the Cavalry.



CARE OF THE HORSE'S HOOF.

By VETERINARIAN WILLIAM P. HILL, TWELFTH CAVALRY.

THE Army Regulation which prohibits a horseshoer from touching the horse's hoof with a knife ought to be moderated to a considerable extent, as in a great many instances it is essential that the knife be used.

The shod hoof as a general rule does not allow the frog to receive pressure and natural wear, which if present keeps the exfoliations or hang nails worn off, but without this pressure the frog becomes covered with flaps and dead folds, which retain the filth of the stall and roads, holding this putrid matter to the healthy growing under structures, causing decomposition, thrush and breaking down of the frog, with its sequence of wasting and contraction of the heels. It is almost impossible to keep a frog that is a mass of flakes, and fringed with dead horn, clean with a hoof pick, and this is all the farrier or horseshoer is allowed to use in this condition.

I have seen horses' frogs wasting away from the presence of deep seated pus which has been held in the bottom of frog cracks, whereas if these cracks had been thoroughly "bottomed" and cleaned out weeks of veterinary treatment would have been avoided. A frog that has flakes hanging around it cannot be kept in a healthy state. These flakes directly they become detached are "foreign bodies" and ought to be removed, as they act as carriers of filth and keep the air from reaching the frog by their presence.

The necessary cvil of shoeing tends to gradually contract the hoof: the sole also contracts, which together puts the frog higher up between the heels, so that it becomes a risky proceeding to trim the heels down sufficiently to let the frog touch the ground. In many horses the sole at the heel will bleed before the frog is near the ground. In these case (I mean the high heeled hoof, upright and muley) the frog has no chance to throw off its natural extra growth, and this immediately becomes a parasite to the frog if not removed.

I am firmly convinced that by keeping frogs in as pure and healthy a state as possible, so as they will retain their breadth, spread, and elasticity, the contracted heel, navicular disease, and stiff in front cases, that we so constantly see in the Cavalry service, will be to a great extent remedied. I do not advocate that Troop Commanders shall give the ordinary horseshoer full sway in the use of the knife, but I feel sure that an intelligent horseshoer could be instructed by the veterinarian what ought to be removed in a typical case of rotten frogs, so that in future cases. that he would run across in his daily shoeing, he would be able to keep the frogs in a proper condition, and not be hampered by the chance of being tried if he uses the knife. A horseshoer with this knowledge, and permission, properly applied would in the course of a month wipe out all thrush in a troop, by getting at the cause; and prevention would be better than cure, which often results in a contracted and wasted frog which takes months to reorganize itself.

Another cause of pinching of the frog, which of course tends to destroy its health and use, is the fourth nail, or the last one, at the quarter heel. This is unnecessary, as three nails on each side is plenty to hold the average shoe on a riding horse. This nail goes into the thinnest part of the wall, just at the place we need to preserve all the expansion we can get. This draws in the heels and bars, interfering with action of the cushion between the tendons and the cartilages, which all combined squeeze the frog into a narrow strip, practically throwing it out of use.

I might mention here the great benefit from a spring invented by a man named Mackey in Baltimore. Only two nails on each side are put in and the spring is then adjusted to give pressure on the inside of the bars. With a strap running around the front of the hoof with a buckle, the horse can be used as before, while this spring will open up the foot one or two inches in a month. This spring has cured many cases of obstinate foot lameness in my practice, and I would like to see the time when they are regularly issued to all troops.

The use of the knife on the sole I know is a very tender subject and from time immemorial we are advised against it, but I have always sympathized with an army horseshoer when I have watched him laboring at a hoof three inches too long with a dull rasp which may have been used on a hundred hoofs before. This in the tropics is a wearisome task and makes the perspiration pour off a man. I cannot see why the horseshoer should not be permitted to cut down some of the sole with a knife. I don't think he will injure one in a thousand by so doing. Do we not carry some precautions to extremes? I presume that the most scientific horseshoers in the world today are the men who shoe trotters on the grand circuit, where proper shoeing means thousands of dollars to the owners. These men use the knife on a frog and sole, but their principal knowledge comes in the balancing of the foot and correcting false action. Of the army horseshoer of the present time, or since the Riley School was inaugurated, I have nothing but the highest praise to give. I have seen some men that do almost perfect work. In my regiment I have several that are really excellent blacksmiths, and these are the men that ought to be given the use of the drawing knife and not be held down by a cut and dried holdfast Army Regulation.



NOTES ON THE PROGENITORS OF CERTAIN STRAINS OF THE MODERN AMERICAN HORSE.

By VETERINARIAN COLEMAN NOCKOLDS, FIRST CAVALRY.

A MONG the many subjects which are sure to occupy an important place in the question of Army Reorganization, the supply of suitable horses for military purposes must engage serious attention.

That the scarcity of the type of horses necessary for this purpose is becoming a grave problem, there is no doubt; unless flying machines and other mechanical means of transport supplant, in the near future, the horse in the field.

A system of supplying remounts from government breeding farms, or proper encouragement given to persons that are competent and willing to breed and rear animals that will come up to a standard suitable to the needs of our mounted and draught organizations, and which can be registered and subsidized, should be in vogue.

The object of the following brief monograph is to show that progenitors of the kind of animals needed have existed in this country and their descendants are here at the present time.

Many modifications are apparent, due chiefly to the careless indifference on the part of breeders, which has rendered the great majority of the animals of today worthless from a military standpoint, and of less value for any purpose, than if a judicious system of breeding had been carried out from the earliest times. Nevertheless many strains of horses have been kept almost intact, and it is believed from these, if careful inquiries are made and verified, an ideal animal for military purposes can be obtained.

The stud books and histories of most of the blooded animals have been very carefully made up and most conscientiously kept since the Civil War, and the breeding and accomplishments of good horses are easily found by reference to them.

There is no doubt that during the Revolutionary and Civil Wars many genuine animals were lost sight of, and in the same troublesome times a large number of unworthy beasts were named and accredited faultily with the pedigrees of brilliant performers and true-breds.

The thoroughbreds of America are certainly descendants of the best stock of the mother country, and it is with this breed the bulk of the following remarks have to do.

It is not that the racing thoroughbred of the present time will or can come up to military requirements, for in addition and supplementary to blood there must be substance.

A matter of a hundred years ago, or less, the thoroughbred was a horse of stamina as well as speed, but in these days in the endeavor to obtain faster animals other essentials such as strength and endurance have been in a great measure lost.

For the especial purpose of breeding it is of the utmost importance to be sure of the pedigree, and those horses that have at least some blood in them from horses noted for their staying powers should be chosen.

Speed is a secondary consideration, and for efficient military service it is neccessary that the horse should be able to travel long distances at a fair pace and is a weight carrier. A fair conformation, if the pedigree is right, is more to be depended upon than an excellent one, if there is doubt as to the ancestors of the animal. Blood will tell.

There are no records existing of the native country or period of subjection of the horse, but a very direct, gradual, and unbroken pedigree of the present horse can be traced by following the evolution, from the Cænozoic horse, of the Tertiary period, which is congeneric with the animal of today that have been unearthed with fossils of the mammoth and other extinct animals, in the bone caves of both the old and new worlds; but the genus Equus was not fully established before the close of the Pliocene.

The Eocene division of the Tertiary period shows the two earliest equines and the Eehippus is the oldest known type of the family equidæ. It is described by Marsh as being of the size of a fox, with four toes and a half on each fore foot, and three toes on each hind foot, each encased in a horn forming a hoof; found in New Mexico.

The Miohippus was about the size of a sheep, with odd toes which were hoofed; the Meso-hippus was about the same size, with three toes on each foot and an additional splint bone on each fore foot; these were found in the Miocene strata of North America.

The Pliocene gives us the Plio-hippus as a type; it had three toes, its median foot functional, with a false hoof on each side; about the size of an ass, unearthed in Europe and America. in direct line of descent of the living horse.

From an animal about the size of the fox, the size has steadily increased, and progressive modifications, especially of the limbs, has resulted in the existing horse.

The principal changes that have taken place in the structure of the modern horse, from the animal of prehistoric ages, are enlargement of the middle digit, and hoof of each foot, which alone support the body; the lateral digits are reduced in size and are functionless; the first and fifth digits, and corresponding metapodials are wanting; the second and fourth digits are also wanting, but their metapodials are present, although reduced to mere splint bones; the shaft of the ulna is atrophied, and its extremity is consolidated with the radius; the fibula is rudimentary and ankylosed, with the tibia; the lower jaw is very deep behind, and the bony orbit is complete. Most probably the horse is indigenous to Africa.

The earliest mention made of the horse in the Bible is during the seven year famine, when Joseph received them in exchange for bread, from the Egyptians: horses were also used at his funeral, but up to that time, although asses, men-servants. etc., were given as presents, no mention is made of the horse.

Homer mentions the horse as a beast of burden; the ancient sculptures of Persepolis and Nineveh show him in the same position, and there is nothing to show that he had been ridden up to that time, but it is reasonable to suppose that he had.

From about this time the adoption of the horse, for the purpose of battle, appears to have been very rapid. We find that at the Exodus, generally conceived to have been in the reign of Rameses V, the last of the eighteenth dynasty, or about 1.500 years before the Christian Era, the pursuing army contained six

hundred chosen chariots, and all the chariots of Egypt, and all the horsemen.

When the Israelites returned into Canaan, the horse had already became naturalized in that region so that the Canaanites "went out to fight against Israel, with horses and chariots, very many."

It was over six hundred years later before there were any horses in Arabia, and it seems certain since, while Solomon imported from Arabia, silver, gold, and spices, it was from Egypt only that he procured horses for his cavalry, and that of the allied kings of Phœnicia.

It is probable that horses were introduced into Egypt by the Hycses, those shepherd kings who over-ran and conquered the country, about 2000 B. C.; their rule lasted about 511 years. It is supposed they came from eastern Abyssinia, bordering on upper Egypt; they brought with them a very superior breed of Barba.

There are no extensive tracts of native pastures, or meadow lands in Egypt, as are alone adapted to the existence of the horse, in a state of nature and freedom.

After this Egypt became the principal breeding district and emporium of this animal.

The beautiful Grecian fable, that under the impulse of the trident of Neptune, the most puissant, if not the most potent, of the gods, as an emblem of strength and warfare, the horse sprang from earth, seems intended to adumbrate a belief of the Hellenes, that the animal came from beyond the seas.

However the Thessalians, those aristocrats, who were from first to last the best and most expert horsemen in Greece, as well as the Athenians, from whose sacred soil the horse is said to have sprung, at the summoning of the sea-god, give clearer evidence of the method of his introduction: and they were all colonists from Egypt.

Thus in Europe, on the great fertile plains of Thessaly and Thrace, the boundless reedy meadows on the banks of the Danube, and thence to the illimitable horse pastures of the Ukraine, and to the banks of the Dnieper and the Don, the horse was unquestionably introduced, and propagated as the best and noblest servant of man, and in a state of independent liberty.

In Media and Persia, the horse increased very rapidly, and from a very early date the monarchs of these countries and of Assyria employed countless cavalry, with scythed chariots, as the most efficient and perhaps the most numerous arm of their services.

Among the articles exported during the second century, from Egypt to Arabia, particularly as presents to reigning monarchs, were horses; during the fourth century, two hundred Cappadocian horses were sent by the Roman Emperor, as the most acceptable presents he could offer to a reigning prince of Arabia.

As late as the seventh century, the Arabs had few horses, and those of little value.

When Mahomet attacked the Koreish near Mecca, he had but two horses in his army, this was in the seventh century after Christ; and although he drove off, at the close of his murderous campaign, twenty-four thousand camels, and forty thousand sheep, and carried away twenty-four thousand ounces of silver, there is no mention of horses in the list of plunder.

These circumstances sufficiently prove, that however superior the present breed may be, it is comparatively lately that the horse was naturalized in Arabia.

It appears that the horse was introduced into Arabia, and the adjacent Asiatic countries, from Egypt. From the same stock is derived the whole race of all southwestern Europe.

Egypt not being a favorable country, in any respect, for horse breeding, much less for the original existence of the animal, it is still a sort of mystery how he was first introduced into that country; most probably, he was an original native of the soil of Africa, to which alone his congeners, the zebra and quagga, are indigenous; although the wild ass is of Asiatic origin. Of all the wild races of horses that exist, or did exist in Europe, America, or Asia, it is questionable, as to whether any one is a native of those continents.

The Tartarian breed, which are still found wild in large numbers, from the neighborhood of the Volga, to the barren steppes of upper Asia, and the northern provinces of China, can be clearly traced, to the cavalry horses, employed in the siege of Azof, in 1657, which were turned loose for want of forage, and

have propagated their species with unexampled rapidity; unless it be equaled, by that which has peopled all South America, and all that portion of the States, which has, until recently, been so sparsely populated, in the Southwest as far east as the Mississippi, with the descendants of the first Spanish horses, introduced into the southern continent in 1537.

It is probable that the wild horses of Mexico and Texas are descendants of those horses, that escaped from the expeditions of De Soto, through those regions; and not as some think descended from animals that were liberated at the abandonment of Bueno Ayres, or other animals of the Spanish breed that escaped or were emancipated south of the Isthmus.

The likelihood of an animal like the horse, leaving known pastures, to wander through almost unimpenetrable jungles, brake entanglements, and the rough country, found on the dark and dangerous bridge between the two continents, to seek unknown habitations, is small indeed.

Equine fossils have been found in plenty on this continent, indicating the existence of the horse, here before its discovery by Europeans; but it seems to be indisputable that the horse was extinct before their arrival, as they were not seen by the early navigators, or colonists that came to America.

The wild horse of America is of undoubted Spanish origin; and to this day marked by many of the characteristics of that race, which are shown by the fineness of the limbs, and the peculiar formation of the head, and other attributes of the Moorish and Barbary blood.

Wild horses still roam untamed, far to the southward of the Great Sahara Desert in Africa. From that district there extends a range of fertile, well watered, grassy, and in part wooded country, and it is probable that horses were first introduced into Europe, Arabia, Egypt and the East from this neighborhood.

Fossils of the horse, of extreme antiquity, have been discovered, in some of the oldest formations in Great Britain.

It is the opinion of some authorities that horses existed there before people, as in the Kirdale Cave in Yorkshire, as well as other bone caves, fossils of the horse, elephant, bison, rhinoceros, ox, deer, tiger, hyena, and other beasts of prey, were found, but no human remains.

It certainly cannot be regarded as proof that the English horse, in any part of his blood, is autochonous, or aboriginal, because such fossils are found there, any more than it is so regarded of the wild horse of the American pampas or prairies.

A large portion of the forces that resisted the Romans, upon their first invasion of Great Britain, were composed of charioteers and horsemen, so it is evident that horses were domesticated there before that time. When Cassivellaunus discharged his tumultuous army, as unable to resist the legions of the field, he retained a picked body of four thousand war chariots to impede the movements and cut up the foragers of Cæsar.

With the exception of visits to the channel Islands, by the Phœnicians in search of tin, the first entry of the Britons, to the civilized world, was through the Romans. If horses were not introduced by these early visitors, there is some reason to believe that the horse may be indigenous to Great Britain. The discovery of fossilized remains, and the fact that there were plenty there at the time of the Roman invasion, points to this speculation.

Throughout the oriental world, cavalry, with the addition of chariots, immediately became as decidedly the first arm of all services as it was at a later date, in the days of chivalry and until cuirass and lance, and all the gorgeous paraphernalia of knightly warfare, went down to rise no more, before the rolling volleys of the Spanish at Plavia.

In Europe, however, with few exceptions, the use of the horse in warfare was slowly, and never, it may be said, until ages had elapsed, generally adopted.

At the battle of Marathon, 490 B. C., the allies had no horses whatever; and at Platæa, although the Greeks had a combined force of 110,000 men in the field, they had not a single squadron in their army, even to protect their convoys; in consequence of which they suffered severely, and were in danger of being ridden down, by the desperate charges of myriads of Persian horse.

The Spartans, the Athenians, and Thebans, even when at the

height of their military greatness, had but inferior and slender cavalry.

It is rather remarkable that at this period, the horse was in the highest favor and repute with the Greeks and that no pains or expense were spared to improve his breed, to arrive at perfection in speed, endurance, and condition; and that chariot racing stood the highest in point of honor of all the contests of Olympic games.

It was nearly two centuries before the battle of Platæa, that horse racing was introduced among the Greeks.

The extent to which horse racing was carried, even in those days, can be imagined, by one man (Alcibiades the Athenian) sending no less than seven four-horse chariots to the Olympic games, at one time, three of which obtained prizes.

The horse breeding among the noble youths of Athens brought many of them to ruin, and rank in the army was given those that furnished their own chargers.

The Bootians excelled more with their cavalry than the other pure Greek states, because of possessing more level land.

It was no doubt due to the rocky nature of their country, that there were no cavalry among the Israelites, and that the ass was the saddle animal of their princes, and prophets, and the beast on which the Saviour entered Jerusalem. Mr. Winter, in his work on the horse, makes the remarks, that on the occasion of the Saviour's triumphal entry into Jerusalem, "meekly riding on an ass," that the word humility is an error, on the part of the divines and at variance with the ancient and present usages of the inhabitants of the Holy Land, as asses were more highly prized in the Holy Land than horses, and people of the first quality rode on them.

The Jair of Gilead, with his thirty sons, who commanded thirty cities, rode as many asses.

Xenophon, who commanded the retreat of the ten thousand, was no less famous as a horseman than he was as a soldier and a statesman, and his directions for the armament and equipment of a trooper show that the cavalry of Greece must have been well drilled, and formidably accountered for active service, but they were small in numbers, and inferior in battle, even so late as the early Persian and during the Peloponnesian wars.

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The Macedonians, whose kings were of the old heroic stock of Hellas, came into the shock of battle, mounted upon horses bred upon the plains, between the archipelago and the Danube, and soon showed the use of cavalry in warfare, and it at once became a part of armies; often from this time it was the arm that turned the scale of victory.

In all of Alexander's battles, he himself charged at the head of his splendid cavalry, and Philopæmen, the general of the Achæan league, was the best cavalry officer of the world, the Murat of his day.

Pyrrhus of Epirus relied much on his barded cuirassiers, in his wars against the Romans, who never, to the end of their wonderful history of universal conquest, did anything with cavalry at all, until they had Spanish, Nubian, Gallic, and German troopers in their army.

The only way the Romans could make headway against the later Phillip of Macedon, and his son Perseus, about 200 B. C., who had very superior horses in their cavalry, was by the assistance of their Aetolean and Acarnanian allies. The blood of the Greek horses of that day, coming from the extreme east of Europe, being incomparably superior to those of the west, which probably had received no further admixture of the oriental strain, since their first importation, and through constant inbreeding, had become deteriorated. This was markedly shown, when they were opposed to the Numidian barbs of Hannibal, only to be swept away like dust before the whirlwind.

The characteristics and conformation of the ancient horse can be judged, to a more or less accurate degree, from their appearance in the various sculptures yet extant of this animal, both in harness and mounted, from the elaborate and admirable directions given by Xenophon, for purchasing, according to the exterior points.

In the sculptures disinterred by Sir Austin Layard, from the ruins of Nineveh, the horse figures continually in almost every attitude and pace, both military and civil: but in most instances he is represented as an animal of draught, harnessed, singly, double, or four abreast, to chariots, which he is often drawing at a tearing gallop, but rarely carrying a rider on his back.

He is represented in all these sculptures, as a remarkably high crested, large headed, heavy shouldered animal, rather long bodied, powerfully limbed and a heavy, thick, shaggy mane and tail, frequently plaited into regular and fanciful braids. Often his mane and tail are ornamented to correspond with the hair and beard of his driver. This would show that he had nothing of the modern Arab in his form or appearance.

The Elgin marbles, which are the finest existing productions of sculpture, brought from Athens, by the Earl of Elgin, between 1801 and 1803, and preserved in the British Museum, were executed under the direction of Phidias, about 440 B. C. They show the attitudes and action of the cavalry, and the seats of cavaliers, and the highborn hippius of that day. The horses are represented, some at a regular and perfect canter, with their hind legs well under them, others going disunited, the riders sitting on their animals with a pose of perfect balance, ease, aplomb and grace, their hands entirely independent of their seat.

These sculptures seem to show that the Greek horse was not more than fourteen and a half hands high, and built on the order of the Galloway or Cob, and not of the graceful build of the Barb, Arab or Thoroughbred. They are shown as having short, rigid, stocky shapes and are all what might be called "Cockthrappled," a fault in formation, which renders it impossible for the animal to bring his chin to his chest, when reined back, and with hogged manes, short, closely ribbed, round barrels, heavy joints, short, stiff pasterns, and high upright hoofs. They look like large Galloways, which they very likely were.

The advice given by Xenophon about the horse must be of an animal very much resembling those seen in sculptures of the Phidian school, and seem to do away with the idea advanced by those who insinuate that the horses of the Elgin marbles, like those of the lions of Rubens, are poetical or artistical fictions.

It was about 400 B. C. that Xenophon expressed, in writing, very much the same opinions on the conformation of the horse as are held by horsemen and veterinary surgeons today.

The following remarks by him are probably of more interest to students of veterinary matters, and horsemen, than to the hippologist, except to give an idea of the type of animal that existed at that time.

He begins with the advice: "That one may be deceived the least in the purchase of an unbroken horse, by carefully noting the bodily construction; since if he has never been backed, he will afford no very clear evidence of his spirit. Of his body, it is first necessary to examine his feet; for it matters not how fine the superstructure, if there be not sufficient foundations, there is no utility—if he have all other points perfect, but be badly footed.

"It is befitting first to look at the horny portion of the hoofs, for those horses that have the horn thick are far superior in feet to those that have it thin.

"Nor will it be well if one fail, next to observe whether the hoofs be upright, both before and behind, or low and flat to the ground; for high hoofs keep the frog at a distance from the earth, while the flat tread with equal pressure on the soft and hard parts of the feet, as is the case with bandy-legged men.

"Having begun from below, let us ascend to the other parts of the body. It is needful, then, that the parts above the hoofs and below the fetlocks, be not too erect, like those of the goat; for legs of this kind, being stiff and inflexible, are apt to jar the rider, and are more liable to inflammation. The bones must not, however, be too low and springy, for in that case the fetlocks are liable to be abraded and wounded, if the horse be galloped over clods or stones. The bones of the shanks should be thick, for these are the columns which support the body; but they should not have the veins and flesh thick, likewise.

"For, if they have, when the horse shall be galloped in difficult ground, they will necessarily be filled with blood, and will become varicose, so that the shanks will be thickened, and the skin be distended and relaxed from the bone; and, when this is the case, it often follows that the back sinew gives way and renders the horse lame. But if the horse, when in action, bends his knees flexibly at a walk, you may judge that he will have his legs flexible when in full career; for all horses as they increase in years, increase in the flexibility of the knee. And flexible goers are esteemed highly, and with justice; for such horses are much less liable to blunder or stumble than those which have rigid, unbending joints.

"But if the arms, below the shoulder blades, be thick and muscular, they appear stronger and handsomer, as is the case also with a man. The breast also should be broad, as well for beauty as for strength, and because it causes a handsomer action of the forelegs, which do not then interfere, but are carried wide apart.

"And again, the neck ought not to be set on, like that of a bear, horizontally from the chest; but, like that of a gamecock, should be upright towards the crest, and slack toward the flexure; and the head being long, should have a small and narrow jawbone, so that the neck shall be in front of the rider, and the eye shall look down at what is before the feet. A horse thus made will be least likely to run violently away, even if he be very high-spirited, for horses do not attempt to run away by bringing in, but by thrusting out their necks.

"It is also very necessary to observe whether the mouth be fine or hard on both sides, or on one of the other. For horses, which have not both jaws equally sensitive, are likely to be hard mouthed on one side or the other. It is better that a horse should have prominent than hollow eyes, for such a one will see to a greater distance. And widely opened nostrils are far better for respiration than narrow, and they give the horse a fiercer aspect; for when one stallion is enraged against another, or if he become angry while being ridden, he expands his nostrils to their full width.

"The loftier the crest, and the smaller the ears, the more horse-like and handsomer the head is rendered; while lofty withers give the rider a surer seat, and produce a firmer adhesion between the body and shoulders. A double loin is also softer to sit upon and pleasanter to look upon, than if it be single; and a deep side, rounded toward the belly, renders the horse easier to sit, and stronger, and most easy to be kept in condition; and the shorter and broader the loin, the more easily will the horse raise his fore-quarters, and collect his hind-quarters under him, in going. These points, moreover, cause the belly to appear the smaller; which, if it be large, at once injures the appearance of the animal and renders him weaker, and less manageable.

"The quarters should be broad and fleshy, in order to correspond with the sides and chest, and should be entirely firm and solid, they will be lighter in the gallop, and the horse would be speedier. But if he should have his buttocks separated under the tail by a broad line, he will bring his hind legs under him, with a wider space between them; and so doing he will have a stronger gait and action, and will in all respects be better on them. A proof of which is to be had in men, who, when they desire to raise anything from the ground, attempt it by straddling their legs, not by bringing them close together.

"Stallions should not have their testes large, and this ought not to be overlooked in foals.

"To conclude, in regard to the lower joints, of the shanks, and the fetlocks and the hoofs, behind, I have the same remarks to make, and no others, than those which I have made above."

From the foregoing, it is evident that the good points of a horse, in those early times, were much the same as are considered good now; it described a short, round barreled, stocky, active beast, well upon his legs, with his hocks fairly under him, with a lofty crest and somewhat heavy forehand, though high withers are insisted on. It describes the horse of the Elgin marbles, something resembling the improved English roadster of a century ago, an animal framed for strength and hardiness, but wholly destitute of blood, stride, or speed. It is very evident that there was little or nothing of blood, or affinity to the Arab and Barb, as they now exist, in the Greek horse of that period.

The Roman horse, and the art of using him, was even inferior to the Greek. In the early ages of the republic, the cavalry of the Roman armies was composed of youths of the monetary aristocracy, who served on horseback partially at their own expense, enjoying in consequence certain privileges, and exemptions, and a positive rank in the state, second only to the patrician senators and holders of senatorial offices.

Romulus instituted three centuries of youths, when he called "celeres," who acted as a mounted body guard. This number was increased to eighteen hundred, by the Servian constitutions at the end of the monarchy; all these men were of a wealthy class; they were bound to serve mounted, at their own expense, when the exigencies of the public service did not allow a horse

to be furnished for them; later, every person in the possession of 40,000 asses* was liable to do cavalry service.

This plan was rather absurd as these troopers were not regularly drilled or required to practice either horsemanship or the use of arms. The Romans were in no respect an equestrian people, and the native breed of their horses was of no excellence. In no case had the Roman consular army, which consisted of two legions, of four thousand two hundred infantry each, above six hundred horse; being three times as many infantry to one mounted man, as the famous divisions of Napoleon had.

So long as the Romans were engaged in Italian wars, they were able to contend with them on equal, if not superior terms, as regards their cavalry arms in the field, although the Romans were numerically inferior to their adversaries, showing that the Italians were as bad as regards their mounted service as were the Romans, but the superior vigor of the Roman man, whether on foot or horseback, prevailed.

The moment they were brought into contact with foreign cavalry, Macedonic and Thessalian (Turkish) horses, under Pyrrhus, and, yet more distinctly, with Numidian horses, undoubtedly pure Barbs, under Hannibal, the inferiority of the Italians in everything pertaining to equestrianism was demonstrated.

Cæsar, during his wonderful career of Gallic victories, had no Roman horse in his service, but relied wholly upon the cavalry of the friendly Gaulish tribes for that arm. Once when doubtful of the faith of his auxiliaries, he mounted his infantry on Gallic horses.

In his conflict with Pompey, his horsemen, who were unquestionably Gauls, rode through the highborn Roman horse, as did the British cavalry at Balaclava through the Russian dragoons, as if they were lines of pasteboard.

Crassus in Asia was totally defeated and destroyed by the oriental horse of Parthia; Valerian, Julian, and other Roman Emperors or chiefs, who attempted to contest the palm of victory with Italian or western cavalry against the innumerable clouds of oriental horse, met a like fate. It was not until they were

^{*}A copper coin the unit of the early monetary system of Rome. It was originally of the weight of one pound—twelve ounces.

outdone by the superior offspring of their own blood, bred on British and American soil, by the aid of western enterprise and lights of western science, that the oriental horse lost their superiority.

Although the Italians, during this period, were inferior as regards their horsemanship and horses, it is to them, in great measure, that a continual improvement in the breed of horses was maintained. Their constant habit of guarding and garrisoning one conquered province, by the contingents raised from another, and their very deficiency of indigenous horses, leading to the employment of the best equestrian nations of their subjects or allies, brought about a constant rotation of breeds, and strains of blood, in all the provinces, an advantage which Italy itself did not share, and consequently an admixture of the native with the best imported animals. All the Barbaric tribes rode perfect stallions, and that these were brought into constant familiarity with the native mares, there is no doubt.

The excellence of the Spanish, and especially of the Andalusian blood, is generally ascribed to the Arabic invasion of Tarik in 710. No doubt great benefit resulted from the strain of horses brought with those invaders, but the Spanish horse likely derived his earliest excellence, from horses brought by the Carthaginian family of Barca, who ruled almost as indigenous sovereigns, over all the Mediterranean and Atlantic shores of Spain, from Carthagena to Cadiz, at the head of powerful African armies, accompanied by numerous forces of the Numidian cavalry, mounted on the desert Barbs of the nomadic Moors and Arabs.

It is hardly probable that these animals were allowed to exist, among a warlike and equestrian people, without their seeking to improve their horses by the admixture of foreign blood, the superiority of which they could not fail to perceive.

This doubtless was the first cross of oriental blood upon the Spanish stock. The same cross must also have taken place, though in a smaller degree, among the Gaulish horse herds, during the six months occupied by Hannibal's march through their country from the Pyrenees to the Rhone, at the head of eight thousand African Barbs, principally, if not all, stallions.

It would be about the time when this engrafted blood might be supposed to be in a process of deterioration, in consequence of inbreeding, and perhaps of intentional vitiation by the introduction of Flemmish sires, for the begetting of animals capable of bearing men-at-arms of the chivalric ages in their ponderous panoply, that Tarik with his hordes of desert horse arrived, and thus the depreciated race was reinvigorated.

From the first of those intermixtures, as well as from the horses of the Thracian and German troopers, quartered on them by the Roman emperors, the British horses of the old stock, as found by the Romans under Cassivelan and Caradoc, directly received their first improvement. Indirectly they were improved by the second Spanish cross, introduced largely for breeding purposes by the Saxon and Norman monarchs from the southern kingdom.

Of the actual Spanish horse, of the days of the conquest of South America, when the Spanish horse was at his greatest purity and perfection, comes the wild stock of the South American pampas, and probably of the southern and southwestern prairies of the United States; and from this, to a certain degree, it is likely that the domesticated stock of some of the southern States has received a remote cross of Andalusian blood.

In Louisiana, that cross was obtained and still exists, in a more direct form; although the blood does not appear to be distinguishable, to any considerable extent, in the external characteristics of the animal.

(To be continued.)

ENDURANCE RACES.*

By Brigadier General EARL D. THOMAS, U. S. ARMY.

As a preliminary warning as to the matter to be found in the following pages, and what is to be expected if curiosity is aroused thereto, extracts from the New York Sun and Chicago Record-Herald are here inserted.

New York Sun.

"The people of Big Horn County (Wyo.) have arranged for their fall fair a fifty mile saddle-horse ride which will be watched with interest everywhere among lovers of equine matches.

"The test under the conditions prescribed, if made successfully, will demonstrate conclusively the much vaunted stamina of the Western horse. The War Department has selected General Earl D. Thomas as its representative to be present and determine the conditions and merits involved in the test and its relations to the cavalry branch of the service. It is an important matter."

Chicago Record-Herald.

"The Western horse has long borne the reputation of being capable of great endurance under strenuous conditions. A trial test of his mettle will be made at the Big Horn County (Wyo.) Fair which will be of great interest to equine admirers generally.

"The journey prescribed in the test will cover fifty miles under saddle, over a rough country, governed by capable horsemanship and humane conditions. General Earl D. Thomas, representing the War Department, will be present to determine the genuineness of the test, and its bearing upon the cavalry branch of the military service of the Nation." Horse-breeding takes rank as one of the first industries in the United States. The 19,746,583 horses in this country have a commercial value of \$1,846,578,212, outranking in valuation any other branch of animal industry.

Farmers are compelled to raise horses for agricultural uses. Draft bred horses are usually the most profitable to produce by the average farmer.

T HE writer was delegated by the War Department to witness the "Long Distance Races," or "Endurance Tests," of native Wyoming horses that were to take place in connection with and as an adjunct and drawing card to the "Big Horn County Fair" which was to be held at Basin, Wyoming, from the 16th to the 20th of September, 1907. Was also instructed to make a report upon the kind of horses in Wyoming and those suitable for cavalry and artillery services, for the future information of the War Department.

The task of witnessing the races was easy, and more or less instructive and interesting from several points of view;—inasmuch as this was the first instance in his career as a cavalry officer extending over some years, that he had been called upon to note the struggle between well bred horses over a long distance course, managed by competent riders who were enthusiastic devotees of the sport, and who were also confident of being the victor at any and all odds.

My visit to Basin, thoroughly enjoyable, resulted in finding many good horses in that locality, principally of the numerous draft breeds now so common in our domain, with conformation and action that would answer for the artillery and do good service therein and unquestionably be quite satisfactory in all respects to our critical light battery commanders in the United States, provided of course the horses were wisely selected in the first instance.

As changes had undoubtedly taken place in the settlement and development of Wyoming in the vicinity of the Shoshone and Big Horn Mountains, since serving there as a cavalry subaltern in the '70s, it was not quite definitely known just where and in

^{*}This article is made up of extracts from an extended, and well illustrated, by numerous photographs, report not only of the endurance races and of the horses found in the Big Horn country but also of the country in general as a suitable location for breeding horses for the army.

what part of Wyoming Basin was situated. It was found that the Burlington was the only railroad penetrating the Big Horn Basin and further information was vouchsafed to us that the gateway to the Big Horn Basin is Toluca, Mont., on the Billings line of the Burlington Route.

Colonel A. L. Patrick, an old time frontiersman and a typical westerner, moreover a noted hunter of large "game." met us at Sheridan station, Wyoming, at which place we were scheduled to stop for a short time, as the fair at Basin was not to open until the 16th and the day of arrival at Sheridan was the 11th. We were on the Burlington Route. The usual result:—Not on time, but plenty of time; time or on time was of no consequence.

The Patrick Ranch, known as the "P K" ranch, is one of, if not the finest and best appointed ranches that I have seen in Wyoming and is to my mind especially adapted to the breeding, raising and developing of horses in all of its uncertainties, ramifications and, it might be added, some bitter disappointments, as any one cognizant of such a fact will surely state, who has attempted to breed, even on a small scale, high priced coachers, trotters or running-bred animals.

However, I have not visited all the horse breeding enterprises in Wyoming, therefore cannot speak with positive assurance, that this is the best. The "Embar" ranch, near Thermopolis, has been a noted and famed horse breeding establishment for decades, and may be, in so far as I know, equally as well appointed if not better than this one. In the production of high class horses I am certain just now the laurels rest with and rightfully belong to the "Embar" ranch, the "P K" ranch being devoted more especially to cattle production, grazing, feeding and winter keeping of cloven hoofed animals.

The three-days' stay at the Patrick Ranch was an outing not soon forgotten. The generous hospitality there shown us was very much appreciated and carefully noted. Besides, a ride over the adjacent country which was the scene of many a fierce jaunt in the '70s after the Sioux by Crook's armed battalions, admirably assisted by Stanton's irregulars which the Sitting Bull campaign of '76 developed and hardened for service against the "Wards of the Nation" on their annual scalping journeys to the unprotected frontier settlements. Happily such forays are things

of the past and our former "mustard" colored warriors are relegated to the humdrum existence of a farmer's life.

Traveling and hunting as we did, along the Little and Big Goose Creeks, Soldier and Wolf Creeks, recalled to mind many thrilling incidents of periodical raids made by the Dakotas, Ogallala and Brulé Sioux through this part of Wyoming in the early '70s, when the desert had not yet lost its terrors, when painted warriors camped on the trail of the emigrant and freighter, and when the "Wild West" was something more than a figure of speech. Moreover, we recalled the rapid and stealthy march through this part of the then Territory of Wyoming, from the Rosebud south to old Fort Fetterman made by Sibley and his small command in '76 which unquestionably saved them from annihilation at the hands of the Sitting Bull band.

As Colonel Patrick is "Lord of the Manor" at Soldier Creek and has under his immediate control 10,000 acres of arable and cultivated land, it can be readily imagined that over this property the grouse shooting would be, and was, of the finest. The dogs were of the best strains, thoroughly broken, and with the active, agile proprietor holding the ribbons over a steady going, well broken, kindly disposed pair of native "Cobs," added to our comfort, as he at opportune times invited us to ride, which act of politeness we were duly thankful for, as a short-legged cavalryman can, or is supposed to ride, but is not built for "hoofing" it, and studiously avoids "endurance races" on foot. To see the "Colonel" sedately guiding his pair over the wheat and alfalfa fields one could hardly realize for a moment that he at one time in the early history of Nebraska and Wyoming was one of the most noted four-in-hand drivers in the Middle West.

The railroad from Toluca into the Basin branches at Frannie, Wyoming, 87 miles from Toluca, one line running 42 miles to Cody on the upper Shoshone river. The other line runs 91 miles through Basin, county seat of Big Horn County, to Worland on the upper Big Horn River.

The Shoshone Indian reservation lies immediately south of the Big Horn Basin, and comprises more than 1,000,000 acres of land now open to homestead settlement. It is estimated that approximately 300,000 acres is first-class farming land, susceptible of irrigation, the remainder being grass, timber and mineral lands. Arid and semi-arid lands no longer present serious obstacles to the homeseeker. Under the Campbell system of dry farming nearly all lands of Wyoming between Toluca and the Big Horn Basin, the Shoshone River valley, Cody, and the Big Horn valley, and others can be made to yield without irrigation more than the average lands east of the Mississippi. Ten and fifteen years ago the sole occupants of these valleys were long horned cows and steers. Today, as will be observed by travelers, sight-seers, and land-seekers, these valleys are fringed with settlers' cabins and homesteads marked with comfortable dwellings. The ranches are mostly fenced and present every evidence that paying crops of alfalfa, wheat and oats have rewarded the labors of the pioneer settlers and homeseekers.

At first it was the cattle "barons," then the horse enterprises. The cattle and horse men gave way to the miners for a time. The sheep men began to crowd the miners a few years ago; now they in time must widen the circle to make room for a new recruit—the millionaire of the beet fields. The time is gone when the privilege to lead the simple life was considered the best your farmer friend deserved. We shall probably be hearing him talk about nervous prostration and the responsibility that attaches to the care of great wealth. He was a long time getting around to it, but his day has come at last.

The enterprising and progressive citizens of Basin are entitled to great credit for street and building decorations and electric lighting of the avenues, besides a display of generous hospitality and courteous treatment to their visiting neighbors and guests, Fair Week. It was quite a revelation to an outsider to see such a tasteful and artistic display, causing much labor and some considerable expense, in a town not many years old.

Another unique attraction—something out of the ordinary, which was decidedly pleasing and an interesting feature of the exhibition, was the young "Lady Rough Riders." Mounted upon cow ponies and broncos—the latter of doubtful reputation—cowboy saddles, all in subdued uniform and riding astride. cowboy style; in short, doing stunts and giving exhibitions every day of fearless riding and horsemanship that would cause the modern cowboy and range rider to turn green with envy—all uniforms, horses and equipments furnished by themselves. It was unani-

mously conceded by all visitors that a very creditable showing was made in all of their parades and escorting features.

The opening of the Big Horn County Fair meeting at Basin, Wyoming, in the Big Horn Basin, scheduled for September 16th to 19th, 1907, was on time. The farmers, grangers, horse owners and cattle barons, with their wives and daughters, were there. Also the younger male element with their sweethearts and a cousin or two, all wild with excitement. A feverish enthusiasm prevailed among all classes; most emphatically so when the sweettempered, charming bunch of young ladies designated by the Fair management and frequently referred to in these notes as "Lady Rough Riders," passed in review and headed the procession towards the Fair Grounds on the bright, breezy September morning of the year 1907.

This Fair at Basin. Wyoming, was not organized as a money making proposition for any individual or set of individuals, but, firstly and lastly, to give publicity to Basin as a live city with many attractions; to draw attention to the Big Horn country as a fine locality where horses and other stock can be reared and developed in large numbers and of excellent qualities, which locality would in a short time produce horses that would be a source of supply to the mounted branch of the United States Army, and from where we could from time to time draw horses for our wants that we can not obtain in sufficient numbers in other States adjacent to the Mississippi Valley.

Mounts for the above use, and service in this country and in our colonial possessions, must be purchased from breeders and dealers. Our country does not, like foreign countries, maintain breeding establishments. While it is and has been generous in aiding enterprises that were built and managed primarily for private profit, the Government policy towards horse and stock breeders has been less admirable. Too often it has been stingy when it might profitably have been open handed, and bounteous when it might profitably have been niggardly.

The "endurance tests" to be held there as one of the attractions, were, early in the season, advertised with great vigor and intelligence. These advertisements appeared in all of the daily and weekly papers not only in Wyoming. but in other western

and middle states. Extensively exploited in a manner and ways only known to the "Associated Press Agents" or by a "Pastmaster" in the art of skillful manipulation of the information bureaus, these statements and columns of free reading were spread broadcast all over the middle west, extending as far east as the Atlantic seaboard—even drawing the attention of the Adjutant General of the Army, who is deeply interested in the sources of "horse supply" for the Army, and the efficiency of the mounted corps of that small force.

Valuable results, however, are certain to result. The more speed and endurance "tests" the better, beneficial and helpful to all who take special interest in our "trade."

These endurance tests are not uncommon in foreign armies, especially in Europe, where frequent tests of certain breeds are made to demonstrate their superiority in enduring qualities over other breeds. Lieutenant Bassor, a cavalry officer of the Russian Army, holds the record at present. Mounted on a well-bred horse of the Orloff strain (quite common in Russia and founded by Count Orloff, a Russian nobleman), in an experimental ride from Manchuria to St. Petersburg, 6,767 miles. This distance was covered in eight months and three days without serious mishap to man or "beast."

"Endurance Horse Tests in Wyoming."

The endurance horse tests at the Big Horn Basin fair held at the Town of Basin, September 16, 17, 18, 19 and 20, 1907, were of three classes, as follows:

A 25-mile one horse buggy test on September 18;

A 50-mile two horse buggy test on September 21;

A saddle horse test to a finish on the same day.

In the first of the above tests there were two contestants; in the second, only one team; and in the third three saddle horses, all belonging to the same owner.

A committee was appointed previous to the trials to lay out the course on the roughest ground that could be found. No one of the contestants was to ride over the course till the day of the endurance tests.

THE 25-MILE ONE HORSE BUGGY TEST.

Entries.

Dr. G. W. Black, of Basin, Wyoming, entered a grey gelding named Ben, branded EZ on the left shoulder, standing 15-3 hands high, eight years old; he was bred by Mr. John Allen on Shell Creek in the Big Horn Basin country and was kept for a stallion until four years old. His sire was a pedigreed Mambrino Patchen stallion and his dam was a half breed Hambletonian mare.

Mr. George S. Mead, of Basin, Wyoming, entered a bay gelding, named Comet, branded 61 on the left thigh, standing 15-1 hands high, six years old; he was bred by the owner. His sire was a Hambletonian stallion and his dam was a good native mare.

Il'eights.

Dr. Black's horse, Ben, weighed 1,155 pounds; the buggy and harness 355 pounds; and Dr. Black 145 pounds.

Mr. Mead's horse, Comet, weighed 1,000 pounds; the buggy and harness 410 pounds; and Mr. Mead 165 pounds.

The Test.

Dr. Black started at 2:45 p. m., and returned at 4:38 p. m., making the distance of twenty-five miles in 1:53. Horse in fair condition upon return. Blowing some; heart above normal; and very legweary.

Dr. Black thought that he was to start at an earlier hour and in anticipation of doing so warmed his horse up by a drive of several miles; upon learning that the test would not start until the time it did, he kept on driving his horse, and had probably driven him at the time of the start ten or fifteen miles.

The horse showed several whip marks upon his return. These marks were upon the right side, a handy spot at least to touch, by a driver swinging a whip from the right hand; blood was drawn in one or two places, evidently showing that the horse had received some quite severe whip cuts and consequent punishment during his somewhat rapid and tiresome journey.

Mr. George S. Mead started at 3:27 p.m. Returned at 5:36 p. m., the time of the drive being two hours and eleven minutes.

Comet was in good condition and not in any way distressed; he did not show any whip marks. Evidently he could have traveled much farther without injury.

Both horses were driven the entire distance without receiving any water or care of any kind—simply driven from start to finish.

Condition of the Horses Subsequent to the Test.

Both horses were fed and watered in the ordinary course subsequent to the test and at 9:00 p. m. of the same day were in good condition.

The next morning neither horse showed any inclination to stocking and both horses were driven on the streets of Basin and showed no indications of having been overdriven or in any way abused. Ben did not show any signs of the whip marks previously referred to, at the conclusion of the race.

Neither horse showed any inclination to lameness and had a healthy appearance, their eyes being bright and each on the alert, all showing that they had stood the test remarkably well and were then in condition to renew it. Due in great measure to the bracing atmosphere of that region; furthermore, the wonderful recuperating powers of horses bred and reared in and near the western slopes of the world-famed Big Horn mountains.

Weather.

There was a heavy rain between the test on the 18th and the tests on the 21st. On the 21st the weather was fine. The air was clear and dry, a cool south breeze was blowing about eight miles an hour. There was no barometer available for meteorological observations. Temperature at the start of the endurance test, 9:00 a. m., was 57 degrees Fahr.; at 12.00 m., 60 degrees; 2:30 p. m., 70 degrees, and at the close of the test, 5:00 p. m., 55 degrees.

Course.

The course was laid over an ordinary country road running through a sage brush country along the valley of the Big Horn river. The course which had not been prepared in any way for the tests was crossed in several places by gulches, with small rises between them.

THE 50-MILE TWO-HORSE BUGGY TEST.

Entry.

The only entry was one made by Colonel Jay L. Torrey of a pair of chestnut mares named "Sunrise" and "Lightning," both branded "M-" on the left shoulder and Sunrise 477 on the left thigh, and Lightning 560 on the left thigh. They stood about 15 hands high, were ten years old; both were bred by the owner in the Big Horn Basin country. The sire of Sunrise was Prince George, a pedigreed English Hackney stallion, and her dam was a combination driving and saddle mare bred in Kentucky and shipped to this county by the owner. The sire of Lightning was Hamlet the 4th, a pedigreed imported English Hackney stallion, and her dam was a half-breed English Hackney mare, named Benedict, purchased by the owner from Mr. George R. Reed of Port Chester, N. Y.

Weights.

The team was driven by Mr. Nathan N. Hodge, who weighed 170 pounds; the buggy and harness weighed 370 pounds; Sunrise weighed 1,000 pounds and Lightning 960 pounds.

The Test.

Mr. Hodge started at 10:00 a. m., and made the 25-mile drive in two hours and twenty-three minutes. At the expiration of the drive there was an interval of one hour and the team was then driven the twenty-five miles again and made it in two hours and twenty minutes. A short stop was made in each case at the 12½ mile post with the result that the actual driving time for the 50 miles was four hours and twenty-seven minutes.

The team came in at the conclusion of each 25-mile drive making a strong pull on the bit; the whip was in the socket. Neither showed the slightest signs of distress but were both on the alert and were nervous while being unhitched. There was not a whip mark on either one of them.

Condition of the Horses Subsequent to the Test.

The team was hooked up in one hour after the conclusion of the test and were photographed and were driven about the fair grounds and the town. Neither of them showed the slightest in-

ENDURANCE RACES.

dication of having been overdriven or in any way abused. Neither showed any indication of lameness, but their eyes were bright and both on the alert, showing that they had stood the test remarkably well and that they were able and evidently willing to repeat the test. It was quite apparent that the team had not been driven as fast as it might have been.

THE SADDLE HORSE TEST TO A FINISH.

Entries.

Three horses were entered by Colonel Jay L. Torrey, named respectively, "Pride," "Pappoose" and "Highpockets"; they were all branded M- on the left shoulder and Pride was branded L 46, Pappoose 438 and Highpockets lazy 77 on the left thigh. Pride stands scant 15 hands high; Pappoose 14.2, and Highpockets 15.1; the first was 6 years old, the second 10 years old, and the third 14 years old; they were all bred by the owner and raised in the Big Horn country.

The sire of Pride was Hamlet the 4th, an imported English Hackney stallion, and her dam was a good native mare; the sire of Pappoose was a Morgan stallion, named Morgan, a direct descendant of Justin Morgan, and her grand sire was the King of "Hearts" by the imported thoroughbred stallion, named "King Ban"; her dam and grand dam were good native mares; the sire of Highpockets was the King of Hearts and her dam was a native saddle mare.

Weights.

Pride was ridden by Lieut. J. E. Gav jot, aide to General Thomas; he weighed 140 pounds; his saddle and bridle weighed 20 pounds—a total of 160 pounds. The mare weighed 965 pounds.

Miss Lula Mead, of Basin, rode Pappoose; she weighed 111 pounds and her saddle and bridle weighed 34 pounds—a total of 145 pounds. The mare weighed 930 pounds.

Master Charlie W. Hudson, aged 15 years, rode Highpockets; he weighed 105 pounds and his saddle and bridle weighed 47 pounds—a total of 152 pounds. The mare weighed 985 pounds.

The Test.

The start was made exactly at 9:00 a. m., and the first 25 miles was made in two hours and twenty-two minutes; a rest of thirty minutes was taken and the second 25 miles was ridden in two hours and twenty-six minutes. A one hour rest was taken and the horses started on their third tour of 25 miles.

Lieut. Gaujot, riding Pride, reached the 12½ mile post making the total distance in exactly six hours from the time of starting at 9:00 a. m., but owing to the legweary condition of the horse thought best not to ride farther.

Miss Mead, riding Pappoose, arrived but did not continue for the same reason. (Horse did not finish last 12½ miles, was led in about one hour later, missed finish about four miles.)

The boy, riding Highpockets, returned to the starting point after riding about four or five miles after making the third start, claiming that Highpockets had "humped her back and would not go farther." This mare was in good condition upon her return and showed no signs of distress whatever. She was carefully examined by the writer and should in his judgment have made the trip easily, at least to the 62½ mile post, if proper effort had been exerted by the boy rider. The impression is that he got more fatigued than the mare and was therefore unable to exert himself and returned. The writer examined her as to the whip and spur marks, but did not find any.

The Condition of the Horses Subsequent to the Test.

The three mares were fed and watered in the ordinary course and showed no signs of distress and did not show any signs of punishment either with whip or spur. At 9:00 o'clock p. m. the day of the "test" they were reported as having eaten and drank as usual and as not being lame or in any way out of condition.

The next morning all of these mares were in good condition and apparently fit to repeat the test.

The five head of horses—that is, the two driven in the twohorse buggy and the three ridden—were what would be termed small sized horses. The three latter had been broken and ridden by cowbcys from time to time in the ordinary operations incident to a cattle and range horse business, and the latter had frequently been used as a pack horse.

"Sunrise" and "Lightning" were a pair of brood mares which had been broken about twenty days before the race and never had been driven that distance at one time and at the time of starting in the test there was no knowledge as to how they would stand the trip.

No special preparation to condition these horses had been made, but they were simply taken off the range and entered in these tests for the purpose of showing their endurance and what might reasonably be expected of other horses in the Big Horn country under similar circumstances.

The tests were timed by competent judges who were not interested in the horses and had no part in the ownership of any equine in the test.

Faithful judges were at the $12\frac{1}{2}$ mile post to see that all horses turned the post and were carefully timed. They were correctly timed at the $12\frac{1}{2}$ mile stake on arriving each time.

Long-distance rides, as they are called in those countries where they are most frequently made, have not yet been very long in fashion. This branch of sport was made popular only after the War 1870-1877, between military officers of various nationalities, had its inception in 1892—a race between Austro-Hungarian and German officers, under the auspices of the German and Austrian Emperors. The event was decided between Berlin and Vienna, and resulted in a triumph for the Austro-Hungarians. Many horses lost their lives during the race.

There are some stirring stories—all a matter of record and published from time to time—to be told concerning the ponies used upon the "Express" service on the plains in the days before the telegraph had reached the west coast. Perhaps the greatest achievement accomplished was that which brought fame to the name of F. X. Aubry, who in 1851 rode from the Plaza at Santa Fe, N. M., to the Public Square in Independence, Mo., a distance of nearly 800 miles, through a country infested by Indians still on the warpath. It was for a wager of \$1,000.00 that he undertook to ride alone from Santa Fe over the "Old Freight Route" to Independence, within six days. Aubrey spared none of his horses, and as a result reached his destination in five days and nineteen

hours. This feat cost him the lives of several of his best horses. After he was carried off his last worn-out horse he became unconscious and remained so for forty-eight hours.

When the "Pony Express" was established just previous to the Civil War, 500 ponies of the tough and tireless "bronco" breed, also Indian and Cayuse varieties, were purchased and 200 men were engaged for the service, eighty of them being chosen as riders. The latter were selected mainly on account of their experience in the saddle, because they had been tested and were able to stand the fatigue of a gallop extending over 100 miles. Good judgment, too, was required, for they had to have the knack of getting as much out of their mounts as possible and not overtax them.

When the pony express was in full swing news was carried from ocean to ocean in less than ten days. In 1860 President James Buchanan's last message was brought into San Francisco in eight days and five hours, while President Lincoln's first address reached the other shore in seven days and fourteen hours.

Colonel W. F. Cody (Buffalo Bill), now living at Cody, Wyoming, hale and hearty, was one of the riders of the pony express and on one occasion, finding that the rider who should have succeeded him had been killed by Indians, rode 384 miles without rest or stop, in twenty-four hours, riding at an average of sixteen mile an hour, and changing horses thirty-six times.

Bob Haslam, known as "Pony Bob," express rider, made a long distance ride from Old Fort Churchill, via the Sink of the Caves, Sand Springs, Cold Springs, to Smith's Fork and return to Fort Churchill on schedule time, making 264 miles.

James Moore, a frontiersman, in the '60s rode 280 miles in twenty-two hours.

In the "endurance tests" or long-distance rides the most important requirement is generally recognized to be the condition of the horse. This rule was applied in 1904 in the Lyon-Vichy ride. In that ride thirty-two horses took part; six of these had to give up. In the Vienna-Berlin ride, out of 199 horses taking part, nine Austrian and eighteen German horses died. In the long-distance ride from Dresden to Leipsig, out of thirty-three taking part not less than ten horses succumbed. In the Brussels-Ostend ride out of the twenty-two horses taking part, two suc-

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cumbed on the way and two after arrival. In the Upsala-Stockholm ride, only one rider had to give up, while the remaining twenty arrived safely. This shows that care and attention to the condition of the horse on the long-distance rides is steadily increasing.

Every one knows that it requires no special skill to ride a horse in such a way that he will break down or die. The better bred the horse the more likely is this to happen, as a poor horse will give up long before he is in danger of such an ending. Only a well-bred horse will answer every call his rider may make on him. A good rider is expected to do more than ride his horse. He must nurse his horse and look after him with the greatest amount of thoughtfulness and bring into practice all of his experience and intelligence in the care of his mount. Individual practice alone will teach a man how to cover long distances in as short time as possible without unnecessarily fatiguing his horse. A few failures will impress upon him the fact that a horse is not merely a machine that will go on forever at every pace, provided he is supplied with fuel.

The conditions of the "horses" after the "tests" was especially looked into and personal examinations made in each case at Basin, not only at the close of each test, but the following morning, even up to the second day after the severe trial, as heretofore stated in the report of the "endurance tests." wherein it is found that the horses were in a condition to repeat the test. Noticeably also, there were no crippled animals; no dead ones; furthermore, no cruelty to animals practiced in any case, although the time made was not quite so fast as that made, as stated in some reports of similar "tests," by our military neignbors across the water.

On the whole, however, the Wyoming tests were satisfactory to the owners and onlookers, and demonstrated the fact that Wyoming horses, more particularly those of the Big Horn Basin, have stamina, staying qualities, lung power and strong constitutions, which make them capable of enduring severe and long-continued exertion on the road or over the mountain trails under the saddle: It is not necessary to mention here other inherent attainments. Sure footed—fleet footed—while chasing cows and

wild eyed steers over the divide. Such accomplishments are too well known to require repetition.

ENDURANCE RACES.

Contractors for horses to supply mounts for the Army through the Quartermaster's Department, without much exertion could, it is thought, obtain easily a great number of horses in Wyoming suitable and acceptable for Army service.

There are a number of "stock" ranches in the Big Horn Basin, Wyoming, also in the vicinity of the Owl-Creek Mountains, exclusively devoted to, and managed with the object of, the raising, subsequent development and handling of equine specimens. Having for breeding purposes at those places, superior native matrons and well-bred sires, which, coupled together by an intelligent, watchful breeder, produce a foal that upon reaching maturity is an animal of substance, hardy constitution, and staying qualities the most pronounced. The climate, nutritious native grasses, water, free range and exercise, contributing largely to such development, nearly all being well matured at four years of age, and at that time well adapted to hard work and severe service conditions.

As a rule range horses are rather indifferent walkers; necessarily so from environment and early life on the range and therefore not as perfect campaigners as could be wished for. It will be admitted that they are good gallopers and that at long distances, with their lung capacity, legs and feet of the best, able to stand any amount of hard work and pounding in true cowpuncher style. We have plenty of big horses, useful in their small sphere; we have the fast trotting horse and the thoroughbred racers, but we want another type of horse, suitable to do service in the cavalry.

The introduction of Hackney, Draft and Coach strains, and with such crosses upon our native mares, has produced for commercial and horse show purposes a class of horses of high-stepping, excessive hock action, hard-riding characteristics, that will pound the "liver" out of and upset the internal economy of the ordinary soldier, or anybody else. If this statement is not believed and concurred in, ride any of the "brutes."

Unfortunately some of the above-mentioned kinds have found their way into the cavalry service, much to the chagrin and worry of many "Boards." To constitute an ideal cavalry horse one of the prime requisites in his makeup is, that he be a flat-footed, four-mile and over an hour walker, or so constituted in disposition and handling qualities that he can be made so by training. Then again he should have a free, square, easy trot, straight and true, no hitching, hobbling or side-stepping, with no tugging at the bit, no false movements or hesitation, but a steady even pull on the mouth, head straight in front of his body, and one that is not concerned in what is on either side of the road.

The establishment of a horse breeding industry in the West may make Wyoming and Colorado competitors of Missouri, that has long held almost a monopoly on the Army horse. The long despised "bronco" may become, if properly bred, one of the best Army horses in the world.

The chief points in which the Wyoming horses excel those that find their way into the cavalry service are, lung power, and harder legs and hoofs. Almost wild horses, that had been ridden only a few times, were brought in from the range and ridden in endurance tests. Although breaking no records, the horses traveled 62½ miles in six hours, or better than ten miles an hour. This rate is very close to the world's record. The most famous rides in endurance tests have been made by French Army officers between Ostend and Brussels, a distance of 85 miles, at the rate of twelve miles an hour. When it is taken into consideration that the horses ridden in these tests had been trained for weeks previous for long distance riding, and had been brought up in the Army service, it will be seen that the wild range horses of the West are as good at long distance riding as any in the world.

Where the Western horse fails is in point of size. There are few "broncos" that come up to the Army regulations in this respect. This is largely due to the fact that they are turned loose on the range when still young colts, and do not get enough feed during their first year. This is the critical time with a horse, and if it does not get enough to eat it will be stunted. By feeding the colts on the range their size will average greater.

As heretofore stated another fault with the "bronco" is that he will not walk. This is a great requisite for an Army horse. The bronco will gallop for miles over the prairie, having far greater endurance in this respect than the ordinary horse, but is, to say the least, a very poor walker. By breeding the bronco with some of the best trotting strains in the country, an ideal Army horse could be secured. The range life has developed wonderful lung power and hardness in the bronco. What he needs is trotting blood and size. "Ranchers" in the Big Horn Basin, viz: Colonel Jay L. Torrey, Embar Ranch; Messrs. Shipman and Riffil, Basin, and others, have already started this breeding. The result is already observable, as the horses are larger than the natives. The horses of the "Big Horn Basin" were the best seen throughout the Rocky Mountain region.

It is not believed that the Government will establish experimental breeding stations for the Army horse, at least not just yet, leaving this for the States or enterprising citizens. The Colorado Agricultural College, aided by the Government, has already taken up the question of horse breeding, with a distinct western coach horse as the goal. Formerly, any horse that was capable of performing efficiently any task was acceptable to consumers, but now the best grades of horses are demanded in individual and commercial lines. So it is, to a still greater extent, in the cavalry, where the best grades are eagerly sought after but seldom obtained. The reasons are well known: "The keen demand and record prices for horses since 1902 have stimulated the marketing of the surplus horses. The demand has been so urgent that liberal consignments of three-year-old horses have been sent to the markets."

"While horses increased in number in 1905, 1,028,695 head, and gained 3.213,359 head in the United States in five years, the supply of market classes is still below individual and commercial demands. The processes of modern cultivation are so dependent upon the use of horses that they are the formation of national prosperity."

No better or more desirable locality for "breeding" purposes and supplying the shortage now in itself evident, than certain sections of Wyoming, if, of course, proper steps are taken to start the industry in the right manner, the selection of proper stallions to mate with mares now owned and kept by proprietors of breeding farms in that region of Wyoming mentioned in detail at the close of this article. One of the good things about this State is the elbow room it offers. It inspires a feeling identical with that which old "Jim Bridger" experienced when a new settler located within forty miles of his solitary cabin on the Snake river. He complained that the country was getting too crowded and that it was time to move. Some day, however, it will be crowded sure enough.

The "bronco busting" contest at the Fair grounds the last two days of the fair drew large crowds of interested spectators and everybody was so well pleased that steps have already been taken, so it is understood, to make "bronco busting" an annual event in Basin. Something like eight riders were entered in the afternoon contests, some of whom have wide reputations as "bronco busters." It was a splendid exhibition of human nerve and skill against brute strength, and in one or two instances the horse won by a large margin.

What pleases a cowboy, or bronco buster, more than anything else is a tussle with an equine outlaw of the worst type, a dangerous pastime and liability to permanent injury. However, like the "bull fights" in our sister Republic, such "bronco busting" contests will be patronized by all kinds of people.

A "bucker's" mode of attack and resistance is never the same. He may rear and fall over backwards; dash off at breakneck speed and halt with bone-shattering suddenness; spring in the air, drop, rise again and descend with back in the shape of a crescent and legs stiff as steel; roll over with cat-like quickness; or execute a dozen other malignant maneuvers. Win or lose, he returns to the contest with stubbornness unchanged. He will but seldom yield to man's mastery. The "bronco" inherits characteristics of resistance to the subduing and controlling influences and persuasions of man which, in a majority of cases, make it a trifle dangerous to place upon him under service conditions the ordinary cavalry, field and horse artillery soldiers, who are not finished riders and fearless horsemen, like the "bronco busters" and cowboys of the West and South.

CAVALRY IN WAR AND PEACE.*

PREFACE.

A L L British soldiers will welcome this excellent translation by Major Bridges of a new work by General von Bernhardi, whose intimate knowledge of cavalry and brilliant writings have won for him such a great European reputation.

Some prominence has lately been given in England to erroneous views concerning the armament and tactics of cavalry. General von Bernhardi's book contains sound doctrine on this subject, and will show to everyone who has an open mind and is capable of conviction by reasoned argument how great is the future rôle of cavalry, and how determined are the efforts of the great cavalry leaders of Europe to keep abreast with the times, and to absorb, for the profit of the arm, every lesson taught by experience, both in peace and war.

In all theories, whether expounded by so eminent an authority as General von Bernhardi or by others who have not his claims to our attention, there is, of course, a good deal that must remain a matter of opinion, and a question open for free and frank discussion. But I am convinced that some of the reactionary views recently aired in England concerning cavalry will, if accepted and adopted, lead first to the deterioration and then to the collapse of cavalry when next it is called upon to fulfill its mission in war. I therefore recommend not only cavalry officers, but officers of all arms and services, to read and ponder this book, which provides a strengthening tonic for weak minds which may have allowed themselves to be impressed by the dangerous heresies to which I have alluded.

^{*}This article is made up from the preface and introduction to the English translation of General von Bernhardi's new work under the above title. The preface is by General Sir J. D. P. French, G. C. B., G. C. V. O., K. C. M. G.

Is there such a thing as the cavalry spirit, and should it be our object to develop this spirit, if it exists, to the utmost, or to suppress it? General von Bernhardi thinks that this spirit exists and should be encouraged, and I agree with him. It is not only possible, but necessary, to preach the Army spirit, or, in other words, the close comradeship of all arms in battle, and at the same time to develop the highest qualities and the special attributes of each branch. The particular spirit which we seek to encourage is different for each arm. Were we to seek to endow cavalry with the tenacity and stiffness of infantry, or to take from the mounted arm the mobility and the cult of the offensive which are the breath of its life, we should ruin not only the cavalry, but the Army besides. Those who scoff at the spirit, whether of cavalry, of artillery, or of infantry, are people who have had no practical experience of the actual training of troops in peace, or of the personal leadership in war. Such men are blind guides indeed.

Another reason why I welcome this book is because it supplies a timely answer to schoolmen who see in our South African experiences, some of which they distort and many of which they forget, the acme of all military wisdom. It is always a danger when any single campaign is picked out, at the fancy of some pedagogue, and its lessons recommended as a panacea. It is by study and meditation of the whole of the long history of war, and not by concentration upon single and special phases of it, that we obtain safe guidance to the principles and practices of an art which is as old as the world.

It is not only the campaigns which we and others have fought which deserve reflection, but also the wars which may lie in front of us. General von Bernhardi does not neglect the lessons of past wars, but he gives the best of reasons for thinking that the wars in South Africa and Manchuria have little in common with the conditions of warfare in Europe. We notice, as we read his book, that he has constantly in his mind the enemies whom the German Army must be prepared to meet, their arms, their tactics, and their country, and that he urges his comrades to keep the conditions of probable wars constantly before their eyes.

It passes comprehension that some critics in England should gravely assure us that the war in South Africa should be our chief source of inspiration and guidance, and that it was not abnormal. All wars are abnormal, because there is no such thing as normal war. In applying the lessons of South Africa to the training of cavalry, we should be very foolish if we did not recognize at this late hour that very few of the conditions of South Africa are likely to recur. I will name only a few of them. The composition and tactics of the Boer forces were as dissimilar from those of European armies as possible. Boer commandos made no difficulty about dispersing to the four winds when pressed, and re-uniting again some days or weeks later hundreds of miles from the scene of their last encounter. Such tactics in Europe would lead to the disruption and disbandment of any army that attempted them.

Secondly, the war in South Africa was one for the conquest and annexation of immense districts, and no settlement was open to us except the complete submission of our gallant enemy. A campaign with such a serious object in view is the most difficult that can be confided to an army if the enemy is brave, enterprising, well-armed, numerous, and animated with unconquerable resolve to fight to the bitter end. I am not sure that people in England have ever fully grasped this distinctive feature of our war with the Dutch Republics. Let me quote the opinion of the late Colonel Count Yorck von Wartenburg on this subject. In his remarkable book, "Napoleon as a General," Count Yorck declares that if, in the campaign of 1870-71, the absolute conquest and annexation of France had been desired. German procedure would not have been either logical or successful, and that the Germans would have failed as completely as Napoleon failed in Spain. But Count Yorck shows that when plans have a definite and limited object in view-namely, to obtain peace on given conditions—the situation is altered. Count Yorck shows that the German plans in 1870-71 were perfectly appropriate to this limited aim, and that they were therefore successful. The very serious task which British policy imposed upon British strategy in South Africa must never be forgotten.

Thirdly, we did not possess any means for remounting our cavalry with trained horses, such as we are endeavoring to secure by our new system of cavalry depots and reserve regiments. After the capture, in rear of the army, of the great convoys by De Wet, our horses were on short commons, and consequently lost condition and never completely recovered it.

Lastly, owing to the wholesale and repeated release of prisoners who had been captured and who subsequently appeared again in the field against us, we were called upon to fight, not, as is stated, 86,000 or 87,000 men, but something like double that number or more, with this additional disadvantage, that the enemy possessed on his second or third appearance against us considerable experience of our methods, and a certain additional seasoned fitness.

Nevertheless we are now invited to throw away our cold steel as useless lumber owing to some alleged failures of the cavalry in South Africa. Were we to do so, we should invert the rôle of cavalry, turn it into a defensive arm, and make it a prey to the first foreign cavalry that it meets, for good cavalry can always compel a dismounted force of mounted riflemen to mount and ride away, and when such riflemen are caught on their horses they have power neither of offense nor of defense and are lost. If, in European warfare, such mounted riflemen were to separate and scatter, the enemy would be well pleased, for he could then reconnoiter and report every movement and make his plans in all security. In South Africa the mounted riflemen were the hostile army itself, and when they had dispersed there was noththing left to reconnoiter; but when and where will these conditions recur?

Even in South Africa, grave though were the disadvantages under which our cavalry labored from short commons and overwork, the Boer mounted riflemen acknowledged on many occasions the moral force of the cold steel, and gave way before it. The action at Zand River in May, 1900, was a case in point, and I only quote a personal experience because the venerable maxim that an ounce of practice is worth a ton of theory has still a good deal to be said for it. The rôle of the Cavalry Division on the day to which I refer was to bring pressure to bear on the right flank of the Boer army in order to enable Lord Roberts to ad-

vance across the river and attack the main Boer forces. Having crossed the river to the west of the Boers, we determined, with the inner or easterly brigade, to seize an important kopje lying on the right flank of the Boer position, and, pivoting upon this, to throw two brigades against the right flank and rear of the enemy.

The Boers told off a strong force of picked mounted riflemen to oppose this movement, which they expected. The kopje was seized by the inner brigade, and the brigade next to it made some progress; but the Boer mounted riflemen attacked the flank brigade to the extreme west, and began to drive it back. I galloped from the kopje to the outer brigade with the thought that either every idea which I had ever formed in my life as to the efficacy of shock action against mounted riflemen was utterly erroneous, or that this was the moment to show that it was not. On reaching the outer brigade I ordered it to mount and form for attack. All ranks were at once electrified into extraordinary enthusiasm and energy. The Boers realized what was coming. Their fire became wild, and the bullets began to fly over our heads. Directly the advance began, the Boers hesitated, and many rushed to their horses. We pressed forward with all the very moderate speed of tired horses, whereupon the whole Boer force retired in the utmost confusion and disorder, losing in a quarter of an hour more ground than they had won during three or four hours of fighting. A cavalry which could perform service like this; which held back, against great numerical odds, the Dutch forces at Colesberg; which relieved Kimberley; which directly made possible the victory at Paardeberg by enclosing Kronje in his intrenchments; which captured Bloemfontein, Kroonstadt, and Barberton, and took part successfully in all the phases of the long guerrilla war and in countless drives, can afford to regard with equanimity the attacks of those who have never led, trained, nor understood the arm to which I am proud to have belonged.

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I have already, in an introduction to another book by General von Bernhardi, expressed my high sense of the general soundness of his teaching. Were I to do full justice to the

merits of this new work, I should be compelled to make long extracts and to repeat matter which every reader will perhaps do better to search for and select for himself. But I would invite particular attention to the general's remarks on the subjects of reconnaissance, the cavalry fight, the combination of fire and shock, the divisional cavalry, the rôle of the strategical cavalry, training, and organization. The masterly summary of the qualifications which should be possessed by squadron and patrol leaders is, in particular, an extremely valuable contribution to the study of a most important subject.

The general does not always agree with the Regulations of his own Army, and he is especially in conflict with them when he recommends raids by cavalry corps against the enemy's communications. My opinion upon this point is that every plan should be subordinate to what I consider a primary necessity—namely, the absolute and complete overthrow of the hostile cavalry. So long as that cavalry remains intact with its moral unshaken, all our enterprises must of necessity be paralyzed. The successful cavalry fight confers upon the victor the command of ground, just in the same way that successful naval action carries with it command at sea. For effective enterprises in either sphere command is absolutely necessary, and can only be obtained by successful battle, whether on land or sea.

I agree generally with the German Regulations when they suggest that raids against communications should not divert cavalry from their true battle objective, and consequently I must venture to differ from the author on this point, though I do not approve of all that the German Regulations say concerning the employment of cavalry in battle. The opinion which I hold and have often expressed is that the true rôle of cavalry on the battle-field is to reconnoiter, to deceive, and finally to support. If the enemy's cavalry has been overthrown, the rôle of reconnaissance will have been rendered easier. In the rôles of deception and support, such an immense and fruitful field of usefulness and enterprise is laid open to a cavalry division which has thought out and practiced these rôles in its peace training and is accustomed to act in large bodies dismounted, that I cannot bring myself to believe that any equivalent for such manifest advan-

tages can be found even in the most successful raid against the enemy's communications by mounted troops.

I entirely agree with General von Bernhardi's conclusion that very important duties will fall to the lot of the divisional cavalry in war, and that the fulfillment of these duties has become more difficult of late years. The necessity for, and the value of, divisional cavalry are often not properly appreciated. What the strategical cavalry is to the Army in the greater sphere, the divisional cavalry is to the division in the lesser.

Most cavalry soldiers of good judgment will agree with the lucid arguments of the author on the subject of cavalry armament. It is suggested to us, by critics of the cavalry, that the lance is an impediment to dismounted action. If this difficulty ever existed, it has been overcome by the method of carrying the lance which has been adopted and practiced with marked success for the past two years. It is also objected by the same critics that a thin bamboo pole, carried by the side of a mounted man, will hinder him in reconnaissance and reveal his position to the enemy. The mere statement of this argument absolves me from the duty of replying to it.

General von Bernhardi very wisely says that it is not a question whether cavalrymen should fight mounted or dismounted, but whether they are prepared and determined to take their share in the decision of an encounter and to employ the whole of their strength and mobility to this end. In our training during the last few years I have endeavored to impress upon all ranks that when the enemy's cavalry is overthrown, our cavalry will find more opportunities of using the rifle than the cold steel, and that dismounted attacks will be more frequent than charges with the arme blanche. By no means do I rule out as impossible, or even unlikely, attacks by great bodies of mounted men against other arms on the battlefield. But I believe that such opportunities will occur comparatively rarely, and that undue prominence should not be accorded to them in our peace training, to the detriment of much more solid advantages which may be gained by other means.

I think that everyone who reads this book will understand that the sphere of action of cavalry is steadily widening, and is, at the same time, making increased demands as the years go on upon all ranks of the arm. Those who wish to recall what cavalry has done in the past should read and re-read "The Achievements of Cavalry," by Field-Marshal Sir Evelyn Wood, one of the very few soldiers in the Army who has taken part as a combatant in European warfare. Sir Evelyn Wood's war record probably surpasses that of any other officer in the Army. His knowledge of horses and his horsemanship are second to none, and though 72 years of age, he is still one of the hardest and straightest riders to hounds in England. It should be a constant encouragement to the cavalry that such an experienced and sagacious leader should entertain such a firm faith in the destinies of an arm, with which he is so thoroughly conversant.

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A few words in conclusion. We hear it said, and see it written, that we ought not to accept any guidance from military Europe, because our own experience of war has been so considerable that we can learn nothing from Europe which we do not know better ourselves. The truth is, that since the Crimean War we have had little or no experience of the kind of effort which will be required of us when next we meet the trained army of a European Power. In deluding ourselves with the false notion that our campaigns of the last fifty years represent the sum of military wisdom, we merely expose our ignorance and conceit, and do our utmost not only to cause disaster, but to invite it.

The cavalry soldier must not be misled by these appeals of ignorance to vanity. Let him continue to study profoundly the training, tactics and organization of the best foreign cavalry. Let him reflect long and deeply upon the opinions of such acknowledged authorities as Field-Marshal Sir Evelyn Wood and General von Bernhardi. Let him keep himself abreast with every change in the tendencies of cavalry abroad, so that he may help us to assimilate the best of foreign customs to our own. Finally, let him realize the great intellectual and physical strain that modern war will impose upon the cavalry, and let him preserve the mens sana in corpore sano, that equable balance between study and action, which alone will enable him to rise superior to every difficulty in the great and honorable calling to which he belongs.

J. D. P. French.

INTRODUCTION.

The great changes which have taken place in military science since the year 1866 have forced all arms to adopt new methods of fighting. It was, first and foremost, the improvement in the firearm which wrought the transformation of the battlefield and called forth an increased demand for cover against the murderous effect of fire. The infantry sought safety in sparser formations and in utilizing the smallest accidents of the ground for cover, while the artillery adopted armored shields, covered positions, and indirect methods of fire. It was only the cavalry that could not keep pace with these developments. Forming a conspicuous target, capable of being concealed only behind considerable inequalities of the ground, it could indeed seldom find cover within the range of the enemy's fire. As, at the same time, its strength in comparison to that of the great armies of the present day, has sensibly diminished, it might be concluded that its particular value in battle had decreased considerably in possibility and importance.

This conclusion is thoroughly justified, but not altogether in the way that one is inclined to assume. For one reason, the cavalry is now supplied with an excellent firearm, which its mobility enables it to employ against the most sensitive parts of an enemy's line of battle. For another, the composition of modern armies offers, as I have frequently said, many new possibilities of success. Newly raised levies, such as will often have to take their place in the great armies of the day, cannot possess the same steadiness as standing permanent troops. They are, according to experience, very sensitive to moral impressions, and will often enough, when shaken in battle, offer a tempting and suitable object of attack to the cavalry. At the same time, the fact remains that, by reason of its relative numerical weakness, cavalry can no longer retain its former importance in the battle, and that the manner of its intervention in the fight must often be of a very different nature from what it has been in the past.

On the other hand, the duty of cavalry in the sphere of reconnaissance has increased in importance. For all strategical movements the main body of the modern army demands considerably more time and, generally also, comprehensive prepara-

tory measures. If, therefore, intelligence as to the disposition of the enemy is to be of use in operations, it follows that it must be procured at the earliest possible moment. Whoever gets the earliest and best information possesses nowadays a far greater advantage than formerly, when, with the small armies of the day, movements and combinations of force could often be successfully carried out in the immediate presence of the enemy's army. These are indeed still possible in occasional cases and where sufficient depth of formation is maintained, and it is this circumstance that has made early and full intelligence, combined with successful screening of one's own movements, one of the most important factors of success.

There are people who, in fancy, already see cavalry replaced in this rôle by an air fleet. Such prophets cannot, however, be treated seriously. The air cruisers will not be designed for all the possibilities of war. In the period of concentration and in fortress warfare they would doubtless be able, even in their present condition, to render excellent service. Whether they can be adapted for use in a war of movement remains to be seen; but, even if they can in time be of more service for war than at present appears to be the case, their capabilities in this direction will always be limited. They can only observe at night under favorable conditions—such things, for example, as large detrainments of troops or bivouacs with fires burning. They are under all circumstances dependent upon the weather. By day the air fleet of the enemy will seek battle with them in order to hinder their reconnaissance. Hostile artillery will be particularly dangerous to them, and will be able, thanks to the developments in modern ordnance, to wage successful war against them. All detachments cannot possibly be supplied with airships, owing to the great cost and enormous apparatus entailed, and their usefulness will therefore only be realized with the larger formations. Finally, one or the other of the air fleets will be driven from the field, or rather from the air, and that side which meets with defeat will be deprived of all means of reconnoitering unless it can rely on its cavalry. So in the most modern war the cavalry remains the principal means of reconnaissance. Its activity may indeed be supplemented by airships, but will never be replaced by them.

These circumstances, however, necessitate a new rôle for cavalry. It must drive the hostile cavalry from the field, a cavalry which will do all in its power to secure its own army against intrusion. It will find this cavalry reinforced not only by horse artillery and machine-guns, but also by cyclist battalions, mounted and other infantry, and will therefore have to be prepared, in order to properly carry out its service of exploration, to fight against detachments of all arms. But the same thing will also happen when it seeks to veil the movements of its own army, or to undertake some enterprise against the enemy's communications, or to defend its own against similar hostile raids. Our cavalry thus finds itself face to face with totally new duties of a most real kind, towards the carrying out of which it has no previous experience to help it.

In the wars of Frederick the Great and of Napoleon, as well as in the German war of Unification, there is a total absence of analogy from which to draw conclusions that can be practically applied. The wars in South Africa and Manchuria, on the other hand, reveal conditions which have very little in common with those of a European war such as the German cavalry will have to fight. Nowhere can the few experiences of cavalry action gained in these wars be immediately applied, and there are but few bases for the formation of judgment as to what is practical and possible under modern conditions. The same may be said to hold good of the Russo-Turkish war. The most interesting and instructive campaign for the service of modern cavalry appears to be the American war of Secession, which is, however, almost unknown in Germany, where there is a lack of opportunities to study it.

There is, therefore, for our cavalry a want of any sort of tradition for that rôle which it will be expected to carry out in the next war, and this want will be the more felt as it will in the future be expected to deal with a number of technical methods of communication which are as a whole still almost unknown, and as to the actual war value of which no judgment can yet be formed. Up to now, also, cavalry training as carried out since the war of 1870-71 has been unable to create a sound foundation for preparation for war. Left far behind in the march of military progress, in tactics as well as reconnaissance

it has been led so far from the right way that it would have been unable to stand the test of serious war. Nor have we yet fully extricated ourselves from these trammels of the past.

For the moment, therefore, our cavalry finds itself in a state of transition. The demands which modern war will make upon it have not yet penetrated into its flesh and blood, that is to say, their extent and range have not yet been clearly grasped by the arm, nor have we yet by any means succeeded in breaking loose from the fetters of the past. Views based on antiquated assumptions are often apt to survive and to influence training as well as leading.

This is particularly the case as regards reconnaissance. In tactics, too, the cut-and-dried methods of bygone days are clearly not yet forgotten, while for enterprises against the enemy's communications there is a want both of practical training and theoretical instruction.

This state of affairs must be regarded as a great evil, as at the outbreak of a war there will no longer be time to collect experiences. From the very first day onward the greatest demands will be made upon the cavalry, not only as regards intentions, but performances. On the achievements of the cavalry in the early days of the war will depend to a considerable extent the success of the first great decisive encounter.

We must therefore be prepared to meet these great demands when war breaks out. Only a clear recognition of the necessities and the possibilities of maneuver and training can secure us this preparation. There remains, then, nothing for us—with no practical war experience to go on—but to create the groundwork of our methods of training from theoretical and speculative reflection. With all the means of intellect and foresight, we must endeavor to discern the probable course of the war of the future and regulate the methods of training accordingly.

Peace exercises based upon such clearly defined principles must serve as a further guide to what is possible and practical. They cannot, it is true, afford realistic results, as they lack the effect of weapons, the hostile country, the thousand causes of friction, and the moral factors of serious war. They can, however, be regarded as practical guides in many directions and will help us to evolve methods unattainable by pure theory: for in-

stance, in increasing the capabilities of the troops, improving the practical arrangements for communication, the transmission service, the patrol system, and the like. Only these peace experiences must not be overrated, but subjected to continual criticism by the light of what would be practical in war.

It thus remains our chief duty to get a clear and just idea of the rôle that cavalry will play in a future war, in order to clear the mind fully on this point, and so be able further to build upon the foundations of sound reasoning.

The new Cavalry Drill Regulations,* in which I had the honor and pleasure of collaborating, have undertaken the creation of these fundamental principles of the independent rôle of cavalry. Their teachings, however, have as yet by no means penetrated into the ranks. The new Drill Regulations have endeavored to give new rules for the tactical employment of cavalry, which have not yet sufficiently established their value, even on the maneuver-ground. As yet the troops are only endeavoring to get accustomed to them.

It is also obvious that practical drill instructions, at least for tactics, can only give general principles, and cannot be too definite, lest they should thereby tend to limit the independence of leaders in the thousand varied happenings of war.

It is quite another matter for him who is not called on to make regulations, but whose task is rather to clear the understanding, to stimulate independent thought, and to encourage the troops themselves to form correct judgments. Thus will be molded the efficiency which will enable the soldier to act in the presence of the enemy according to the Regulations, with full freedom of thought, not after the letter, but the spirit, and even perhaps, in many cases, the intention of them.

From this point of view I have set forth my views and reflections. It seems to me, above all things, important to discuss those points which will be new to cavalry in a future war, and in so doing to touch on many matters of training which long years of experience have convinced me are practical. May I by these

^{*&}quot;Exerzier-Reglement für die Kavallerie," part of which has been translated and published by the General Staff, War Office These Regulations are frequently referred to throughout this work.—TRANS.

hints contribute towards the formation of fresh traditions for the training of the arm that will march with modern conditions, that will break away for good from all half-measures and obsolete views, and thereby clear the way towards a proper conduct of the cavalry in war, and to the winning of fresh and imperishable laurels!

Where I have occasion to touch on views formerly expressed and set forth in my various writings, I find no reason to retract any of them. In certain directions they have naturally developed further, and have become more progressive under the impress of the whole of modern development and the latest experiences of war. On the whole, however, I adhere to my opinions, and only seek to supplement and develop them in order to suit them still better to the practical needs of the arm. I hope they may act as a stimulus and serve as a guide to many a comrade in difficulties.

THE CHANCELLORSVILLE CAMPAIGN.*

By Major JOHN BIGELOW. Jr., U. S. ARMY, RETIRED.

H OOKER and his chief of staff applied themselves energetically to the improvement of the army in organization, equipment and *morale*; they commenced by altering its organization as indicated in the following order issued February 5:

I. The division of the army into grand divisions, impeding rather than facilitating the dispatch of its current business; and the character of the service it is liable to be called upon to perform being adverse to the movement and operations of heavy columns, it is discontinued, and the corps organization is adopted in its stead. They will be commanded as follows:

First Corps, Major-General John F. Reynolds.

Second Corps, Major-General D. N. Couch.

Third Corps, Brigadier-General D. E. Sickles (temporarily).

Fifth Corps, Major-General George G. Meade.

Sixth Corps, Major-General John Sedgwick.

Eleventh Corps, Major-General Franz Sigel.

Twelfth Corps, Major-General H. W. Slocum.

- II. Hereafter the corps will be considered as a unit for the organization of the artillery, and no transfers of batteries will be made from one corps or division to others except for purposes of equalization, and then only under the authority of the chief of artillery.
- III. The cavalry of the army will be consolidated into one corps, under the command of Brigadier-General Stoneman, who will make the necessary assignments for detached duty.

^{*}From the advance sheets of the book of this title that is being published by the Yale University Press. It is hoped to have a review of this work appear in this number of the CAVALRY JOURNAL.

[†]These assignments to the command of the several corps were, by law subject to approval by the President, and had yet to receive such approval.

The most noteworthy of these changes was the multiplication of the strategic or grand tactical units, the substitution of seven corps (eight, including the cavalry corps) for four grand divisions. If rightly viewed and interpreted, it augured ill for Hooker's generalship. The two reasons which he assigns for the change may be distinguished as administrative and tactical. The administrative reason would have been a good one if administration were alone to be considered in the organization of an army, which it never is. Administration should not be permitted seriously to interfere with tactics. When administrative convenience and tactical efficiency conflict, administrative convenience should give way. Hooker's tactical reason for the change was an excellent one for not making it. The smaller the columns, the larger must be their number, and the greater the need of grouping them and having them directed by the group commanders rather than directly by the army commander. While Hooker's army was to be resolved into seven corps. Lee's comprised but two. It was but half as numerous as Hooker's, yet one of its corps was about twice as numerous as one of Hooker's.* One of the first principles of strategy and tactics as well as of drawing, painting, sculpture, etc., of the military art, as well as of the fine arts, is to secure the effect of masses. This simple, fundamental truth is easy to grasp, but hard to apply. With great soldiers, and perhaps with great men generally, it is an instinct, or second nature. Grant and Lee and Jackson showed that they possessed it in a high degree. When Grant in the spring of 1864 joined the Array of the Potomac as Commander of all the armies of the United States, one of his first official acts was to reduce the number of his army corps by consolidating the five corps of the Army of the Potomac into three, which increased their average strength from 15,646 to 20,077 officers and men present for duty equipped, or "available for the line of battle." The average grand division numbered about 35,000 men, or, deducting cavalry, about 31,800 men present for duty equipped. Grant's annihilation of two historic organizations, with all their prestige and esprit de corps, would have been unnecessary had

the grand divisions been preserved. It may be doubted whether the reason given in Hooker's order was the real or the whole reason for his abolition of them. He probably distrusted the ability of their commanders, and was unable to replace them by better ones or indisposed to offend them by so doing.

Major-General Franz Sigel, who had commanded the Grand Reserve Division, and on its abolition was given the command of the XI Corps, lately a part of that grand division, was not satisfied with the size of his command. He tried to have the XI Corps made larger, and, not succeeding, asked on the 12th of February to be relieved from the command of it, expressing, however, a desire to remain in the service of the United States. He fought in the German revolution in 1848 and 1849, commanding bodies of volunteers varying in number from 4,000 to 15,000. In 1852 he came to the United States and became a teacher and the editor of a military magazine, first in New York and then in St. Louis.

At the outbreak of the war he was the rallying point of the Germans of Missouri and the Northwest, raising the first German regiment. He was commissioned a brigadier-general in 1861, and major-general in 1862; participated in the fighting for the possession and control of Missouri, and commanded a corps under Pope in the second Bull Run campaign.*

General Sigel was popular, not only in the large German element of the XI Corps and of the Army of the Potomac, but among Germans in all the armies and throughout the country. "I fights mit Sigel" was a shibboleth of German-Americans.

Hooker indorsed Sigel's request with the remarks:

"Respectfully forwarded and reluctantly approved, as Major-General Sigel requests it. This officer is my senior, and feels that he should have the largest corps to command. In breaking up the grand divisions, I preserved the corps organizations, for in that seemed to be strength. The officers knew the men, and the men knew their officers.

"The Major-General commanding the Eleventh Corps desires that the action of the proper authorities may be telegraphed as soon as made."

^{*}Further particulars as to the strength and composition of the opposing armies will be found in Chapter X.

^{*}Appletons' Cyclopædia of American Biography.

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On the 19th this paper was referred by Halleck to the Secretary of War, and submitted by him to the President. His action thereon was telegraphed to Hooker in the form of the statement: "He has given General Sigel as good a command as he can, and desires him to do the best he can with it."* Sigel was not satisfied. He left the army on leave, and the command of his corps devolved temporarily upon Brigadier-General Julius Stahel, who had held it under him in the grand division.

The assignment of Brigadier-General Sickles, though "temporarily," to the command of the III Corps gave offense to Major-General Howard, who commanded the Second Division of the II Corps. He wrote to Hooker requesting that he be assigned to command according to his rank. Sickles and Howard were both commissioned as major-generals on the 29th of November, 1862. Howard accepted his commission, thus becoming a major-general on that date; Sickles did not accept his, and so did not become a major-general until March 29, 1863. Not wishing to relieve Sickles, Hooker telegraphed on the 20th to the Secretary of War:

"Has the resignation of Major-General Sigel been accepted, or is that officer to be removed from command of the XI Corps? I desire to ascertain in order that, if so, Major-General Howard, the highest in rank in this army for advancement to corps commander, may be assigned to it.

"General Howard is an officer of uncommon merit, is favorably known to this army, and is fully identified with its history. It is highly important that the commander of the XI Corps should be named and that he should be on duty with it."

This inquiry had not been answered when, on the 31st of March, Hooker issued the following order:

"II. Maj. Gen. O. O. Howard, U. S. Volunteers, being the senior major-general not in command of a corps, is temporarily assigned to the command of the Eleventh Corps, and will assume the duties pertaining to it without delay."

Oliver Otis Howard was born in Leeds, Me., on the 8th of November, 1830, and graduated from West Point in 1854. He commanded a brigade at the first battle of Bull Run, and for gal-

lantry in that engagement was made brigadier-general of volunteers; he was twice wounded at Fair Oaks, where he lost an arm; he participated in the battle of Antietam; and as brigadier-general commanded the Second Division of the II Corps at the battle of Fredericksburg.* Though his military record was better than Sigel's, he was to the XI Corps persona non grata, principally because he was thought to have displaced their countryman and favorite. The Germans regarded Howard's appointment as a blow at their nationality, a reflection on German generalship. They "knew little and cared less about Howard's reputation as a great Biblical soldier, the Havelock of the army, as he was called, owing to his having studied for the ministry in the Presbyterian Church."

Having learned that the recommendations of the corps commanders for appointments on their respective staffs, authorized by law, could not be favorably considered by the President until the corps commanders themselves had been designated by the President, Hooker wrote on the 10th of April to the Adjutant-General of the Army, requesting that his selections of corps commanders be confirmed with as little delay as practicable. These, including Howard, were accordingly published from the War Department on the 15th of April as assignments made by the President.‡

Couch, Sickles, Slocum and Stoneman were born in the state of New York; Sedgwick in Connecticut; Reynolds in Pennsylvania, where he was to die on the field of Gettysburg; Meade, who was to command the Army of the Potomac on that field and to the end of the war, was born at Cadiz, Spain. The oldest corps commander was Sedgwick, numbering fifty years, one year more than Hooker; the youngest was Howard, numbering thirty-three. All were graduates of West Point except Sickles, who was a well-known Democratic politician and member of Congress from New York. No two of these West Pointers were classmates, but Sedgwick was a classmate of Hooker's. Reynolds, Couch, Meade and Sedgwick had served in the war with Mexico,

^{*}W. R., 40, pp. 70, 71.

^{*}Appletons' Cyclopædia of American Biography.

[†]Chancellorsville and Gettysburg, by Ahner Doubleday, p. 3.

[‡]W. R., 40, pp. 195, 211, 212.

and fought Indians either in Florida or on the Plains. Sickles, Howard and Slocum had not the advantage of such experience. Stoneman was not in the Mexican War, but had served in the field against Indians. As commanding officer of Fort Brown, on the Lower Rio Grande, he refused to obey the order of his department commander, General Twiggs, to surrender the government property to the secessionists. He evacuated the fort, and went to New York by steamer. Meade, Couch and Slocum had resigned from the army. Meade returned to it, however, in 1842. At the outbreak of the war Couch had been in civil life six years, and Slocum five. All were in the military service of the United States or came into it in 1861, and had participated in various campaigns of the Civil War.*

Lee's two corps commanders, Jackson and Longstreet, were both graduates of West Point, and both served with distinction in the Mexican War. Longstreet served on the Plains before and after the Mexican War. Jackson had no such experience. In 1851, after a few years of garrison duty in the East. Jackson resigned from the army to accept a professorship of Natural and Experimental Philosophy, or Physics, at the Virginia Military Institute. He filled this position until 1861, when he exchanged it for a colonelcy in the Virginia State Line. The same year he was appointed a brigadier-general in the Provisional Army of the Confederacy. For distinguished service at the first Bull Run, where he won the name of Stonewall, he was promoted to major-general and given the independent command of the Valley District, comprising the Shenandoah Valley. His brilliant operations in this region, his masterly march from the Valley to the railroad north of Richmond and from the Rappahannock to the rear of Pope's army, and his able handling of a wing of Lee's army in the campaign of Antietam, brought him in October, 1862, promotion to lieutenant-general and appointment to the command of the II Army Corps. With this command he held the right of Lee's line at Fredericksburg. At the beginning of the Civil War he had less military experience than most, if not all, of the commanders on either side who had served in the "old army." But there were few, if any, who had mastered so much of the theory of war, and so perfectly disciplined their minds by the study of military and mathematical problems. By 1863 he had gained more war experience than any of them, with the single exception of R. E. Lee, and was second only to the latter in the hearts of the people and the soldiers of the South.

Longstreet, on resigning from the army in 1861, was appointed a brigadier-general in the Provisional Army of the Confederacy. He commanded a brigade at the first Bull Run. In 1862 he was made major-general. He commanded a division in the Peninsula campaign, a wing of Lee's army—Jackson commanding the other—in the second Bull Run campaign, and in the Antietam campaign. He was promoted to lieutenant-general and given command of a corps at the same time as Jackson, and with his corps held the left of Lee's line at Fredericksburg. In 1863 Longstreet was 42 and Jackson 39 years of age.

J. E. B. Stuart, Lee's chief of cavalry, was at this time but 30 years of age. Graduating from West Point six years after the Mexican War, he had no experience in regular warfare, but had served on the Plains and been wounded in an encounter with Indians. Resigning when his native state. Virginia, passed its ordinance of secession, he was appointed a lieutenant-colonel of infantry in the Virginia State Line. In July, 1861, he was appointed a colonel of cavalry in the Provisional Army of the Confederacy, and in September of the same year a brigadier-general of cavalry. In July, 1862, he was promoted to major-general of cavalry. He had proved himself a master of the art of screening and reconnoitering, and had distinguished himself especially in two raids, one on the Peninsula, the Chickahominy raid, and one in Pennsylvania, the Chambersburg raid, in each of which he marched completely around McClellan's army.

General Hooker was the first commander of the Army of the Potomac, and the last one, to substitute pack-mules for army wagons extensively in that army. The coming of the pack-mule was announced by a special order, March 19, providing for the distribution of 2,000 pack-saddles. (Appendix 2.) It made no mention of the cavalry corps or the artillery reserve, from which it was inferred that these commands were not to march with the army.

^{*}Appletons' Cyclopædia of American Biography.

As compared with wagons, pack-mules require more men, and more animals to a given freight, take up more room on a road (if kept on it), and by leakage and drainage waste more of the freight. At every halt, wagon-mules can rest without being unharnessed or even unhitched—not perfectly, but far better than pack-mules can without being unpacked. To unpack a train of mules and afterward repack them consumes so much time that it does not pay in halts of less than an hour's duration. It is harder on pack-mules to make the ordinary halts of five or ten minutes per hour than to keep going. Pack-trains are capable of traveling faster than wagon-trains, but to do this for any length of time without hardship they must be allowed to travel their own gait; the troops must conform to the movements of the train or allow the train to travel independently, which in active campaigning is often inconvenient or unsafe. In a country covered with woods and underbrush, pack-mules straying off the roads will rub their loads loose and the packers exhaust themselves running after them. To obviate this the mules in this campaign were tied together in strings of two or three, and led. Thus secured, they did not stray away, but instead of rubbing against trees, they rubbed against each other, with about the same effect upon the loads, and a worse effect upon their poor bodies. This arrangement must have been a cause of many of the sore backs engendered during the campaign.* The abolition of the grand divisions was unfortunate, but perhaps necessary. The introduction of the pack-trains was unfortunate and unnecessary, or ill advised. Another change made by Hooker to the detriment of the efficiency of his army was to strip his chief of artillery of all executive functions and so reduce him to his original purely administrative usefulness. He was not to take command of the troops, or to give any orders to the artillery, unless specially authorized to do so, and all such authority would "expire with the occasion."†

In the Army of Northern Virginia the only material change of organization took place in the artillery. The batteries were grouped into battalions generally of four batteries each, and these battalions assigned to corps. It was provided that all the artillery in both corps should "be superintended by, and report to, the general chief of artillery."*

There was no express provision for a general reserve of artillery, but one was formed of the batteries not assigned to an army corps or to the cavalry division.

The chiefs of artillery of the several corps assigned battaltalions to the divisions and to the reserves of the corps; that is, they determined the composition of the divisional artillery and corps artillery, and could change it by the transfer of battalions at their discretion. They had tactical as well as administrative control of the artillery; in the absence of specific instructions from the army commander, or their corps commanders, they were in action to direct the posting and firing of their batteries or battalions, as well as at all times to keep them properly supplied and instructed, and generally serviceable and efficient.

The Federals had no unit corresponding exactly to the artillery battalion of the Confederates, but the groups of batteries attached to the Federal corps and divisions served the purpose of battalions. They were, however, considerably weaker than the latter. The corps and divisional groups (including the single divisional batteries) of the Army of the Potomac numbered, on an average, but two batteries, or twelve pieces.

In the Army of Northern Virginia each corps had its reserves, or corps artillery; in the Army of the Potomac, corps artillery existed only in the II and XI Corps. The Federal drill regulations for artillery issued March 1, 1863, contained the following statement: "The artillery reserve is commanded by a superior officer of artillery, and constitutes a distinct arm of battle under the immediate orders of the general commanding." This artillery was to be kept in rear of the infantry until the enemy's force had been fully developed, then to be brought up and its fire concentrated upon the point selected for the decisive attack.

In the cavalry the Smith's carbines were condemned at this time, and replaced by the Sharp's. The latter had not the range and penetration of the infantry rifle nor the rapidity of fire of the Spencer repeating carbine, which was later to take its place,

^{*}For a full discussion of the transportation of the Army of the Potomac, the reader is referred to W. R., 40, pp. 544-563.

[†]Hunt's testimony, Rep. of Com., IV, 91-93.

^{*}W. R., 40, p. 625.

but its fire was so much more rapid than that of the infantry rifle that the Federal cavalry dismounted would confidently withstand the attacks of much more numerous forces of infantry.

Under Hooker the inspector-general's department was not so much reorganized as created.* Vacancies were filled by competent officers, and the corps increased so as liberally to provide inspectors for all arms. Colonel E. Schriver was announced as inspector-general and Lieutenant-Colonel N. H. Davis as assistant inspector-general. There were inspectors of infantry, inspectors of cavalry, and inspectors of artillery. Each brigade had an inspector, and the inspectors themselves were organized thoroughly under the head of the inspector-general of the Army of the Potomac. There were frequent formal inspections of the regiments, and these inspections were extended to the outposts and pickets, which up to this time had been under the supervision simply of the officers commanding the troops.

A proclamation of President Lincoln issued on the 10th of March held out a promise of complete amnesty to all absentees who should rejoin their regiments before the 1st of April. The President had relinquished his right to review the sentences of courts-martial. It was with his approval that Hooker, on the 14th of March, issued the following order:

"III. Officers reviewing the proceedings of court-martial will hereafter withhold their approval from sentences which cannot be carried into effect within the limits of this army. When such (sentences) are awarded the court will be directed to reconsider its action."

There were no more delays in the execution of military law, no more appeals to Washington, which Lincoln's humanity always terminated by a commutation of penalty. Deserters were arrested, and promptly tried, sentenced and punished accordingly. The spectacle of a few of them shot to death in the presence of the troops produced a most salutary effect.‡

Capital punishment was at this time familiar also to the

Army of Northern Virginia. General Paxton, commanding the "Stonewall" brigade, wrote home on the 15th:

"Today I had a visit from the father and mother of a poor fellow who has been tried by a court-martial for cowardice. She was in great distress and said it would be bad enough to have her boy shot by the enemy, but she did not think she could survive his being shot by our own men. * * * I have about twenty of my men in close confinement, whose sentences have not been published, many of whom are condemned to death. It is for General Lee to determine what shall be done with them."*

A creation of Hooker's hardly less important than the inspector-general's department was his service of information.

"When General Hooker assumed command of the army there was not a record or document of any kind at headquarters of the army that gave any information at all in regard to the enemy. There was no means, no organization, and no apparent effort to obtain such information. And we were almost as ignorant of the enemy in our immediate front as if they had been in China. An efficient organization for that purpose was established, by which we were soon enabled to get correct and proper information of the enemy, their strength, and their movements.

* * I called Colonel (G. H.) Sharpe, commanding a regiment of New York troops (120th), to headquarters, and put him in charge of that bureau (Military Information) as a separate and special bureau."†

Colonel Sharpe was appointed deputy provost-marshal-general. This appointment, together with a number of others, was published to the army in a general order on the 30th of March.

Flags were prescribed for the designation of army corps headquarters, and badges to be worn on the caps of officers and soldiers to indicate the corps and division to which they belonged.

The provision regarding flags to designate corps headquarters was not generally carried out, but the badges became popular among both officers and men. They may be said to have originated with General Kearney on the Peninsula in 1862. That officer, experiencing the disadvantage of not being able readily

^{*}History of the II Army Corps, by F. A. Walker, pp. 202, 203.

[†]W. R., 40, p. 137.

^{\$}History of the Civil War in America, by Comte de Paris, III, 3, 4; Mag. of Am. Hist., XV, 193.

^{*}Memoir and Memorials of Brigadier-General E. F. Paxton, by his son J. G. Paxton, pp. 92, 93.

[†]Rep. of Com., IV, 74.

to recognize the men and officers of his corps, required them to wear for their identification a patch of red cloth on their caps, which came to be known as "Kearney's patch." The idea of corps badges to be worn throughout the army was suggested to Hooker by Butterfield, who devised the badges in detail.

How the vitally important problem of supplying ammunition was to be solved was prescribed in an order issued on the 25th of March.* We shall see that it did not prove an effective solution.

The evils of discomfort and disease among the men, due largely to neglect and ignorance on the part of their regimental officers, were remedied pursuant to recommendations made by the medical director.†

Letterman to Hooker, March 9th.

"I have the honor to invite the attention of the Commanding General to a practice quite prevalent in this army: that of excavating the earth, building a hut over the hole, and covering it over with brush and dirt or canvas. This system is exceedingly pernicious and must have a deleterious effect upon the health of the troops occupying these abominable habitations. They are hotbeds for low forms of fever, and when not productive of such diseases, the health of the men is undermined, even if they are not compelled to report sick. I strongly recommend that all troops that are using such huts be directed at once to discontinue their use, and that they be moved to new ground, and either build new huts or live in tents. I also recommend that, in huts covered by canvas, the covering be removed at least twice a week, if the weather will permit, and that the men throughout the Army be compelled to hang their bedding in the open air every clear day" (Medical Recollections of the Army of the Potomac, pp. 103. 104).

On the 7th of February the following order was issued at the request of the chief commissary:

"Flour or soft bread will be issued at the depots to commissaries for at least four issues per week to the troops. Fresh potatoes or onions, if practicable, for two issues per week. Desiccated mixed vegetables or potatoes for one issue per week.

"Commanders of army corps, divisions, brigades and separate commands will require any commissary under their orders who fails to issue the above-named stores to the command to which he is attached, and as often as stated, to produce written statement of his supplies to the effect that they were not on hand at the depot for issue to him, or otherwise to satisfactorily account for his failure."

The soldiers' fare was further improved by an act of Congress providing for the supervision of the cooking by both medical and line officers; for the detailing of privates as cooks, and the enlistment, in each company, of "two under-cooks of African descent," who should receive for their compensation ten dollars per month and one ration per day. The same act provided for the issue of pepper in the proportion of four ounces to every hundred rations.*

By these measures and others the health of the army was improved. (Appendix 5.)

Tobacco, the soldier's solace, was regularly issued, and an occasional issue of whisky was made upon return from severe exposure on picket or fatigue duty. The clothing, often before of shoddy material, was carefully inspected and furnished of better quality.†

The general state of the opposing armies as to numbers and efficiency at the end of the first month of spring is shown in the following table:

State of the Army of the Potomac and of the Army of Northern Virginia, Officers and Men, March 31, 1863.

PRESENT.

For Duty.	Special, Extra or Daily Duty.	Sick.	In Arrest or Con- finement.	Aggre- gate.
Army of the Potomac 136,724	13,000	11,936	1,345	163,005
Army of Northern Virginia 64,799	5,050	6,308	1,222	77.379
ABSE	NT.			
Detacher Service. Army of the Potomac		Sick. 26,575 16,136	Without Leave. 1,941 5,953	Aggre- gate. 51,762 32,480
Army of the Potomac			and	resent Absent. 214,767 109,859
*"An act to improve the efficiency of				

^{*&}quot;An act to improve the efficiency of the corps of the engineers and of the ordnance department, and for other purposes, approved March 3, 1863," Sections 8-11.

^{*}W. R., 40, pp. 156 et seq.

[†]Letterman to Hooker, March 9.

[†]Mag. of Am. Hist., XV, 190.

Unpublished record of the War Department.

The figures for the Army of Northern Virginia include Hampton's brigade, which was absent recruiting and remounting, and Jones' troops in the Valley District. They do not include the artillery of Jackson's corps,* but on the whole they are somewhat larger than they should be for the army confronting Hooker. They show, however, that the ratio of sickness, the ratio of absence (with and without leave), and the ratio of punishment were smaller in the Federal army than in the Confederate.

One of the most potent causes of desertion in the Army of the Potomac was the scarcity of furloughs and leaves of absence. Hooker, under some difficulties, did much to satisfy the natural desire of officers and men for such privileges.

One of his chief measures for reforming the Army of the Potomac was the institution of regular theoretical and practical instruction. Both seem, however, to have been conducted on narrow lines, the theoretical instruction being limited to recitations on the drill regulations, or tactions, as they were then called; and the practical instruction to drills in the school of the company, battalion, regiment and brigade.† Field exercises, it seems, were few and far between, and on a small scale. There was practically nothing done for the training of corps and division commanders and their staffs under conditions of battle; no maneuvering of large units in the presence of a marked or represented enemy. The author can find nothing corroborative of Hooker's testimony on this point before the Committee on the Conduct of the War:

"Believing idleness to be the great evil of all armies, every effort was made to keep the troops employed; and whenever the weather would permit it they were engaged in field exercises, and whenever the state of the roads and the river would admit of a movement, expeditions were fitted out to attack the enemy's pickets and outposts, and gather supplies from the country in their possession; my object being to encourage and stimulate in the breasts of our men, by successes, however small, a feeling of superiority over our adversaries."

Both Hooker and Lee attended to fostering and developing *W. R., 39, p. 695.

the martial spirit of their armies by the bestowing of medals, the inscription of the names of battles on the flags, etc. (Appendix 7.)

A weak point of the Army of the Potomac, to which Hooker and his chief of staff gave special attention, was the performance of outpost duty. Its improvement was slow and difficult of achievement. (Appendix 8.)

The boundary line between Maryland and Virginia, commencing on the seacoast, divides a peninsula into two parts, known as the "Eastern Shore" of Maryland and the "Eastern Shore" of Virginia. The latter region, which would seem geographically to belong to Maryland, was included in the act of secession by which Virginia joined the Confederacy. A portion of its population carried on regular traffic in contraband goods with people of the mainland of Virginia. By a system of daily communication between the Confederate commanders and their allies in Baltimore, full information was obtained of the disposition and movement of the Federal forces and the designs of the Federal government. To put a stop to these practices a Federal force marched into the Eastern Shore of Virginia in 1861. Though the country was occupied by Federal troops from that time on, it was not so controlled but that the Confederates whom it continued to harbor could ply their hostile vocation, as the following correspondence shows:

Haupt to Wells, Secretary of the Navy, January 31.

"I am informed that an extensive smuggling business is done near the mouth of the Potomac, opposite St. George's Island, in small boats, which are secreted in the creeks or drawn up in the bushes and used at night; that in this way mails are carried and many wagon-loads of shoes and other necessaries transported to Richmond. The trade could be broken up, or seriously interfered with, by searching for and seizing all the boats and by the establishment of an efficient river patrol."*

Butterfield to Magaze, February 1.

"General Hooker desires that you should use every exertion to stop the passage of small boats conveying deserters from the

[†]Reminiscences of Service in the 1 R. I. Cavalry, by G. N. Bliss, p. 14.

^{*}Naval W. R., Series I, Vol. V, p. 226.

army across the Potomac. It is believed that large numbers cross the Potomac in small boats and below Aquia Creek. Any person detected in this occupation by your efforts, he requests be turned over to the provost-marshal at Aquia Creek, with written memoranda of the circumstances attending their capture.

"I believe that spies and contraband information are conveyed across the Rappahannock below the lines of our army."



WHAT IS THE BEST ARMAMENT FOR MODERN CAVALRY.*

BY KARL BARON STIPSICZ, MONTECUCCOLI DRAGOONS.

THE greatest controlling factor in the development of armies is armament. The character of war has been materially changed by the introduction and subsequent development of firearms. No longer can the single individual, by personal courage, exert an appreciable influence on the course of the battle; he has become a tool in the hands of the leader, for in present day long range battles the single individual is lost in the great mass. Thus knighthood died out and dismounted troops became, through its fire effect, the decisive main arm in battle of our modern giant armies. Still no one can say that mounted troops have been driven completely off the field; they have been changed into an exceedingly important auxiliary arm. Nowadays the mounted arm is sent ahead of the armies and secures information of the enemy which forms the basis for the leader's decision. It can suddenly appear at the point where its appearance will be of the most disadvantage to the opponent and most advantageous to our own intentions.

In executing a raid against the line of communication of the enemy it strikes the most vulnerable spot of the hostile army and can perform great service in a battle by enveloping or going around the hostile wing. The activity of cavalry does not cease with the battle; its main duty commences after that; for when

^{*}Translated from Kavalleristische Monatshefte, September, 1910, by Harry Bell, M. S. E., U. S. Army.

the question is of fully gathering the fruits of a hard fought victory by completely demoralizing the beaten hostile army and annihilating it we will have to fall back on cavalry to gain that object.

Thus we see that cavalry, which heretofore was utilized as a battle arm, will have to solve quite different tasks in modern war and will have to act along different lines. It is evident that cavalry cannot trot peacefully against quick-firing repeating arms; but it is also evident that cavalry, appearing suddenly and unexpectedly and charging with élan, can defeat troops armed with the best of weapons. However, success will be in consonance with the means employed only when the utilization of this costly arm is carried out in a manner corresponding to its inherent characteristics; and when that is done, we are justified in expecting great results.

With the development of firearms of infantry and artillery, cavalry was compelled on the one hand to improve and utilize to the utmost its inherent celerity, and, on the other hand, to keep pace with the technique of arms and resort to the carbine, so as not to be outdone and forced into the background by these other arms. Celerity must at all times remain the first characteristic of cavalry, which naturally can be utilized to the best advantage where the difference between the slower movement of infantry is more apparent, i. c., in covering larger distances. Consequently, for all operations requiring covering larger distances it will be the rule to utilize cavalry. And in doing so it is not so very important to utilize the latest technical improvements in order to increase the fire power of cavalry. Thus cavalry will not be confined to certain defined limits in its sphere of action by attaching to its horse artillery, machine guns, telegraph detachments and bridge trains; it will far rather be enabled to increase the field of its activity and perform more and better service by having these auxiliary arms attached.

Cavalry is a very costly arm, which, however, if correctly employed, can be of the greatest use. But in order to reap all the benefits of cavalry we must equip it in consonance with its tasks. It is wrong to load down with heavy material (as is frequently done) the expensive cavalry horses, which guarantee the celerity and endurance of cavalry. The best way to save over-

loading the horse would be to accept for cavalry service only light recruits, and this method would be the least expensive. Height and weight of a man are surely not synonymous with force and endurance. If proper regard is paid to a recruit's weight when assignments are made to the different arms of the service a saving of approximately 10 kg. would result in the load the horse carries. That this would have a tremendous influence on the performance of the horse is self-evident. In addition, a great saving in weight can be made in the clothing of the trooper and in horse equipment.

Armament, however, should be considered in cutting down weight only as a very last resort, for arms prove the value of the horseman at the decisive moment. By this we do not mean that many and superfluous arms should be carried into the field in order to be armed to the teeth with lance, saber and bayonet and thus raise our own courage and frighten the enemy; we mean far rather that actual necessity should govern the selection of arms and that these should be light. For instance, it undoubtedly will be better to carry along more ammunition than not enough. so as not to be found wanting and unable to execute a certain order on account of shortage of ammunition. Carrying along plenty of ammunition is probably the only means to offset with rapid fire the weak number of arms. The few carbines which cavalry can put into the fire fight, however, must be of the very best and latest pattern; it is self-evident that parsimony in this respect would be ill advised.

Even if cavalry is supported in battle by auxiliary arms (horse batteries and machine guns), we can count with absolute certainty only on the weapons which each trooper carries. These are of great importance, for they represent his battle value. In a mounted action the trooper can utilize his inherent element, celerity and surprise, to better advantage than in dismounted action. Mounted action consequently is in better consonance with the cavalryman's characteristics than dismounted action and the former is resorted to with preference. In this method, however, he can utilize only his hand-to-hand weapons, and in cases where these are insufficient he must dismount and engage in the fire fight; and his armament must accordingly correspond with his dual manner of carrying on a fight.

When in the saddle, the question can only be of fighting at close quarters, for a shot fired from the saddle is influenced by the movements of the horse and an aimless fire is useless. Firing with the pistol, also, which is only intended for hand-to-hand fighting, must be limited to those exceptional cases in which the use of the saber is precluded or impossible, as, for instance, in the pursuit where we cannot reach the opponent, where a saber should snap or where a trooper loses the saber, or when we are ourselves closely pursued. It would not be advisable, for use in these exceptional cases, to overburden the already heavily loaded down trooper with a special arm, the utilization of which might endanger his own comrades. But it might be advantageous to supply magazine pistols to those officers and non-commissioned officers who in a dismounted fire fight act as commanders and who need no carbine.

The question now arises, which weapon is more advantageous in a mounted hand-to-hand fight, the saber or the lance? In larger bodies of troops the advantage of the lance undoubtedly is but a moral one, for in the melée the trooper must soon turn to his saber, because fighting with a lance would be out of the question there. The main point therefore is to know whether or not we are morally strong enough to carry an attack with the saber in hand into the hostile ranks. Cavalry which attacks the enemy with vim and vigor has the superiority over cavalry armed with the lance at the very moment in which it reaches the opponent with the saber. For this reason, if for no other, I believe I am justified in holding that the saber is all sufficient for our cavalry.

But there are other objections to the lance. The lance alone is insufficient; the trooper who carries it has to be armed with the saber in addition. It is in his way riding through forests or brush; it is an additional weight to carry; it takes much time and practice to become proficient in its use, and our length of service hardly suffices to properly instruct the men therein.

The saber is the cavalryman's main weapon. In the first place it is a cutting weapon, easy to handle; but it should not be too heavy. It should be fairly long, thus facilitating reaching the enemy on horseback and the hostile infantryman lying on the ground. That the saber should at the same time be a thrusting

weapon will be acknowledged by every swordsman, and must necessarily be a thrusting weapon, because clothing and equipment of the cavalryman save him in all but a few spots from injury by a cutting weapon.

With the saber the cavalryman is best armed for the mounted fight; but how about the dismounted fight?

In the dismounted fight the carbine is the main arm; it should differ from that of the infantryman only by being shorter and lighter, but by no manner of means inferior in its effect. On the contrary, we should always endeavor to give the benefits of improvements in construction, etc., to the cavalry, because it has to fight at the most exposed points with but few carbines, where the success or defeat of the cavalry would have a material effect on the infantry in rear. Attaching horse artillery and machine guns to the cavalry does not suffice, for these special arms can only support, but not totally replace, the fire effect of cavalry at important points. They can be effective only at certain points; at all other points along the fighting front the effect of the carbine has to be relied on. We repeat, cavalry is a very costly arm, but nevertheless we must not hesitate to arm it with the very best and most expensive arms in order to reap the full benefit of its employment. In following that policy the losses of cavalry will be materially decreased and its fighting power increased.

Many authorities hold to the view that the carbine, in the hands of the trooper, is a defensive arm and contrary to the proper cavalry spirit. It is true that it is suitable for the long range fight and for keeping the opponent at a long distance, but in the hands of the trooper each carbine should become an offensive weapon par excellence. It should enable him in the first place to make his way in situations where without the carbine he would be compelled to turn about. If a detachment of cavalry receives orders to occupy some important point and hold it until the arrival of infantry, the act of sending ahead a fire contingent is in itself an offensive procedure, as in most cases we cannot foresee whether or not the designated point may not have been reached ahead of the cavalry by the enemy. After reaching and occupying that point our cavalry probably will in most cases have to remain on the defensive until the arrival of

the infantry. But that we are enabled to take and hold that important point we have to thank the carbine for.

The carbine enables cavalry to solve a number of tasks and materially increases its sphere of action.

Experiments lately made to prove the suitability of magazine pistols, the holster of which to be utilized as stocks, have not proved satisfactory and that scheme should not be countenanced. We have seen that in mounted action the pistol is used as a hand-to-hand weapon only in exceptional cases. To arm the cavalryman with such a pistol seems inadvisable, to say the least. The pistol can only be used for close fighting and will but seldom be resorted to.

The question to be answered now is, does the cavalryman require an extra weapon for dismounted hand-to-hand fighting? The saber, especially as carried today, is an impediment to free movement; therefore it is detached from the belt and carried on the saddle. Thus the dismounted cavalryman has no special arm for the dismounted hand-to-hand fight and he naturally will dread the arrival of the moment when he must press forward into the hostile position. In most cases undoubtedly a reserve kept mounted will more quickly and effectively advance and strike the enemy as soon as fire superiority has been gained. The reserve, also, utilizing its mobility, can advance against the enemy's flank and rear and also take up the pursuit without delay. Still the interference of the reserve may often not be possible, the terrain preventing it, and often there may be no reserve because we are compelled to display our full firing power in order to gain the fire superiority. But there will be no success unless we enter the hostile position, and unless we do so we cannot drive off the enemy completely. On this account some armies have equipped their cavalry with a light dagger-bayonet, to be used especially in places where even small infantry detachments, favored by the terrain, may offer longer resistance to the cavalry and which can be driven off only by dismounted fire action. The necessity of such a bayonet is especially apparent in night operations.

Equally important as the armament of the cavalry is the necessity of carrying plenty of ammunition. Considering the rapidity of fire of modern rifles and carbines the effect of fire is

dependent not only on the number of rifles, but also on the number of rounds of ammunition carried. Cavalry especially should be plentifully supplied with ammunition, as it will often find itself in a situation where it will have to engage in a fire fight without a hope of replenishment of ammunition. It is true that in such cases we might easily send along an infantry ammunition wagon lightly loaded, or we might from the very start attach small arms ammunition columns to the larger bodies of cavalry. But this system is out of the question for small bodies and for patrols. We can count with certainty only on the rounds carried by the individual trooper, for cavalry will often have to leave its trains behind. No trooper should carry less than 100 rounds on his person and horse.

SOME NOTES ON "REITERDIENST."*

By LANCER.

MUCH importance is attached on the Continent to the views of the veteran General von Bernhardi and so a success was achieved in England by the translation of his "Cavalry in Future Wars," that widespread interest naturally attaches to his latest publication, "Reiterdienst," of which an excellent translation by Major G. T. M. Bridges, 4th Dragoon Guards, our Military Attaché at the Hague, is already in the press.

The General joined the Army in 1869, at the age of 20. He gained the coveted Iron Cross in the 1870 campaign, and subsequently served as General Staff Officer of the 1st Division, and as Chief of the Staff of the XVIth Army Corps. For some years after 1897 he was head of the Military History Section of the Great General Staff. In 1900 he was given the 31st Cavalry

^{*}From the British Cavalry Journal. The title of General von Bernhardi's new book, Reiterdienst, meaning Cavalry Service, has been given the title of "Cavalry in War and Peace" by Major Bridges in his translation.

Brigade and in 1904 promoted to the command of the VIIth Army Corps. He has thus had a varied and thoroughly practical experience with troops, and his views in consequence acquire additional weight. He has been distinguished throughout his career for originality of thought and tenacity of view, and even in retirement continues to work in the service of the arm.

General von Bernhardi in his earlier work dealt, theoretically, with the employment of Cavalry; in the present one he treats of it from a practical point of view and puts his finger on many errors that exist in the present system of training.

In the introduction the Author states that the improvements in the firearms of all three arms and the size of modern armies have reconstituted the $r\hat{o}le$ of Cavalry, and extended its sphere of usefulness in certain new directions. He frankly admits that the influence of Cavalry on the field of battle has diminished and that the mounted combat of masses will be the exception. On the other hand, the strategic $r\hat{o}le$, consisting of reconnaissance and raids, has greatly increased in importance. Early information will be of greater advantage than formerly, as movements of large forces have to be initiated long beforehand, and dispositions once made can subsequently be altered with difficulty.

The subject is arranged in three main parts. The first deals with the strategic and tactical action of Cavalry in war as a basis for training; the second gives a review of the peace training which the Author considers practical; in the third certain questions of organization are discussed.

PART I.

(a) The action of Cavalry acting independently will consist mainly of the three following duties:—

Reconnaissance. Screening. Raids.

Reconnaissance will be carried out by reconnoitring squadrons, with patrols pushed out from them. He points out that arrangements must invariably be made to relieve these squadrons and patrols, and that the probability of having to alter the line of relay posts must be kept in view when organizing the transmission of reports and orders. He warns Squadron Leaders to be sparing in the number of patrols they send out; but emphasizes that the desire to spare patrols must never result in sending cyclists to reconnoitre. The latter must be reserved for carrying back reports, and for forming relay posts, for which they are admirably adapted.

The art of scouting lies in the choice of suitable commanding positions from which observation with field glasses can be made—preferably at mid-day, when columns are sure to be on the move.

In peace maneuvers scouts are prone to ride too close up to the enemy, and are driven off without having effected that quiet observation which is needed. At night, patrols must avoid large farms or villages; they must keep watch on the inhabitants of any building they stop at, and always have a back way of escape reconnoitred. It is best for patrols to lie up in a wood, at some distance from where their forage and victuals have been commandeered. Relay posts should be pushed forward to junctions of main roads, with a few mounted men to protect them.

To the Divisional Cavalry falls the task of tactical reconnaissance, and of screening. The latter must be actively carried out, if possible with the aid of cyclist troops to drive back the hostile reconnoitring detachments.

As regards raids, the Author predicts greater attention will be paid to such undertakings in proportion as the usefulness of Cavalry on the battlefield diminishes. The size of modern armies precludes their living on the country, and they will be dependent on their communications for food, as well as for ammunition. In the later stages of the campaign, opportunities will assuredly occur, and a strong force of more than one Cavalry Division, strengthened by Cyclist Battalions and R. E. with bridging material, will be required to carry out a really effective Raid.

(b) The tactical action of Cavalry may be divided into:—
The Cavalry fight.

The co-operation on the battlefield with the other arms.

Mobility being the chief characteristic of Cavalry and the root reason of its existence, anything that limits this mobility is opposed to its special qualities and its purpose. For this reason the mounted attack should be its recognized form of attack. Not only is it swift in its decision, but complete in its effect.

Where large forces of independent Cavalry are face to face, the combination of mounted and dismounted Cavalry in co-operation with artillery will probably be employed. In the absence of sufficient information, both sides will employ dismounted action in order to gain time for reconnaissance. After the combat, the beaten side will certainly employ the rifle to cover their retirement. The Author's subsequent suggestions for the dismounted action of Cavalry are founded on Infantry tactics and entirely opposed to the teaching of our Cavalry Training.

He favors immobile led horses left far away from the firing line; and holds that Cavalry must make long advances on foot, distributed in depth with supports to reinforce, which will culminate in an assault. He disapproves, however, of the substitution of the bayonet for the sword.

On the main battlefield the Cavalry should be massed on the flank and in front of the main body.

In co-operation with the other arms the Author warns the Cavalry not to wait for opportunities for mounted attack, but to seize every chance of engaging the enemy with the rifle.

He suggests that vigorous action against the enemy's flank and rear, against his Ammunition Columns and Heavy Artillery, would probably have greater effect than attack with doubtful success on his Infantry line.

History gives few examples of a satisfactory pursuit, and for this reason, that the victor has had probably a strenuous day, and that ammunition, food, and water are lacking. A pursuit must be early foreseen and preparation made to carry it out. Men and horses must be fed betimes, forage carts taken, and at all costs the night after the battle must be made full use of.

In considering certain tactical questions, the Author dwells on the relative advantage of Echelons and successive lines. He favors forward Echelons either for offensive or defensive action, especially when one regiment is acting independently; and advocates some extended formation for crossing zones which are,

or may be expected to be, swept by fire. If the fire comes from the front, columns with small frontage would be useful, and if from the flank, line formation is indicated. He backs the Cavalry who ride knee to knee, armed with the lance, against Cavalry who ride in looser formation and have not the lance, even though they may be numerically superior.

PART II.

PEACE TRAINING.—All peace training must be directly preparatory for war. The principles mentioned in Part I. afford the foundation on which the system of training will be built. Great importance is attached to the systematic schooling of the horse, to fit him to take his place quietly in the ranks and to remain under perfect control at the faster paces; and the individual training of the man to make him efficient in the field, a bold horseman, a good shot, and to give him quick and independent judgment when left to himself.

Training in riding and in musketry should be carried out hand in hand from the very beginning.

Recruits can best receive their early education in the Riding School, but remounts should be trained as much as possible in the open country. Judging distance is of such importance nowadays that more attention should be devoted to it, and the system of passing word down the firing line should be practiced frequently.

Officers should receive theoretical as well as practical instruction, which might be grouped under the headings of—

- 1. Strategical lessons—to enable them to realize the movements of a modern army on which they, as Patrol Leaders, would be called upon to report.
- 2. Cavalry history—to give them an insight into the difficulties of actual warfare, to compensate for lack of war experience.
- 3. Strategic and tactical employment of Cavalry with practical lessons in the various means of transmitting information.

This instruction is completed by means of Staff Tours-

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more practical than war games—while the duties of patrol leading can be taught by regimental "Patrol rides." These should be progressive, embracing all the various forms of patrols, and be supervised by the Brigadier.

Non-commissioned officers should receive instruction on a similar system of Squadron Rides supervised by the Commanding Officer.

The author deals next with the culminating forms of peace training—Cavalry Reconnaissance Exercises and Maneuvers. Among the many points which he mentions in connection with them are the following:

The length of column of a skeleton force should be marked by flags, to give patrols practice in estimating troops.

Full amount of transport should always be furnished, as in this lies one of the great difficulties of leading large bodies of Cavalry.

Too many maps should not be issued, as they would not be available in an enemy's country.

Rest days must be allowed for horses to recuperate.

Officers should attend a course of instruction as umpires in order that their decisions should be uniform and have unquestioned authority.

The squadron forms the tactical unit and the foundation on which the successful leading of Cavalry depends. The greatest attention must, therefore, be paid to its training, both mounted and dismounted, stage by stage.

The test of a trained squadron is that every horse should move square to the front, keeping the direction ordered, at the correct pace. That every horse should move with his neck bent and back arched, and go with an easy feeling of the rein. More importance should be attached to long steady movements, keeping correct pace and direction, than to quick changes from one formation to another, which in war will seldom be required.

It is useful for the squadron to practice following its Commander, keeping all the time under cover, with only general orders from him.

When working in the regiment, considerable freedom should

be allowed to the squadron, but it is of the greatest importance that it should be kept well closed up as a compact unit.

During drills the various Commanders should regularly fall out to give subordinates opportunities of leading.

PART III.

Part III is very short and deals with the organization of the Cavalry. The author considers that the increase of Cavalry, though necessary, is financially impossible; that the ideal Division consists of three Brigades each of three regiments, and he advocates the addition to it of Cyclist Battalions and motor transport.

He regards an Inspector of Cavalry with a proper staff as essential to the uniform and systematic training of the Cavalry, and suggests that in close conjunction with the General Staff he should observe what improvements are effected in other countries and see that any information likely to be useful is passed on to the troops.

In conclusion, the author warns his brother officers against sticking too closely to old tradition and exhorts them to weigh the altered conditions of the present without prejudice, and, above all, avoiding false situations, to aim at such training as will fit the Cavalry for war.

It is not possible within the limits of this review to do more than touch on special points of interest; but those who cannot; study the book in the original will find the translation eminently readable; and I would strongly recommend it to every officer interested in his profession.

SHOCK TACTICS.*

To the Editor of the Spectator.

CIR: The arguments for and against armes blanches (see Spectator, May 21st) are at any rate available, together with the facts on which they rest, and may be weighed up. Against the use of them we have the undeniable and prominent fact that while the power of modern firearms has increased enormously in range, accuracy, rapidity and flatness of trajectory, the power of the man on the horse armed with sword or lance has not increased at all. It therefore follows that, unless circumstances can arise in which all these qualities are nullified, the relative importance of armes blanches to firearms has decreased; circumstances may arise in which range and accuracy lose their importance, especially against small easily concealed bodies with armes blanches, but rapidity of fire and flat trajectory remain. The advocates of armes blanches, however, maintain that modern firearms produce the very conditions which are most favorable to the effective use of armes blanches—vis., demoralization, nervous strain, nervous exhaustion. Long extended lines of infantry, they say, which have been exposed perhaps for hours to modern rifle fire are in a condition of nervous strain which lavs them particularly open to the panic effect of sudden cavalry attack on a flank threatening to roll up the whole line. Naturally one is suspicious of an argument which, based on the admitted demoralizing effect of modern rifle fire, proceeds to deduce a case for developing the use of armes blanches; one looks naturally for a fallacy, and finds at once what looks like one in the assumption that the attacking cavalry will not itself become very rapidly demoralized by the same agency which has so rapidly strained the nerves of the far better concealed infantry. Evidently, now that the field of battle is so vastly extended, the distance cavalry will have to traverse in order to accomplish results comparable with those attainable a hundred, or even thirty, years ago will be very great, and this must diminish the chances of success.

Nevertheless many practical soldiers, experienced in war as well as in the not negligible object lessons afforded in peace maneuvers, are convinced that, owing to oversights of commanders, faulty intelligence, defective training of infantry to meet sudden onslaughts of cavalry, there are still likely to be opportunities for well-timed cavalry attack, producing overwhelming and disastrous consequences to the troops attacked. The practical question is not whether cavalry should be trained to the use of armes blanches on the one hand, or of firearms on the other, but whether it should be trained wholly with a view to producing fire effect, or to be able to use either fire or shock tactics at the discretion of the commander. The objections that may be urged against the latter course are three—first, it will be said that it involves the drawback of arming every man with lance and sword and adding to the weight carried; secondly, that it involves great waste of time in training large bodies of cavalry to the high pitch of rapid maneuver which it is essential for cavalry to attain if it is to practice shock tactics successfully against hostile cavalry; thirdly, that it will certainly lead to the employment of shock tactics in war when they are not suitable, and that it will delay development of cavalry tactics in the direction which is bound to be taken in the future. Nevertheless, it seems the most sensible plan to give the commander the opportunity of using the method that seems to him best, while at the same time taking care that everything possible is done in peacetime to give him a thoroughly intelligent appreciation of the conditions of the game. I am, sir, etc., E. H. B.

[Our correspondent has stated with admirable moderation what we believe will prove to be "the better opinion." Cavalry should be usable, and used, for all military purposes for which men on horses can be used. It is surely a mistake to talk as if shock tactics were the only possible form of mounted tactics. Horse soldiers, when the ground is favorable, will, we believe, often gallop a position in extended order, closing in only when they are actually on their enemy. These are not shock tactics, any more than they are dismounted tactics, but they may be very good tactics for all that. It is foolish to talk as if horse soldiers had no choice but riding knee to knee in a black mass or fighting on foot.—Ed. Spectator.]

^{*}From the Spectator, London, of June 4, 1910.

CAVALRY TRAINING.*

From the Journal of the Royal United Service Institution.

Leadership.

THE importance of constant practice in the execution of tactical problems, with actual troops to handle, against a marked or other enemy, does not appear yet to be fully realized. In order to train our leaders for war it has long been recognized that systematic training must be given in (1) correctly appreciating tactical situations; (2) coming to rapid decisions; (3) translating decisions into short cavalry orders, and up to this point instruction can be given satisfactorily at war games, staff rides and tactical tours. But it is essential that instruction should not cease here, for the real test and value lies in the final stage, the rapid, common-sense execution of these orders in the field. Moreover, it is in the execution that the suitability or otherwise of the orders and the standard of training of units can be properly gauged. Brigade and divisional maneuvers and the training of large, mixed forces last but for a short time, and offer to but few of the officers attending opportunities for practicing themselves in dealing with concrete situations such as will face them in war. The point must be borne in mind and insisted on in troop, squadron and regimental training all the year round.

Throughout all tactical operations, it is the task of the divisional commander to combine the efforts of his brigades and his horse artillery; that of each brigadier to combine his three regiments and his brigade machine-gun unit; that of each regimental commander to get the maximum coöperation between his three squadrons. The proper chain of responsibility must invariably be adhered to, i.e., brigadiers must deal with regiments, regimental commanders with squadron commanders, squadron commanders with troop commanders, and so forth. If, for instance,

the brigadier endeavors directly to control squadrons, he will lose his grip of the situation as a whole. His work is cut out for him in dealing with his three regiments and machine guns, operating possibly over a very extended area.

Although mobility, rapidity and surprise are fundamental factors in all cavalry tactics, these must not be confused with hurry and haste, i.c., lack of method and confusion. Important decisions have frequently to be made on the spur of the moment, but no commander should order any movement without a clear idea in his mind as to how that movement is to be carried out, even if there be no time to explain his intentions to other than his own immediate staff. The extent to which liberties can be taken in the rapid issue of a limited number of short orders without thereby forfeiting coöperation depends upon the degree of mutual understanding existing between the commander and his subordinates, and upon thorough agreement amongst all upon questions of tactical principles—and peace training must aim at developing this understanding and agreement.

Reconnaissance and Protection.

More practice in reconnaissance is certainly needed by all ranks. The formation and action of patrols under varying conditions of grounds and enemy calls for more thoughtful and methodical consideration.

The following principles were not always understood, and require to be thoroughly impressed upon all ranks:—

- (a) Patrols should move well concentrated under the leader, and must, in their turn, send out the necessary scouts to provide for their own security.
- (b) It did not appear to be understood that the principle of moving rapidly by successive bounds, i.e., from position to position, or point to point, and halting at each whilst the next is reconnoitered, applies to patrols and scouts as well as to larger bodies. Patrols may halt as long as necessary behind the crest of a ridge or under cover, but when once they move on they should do so at a rapid pace, having first clearly decided in their own minds which is the next position they are going to. As a rule, the more open the ground the faster they should move.

^{*}Extracts from the report of Major General, Sir D. Haig, K. C. V. O., C. B., on the conduct of the Cavalry Divisional Training of 1909. Part III—Comments on the Conduct of Operations.

- (c) Patrols and scouts employed for protection should proceed to certain definite points, or localities, where the enemy may be concealed, e.g., woods, villages, folds in the ground. It is useless for them to wander aimlessly along at a fixed distance in front of the force they are protecting; they must precede it at a sufficient distance to prevent it from being surprised by fire at effective range. In spite of these principles being clearly laid down in our regulations, scouts were often noticed meandering at a walk over open ground, with apparently no objective, towards a hill behind which an enemy lay concealed; or riding not more than 40 or 50 yards from the troops they were supposed to be covering.
- (d) Scouts sent out to examine a particular locality should return to the body from which they are sent as soon as their mission is finished, unless otherwise directed. Unless this principle is strictly insisted upon the members of a patrol soon become hopelessly scattered, and method and unity of purpose vanish, each individual becoming engrossed in minor enterprises of his own making.
- (e) A tendency still exists on the part of patrols and small detachments to resort to dismounted action on perfectly open and exposed ground, thereby delaying their reconnaissance work and placing themselves at the mercy of any superior body of mounted troops who may gallop down on them. Again, reconnoitering patrols frequently dismount to climb to the top of a hill when it would be quicker and safer to remain mounted and look over the shoulder of the hill.

The rôle of contact squadrons did not always appear to be fully understood, and the results obtained were not altogether satisfactory.

Schemes involving reconnaissance work over a wide area of country and lasting for several days on end must be more frequently undertaken in order to develop and practice a *methodical system* of (a) acquiring information and (b) rapidly transmitting that information to all concerned.

The former, the acquisition of information, depends only to a limited extent upon the skill of the individual scout or patrol leader: success depends upon other factors also, such as the decision as to how many reconnoitering detachments to employ (always the least possible for the end in view), in what directions and of what strength, upon the nature and detail of the instructions given, and often upon the extent to which their tasks are facilitated by supporting detachments (contact troops or squadrons), or by the movements of the main body itself. Time spent in elaborating a definite and combined scheme of reconnaissance and in fully instructing all concerned as to its execution will seldom be time wasted.

Similarly, the transmission of information from the scout who actually acquires it to (a) other reconnoitering detachments with whom he may be working in cooperation. (b) to his main body, and (c) thence to the army commander and to commanders of neighboring columns, depends upon a methodical system, the responsibility of maintaining which must be shared by the reconnoitering detachment, and by the authority which sends it out. The acquisition of information is often a simple problem compared with this difficulty of transmitting it rapidly back to headquarters; leaders of patrols and contact squadrons should bear the point in mind during their advance, and should try to provide against any risk of messengers failing to return. It is often necessary to fight in order to take valuable information rapidly to the rear, and in some cases it may be necessary to employ units of considerable strength for the purpose of insuring its safe transmission.

Although the onus of getting information back to the commander lies, as a rule, upon the detachments, yet it is the duty of the former to lighten their task in every possible way. He may often, as indicated in Field Service Regulations, paragraphs 91-93, find it advisable to send out a connecting detachment to hold out a hand, as it were, to patrols in front.

The transmission of information by dismounted men when a mounted man cannot escape detection should be more frequently practiced.

Omission to note the time and place of dispatch frequently rendered useless what might otherwise have been valuable information. Patrol commanders should remember that the head-quarters staff of a large body of troops can rarely know what actual detachments are out in front, so that a message merely signed by the sender might, as far as the recipient knows, come

from any point in the field. In this connection the desirability of reintroducing the printed headings in our official message books is a point for consideration, in order to jog the memory of those who forget at maneuvers and are even more likely to forget in war.

The names of at least the divisional and brigade commanders should certainly be known by every man in the ranks.

The system of security was on several occasions retained too near to the body covered, having regard to the increased range of modern firearms, with, in some cases, somewhat disastrous results. Excepting when circumstances justify abnormal risk being taken the tendency to neglect the regulation methods of providing for security, in order to avoid delay thereby involved, must be checked.

The importance of protecting columns moving along roads and through inclosed country by picketing all approaches from the flanks was not always realized; the tactical value of all neighboring cross-roads in these circumstances should be borne in mind. Compare the system of picketing the flanks in mountain warfare. It should be recognized that the normal rate of progress for any body of greater strength than about one regiment must be reduced in inclosed country when in the vicinity of the enemy, if its safety is to be assured.

Intercommunication.

The principles so clearly laid down in Field Service Regulations, Part I, were not always carried out to the full, with the result that on free uent occasions the higher commanders lost control of their units and coöperation suffered. The problem of intercommunication is always a difficult one, requiring forethought and methodical working. Breakdowns are usually due to lack of care in selecting the method of transmission, failure to send important messages by more than one method or route, too frequent changes of the central receiving post, or actual defect in the mechanical apparatus, such as wireless.

Although the responsibility for keeping superiors informed of the progress of events rests primarily upon subordinates, success or failure will very largely depend upon the clearness of instructions issued by the former and upon the maintenance of

a good methodical system for the reception of messages. Again, the responsibility for the dissemination of information regarding the general situation and objective of the commander rests upon the latter's staff; and the better subordinates are kept acquainted with the situation the better will be their coöperation and the more relevant their reports. There must, however, be mutual coöperation in this respect, i.e., it is not sufficient only to pass orders or instructions downwards, but subordinates must, when necessary or advantageous, pass their requirements upwards.

As often before, these operations proved the limited amount of reliance which can be placed upon visual signaling for cavalry work, owing to the time it takes and the frequency with which it is rendered useless by bad weather. It is to be hoped that the new acetylene lamps, which it is understood are to be tried, and which are said to be able to signal many miles by day and night, may effect an improvement.

The present system of coding signaling messages is too elaborate for rapid cavalry work in the field, and it is suggested that an abbreviated system be devised, at any rate for use on emergency. Place, time, etc., of the original messages were apt to get confused in the course of transmission with similar items connected with the working of the signaling stations; the latter ought to be quite distinct from the text.

The necessity for tactical training of signalers requires emphasizing. The test of efficiency should not depend only on the technical skill of the men, but also on the ability of those in command of the signaling detachments (officers and non-commissioned officers) to make the best practical use of the means at their disposal to establish and maintain the communication required. Signalers should be practiced more frequently in an extended scheme over a wide area of country; "tactical rides" for cavalry signalers are valuable, and easily and cheaply arranged.

Cohesion; Pace and March Discipline.

In order to obtain good order and cohesion at the point of attack, commanders must adjust their frontages proportionately to their strengths, so that there shall always be a rear rank available to fill up intervals in the front line. When there are less

than 24 men in a troop it should be formed on a 13-file front. Troop and squadron leaders have to keep their eyes to the front so that it becomes the special business of the serrefiles to supervise the maintenance of good order and cohesion in the ranks, and, during the advance to the attack, to see that men in the rear rank fill up immediately any gaps which occur in the front rank.

The principles laid down in Section 143, Cavalry Training, 1907, require more constant consideration. Good order and cohesion can only be maintained if the regulation paces are strictly adhered to. The process of making any body of cavalry efficient in preserving continuity and uniformity of pace is certainly tedious, but failing these two requisites, the best fighting value of the arm will not be obtained. Maneuvering does not consist only of correct and rapid drill evolutions. The situation will often involve winding cautiously through difficult ground, climbing steep hills, etc., and then deploying over broken and uneven surfaces. Uniformity in the pace of maneuver throughout brigades is essential. Officers and troop leaders should be more frequently practiced in timing the pace of their horses with a stop watch over a measured distance. The larger the body of troops and the longer the column, the more important is correctness in pace. During changes of direction or formation the leading units must steady the pace and so assist the units in rear.

The fast paces are always extravagant in horse power, and a tendency which now exists to gallop prematurely or without sufficient justification should be checked. Galloping by large bodies can be rarely necessary for other than two main reasons: (a) when advancing under fire, in which case every opportunity should be taken of available cover *cn route* to re-form ranks and ease the horses, or (b) to effect surprise. In normal circumstances the more rarely a steady trot is exceeded the longer will mobility and rapidity as a whole be maintained. Trotting faster than the regulation pace should very rarely be permitted; if any increase of pace is required the gallop should be ordered.

The rapid passage of obstacles in good order, unit by unit, requires constant practice, and the following principles must be more carefully observed: (a) that it is almost invariably better with a force of greater size than a squadron to steady the pace and keep well closed up, rather than increase the pace and so risk

disorder, and (b) that in crossing a defile each squadron should pass the defile at a trot, and re-form as quickly as possible as soon as its rear is clear; any distance lost from the leading body should be made up by moving at a gallop after the squadron has re-formed.

March discipline requires to be more strictly maintained among all units, especially as regards transport. Civilian drivers must be taught the necessity of maintaining the strictest military discipline, and to understand the importance of keeping closed up and leaving one side of the road clear.

More practice in marching, especially on the roads, by night as well as by day, is required; on several occasions there were noticed those concertina-like movements in columns which are so distressing to men and horses, and which, in the presence of an enemy, might easily cause an operation to miscarry.

The Attack.

The rôle of cavalry in cooperation with the other arms on the battlefield requires more attention.

The magnetic influence of the opposing cavalry is apt to override more important considerations and to lead to engagements on other than vital issues. When the crisis of the decisive battle arrives, cavalry should be operating in close combination with those troops which are striking the decisive blow, and be ready to exploit and prolong the effect of that blow, which cannot usually be achieved if the cavalry is far away on a flank or endeavoring to work round to some distance in the enemy's rear. In order to train cavalry to act effectively in such situations, more time should be devoted to problems such as the methodical selection and occupation of positions of readiness in the vicinity of attacking infantry; selection of covered lines of advance, by which movements can be made, concentrated or unit by unit, towards more advanced positions; rapid deployments and attacks mounted upon guns or extended lines of infantry, always under a scheme involving a tactical idea; the "rally" beyond and out of range of the fire of the enemy thus attacked; followed by a second attack, probably from or in another direction, or by a movement in pursuit, or by a return under cover to the point from which the attack was originally launched. A definite plan, a

methodical arrangement of means to insure combination of effort, and other essential factors of success are sometimes forgotten in these problems.

The principle of advancing at the fastest pace whilst under fire, but of periodically steadying the pace, or even halting, in any available cover does not appear to be fully understood. In crossing slopes or crest lines exposed to fire it may often be advantageous to do so unit by unit at an increased pace, each unit opening out if necessary, galloping rapidly over the exposed ground and halting under cover beyond until the regiment or other body has been re-formed.

This method of advance is quite distinct from that required when not under fire and advancing to attack cavalry mounted. In the latter case, unless there is a possibility of surprising the enemy, the longer a steady trot can be maintained the better, and in any case the charge should only be taken up at the most 50 yards from the enemy, for in the cavalry encounter cohesion is of more importance than pace.

Dismounted Action.

The principles which should determine the choice between mounted and dismounted action require to be more thoughtfully considered. Small units have been seen on several occasions to dismount on open ground, when mounted action was the only sound course to adopt. On the other hand, squadrons have been seen to remain mounted in inclosed country when under fire at close range of dismounted men.

Officers appear to have hardly yet realized the essential difference in the principles which should govern the attack by cavalry dismounted from those on which an infantry attack is conducted. Weight and depth are essential in the infantry attack, fire being employed to facilitate movement in the direction of the enemy with the ultimate object of coming to close quarters with the bayonet. Cavalry, on the other hand, normally develop shock action effectively only when mounted, and usually lack the numbers, depth and weight required to act decisively on foot. They must, therefore, as a rule, put the largest available number of rifles in the firing line at the outset, endeavor to retain their mobility throughout, by keeping their horses as close to the firing line as possible, and make the most of it by opening sudden bursts of fire of the greatest possible intensity from unexpected positions.

Different portions of the attack should push forward in turn, taking as much advantage of the ground as they can, covered by bursts of fire from adjoining bodies. Intimate cooperation of this nature can be secured only by a well-organized system of intercommunication, mutual understanding, and skillful use of the ground.

Fire should be concentrated on successive portions of the target—a desultory fire disseminated over a wide front is of little value, and decisive results will be obtained only by sudden outbursts of fire concentrated on definite objects. In order to retain mobility, the horses must be as close up to the firing line as possible.

A mounted reserve must always be at hand to guard against the unforeseen, and to take instant advantage of favorable opportunities for decisive action, *i.e.*, mounted attack, created by the fire of those dismounted.

Coöperation of Horse Artillery with Cavalry.

The soundness of the principle enunciated in Field Artillery Training, Section 87 (iii), paragraph 3, was fully confirmed. Horse artillery must not be tempted by the chance of gaining a temporary and unimportant advantage to advance prematurely into action. Such tactics offer the enemy an opportunity of immobilizing the guns thus prematurely deployed with a fraction of their artillery or machine guns, whilst the hostile cavalry and the remainder of their artillery are at liberty to maneuver in another direction out of the zone of their adversary's fire.

The most propitious moment for the deployment of all the horse artillery in action is when the cavalry have completed all their preparations, and are ready to deliver the attack. Till then the guns should be held back in positions of readiness so as not to disclose their presence to the enemy until the latter has finally committed himself and lost his power to maneuver beyond the zone of their fire.

During an advance, prior to attack, across undulating country with well marked ridges, it is often advisable to divide the guns, leaving one portion behind in readiness for action whilst

the cavalry, accompanied by the remaining guns, makes good the next ridge. For if all the guns are left behind, the cavalry, after reaching the next ridge, are temporarily without artillery support; whilst if all the guns accompany the cavalry the encounter may take place before any of the former can come into action.

When the ground is comparatively level and there are no covered approaches by which the hostile cavalry can gain access to the flank of our own cavalry, it is advisable to keep the whole of the horse artillery and machine guns on one flank. When the two latter eventually come into action their lines of fire will then be approximately parallel, while the cavalry is free to maneuver without fear of masking this fire. On the other hand, if the ground is undulating with high ridges and deep hollows, it is sometimes advantageous to place guns on each flank so as to deny to the hostile cavalry these approaches.

The placing of the horse artillery in the center of the cavalry is not recommended. In such a position their fire is generally masked at the most critical period of the encounter. A more suitable position is in echelon well forward on a flank, as laid down in Field Artillery Training, Section 87 (iv). Placed thus, there is less liability of their fire being masked, and with their outer flank secured by patrols they are sufficiently in touch with the cavalry to dispense with a special escort.

The question sometimes arises, when other considerations are equally balanced, whether the cavalry or the guns should move rapidly out to a flank. In such cases it is the guns which should be sent. Once in action, their horses have time to recover their wind, while, on the other hand, it is of vital importance that the cavalry horses should be kept as fresh as possible for the charge.

When in action the flanks of the guns and any dead ground in front are best protected by machine guns, or, if none are available, a section of horse artillery or even a single gun can be used for the purpose.

The "Rally." Replacement of Casualties.

The "rally" action after an action, mounted or dismounted, and against an enemy mounted or dismounted, requires careful thinking out and constant practice. During peace training, oper-

ations are rarely worked out to a logical conclusion, and too often cease with a final charge; so that the problem is not faced of what is to happen after the enemy has been routed, or the position captured or galloped through; or, again, what is to happen should the attack fail.

Similarly, practice is necessary in the rapid assumption of command after casualties amongst leaders. If casualties amongst leaders were more frequently practiced the overwhelming importance of method and system in the conduct of all operations would be better realized. The practice of casualties also tends to bring home to all ranks the necessity to maintain reserves.

Overloading of Horses.

A regrettable tendency has been observed to overload horses, contrary to regulations. Men were often seen carrying line gear, mallets, axes, waterproof sheets and buckets. This is a matter of discipline, and the regulations embodied in the Field Service Manual should be rigidly enforced.

Officers.

The material is excellent. All four brigadiers and their staff officers are able cavalry leaders, in whom I have every confidence. I think that between them, myself and my own staff there existed that sympathy, confidence and mutual understanding which is the basis of success in any cavalry operation. Their efforts have been well seconded by the loyal support of the regimental commanders, the energy and zeal of the squadron officers, and the cheery endurance of the men.

I have been particularly struck by the keenness displayed by many of the young officers, who do not hesitate to gallop their horses to a standstill in order to bring in important information in good time. This recalls the important question of officers' chargers, and the necessity for their being mounted on suitable horses and in adequate numbers. At present we do not compare favorably in this respect with the French and German Cavalry, and it is hardly necessary to point out what false economy this must prove.

Unless a cavalry officer is a good horseman he is useless; cavalry officers must therefore be constantly in the saddle, and

should be encouraged to ride at least several hours a day throughout the year.

I attribute great importance to young officers being encouraged to hunt and play polo, and would urge that they should be helped to do so in every possible way. These pursuits have a very real value as training for war, and it is particularly desirable that officers with private means should be encouraged to spend their money in this way rather than in buying expensive motor cars and similar luvuries which have a precisely opposite tendency.

Non-Commissioned Officers and Men.

It is gratifying to see the improvement both as regards class and intelligence that is apparent in the non-commissioned officers and men. The ranks of our cavalry are now filled by men who, although somewhat younger, will bear comparison with the pick of Continental armies.

Royal Horse Artillery.

The intelligent coöperation of the horse artillery in all the operations of the division has been a very satisfactory feature, and reflects great credit on Colonel Fanshawe, who acted as my C. R. A. I think we have proved that what is perhaps the most difficult problem in war, viz., the well-timed coöperation of guns and cavalry, is a practical proposition, which can be solved by mutual understanding and adherence to sound principles.

Billeting.

The weather on most days during the training was abominable. Fortunately little sickness occurred amongst the men, but, although cheerfully endured, the discomfort was very great, and the loss of condition amongst the horses was due far more to this than to the amount of work imposed upon them. Kits and equipment also suffered considerably.

In this connection I would urge the importance of introducing, gradually perhaps, some system of billeting the troops during maneuvers. Considerable expense would be saved to the State, and, judging from the large experience of our Continental neighbors, the system would not be nearly so repugnant to the civilian population as is generally supposed to be the case. Even bad billets secure greater comfort to the troops than a night in the open, and give them, moreover, opportunities of putting their weapons, equipment and clothing in order. In the case of mounted troops especially any kind of shelter is preferable to none at all.

Should our army ever be called upon to operate in a civilized theater of war, billeting will certainly be resorted to. It is, therefore, of great importance that commanders, staffs and troops should annually obtain actual practice in all the arrangements connected with this duty. The matter is a much more difficult one than is generally realized, and involves numerous problems of time, space, capacity, allotment, subsistence, intercommunication, sanitation, etc. Billeting, in fact, is an operation which can no more be learned by theory only than can any other operation of war.

WAR AND THE ARME BLANCHE.*

THE GENERAL STAFF'S VIEWS ON MR. CHILDERS' BOOK.

In this book Mr. Erskine Childers maintains, and claims to have proved, that for mounted troops in modern war the arme blanche is "as dead as the dodo." The essential points of the theories he advances are that the rifle is always the master of the sword; that although the latter may be of use on some occasions, those occasions are very few, and that even then the rifle can be used instead of the sword, with better results; that it is as impossible for mounted troops to become efficient in the use of both rifle and sword as it is for a man to serve two masters and that the only way to insure the efficient training of our cavalry in the use of the rifle is to deprive it of lance and sword altogether. Mr. Childers favors bold offensive action, but al-

^{*}From the Journal of the Royal United Service Institution of August. 1910.

never with the object of using cold steel. Cavalry charges he ways with the object of overwhelming the enemy by fire and believes in, but not the charge as now understood; in his view cavalry should charge to "within 5, 10, 50 or 100 yards" of the enemy, and then shoot him down, either from the saddle or dismounting to fire. In the term "cavalry" he would include all mounted troops, maintaining that all should be armed alike and act on the same principles. Fire from the saddle should be freely used, even, it would appear, when moving at speed, as in pursuit.

Mr. Childers bases his views mainly on the experiences of the South African War, but he quotes the Russo-Japanese War in confirmation, and he claims that the American Civil War and the campaigns of 1866 and 1870-71 also illustrate the truth of his contentions. The fact that a decided majority of the leaders of military thought throughout the civilized world are believers in "the terror of cold steel" is an argument to which he attributes no importance. He is quite satisfied that their judgment is misled either by the glamour of cold steel or by a mistaken belief that the South African War was abnormal, a view with which he is in entire disagreement.

Before discussing Mr. Childers' theories, it will be well to consider the value of the evidence on which they are based. It has been claimed that his arguments are historically correct. This claim cannot be admitted. He quotes historical facts, certainly, but the deductions he makes from them are his own. Facts, as a great lawyer has said, "cannot lie, but they can and often do deceive." The point which the reader of "War and the Arme Blanche" has to decide is whether, in this case, they have deceived Mr. Childers or those who differ from him. Judging by the official training manuals, the ruling military authorities of every civilized nation are numbered amongst the believers in cold steel. Amongst them are many able, earnest and experienced soldiers, by no means all cavalrymen. They have as deep a knowledge of historical facts as Mr. Childers has. They have even more at stake to induce them to weigh deductions carefully, since they may be called upon to act on them at any moment. They have more practical knowledge of human nature in war to guide them in drawing conclusions from history, and human nature in war is a consideration on which the practical applicability

of all military theory depends. Remembering that it is deductions from facts that are in dispute, and not the facts themselves, we cannot think that any impartial reader will be prepared to follow Mr. Childers in throwing the opinions of such men aside as being biased and worthless. We claim no infallibility for them, but neither do we concede any to Mr. Childers. We cannot agree that Mr. Childers has established his charge of undue bias in favor of the sword, and we cannot see that he is any less open to a charge of undue bias in favor of the rifle. Having said so much as to the value of the evidence to be weighed, we may now turn to the matter in dispute. A careful perusal of "War and the Arme Blanche" leaves us under the impression that the difference in opinion between Mr. Childers and our Training Manuals is by no means so great as he seems to think it is. His views on the value of vigorous offensive methods and on the combination of fire power with mobility are, up to a certain point, in agreement with "Cavalry Training." No one is likely to deny-"Cavalry Training" certainly does not do sothat the general principles of fire action are the same for all mounted troops, although the degree of skill with which they may be able to employ those principles must be expected to vary with the duration and thoroughness of the training they have undergone. No one can deny that favorable opportunities for the use of the arme blanche are not numerous in modern war as compared with the number of opportunities for using the rifle.

Mr. Childers is not one of those who consider it impossible for cavalry to charge home, under favorable conditions in the face of modern rifle fire; and he clearly recognizes the need to charge home in order to force a decision. So far, therefore, no great principle seems to be in dispute. The first real point of difference that we can find between Mr. Childers and "Cavalry Training" is his statement that when cavalry has charged home it will always find the rifle a more effective weapon than cold steel. The next is the statement that cavalry cannot be trained to efficiency in both rifle and sword. If the first of these two statements be true it is unnecessary to examine the second, since there would obviously be no further need for the sword if the rifle is always more effective at close quarters. If the second theory be true, we agree that the rifle is so much more generally

useful than the sword that the latter should be abandoned in its favor. These two questions are, therefore, worthy of very close consideration. A decision on the first of them seems to depend a good deal on the value of fire from the saddle. If it is really possible effectively to use the rifle from the saddle at close quarters, we can believe that cavalry would soon throw away sword and lance in war. If it is not possible, then mounted cavalry without a steel weapon has no adequate means of offensive action at close quarters or of self-defense if surprised when in motion.

Turning to such facts as we have at our disposal we cannot find that the efficacy of saddle-fire has been established. It was used in the American Civil War. It was also used by both sides in South Africa. In both wars its use appears to have been exceptional, while its material effect is stated by those who experienced it in South Africa to have been very slight, although the Boers who used it had had exceptional training, and were probably greater adepts than town-bred soldiers could ever become. The most claimed for it by British officers who used it is that it may sometimes have a useful moral effect.

To fire from the saddle at the halt and in motion would necessitate the prolonged and habitual training of the horse as well as of the cavalry soldier, and we can find no grounds for a belief that such fire would prove effective, except, perhaps, in the case of individuals in special circumstances. The difficulty in shooting with any degree of accuracy from a horse moving at speed requires no explanation. The difficulty in shooting from a horse pulled up short from a charge and under fire—since the enemy must be presumed to be resisting—does not seem likely to be less.

For these reasons it seems to us that cavalry, charging on the principle advocated by Mr. Childers, must dismount to fire on reaching close quarters. When the enemy is sufficiently accommodating to leave cover close to him unwatched and unguarded, to which the cavalry can gallop, and behind which the horses can be left, this operation is feasible. If he does not do so—which we take to be the normal case—it seems to us that it would be more difficult for cavalry to pull up and dismount in the open, under close rifle fire, than to charge home, led by its officers. It is worthy of note that troops using a rifle cannot be so led.

Further, it seems to us that this pulling-up and dismounting at the last moment—even if men could be got to do it, which we doubt—would be likely to prove a very costly proceeding, and that the enemy, if he could be given a chance, would prefer to meet such a maneuver rather than a charge home with cold steel.

In considering the question of weapons, it is not sufficient to confine our investigations to the original attack. We must also consider possible counter-attack. For instance, Mr. Childers' analysis of the Boer charge at Roodewal is incomplete. He considers what might have been the value of the steel weapon and a knee-to-knee formation to the Boers, and he concludes that they would have been useless. We agree. The failure of the Boers on this occasion must be attributed to the absence of any moral ascendancy over the enemy. The surprise failed; they had no numerical superiority, and there was no fire preparation except the totally insignificant saddle-fire during the charge itself.

Grenfell met the attack by fire; but if his force had been armed with sword or lance, and trained to rapid maneuvers combined with cohesion, it is an interesting speculation whether he might not have gained better results by means of a "shock" counter-attack. It seems to us that Grenfell's most effective reply to the Boers would have been to meet them by fire from a portion of his force till their attack faltered, and then to clinch the matter by a charge of the remainder with the arme blanche.

This is one of the examples quoted by Mr. Childers. It seems to us to show the value of a training in which various tactical methods and various weapons can be utilized and combined. It provides also an example of the failure of Mr. Childers' method, and affords an opportunity of illustrating how an effective use can be made of the arme blanche against that method when wrongly applied.

We will next consider an example of the success of Mr. Childers' proposed methods, namely, Bakenlaagte; but before doing so we desire to say a few words as to certain conditions on which the chances of success of any method of attack seem to depend.

Mr. Childers is emphatic in his view that it is not necessary or even desirable for the form of offensive which he advocates, to depend on covering rifle fire or artillery support, to enable the objective to be reached. He disclaims the need for any such assistance for his charges, and bases this belief on the invulnerability to rifle fire of the horseman moving at speed.

Here we are in direct conflict with him. We believe that charges against riflemen, whether made as he proposes or with cold steel, can only be successful, in the face of opposition which is not altogether insignificant, if the conditions allowed the attack a certain moral ascendancy. This moral ascendancy may result from surprise or overwhelming numbers, but where these conditions are absent it can only be obtained by establishing superiority of fire as a preliminary step. The mere movement at speed aided by saddle-fire is, we contend, insufficient to produce it.

We believe, further that when once sufficient moral ascendancy has been gained the nature of the weapon with which cavalry is armed will not affect the chances of its being able to charge home. The question at issue is as to the most effective means of obtaining good results after charging home.

On this point Bakenlaagte seems to offer some evidence. On the British side there was a harassed rear-guard which had been withdrawing for many hours in the face of vigorous attacks, and was, in addition, facing a cold, driving rain. On the Boer side we have the arrival of reinforcements at the critical moment in sufficient strength to give it an overwhelming numerical superiority. The arrival of these reinforcements was quite unknown to the British till the charge actually took place, so that a certain element of surprise was introduced.

For the details of the action we must refer the reader to the *Times* History of the War and the map contained in that work. According to the author of this account. Botha initiated his charge at the very moment that he saw the British rear-guard rise and mount in order to withdraw from Ridge A to Gun Hill. The moment was admirably chosen, and the circumstances all contributed to increase the *moral* of the attack while reducing that of the British rear-guard.

As to the opposition encountered, we read that Greatwood's and Lynch's detachments of the Buffs (infantry) were overwhelmed between Ridge A and Gun Hill, the Boers "dropping

a few men to disarm their prisoners." It is a small point, but we doubt whether this slight weakening of the attacking force would have been necessary if these detachments had been ridden over, say by a lancer brigade.

The description of the remainder of the charge is worth quoting in full: "With scarcely a check the charge continued; it caught, swallowed up and captured both the covering sections of Scottish Horse and mounted infantry, and ended finally, in the hollow at the foot of Gun Hill. This was dead ground both from Ridge B and Gun Hill, and here the Boers flung themselves from their ponies and pressed on foot up the hill, firing and shouting as they came."

No account could illustrate more clearly the essential difference between cavalry action and that of mounted riflemen. The Boers, in the full tide of success, judged it necessary to dismount at this critical moment. The result was that they were obliged to enter into a fire struggle which lasted 20 minutes before the hill was captured. We are told that during that time "no reinforcements reached the hill," and that the only counter-attack attempted during the action was an effort made by two companies of the Buffs under Major Eales, after the hill had been captured, when the conditions were entirely unfavourable; but it is easy to conceive what a difference the 20 minutes' delay to the attack might have made in the results of the day.

We claim that a cavalry force as ably led would not have dismounted at the foot of the slope and afforded the enemy the opportunity to recover his initial disadvantage. We are told that the dead ground reached to within 30 yards of the British firing line. We do not believe that a charge of disciplined cavalry which had reached the foot of the slope would have pulled up, or could have been stopped by fire in the last 30 yards. We must remember the absolutely overwhelming numbers and the elation of the initial success. In our opinion cavalry handled on the principles inculcated in Cavalry Training would have ridden over the hill inflicting many casualties on the British, on the way: the original line would have swept on to the farm at Nooitgedacht, and spread consternation and havoc amongst the convoy, while the supporting squadrons dealt with any resistance that might be left in the defenders of the hill. In

fact, a partial success might have been turned into a complete victory.

Our conclusions from the facts of Bakenlaagte are that the success was due to causes other than the armament of the Boers and the formation in which they charged, and that the limitations in the measure of the success is evidence in favor of the arme blanche and of the methods laid down in Cavalry Training.

It may be claimed that if the Boers, armed as they were, had not halted they would have gained a complete success. The had been armed with steel and trained to depend on it under reply seems to us to be that they would not have halted if they such conditions.

In fact, the example we have just quoted illustrates an important virtue claimed for the arme blanche. The tendency of human nature under fire is to seek cover and hold on there, since to rise from it increases the danger. This tendency works in two ways when both sides are under heavy fire; just as the defending side inclines to hang on in its trenches, so the attacking side tends to remain under cover and to seek to shoot the enemy out of his position without exposing itself. If proof of this tendency under modern conditions is required, a study of the operations in Natal for the relief of Ladysmith will afford it.

The chief reason why infantry soldiers are given a bayonet is to foster in them the desire to close with the enemy. They are taught that this must be the object, and that the primary use of fire is to assist their forward movement in the direction of the enemy with a final bayonet charge in view. The actual amount of killing done by the bayonet in modern war has been comparatively small. After South Africa many theorists recommended its abolition. Yet deeper thinking has led to the conclusion that the moral effect of the bayonet is out of all proportion to its material effect, and not the least important of the virtues claimed for it is that the desire to use it draws the attacking side on. This theory has been accepted by those best qualified to judge by experience of human nature in war. There seems to be a great similarity of thought between those who favored the abolition of the bayonet and those who desire to deprive cavalry of the arme blanche. Wasalso think there would be a similarity

in the results. To take the sword from cavalrymen would be, to some extent, to take away their desire to close—to encourage them to seek for effect by long-range fire. It might constitute a serious obstacle to the realization of Mr. Childers's methods of charging.

This encouragement of an offensive spirit is one effect of a steel weapon. What is its effect on the enemy? Is the "terror of cold steel" really a myth? On this point let us examine, for example, the battles of Wærth and Gravelotte. Time and again the Germans held on to the ground they had won under a devastating fire. Time and again they fled before French bayonet charges, without awaiting them. Are foot soldiers charging with bayonets more terror-inspiring, or more difficult to stop by bullets, than charging cavalrymen, who believe in their ability to charge home?

Mr. Childers may not agree in the value of examples taken from a war which was fought before the introduction of the magazine rifle, but if the magazine rifle is to be upheld as a nerve soother where cold steel is concerned we must not ignore the effect of the same weapon in producing nerve tension when in the hands of the enemy. We hold that this attribute of the magazine rifle will in reality tend to maintain, if not to enhance, the terror of cold steel in the battles of the future. In fact, we look to the magazine rifle to produce the situations in which the fear of cold steel will give us the victory. This is indeed the basis of all modern tactics.

Although we maintain that the armc blanche is by no means obsolete, it must be admitted that Mr. Childers's contention could be upheld as to the impossibility of training cavalry to the efficient use of both rifle and cold steel, there would be a strong case against the retention of sword or lance. The arguments given in the foregoing pages refer more particularly to the battlefield, on which the results of all military operations are decided. Even on the battlefield, however—still more in the operations preceding the battle—it cannot be denied that for one opportunity of using cold steel effectively there will be many of using the rifle. For this reason there can be little doubt that, if cavalry cannot be made efficient in both weapons and must be restricted to one, that one should be the rifle.

Mr. Childers maintains that experience shows that cavalry cannot be trained to both weapons. He appeals to history. Has history spoken definitely on this problem? In what campaign, up to date, has cavalry been employed that had been carefully trained in the use of both weapons? We are not aware of one. The Boers were not trained in the use of the arme blanche. Our own cavalry in South Africa had not been seriously trained in the use of the rifle. It was armed with an inferior firearm, and had fired a few rounds with it annually, but rifle shooting and rifle tactics held a very different position in its training, and in its regard, to what it holds now.

Mr. Childers quotes the American Civil War. In his reference, however, to this war, he omits to mention that, although a rifle was added to the equipment of the United States cavalry soldier shortly after the war commenced, the sword and revolver for use at close quarters were not discarded, and that this equipment, as a result of the experience gained in the American Civil War, has been retained ever since.

It would be out of place here to discuss the merits and defects of the breech-loading pistol in addition to or in substition for the arme blanche, as the main point is whether the mass of the cavalry employed in that war was trained at all before the war.

It is useless to claim that history has given a final verdict on this problem. So far as history has spoken, its voice appears to us to be in favor of the possibility of cavalry being trained to use both weapons, i. e., the rifle and the arme blanche. Our cavalrymen, trained to arme blanche work, adapted themselves, with considerable success, to the use of the rifle in South Africa. Although there seems to be a good deal of popular misapprehension on the point, cavalrymen used the arme blanche freely in the American Civil War, and it appears that the use of it tended to increase as the war went on; they also used the rifle with considerable efficiency.

We believe that cavalry which is capable of using either weapon, as occasion may demand, will be more useful in war than cavalry which can only use one of the two. We believe that the possibility of becoming efficient in both must remain a matter of opinion until cavalry which has been carefully

trained to both has been fully tried in war. And we believe, meanwhile, that the opinion of experienced cavalry officers on training is a safer guide to follow than the opinion of Mr. Childers. Their opinion is that regular cavalry can be trained to both. It must be remembered that our present peace training aims at producing dash, cohesion and discipline, combined with an offensive spirit and good horsemanship; and that, even if Mr. Childers proves correct in his views, the time spent in inculcating these qualities cannot be said to have been thrown away, unless it can be proved that the training in fire tactics has been neglected in consequence to a dangerous extent.

The truth seems to be that the real difficulty of the problem lies less in training the men to be capable of using both sword and rifle than in educating their officers to judge rapidly which weapon to employ at any given moment. No doubt errors of judgment must be expected in this matter, as they must be expected in all operations of war; but we cannot afford to abandon a valuable weapon for that reason. Moreover, it does not seem to us that there will be much—if any—more difficulty in judging when to charge with the arme blanche than there would be in judging when to undertake the style of charge that Mr. Childers recommends.

The judicious selection of opportunities for, and the skillful execution of a charge undoubtedly call for much previous study, thought, and practice; but, so far as our regular cavalry is concerned, the necessary attention can, and will, be given to the problem. Professional officers, and men who serve for 7 or 8 years with the colors, have both the time and the opportunity to learn. It is different with our mounted troops other than regular cavalry, however. There can be no reasonable doubt that neither the officers nor the men composing these troops can learn the use of both rifle and arme blanche in their short peace training. This being so, it seems obvious that they should train in peace with the rifle only, that being far the more generally useful arm.

It may be argued that it is illogical to claim that the arme blanche gives additional power to cavalry, and then to recommend that mounted troops, other than cavalry, should be armed with the rifle only. The reply to such a contention is that yeomanry and similar bodies of troops, who train only for a few days in the year, cannot be expected to meet highly-trained regular cavalry on equal terms, however we arm them; and matters cannot be equalized by any increase in the number of weapons they carry. On the whole they will stand a better chance armed with one weapon which they have acquired some skill in using, than if they had more than one, were unskillful with each, and lacking in judgment as to which to use. Moreover, there are other factors which considerations of space forbid the discussion of here, such as the nature of the country that yeomanry are primarily intended to fight in, the nature of the duties that would be allotted to them in war, and the possibility of arranging for them to work with regular cavalry, thus combining fire power with the sword. Moreover, if time were available after embodiment, it would be possible to equip yeomanry with the sword and to instruct them in its use.

The combination of the power of the two weapons seems to us the ideal to aim at and we cannot agree that it is beyond our reach.

It may be that there is sometimes a tendency to favor training with the steel weapon at the expense of training with the firearm. We agree that this is unsound, but we do not agree that it is necessary to take away sword and lance altogether in order to correct this tendency, and we think that in proposing such a remedy Mr. Childers has rushed into the extremes that he complains of in others.

CAVALRY MACHINE GUN DETACHMENTS.*

VIEWS and opinions concerning the value of machine guns have become definite by now and the machine gun is now universally acknowledged to be an extremely valuable, if not absolutely necessary, auxiliary arm for cavalry; consequently a material increase of this arm in the near future is very

possible. This increase may take place as follows: by attaching a combined detachment to each cavalry division (as is the case with us now), or attaching one machine gun detachment to each cavalry regiment. Without going into all the details of this question, we will remark the following:

The organization of the main army, its utilization and manner of fighting will always govern the employment of machine guns, as it will that of any other auxiliary arm. As is well known, cavalry regiments are employed either as part of the cavalry division or as divisional cavalry. To attach machine guns to the latter would undoubtedly be more advantageous than disadvantageous, but we cannot hope to see that done at the present time because political, economical and other governing factors are not favorable; therefore the main question to be considered is that of attaching machine guns to cavalry divisions.

The mounted fight is as a rule employed by the cavalry divisions to solve its task; cavalry fights dismounted only when mounted action is out of the question. Accordingly, machine gun detachments must be organized and trained like cavalry.

Concerning the mounted action of larger bodies of cavalry we will state that in most cases only those auxiliary arms (artillery and machine guns) which are already with the advance guard, can timely interfere in the fight and that these auxiliary arms have but scant time at their disposal for their destructive work. These arms being attached to the different groups in the march column, can but seldom act in accordance with the intentions of the highest commander in a case of emergency, and if they wait for orders from him, their interference will be of little use, by reason of their being too late.

The different groups, arriving at a rapid gait at their respective places, will in most cases proceed to the immediate attack, for there is no time for preparatory, introductory work. The highest leader will then undoubtedly regret not having his machine guns organized in one body from the very start.

It will always be easier to make necessary detachments from a whole than to organize a whole from scattered detachments; the latter method often brings official friction in its wake. Therefore an organization of machine guns into cavalry division detachments has many advantages. Special conditions necessitate

^{*}Translated from Kavalleristische Monatshefte, September, 1910, by Harry Bell, M. S. E., U. S. Army.

special methods of fighting, which also means a change of organization of the main arm and consequently a change in the auxiliary arm.

In Switzerland, on account of the peculiarity of the terrain, the cavalry regiments are liberally endowed with machine guns; and this method can be resorted to everywhere when the nature of the terrain, cover, and cultivation preclude a combined utilization of larger bodies of cavalry.

Only so much can be detached without danger from the main arm to serve as auxiliary arm or for special service (pioneers, telegraph service, etc.) as the main arm can bear without being materially weakened. To create auxiliary arms at the cost of the main arm is always to be condemned and will become specially dangerous where proper training is lacking and where numerous other detachments for special service are already causing a heavy drain.

Where such necessities do not obtain, where auxiliary arms are created by augmentation of the recruiting contingent, and where they maintain themselves independently, auxiliary arms may be more numerously organized. In such cases they also receive separate quarters and are not required to crowd, as new formations, into the already overcrowded quarters of the mounted arm and will, in that case, not threaten the very existence of the main arm.

To what extent machine gun detachments prove of value to infantry battalions we cannot say, but have no doubt that there will be found many who favor the method of having battalion machine gun detachments.

The organization of cavalry machine gun detachments in existence in Austria appears to fulfill all requirements. It might be well to increase the number of guns to six or eight, so that the main force will have a sufficient complement left after making necessary detachments. A disadvantage of our present system is that not all regiments are in the situation to practice with their machine guns during the course of the year. Still, it is believed that our present organization will be found reliable, if proper care is taken to always have the requisite number of men and horses in the detachments and to train them properly. To consider cavalry regiments merely reservoirs from which we may

continuously take the best and send back unsuitable material, is reprehensible. It is the duty of the machine gun detachment commander to have and keep his material and personnel in the highest state of efficiency.

Concerning the officers for machine gun detachments we may say that undoubtedly many officers will seek detail therewith. All these applicants should be carefully examined and only the very best material selected. It will undoubtedly be of great advantage to a lieutenant to be detailed for three or four years to duty with the machine gun detachment, and especially so if that lieutenant has the good fortune to serve under an efficient detachment commander. Younger, efficient captains, who cannot yet receive command of a troop, might perform good service as machine gun detachment commanders.

Seeing that the number of machine gun detachments is small, vacancies for machine gun detachment commander are not numerous; therefore there is no dearth of *suitables*, whom a casual detail will benefit, for, as is well known, the duties of a machine gun detachment commander in regard to training and leading his detachment are manifold and highly important. To gain this accomplishment, the years a cavalry officer serves as subaltern (and they are many) must be utilized to the fullest extent by such temporary details, for there is no chance for making up for lost time on receiving a permanent detail. Before reaching the rank of captain an officer should possess all necessary qualifications of a machine gun detachment commander.

The commander of that cavalry regiment to which the machine gun detachment is attached must feel himself personally responsible for it; he must consider it an additional troop of his regiment; must train it as cavalry and instruct it in all matters pertaining to that arm of the service; he should also detail the officers of the machine gun detachment frequently to perform troop duties and give them chances of commanding a troop at times. In this manner these officers would retain their aptitude in horsemanship and would feel themselves to be a part and parcel of the regiment.

To resume: It is especially desirable to have a combined machine gun detachment for each cavalry division. If everything has been provided to secure existence for these detachments (including quarters without making cavalry regiments suffer thereby), and should promotion in the detachments be also secured, then weaker machine gun detachments might be created also for divisional cavalry, in which the number of guns should be the same in war as in peace.

We should never forget that this necessary auxiliary arm will and can materially increase the value of the main arm with which it is closely allied.

In the above outlined views we lay no claim to innovation or originality; they are based on simple, practical experiences and are the result of deductions that machine guns are an absolute necessity to cavalry. The number of new organizations, however, should be in accordance with available means and existing conditions in order to increase in every respect the value of the arm to which they are attached.

THE AEROPLANE IN WAR.

From the Broad Arrow, September 23, 1910.

ENERALS will no longer have to spend half their time in discovering what is on the other side of the hill. The air-scout will do it for them. The incalculable quantity, which skill was able to turn to account and thereby secure success, has disappeared. A commander has lost the power to hide his general disposition from the enemy. This much at least has been learned from the maneuver in Picardy, on which the attention of the military world was fixed a fortnight ago. As a rule, with potent inventions practical application in the art of war disappoints sanguine hopes. But with the aeroplane exactly the reverse has happened. It has achieved more than its most ardent friends anticipated. The French, after a long period of eclipse, once more lead in military evolution. Sober critics of competence admit that they have changed the conduct of war. They made no attempt at bomb-dropping or any of the other sensational possibilities of the aeroplane, but concentrated on its proved capacity for observation. The result has so far justified them that it decides their particular military preparation for the future, as well as those of other nations.

For the point they have determined is the reasonable precision with which the "military bird" can take detailed and accurate information in the air. It was thought that the new arms at their necessarily high rate of speed would not be able to do either, and if they did would not be able to transmit their intelligence in precise terms to headquarters. It was also believed that Army officers would not have the same mastery of aircraft as pioneer professionals. All such prophecies were falsified at the Picardy maneuvers where the men and the machines played their part as reliable instruments of war. They determined beyond question their power of discovering the dispositions of an opposing force as upon a map, and of reporting them to such purpose that action could be taken on them at once. It is obvious, then, that a new and terrible element has been introduced into military science. In the history of every campaign, the conflict in the Far East not excepted, the efforts of the generals on both sides, one perceives, were directed to hiding the dispositions of their forces from their opponents, the skill with which they succeeded in doing so determining the issue of battle. Because we so often failed to mislead the Boers in this respect was one reason why the war in South Africa was so prolonged.

To estimate the character of the revolution which the new instrument of observation will work one has merely to compare it to the present "eyes and ears" of the Army—Cavalry. They act as a screen, whose function it is to learn what the enemy is doing, and to prevent him, if possible, from learning what their own side is doing. But at their best the information they obtain concerns only the disposition of the enemy's front, and this is not necessarily that which makes for victory. A general may bring up large forces at an unexpected place, or change the preparations for his main attack from the right to the left, and Cavalry learn nothing of either movement. Surprise and guesswork have, therefore, been permanent features of war in all ages. But with the aeroplane "the eyes and ears" of armies will have an uninterrupted view, not only of the enemy's front, but of his

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flanks, center and rear. Not that it can be used at any time, or with absolute certainty, but it is reliable enough to serve the purposes of war so as to transform it. No one who has closely followed the French maneuvers can doubt this for a moment. Apparently the war game is going to be played in the future like whist when one knows the cards one's opponent holds in his hand.

It is contended by some that under actual war conditions the aeroplane will not be able to perform the functions it performed in the late manœuvres in Picardy. At the height at which it can usefully observe the dispositions of an army it will be brought down by weapons already in our possession. But surely the aviator is like every other servant of his country employed in the combatant services—he carries his life in his hand. None of the inventions of the present generation, submarines and torpedo-boats especially, have been dropped because they can be destroyed by other inventions. There are experts who hold that the vital parts of an aeroplane are so few that even if it were hit several times there is no certainty that it would be brought down. There is a probability, moreover, that the airman might be able to take his ship out of the enemy's reach. Again, if he himself were seriously wounded the aeroplane travels so swiftly that he might be borne to a place of safety before he lost control. But there are other chances of escape for the aerial scout. His vessel is invisible at a comparatively short distance, even with a telescope, and as its surface is being reduced it will be a smaller target for the enemy's fire in the near future than it is now. Also, the rate at which it moves must be a form of protection to it. Krupps notwithstanding, no artillery gun has vet been invented which can check the flight of an airship. Rifle fire to be effective must be highly concentrated. That is to say, before an airscout can be put out of action it will engage the attention of a body of men variously estimated from 500 to 10,000. What this will mean in war no one can foresee, but it is enough to justify the use of airships. There will always be plenty of daring spirits ready to man them.

It is to be hoped that our Government is following events in France with a view to the adoption of a more energetic policy

with regard to aviation. Even in France public opinion had to exert pressure before the military authorities moved quickly enough. We may, therefore, be certain that in England they will want the same spur to action. It certainly requires no sharpening except from daily happenings. It may be that the War Office is waiting for the results of our own experiments at the manœuvres, but as they are likely to be small indeed as compared with the developments in France this hardly seems necessary. The aeroplane as an instrument of war has arrived. It only remains for us to arm the two Services with it by means of the knowledge and experience gained by other Powers. Once that step is taken it will be with the aeroplane as it was with the submarine; we shall better our instructors in its evolution. But so far we have not regarded it seriously. Now that "it has proved its value as a formidable engine of exploration and reconnaissance, as well as a marvelous instrument for transmitting orders," there is no excuse for our indifference. One thing is certain: The Power which possesses machines, even of a poor type, will have the advantage over one which has none. But there is no reason why we should not have them of the best.

THE MIND OF THE FIGHTING MAN.

A CRITICISM.

By T. MILLER MAGUIRE, LL. D.

From the United Service Magazine of October, 1910.

"Faites la guerre comme Alexandre, Annibal, César, Gustave-Adolphe, Tucrenne, le Prince Eugene, et Frederic; lisez, relisez l'histoire de leurs campagnes, modelez vous sur eux; c'est le seul moyen de devenir grand capitaine et de surprendre les secrets de l'art,"—NAPOLEON.

"Every individual accepting the King's commission must do so, knowing what that commission entails, and have some idea of the standard of elementary education that is required to understand the various subjects of military every-day life."—Sir H. Smith-Dorien.

"There is an enemy greater than the hospital, the d-d 'I don't know!" From the half-confessing, the guessing, lying, deceitful, palavering, equivocating squeamishness and nonsense of 'I don't know' many disasters originate.

"Instruction is light! Non-instruction is darkness! The work fears his master! If a peasant knows not how to plough the corn will not grow! One wise man is worth three fools—give six—and even six are little—give ten! One clever fellow will beat them, overthrow them, and take them prisoners!"—Sovoroff (Suwarrow).

"After sufficient general education and 'Quand on connait deja la theorie de quelques principes fondamentaux c'est surtout par la lecture de l'histoire militaire qu'on peut acquerir les qualités necessaires à un general; le coup d'œil rapide et le sangfroid sont les grandes qualites qu'il doit recevoir de la nature, l'étude approfondie de l'histoire lui donnera toutes les autres.'"— IOMINI.

"Duty is heavier than the mountains and death is lighter than a feather.

. . A soldier should always act with reflection, watch over his character and weigh well his words . . . do his duty without despising his enemy, however weak; without fearing him, however strong."—The Mikado (Proclamation, 1882).

"In an officer courage without skill is a form of insanity."—Von Hoenig.

"Education is the means for advancement of knowledge and capacity.

All officers are expected to be diligent in their endeavour for the improvement of their own knowledge and capacity."—BARON SUYEMATSU.

"No nation can expect to be great that doth not make the profession of arms its principal honour, study, and occupation."—BACON.

"Such is the sway of your great men o'er little.

There was not now a luggage boy but sought Danger and spoil with ardour much increased; And why? Because a little odd old man. Stripped to his shirt, was come to lead the Van."

I T IS with no small hesitation that I presume to differ from any member of the Royal Navy whose records are the summary of the best qualities of our race, but I do venture to challenge the position laid down in his essay on "The Mind of the Fighting Man," by Commander E. H. Currey.

The present shortage of officers is the result, not of too much, but of too little devotion to Education.

The Greeks worshiped gods and goddesses of Wisdom, and of Knowledge, and of all branches of Science and Art, and especially of Poetry and History. Apollo, Minerva, Diana, and the Muses were the ancient representatives of our ideals of mental development, and of the ideals of Raleigh, Condé, Napoleon and Jackson, of Moltke and of the Arch-Duke Charles. Moloch, as represented in Biblical mythology, was the receptacle of the victims of ignorance and falsehood, and the votaries of Wisdom never disappeared into his maw. The Romans followed in

Greek footsteps, and in their shrines the forces and graces of Learning were adored, and their emperors and orators paid enormous fees to private instructors and philosophers. Even so the greatest Tartar and Mongolian heroes reckoned knowledge as above all things precious. At their worst they never sank so low as to hold a ball-player in higher esteem than a man of learning, or to think an eminent polo-player more illustrious than even a very third-class historian!

There is no analogy between the worship of Wisdom by a few in England and the forgetfulness of its voice which led so many foolish Israelites to such a doom as Moloch's maw. To say that Education is pursued with frenzy in England is to be very oblivious of the facts of the case. All experts, military and civil, with one voice declare that the Molochs of our race are sport, games, idleness, and ignorance. I have searched in vain through the annals of religion to find any prophets or preachers from Solomon to Marcus Aurelius, St. Thômas Aquinas or Calvin or Manning or Trench, who confounded Education with the basest forms of cruel idolatry.

We are as to Education inferior absolutely now, and relatively to our position a hundred years ago, to Germany and to the United States and Japan. The mass of independent gentlemen in these countries, and also of merchants and soldiers and farmers, are very much better educated than the average men of the same rank in England, and yet these states have produced since 1806 soldiers of prowess, reputation, education, and courage, inferior to none. Yet they deny that Moloch rules their realms, and that Education is his agent. On the contrary, they declare, and leading chiefs of each realm have written to me to prove, that Fredericksburg and Chancellorsville and Atlanta and Sadowa and Königgrätz and Mukden were won by the able and zealous schoolmaster—not by game players.

To the truth of this statement Lord Charles Beresford and Lord Roberts, Sir Ian Hamilton and Lord Wolseley, Capt. Mahan and Count von Moltke, Baron Suyematsu and General Kuropatkin have all testified. Where does the gallant Naval officer find testimony in his favor? What was his object in his essay on the "Mind of the Fighting Man"?

The fact that distinguished teachers and Knowledge are worse rewarded and have a lower status in England than jockeys or cricketers, than legal condottierri or unscrupulous political charlatan vote-catchers, seems to prove that Mammon and Moloch and that evil crew, "Peor and Baalim and Astaroth and Osiris and Anubis," are attracted by Cimmerian darkness, and "Night's Daughter Ignorance," and not by the dry light of Learning. If the candidates for Woolwich are few and unfit, it is because the methods of the Army Council and the Public Schools have "killed the germ of intelligence" and consecrated mental darkness and despicable aspirations among our youth, and that our richer classes are becoming more degraded and less cultivated than their ancestors of a hundred, or even fifty, years ago. This is proved by a visit to any private study, or by the perusal of any collection of private letters, and above all, by the reports of the Royal Colonial Institute. Has Commander Currey read General Lea's Valour of Ignorance?

I absolutely deny that any great masters of the art of war derived their skill from practice rather than from books. The few examples given by Commander Currey prove nothing. A very exceptionally great genius may have been independent of instruction and study, especially before the scientific conditions described by the gallant officer rendered able command without careful training impossible, and mere valour ridiculous. But I contend that the successful officers have usually owed their advancement to STUDY. Moreover, very few distinguished commanders could have learned the art of war in any great war; they learned, perforce, in time of peace, as opportunities for obtaining skill in great wars, fortunately for mankind, take place but seldom.

Except against savage or semi-civilized races, or in some revolutionary epoch, no general can practice his art in many real wars; he must learn to be fit for battle on the parade ground, at manœuvres, and above all, in the study.

"The Sovereign Good of Human Nature."

If we only imitated our greatest modern rivals, in the worship of Knowledge and search for Truth—the acquisition of which is the "sovereign good of human nature"—Commander

Currey's idol-god would soon again fall, not for the first time, from his brazen throne, as Milton sang in his immortal Ode—

"And sullen Moloch, fled,
Hath left in shadows dread
His burning idols, all of blackest hue:
In vain with cymbal's ring
They call the grisly king
In dismal dance about the furnace blue."

So much for theory, now for experience. If Education, military and civil, leads to the fires of Moloch, how is it that all the greatest and most successful leaders of men in war without exception were most ardent scholars, and never ceased to insist on study and cultivation of the mind by the aid of books and of able instructors? And the few great generals whose education had been comparatively neglected in their early youth, never ceased, like Blucher, to deplore the fact, and yet his education had never been so absolutely neglected as that of the average Eton boy of 17 years old at the present time.

Your correspondent compels me, reluctantly, for the twentieth time, to give examples from Military History to support my theory that, as Ruskin proved at Woolwich a generation ago, a sound, complete and all-round education is of more practical value to military than to any other leaders of men; and that the art of war is not learned during war any more than the art of medicine is learned by the patients' bedside. The trusted practitioner in both cases must be up to date in other men's theories and experience, as well as attentive to his own observations.

I need not pray in aid or appeal to ancient or mediæval history. It is well known that the greatest generals from Alexander to Mithridates, and from Cæsar to Antoninus, and from Richard Cœur de Lion to Edward I, Saladin and Timurlane, were very accomplished scholars and men who never relied on mere courage or ignored careful and thoughtful strategic plans before or after their decisive or hand-to-hand combats.

LEARNED SOLDIERS OF GENIUS.

Gustavus Adolphus was a splendid scholar, was well versed in several languages, patronized learning, endowed colleges, knew Xenophon's military writings thoroughly, and always carried during campaigns a copy of Grotius' De Jure et Belli ac

Frederick the Great, of Prussia, when a young man, before his father's death, never appeared in company till noon, though he rose early in the morning, as he devoted five or six hours daily to private and serious study.

Turenne, Michaud tells us, in his early youth made most complete studies in military history, and when he became a general all his campaigns were most carefully planned, no detail was too minute for his prescience, and he varied his schemes according to topographical conditions, the habitudes of his opponents and the character of their generals; regarding all of which he obtained accurate information betimes.

The Chevalier de Bauterre, a fellow-student of Bonaparte's at Brienne, wrote on the 10th July, 1797: "Buonaparte paid no regard to the study of Latin, and in consequence lost favor, but without ceasing he worked at history and fortification and attack and defense. I was in a position to observe the marvelous energy with which he reveled in research into military annals and the details of the lives of illustrious men. My young fellow-student, when I was on the library committee, wearied me by constant demand for books. For the rest his character was reserved and his delight was in solitude."

Napoleon wrote to his brother Joseph, King of Spain, from Mayence, the 1st August, 1813: "War is a business and must be learned like any other profession."

Napoleon wrote to Marshal Marmont, the 14th October, 1813, at Breitenfeld, from Rednitz: "I will send you an account of the battle fought by Gustavus Adolphus (in the early part of the seventeenth century) in positions similar to those which you occupy."

Napoleon said to Senator Roederer, the 11th February, 1809: "When the ignorance of a general causes the death of ten men when two would have sufficed, is not ignorance responsible for eight-tenths of the loss?"

When the ineptitude of officials and the impudence of bureaucrats cause the loss of 7,000 men when 1,000 would suffice, who is responsible?

Wellington tells us that he read regularly four hours a day from the date of the battle of Seringapatam, 1799, till Waterloo, 1815, and he was carefully taught at Angers by an eminent French instructor in the Art of War before he joined the Army.

Sir Charles Napier, the future conqueror of Scinde, after the close of the Peninsular War, went to study at the military college of Farnham, and said: "When a man attains a high position he feels keenly his want of information, but has no time for study. A general with an empty head cuts a sad figure." His brother William, the historian of the War in the Peninsula, kept him company. Sir Charles said to young officers: "By reading alone will you be distinguished."

M. de Bausset relates that when Napoleon was presiding over the Congress of Princes at Erfurth, 1808, he told the Prince Primate that when he had the honor of being a second lieutenant of artillery he was quartered with a good garrison library, and that he read every book in the library relating to the art of war three times over. He also said to General Caulaincourt: "Though I denied myself food when I was young in order to buy books, sometimes I was obliged to read at the shops of dealers in second-hand books."

Colonel Henderson says: "In the well-stocked library of the Lexington Institute Stonewall Jackson found every opportunity of increasing his professional knowledge. He was an untiring reader, and he read to learn. The wars of Napoleon were his constant study. He was an enthusiastic admirer of his genius; the swiftness, the daring and the energy of his movements appealed to his every instinct."

General Lee's educational position was so assured that before entering upon his career as one of the ablest generals of modern times he held the appointment of Assistant Superintendent of West Point Military Academy, then the best Army school in the world.

General Sherman, the devastator of Georgia, delighted in geographical and historical studies.

The Confederate generals were in the habit of referring, from memory, to Napoleon, Napier, and other authorities in their orders and dispatches, being well aware that all the West Point officers were versed in military lore, and, indeed, War

Office civilians were students of the art of war; for example, the Hon. L. T. Wigfall said, in the Senate, the 18th March, 1865: "General Hood asserts that a retreating army must lose more by straggling and desertion, if it does not fight, than it would in killed and wounded if it does. Napier differs from General Hood on this point. In discussing the losses of Massena in withdrawing from the lines of Torres Vedras, he says: 'It is unquestionable that'a retreating army should fight as little as possible.'"

Von Moltke said that the success or failure of a campaign depended mostly upon the preparations made for it, and the manner in which it was entered into; and not on what is acquired during its course.

He also ascribed the total failure of the French generals in 1870 to their numerous and easy successes against inferior enemies in Africa and elsewhere, for which honors, decorations and medals were showered upon them. They came to think themselves heaven-born leaders without taking the trouble to learn how to lead; they stepped into the campaign of 1870, full of bluster and self-confidence, with fond notions of a parade march to Berlin. They were encountered by the Germans, whose leaders ONE AND ALL DURING PEACE HAD MADE THEMSELVES MASTERS OF THE ART OF WAR BY INTENSE STUDY and yearly practice at maneuvers. The power of knowledge on one side, the weakness of ignorance on the other, soon worked out their natural results—so must it ever be.

PENINSULAR SCHOLARS.

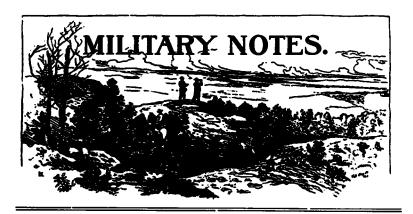
I have on my table before me the careers of twenty distinguished officers, friends and comrades of Wellington, and heroes of the Peninsular War. Every one of these worshiped Learning much more than the candidates for Sandhurst or Woolwich for the past ten years. Not one was sacrificed to the Moloch of Cricket and sport after the age of 15!

I have only space for a few: Sir John Moore was educated privately not only in the usual elements of a gentleman's education, but also in practical geometry; worked at Geneva and was taught Prussian drill at Brunswick. and yet joined our army at

the age of 15. Picton also studied at private tutors and had learned French and Spanish before 15. Leith and Beresford and others went to military private tutors in France, and could have taught the lads who are criticised in General A. Murray's reports. Hill, Cole, Pakenham, Pack and others were well educated by private tutors in Ireland.

Every one of these was far more liberally educated, including a course of belles lettres in most cases, than nine-tenths of Eton and Harrow boys are now, and none of them were game-playing or game-watching fools after the age of 16.

If my records and authorities be true, surely there are no undue sacrifices to any learned gods in our days, and Commander Currey's rhetoric is on a wrong tack!



THE CAVALRY EQUIPMENT BOARD.

A TTENTION is again invited to the work of this Board and the importance of complying with the request for suggestions from cavalry officers of experience.

In this connection, the following letters which have been furnished the President of the Board will be of interest to our readers and will, it is hoped, provoke further discussion of the points covered by them.

The headings and signatures are omitted, the latter by request.

In accordance with your suggestion, I beg to submit the following:

McClellan Saddle Tree.

By measuring the distance between vertical planes passing through rear ends of side bars of the saddles as regularly put on horses of Troop "G," 8th Cavalry, at Fort Yellowstone and the hip bones of the animals the average in inches was found to be six and one-half inches(*); the average distance between

similar planes for Troop "F," 8th Cavalry, at same station, using a eleven and half inch saddle so placed on each horse that the four fingers could be put between the front ends of side bars and the shoulder blade, was four and one-half inches. Possibly these two troops may have been a little larger than the average cavalry horses, but surely they were no larger, possibly not as large, as our cavalry horses should be. The inference drawn from these measurements is that we are not using as much bearing space on the horses' backs as is available. A considerable increase in the side bars is wholly practicable and would do much to eliminate sore backs. Larger seats would assist in eliminating abrasions among the riders.

In my opinion, the smallest seat should be twelve inches, following the present system of measurement. The greatest advantage of the extended side bars would be in keeping packs off the backbones of horses, especially of thin ones.

Spiders.

The present so-called automatic spiders, when once set, will not permit a change of bearing surface of the saddle. A simpler device has greater advantages. Eliminate the two unnecessary rectangular bronze spider holders at the tree and simply suspend the spider ring by two leather straps each with a buckle secured at the tree. By lengthening or shortening one of these we move the saddle slightly forward or backward as desired—a thing that cannot be done with the so-called automatic. If only one spider were provided with buckle this could also be done, but as these buckles are not inconvenient, and, as it might be necessary to considerably raise or lower the spider ring, it is considered better to have each spider adjustable. By eliminating the present system of spiders we avoid two extra thicknesses of leather at the ring—a most inconvenient place to interpose unnecessary leather, between the leg and blanket.

Hood (Tapidero).

This article has always been more of a fad than a utility—a fashion that was largely accentuated by contact with our Mexican neighbors.

^{*}This is approximately correct. I have not the exact data at hand.

Some officers pretend that it offers a great protection against cold in the North and against mesquite, etc., in the South. For extreme weather in the North the Quartermaster Department supplies such good foot gearing that no open covering not artificially heated could have any appreciable effect on the feet. As to protection against bushes everyone who has had any experience must know that his boots or shoes will support as much or more scratching than he should give the shoulders and legs of his horse. If one were to advocate protection of parts of the body by parts of the saddle equipment it would certainly be in order to have a soft piece of leather belonging to the saddle cover the knees from front to the rear in cold or rainy weather; and if this protective system were carried still further, shelter of the head against the sun would be in order. The fact that the cowboys from northern Montana to southern Arizona have practically all discarded the antiquated tapidero should be sufficiently decisive for us. Nothing connected with the appearance of a cavalry horse is so unsightly as these huge pieces of leather swinging below the animal's belly.

Stirrup.

There is no stirrup that takes less room nor is stronger than a metal one.

It should be of non-corrosive steel, ample in size, and with a fairly wide tread. By not cleaning the non-corrosive steel it will become so dim as not to be specially noticeable. In addition to strength and compactness such a stirrup will permit the rider to change his weight from the balls of his feet to the hollows—a very restful thing that cannot be done with the present system.

Stirrup Leathers.

They should be of good, strong leather with buckles such as are commercially used the world over, but with no refinement of crossing the leather to cause the stirrup to hang perpendicular to horse. That is wholly unnecessary. There should be strong safety bars.

Bridle.

Double headstall and reins such as are used everywhere. Eliminate square buckles and excess of them not only about the bridle, but also about the saddle; avoid also the unnecessary expense and inconvenience connected with the excessively long reins now issued. As single reins they are in the way and as double reins the inconvenience is increased.

Bit and Bridoon.

Such as are used by various cavalries and by practically everyone in the hunting field.

The bars should slide on the branches for obvious reasons.

The snaffle should be plain—without the increased rings, which are in the way; and the curb chain should be double and wide. It is understood that at one time a board reported against the sliding bar because it believed the lips were pinched between it and the branches. I have never been able with any of half a dozen in my possession to effect that, nor do I believe it possible with properly made bits.

Of six different kinds of non-corrosive metal the strongest I have thus far found is the next-to-steel furnished by Smith-Worthington & Co., New York.

Saddle Skirts.

Probably a short, light skirt would add comfort to the rider and save his breeches and blanket, but until the manner of carrying the rifle (or carbine) be determined I am unable to make any recommendations in this direction. With the present rifle under one leg and the saber under the other, it is folly to speak of leg aids for the cavalryman of average height.

Breast Strap.

If used, it should be plain. Many more horses than is generally supposed could wear this with advantage—thus permitting the excessive girthing to be done away with. Probably a 10 per cent issue might suffice.

Picket Pin and Lariat.

These are weighty and inconvenient. Besides, they make almost any pack unsightly and are too infrequently used to compensate for their disadvantages. Like the tapidero, they are carried many days for one possible day's service. The lariats are at times used for a temporary ground line, but even then the

horses could equally well be secured by the halters one to the other, as is the practice in pack trains.

As to picketing horses out, this is too rare to justify carrying the lariat at all times or the picket pin at all.

For emergency cases rope could be furnished detachments that might have opportunities of picketing horses. The picket pin and lariat should be classed as antiquated with the tapidero and hobbles.

Pistol.

Within my knowledge, there is no campaign nor battle that has been seriously influenced by this weapon.

There have been a few minor engagements wherein this firearm has been useful, but they could be repeated only under exceptional circumstances.

It is not practicable to so train the average man with his average horse as to get effective pistol firing results.

Probably something approximating our desires could be secured were we to select one or two troops per regiment from the total personnel and mounts. Even then it would be advisable to eliminate one of the other weapons.

For many years I had endeavored to make myself believe that the pistol was a component and useful part of the cavalryman's equipment. At present I have no qualms in denouncing it.

It simply is not possible to properly instruct the average man in one enlistment in the use of his four arms—horse, rifle, saber and pistol.

Moreover, I believe no man is at his best with any of his weapons when burdened with four. In fact, a man with full pack outnit and four weapons is nearly useless with any of them. The more he is incommoded the worse is his riding and consequently the more injurious his weight is to his overburdened mount.

If any officer doubt the shackled condition alluded to, I suggest that he try it. It is incredible that there should be under these circumstances the required buoyancy of spirit necessary to success in either man or beast. By all means let the pistol go. Some might claim that the pistol would be our only weapon for meeting cavalry armed with the lance. I would answer that

by saying the rifle (or carbine) held in one hand would be equally good or better for the first onslaught, after which the saber would be a match for the lance in close quarters.

Saber.

This weapon is always loaded and ready for use and is preeminently a cavalry arm.

I believe, however, it is not the best of its kind obtainable.

Regardless of instructions and drill, whether among officers or men, the normal use of the saber will be in striking and slashing rather than in thrusting. The theoretically correct method will give way to man's natural and involuntary tendency to strike. This arm should therefore be constructed chiefly with that end in view.

Rifle or Carbine.

Which shall it be, and how shall it be carried? These, it seems to me, are two of the most important questions that may be brought to cavalry officers in general and to the Equipment Board in particular.

I might say at the outset that few, if any, would be willing to sacrifice much in ballistic properties now or prospectively even to secure a weapon that could be carried with less inconvenience to man and less injury to beast. I also assume that by reason of led horses and loss in firing strength, due to holders, that cavalry will hardly be as strong as infantry.

On the other hand, superior mobility will give cavalry great advantage in selection of position, and will also permit it, with the assistance of its machine guns, to secure, hold and force positions that would be impossible for any other branch.

The principal question before us seems to be this: Can we afford to sacrifice anything whatever in ballistic value in consideration for the greater quickness and endurance that would inure to horses by reason of a better fitting pack?

And would a slightly diminished initial velocity, say 100 feet, really be a serious blow to dismounted fire?

It seems to me that if a lighter, shorter arm, approximately equally effective in fire action, can be secured, increased saving of horse flesh and therefore mobility demand a change.

If dismounted fires were our only duty or even outweighed all others, I would be most reluctant to suggest any change.

But reconnaissance, protection, raids and pursuit are peculiarly cavalry work, are highly important, and demand so much of the mounted force that a proper balance between them and dismounted fire must be sought.

Would we secure this balance by the adoption of an automatic carbine with an initial velocity of 2,600 feet, using a bullet of 150 grains—both of these results being entirely practicable?

Referring to your recent communication, in which you speak of the bed blankets, broken Pelham bit, etc., I beg to submit the following:

Bit.

While I have recommended the bit and bridoon it was not at all because I failed to value most highly the broken Pelham. It was simply because the former in skilled hands will suit a greater number of horses than the latter. On the other hand, the double metal and the increase of leather in the headstall are undoubted inconveniences that help offset the superiority of the bit and bridoon. Most horses can graze with the Pelham in the mouth, while very few can with the two bits. The convenience of bridling and unbridling and of fitting this bit with its curb to the horse should not be ignored. It sometimes requires considerable skill to fit the bit and bridoon so as not to pinch the lip; in fact, it is nearly impracticable to do this with some horses. On the other hand, the Pelham rarely, if ever, gives trouble in that direction. With green men and poor hands the chance of spoiling the horse's mouth is far less with the Pelham than with the other. The curb action of the bit and bridoon is more decided and quicker than the other, and therein lies the superiority of the double bit. In my stable both bits are continually used.

Perhaps the choice of these might be as follows: For skilled hands and higher education, the two bits; for less skilled hands and less skilled work, the broken Pelham.

NEW GERMAN CAVALRY FIRING REGULATIONS.

N EW Firing Regulations have recently been adopted for the cavalry of the German army. The following extract from a report of these Firing Regulations is from the Revue Militaire Suisse:

The new regulations attaches more and greater importance to dismounted action which is largely due to the introduction of a new carbine in the German army. This carbine is nearly equal in ballistic power to that issued to the infantry of their army, its bullet having an initial velocity of over 2,800 feet against that of not quite 1,900 feet of their former carbine.

This increased initial velocity is considered a point of vast importance as it allows the cavalry to fight infantry with a weapon which is nearly equal to that of the best rifle now in use in any army. Its precision, cone of dispersion, danger area and penetrating power are remarkable and will permit the cavalry to perform its duties far better than heretofore.

When the immense progress that has been made in the armament of cavalry since 1870 is considered, it will be seen that the sphere of cavalry operations has been greatly enlarged. Then only the dragoons, the hussars and some of the uhlans were armed with a passable carbine only, while the remainder were armed with a very poor pistol whose range was but a very few vards.

Now, that the whole of their cavalry is armed with a first class carbine, the precision of which is second to none, it goes without saying that it depends upon their training to develop the true value of this new weapon.

Their new regulations lays great stress on this point and that all their practice in aiming and musketry instruction must be carried out on the same lines as that adopted for the infantry. They, however, claim and lay great stress upon the fact that instruction in the use of the carbine is a secondary matter and that equitation should still hold the first place in their cavalry instruction.

A WARNING AND REPLY.

THE following are authentic copies of two historical letters which have been furnished by "An Officer Abroad." They are masterpieces of their kind and may prove of interest to our readers. It is said that there is a noted painting in St. Petersburg showing the conference of the Cossack officers at which the reply to the Turkish Sultan's letter was drafted.

LETTER OF TURKISH SULTAN MAHMD IV TO THE DON COSSACKS IN 1880.

I, Sultan, son of Mahomet, brother of the Sun and Moon, grandson and heir of the Almighty, owner of the kingdoms of Babylon, Macedonia and Jerusalem, of the Great and Smaller Egypt, king over kings, ruler over rulers, extraordinary knight invincible, constant keeper and protector of the tomb of Jesus Christ, guardian of God himself, hope and consolations of all Moslems, dread and great defender of Christians, I order you Cossacks of the Don to surrender and not bother me more with your raids.

Sultan of Turkey.

LETTER OF DON COSSACKS TO SULTAN OF TURKEY.

Now, Turkish devil, brother and comrade of the cursed Satan and secretary to Lucifer himself! What devilish Knight art thou? The devil throws out and will devour thy army. Thou will not be fit to have Christian sons under thy rule. We are not afraid of thy army and will beat on land and waters. Thou art a Babylonian cook, a Macedonian wheeler, a Jerusalem brewer, an Alexandrian goat, whipper of the Great and Small Egypt, swine keeper, an Armenian pig, a Tartarian devil, a robber of Fodohinsk, grandson of the devil, a pagan's forehead, the Devil take thee, so do the Cossacks name thee Pagan, thou are not fit to rule over faithful Christians. Date we know not, because we have no

calendar, the moon is in the sky, the year is in the same book and the day is the same in our land as in yours. Have a kiss from us—Halloh!

(Signed) The Ataman (chief) of the whole troop Ivan Sirkoinsh the whole Zaporojky Cossack troops.

VARIOUS NOTES.

MILITARY AEROSTATION IN GERMANY.

THE German military correspondent of the Revue Militaire Suisse reports that, in view of the many purely imaginative accounts which have been published of the work performed by military balloons at the last Imperial maneuvers, it is well to give what was actually effected. As a matter of fact, trials were made with only one dirigible, the "M II," as the "Gross II" is officially styled, and it goes without saying that it is not possible to consider this trial as in any way decisive. It is certainly not correct to affirm that the balloon contributed greatly to the strategic scouting of the cavalry and that it rendered any very great service to the commander of the "Blue" forces by transmitting to him continuous and very complete reports of the movements of the enemy.

What is true is that the dirigible did effectually cross the frontier of the "Red" army on the first day of the maneuvers in order to determine the direction of their line of march. It is also true that, after a short time, it met a strong gale accompanied by a great deal of rain, and that, after having one screw broken, it was obliged to come to the ground in the fields; and it was only on September 15, after having undergone necessary repairs, that it was able to resume flying, so that during the two most important days of the maneuvers it could render no service.

During the three days that followed, al! that can be said is that it was able to maneuver without coming to grief. However, it is fair to say that the dense fog which prevailed compelled it

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to maneuver at a low altitude in an attempt to see anything. Unfortunately, the very strict maneuver regulations, which were strictly observed by the umpires, insist on a balloon attaining an altitude of at least 1,300 meters before its reports can be admitted.

This altitude has been adopted as the minimum at which a balloon can be considered safe from the risk of being hit by projectiles and placed hors de combat. On the other hand, it is admitted that enough is not yet known as to the effect of fire on balloons to allow of laying down precise rules on the matter. It is therefore necessary to energetically protest against the assertion that the "M II" would have sustained grave injuries from the infantry and artillery fire. The trials that have been made up to the present time, on the contrary, show that rifle bullets do but little damage to the envelope of a balloon and, on the other hand, we do not yet know what will be the power of the guns which Krupp and Ehrhardt have constructed for use against balloons, as the trials have not yet been conclusive.

The ease and rapidity with which the "M II" disappeared in the mist when it seemed likely that some projectile might reach her must also be noted. Also that the wireless telegraph apparatus with which she was fitted worked perfectly well and that it was able to render service to the commander of the "Blue" forces.—Journal of the Royal Scrvice Institution.

A NEW AUTOMATIC GUN.

According to the Revista Militar, Japan has adopted an automatic gun for its army which has been given trials at their School of Musketry at Tvyama. This automatic rifle was invented by Major Nambu of the Japanese artillery and Captain Hino of their infantry.

It works similarly to a machine gun, but is much more simple and it can be carried by a soldier as he does an ordinary rifle without his movements being impeded. When the gun is fired, the breech block opens automatically, the cartridge case is ejected and a new cartridge inserted when the breech is closed. The trigger must be pulled to fire the succeeding shot.—United Service Magazine.

CAVALRY MANEUVERS IN THE JAPANESE ARMY.

Since the war in Manchuria, special maneuvers have been introduced in the Japanese army. In previous years the two independent cavalry brigades have taken part in them, several field batteries being attached to them. In addition to these two brigades, it had been intended that the third brigade, organized last May, should also take part this year, but it was found that the organization of the brigade was not sufficiently advanced to permit it to do so. The artillery consisted of four field batteries, in addition to two horse artillery batteries, an arm which until very recently has not existed in Japan, but the creation of which has been called for since the last war.

Out of the 78,429 men which were incorporated in the Japanese army last year, the cavalry received 3,940 recruits, a large increase over previous years. This is due to the recent increase in their cavalry of two independent brigades.—Revue de Cavalrie.

+ problems. +

After much consideration, the Executive Council of the Cavalry Association have determined to discontinue, for the present, at least, the publication of non-commissioned officers' problems.

The publication of these problems was started with the hope and expectation that the non-commissioned officers of cavalry would generally take an interest in them and that they would be an interesting and instructive feature of the Journal that would have a tendency to increase their interest in the Journal. Notwithstanding the fact that many solutions were received for the first problem, yet they came from but one organization of regular cavalry and from one of the cavalry of the National Guard.

Solutions for the second and third problems were received from the non-commissioned officers of but one organization, Troop III, Squadron "A," National Guard of New York.

+ Editor's Cable. +

PROPOSED AMENDMENTS TO OUR CONSTITUTION.

Amendments to the Constitution of the U. S. Cavalry Association have been regularly proposed, as required by Article XIII, of the Constitution of the Association, which have been published and sent to the regular active members for their votes on the same, such members only having the right to vote on proposed amendments to the Constitution.

These proposed changes are in brief, as follows:

FIRST.—To allow the officers and non-commissioned officers of cavalry of the organized militia of the several States and Territories and of the District of Columbia to become regular members, with all the rights and privileges of such.

SECOND.—To provide for a Vice-President of the Association for each post, where there are five or more officers of the regular army stationed, and for each State, Territory and the District of Columbia where there is cavalry belonging to the organized militia. The duties of such Vice-Presidents to be that of representing the Executive Council at their respective stations and in their respective States, etc.; to endeavor to keep alive and active the branch associations; to assist the Executive Council in organizing Branch Associations and to submit suggestions regarding the Association.

THIRD.—To provide for Branch Associations at the several posts where there are regular cavalry stationed and in each State, Territory and the District of Columbia having cavalry belonging to the organized militia.

FOURTH.—To dispense with annual dues for members of the Association; to provide for a nominal initiation fee for all new members and to require that all members shall be and remain subscribers to the JOURNAL of the Association at the regular prescribed rates.

This last proposed amendment was submitted in order to comply with the rulings of the Post Office Department which is to the effect that members of associations and societies are not entitled to have the publications of such organizations mailed to members at the second class rate of one cent per pound, but that such rates only apply to actual bona fide subscribers to such periodicals at the regular subscription price for the same.

The first three propositions are the result of a conference of the officers of cavalry at Fort Riley with the officers of cavalry of the organized militia that attended the course of instruction held at that post in July, last.

It is hoped that all of our regular active members will prepare their votes on the propositions and return them to the Secretary of the Association with the least possible delay in order to save the trouble and expense of sending out the ballots a second time in order to secure the required number of votes on the same.

There will be inserted in this number of the JOURNAL, blanks for sending in the proxies of all other members of the Association for the Annual Meeting to be held on January 16, 1911.

BETTER HORSES.

Anything that has a tendency to increase the interest of our mounted officers in better horses for themselves and the service in general is a direct and positive benefit in more ways than one. That this interest is growing and that we are getting better horses as officers' mounts and in the ranks there can be no doubt. Particularly is this the case since the establishment of the remount depots and the opportunities afforded by them in procuring suitable mounts by the mounted officers of our service.

Many of the racing clubs or associations are now giving cups or money as prizes for officers' chargers and troop horses and this with the additional fact that nearly all of the horse shows have classes for officers' mounts and jumping contests, have increased this interest to a no little extent.

The races of the Maryland United Hunts, which were held at the Pimlico track, near Baltimore, early in September, 1910, had three races which were for army mounts. The first was run on September 1, 1910, and was the "Officers' Army Service Flat Race." The conditions of the race were as follows:

"For horses four years old and upward: The property, unconditionally and free from contingency, of the U. S. Government or of officers of the U. S. Army. By subscription of \$5.00 each to the winner, with \$200.00 added, of which \$50.00 to the second and \$25.00 to the third. The rider of the winner to receive a piece of plate. Horses to be ridden by officers of the U. S. Army in drab service uniform."

The winners of this race were as follows:

Major W. M. Roberts's b. m. Sequence, 5 years, by Royal Flush III—Parthia, 151 pounds (Owner), 1.

Lieut. C. K. Rockwell's br. g. Matabon, aged, by Lamplighter—Lady Prim, 151 pounds (Owner), 2.

Lieut. W. J. Scott's blk. f. May Lee, 4 years, by Knight of the Thistle—Blanch Herman, 153 pounds (Lieut. E. M. Whiting), 3.

The second was run on September 3, 1910, and was styled the "Army Mounted Service Cup Race," offered by the Washington Jockey Club, and was under the following conditions:

"Purse of \$300.00 and cup for horses belonging to Troops and Batteries of the U. S. Cavalry and U. S. Field Artillery, serving in the Departments of the East and the Gulf, and to be ridden by enlisted men of these organizations. Twenty-five dollars to the rider of the winner; \$100.00 to the Troop or Battery fund of the winner; \$100.00 to the Athletic Fund of the Post of the winner. Fifteen dollars to the second horse, and \$30.00 to the Troop or Battery fund of the second horse. Ten dollars to the rider of the third horse and \$20.00 to the Troop or Battery fund of the third horse. The cup to be inscribed with the name of the winner, the name and rank of the rider and the Troop or Battery of the Regiment and to be held in the custody of the Troop or Battery for one year, when it shall again be competed for and finally to become the property of the Troop or Battery which shall win it for three years, not necessarily consecutive.

"Riders to wear olive drab service uniform with cap and horses to be equipped with regulation saddles and bridles."

The runners in this race were as follows:

Troop A, 15th Cavalry, Acme (37), blk. g. 12, Unknown, ridden by Corporal Thomas Kane, 161 pounds, 1.

Troop D, 15th Cavalry, Enis (75), blk. g. 10, Unknown, ridden by Private Charles A. Swinney, 161 pounds, 2.

Troop C, 15th Cavalry (68), ch. g. 12, Unknown, ridden by Corporal Edward Gosney, 160 pounds, 3.

Troop D, 15th Cavalry, Billy (58), b. g. 9, Unknown, ridden by Private Walter A. Bergman, 174 pounds, 4.

Battery E, 3rd Field Artillery, Randolph (67), b. g. 6, Unknown, ridden by Private Joseph Martin, 168 pounds, 5.

(Won in 1907 at Bennings, Washington, D. C., by Gregg, ridden by Saddler James G. Magrath, Troop "G," 13th Cavalry.)

The third was run on September 5, 1910, and was known as the "Officers' Army Service Steeplechase." The conditions for this race were:

"Four-year-olds and upward, the property unconditionally

and free from contingency, of the U. S. Government or officers of the U. S. Army. By subscription of \$5.00 each to the winner, with \$250.00 added, of which \$60.00 to the second and \$30.00 to the third.

"The riders of the three placed horses to receive a piece of plate. Horses to be ridden in service uniform by an officer of U. S. Army. About two miles."

The following were the winners in this race:

Major W. M. Roberts's b. m. Mingo, 5 years, by Margraviate-Push, 155 pounds (Owner), 1.

Lieut. E. M. Whiting's blk. g. Graustark, 5 years, Pedigree unknown, 155 pounds (Owner), 2.

Lieut. C. K. Rockwell's br. g. Matabon, aged, by Lamplighter-Lady Prim, 158 pounds (Owner), fell.

As has been noted heretofore, the Executive Council of the Cavalry Association has offered a cup for the best horse conforming to the requirements for officers' chargers exhibited at horse shows in Virginia during the season of 1910. A handsome and distinctive cavalry cup has been selected, from designs submitted by Black, Starr and Frost, to be given to the breeder of the winning horse in this competition.

It was expected and hoped that a photograph of this cup would be received in time for reproduction for this number of the CAVALRY JOURNAL, but in this we have been disappointed.

This cup was offered with the belief that it would tend to stimulate the breeding of satable horses for army mounts and thus, in a way, help the good work along that is now being done by the Quartermaster General, working in conjunction with the Department of Agriculture, in this line.

Photographs of the competing horses are to be furnished for publication in the JOURNAL, and this of itself will have a tendency to educate our younger officers as to what is considered the best horse for cavalry service.

In addition, the holding of horse shows, tournaments, etc., at army posts leads to the belief that the interest in better horses is growing.

A very successful horse show was held at Fort Leavenworth last year, and another is proposed for this year, to be held in the riding hall of the Army Service Schools on November 5, 1910. No charge is made for admission or for making entries for this show and the expenses are paid by the Fort Leavenworth Field Club. One gallery of the riding hall is reserved for the officers and their families and the other for enlisted men and their families.

For this show there are eleven classes, as follows:

1. Children's Riding Class. Required: Walk, trot and canter.



REGENT.

Doing four feet six inches.

- 2. Ladies' Driving Class. Required: Driving at walk and trot (or pace) around hall and between obstacles.
- 3. Officers' Riding Class. Required: Walk, trot and gallop and to jump four obstacles—brush hurdle, post and rail fence, board fence and a stone fence.
- 4. Ladies' Riding Class—side saddle. Required: Walk, trot (pace or singlefoot) and gallop.
 - 5. Officers' Chargers-private mounts. Required: Walk,

trot and gallop and inspection for conformation. Horse, 75 points; riding, 25 points.

- 6. Polo Ponies. Required: Running the wands, 25 points; mallet work, 25 points; execute figure eight at gallop, 25 points, and halting from full speed, 25 points.
- 7. Jumping Class for Officers. Required: Jumps to be the same as in Class 3.
- 8. Ladies' Riding Class—cross saddle. Required: Same as in Class 4.
- 9. High Jumping Class (Officers). Required: To clear a progressively raised bar. Horse jumping highest to win.



RAZZLE DAZZLE.

Doing four feet six inches.

10. Umbrella Race. Required: Contestants to start from a designated point, each carrying a number eight sewing needle, ride the length of the hall, dismount and hand the needle to a lady who will be in waiting with a thread. The lady will thread the needle and return it to the rider. She will then furnish him with a night shirt, which the rider must put on and button, a cigarette, which he must light and keep lit, and an umbrella, which he must open. The rider must then mount his horse and return to the starting point, thus equipped.

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11. Ye Knights of Old. Required: Combat in the lists and knightly encounters with lance and sword.

An account appeared in the last number of the CAVALRY JOURNAL of the tournament of military sports held at Fort Huachuca. Three photographs which were sent us to illustrate that article arrived too late for reproduction in that number. They are inserted here to show that some very good jumping may be done with troop horses.



PONTEL CANET - POLO PONT.

Doing four feet two inches.

As said before, all this tends to increase the interest in the army, especially in the mounted services in horsemanship and consequently in better horses for those services.

A recent communication from the Chief of Staff of the Army, now being published regarding the attendance of officers at military tournaments, will also have its effect in increasing this interest.

AEROPLANES IN WAR.

PROBABLY no single invention of modern times has attracted more general attention than has that of the aeroplane. These heavier-than-air machines have been so greatly improved and developed within the last two or three years that their use for sporting and exhibition purposes has become so general that their appearance at county fairs is no more a novelty.

Records as to distance flights and heights obtained are being broken daily, and predictions as to their future possibilities are freely made.

It is said that the improvements made in aeroplanes since the Wright Brothers first made successful flights have far exceeded those made in automobiles in the corresponding length of time after their first appearance as a practical machine. It is also claimed that still greater development, particularly as to their motive power, will be made in the near future and that far greater achievements as to length of flight, altitude gained and the number of passengers carried may be expected.

Particular interest has been taken in these machines by military men of all nations on account of their supposed possibilities as implements of warfare, and nearly every country of importance is investigating and experimenting with them.

Every country in Europe, with the possible exception of England, which, like our own country, is holding back on account of economical or other reasons, has invested large sums in the purchase of aeroplanes and several have established schools of instruction for observers and mechanicians. Particularly is this the case in France, that now has flocks of them and has instituted a separate corps for manipulating them. It is true that Germany has a predeliction for dirigibles, yet that country has not neglected the aeroplane entirely, and has a creditable number of them also.

The foreign military magazines are filled with articles and discussions as to the merits of these machines for war purposes, and numerous books have been written on the subject of aviation.

While some over-enthusiastic writers have exaggerated ideas as to the extent of their use in war and have made absurd predictions as to what they will accomplish, yet the most conservative of the foreign writers agree that these machines will prove useful for scouting purposes, to a more or less extent, depending upon the circumstances of weather, etc.

In a couple of instances these reckless writers have ventured to claim that when the aeroplane is more fully perfected and armies are supplied with trained observers for use with them, that the services of the expensive arm, cavalry, can be dispensed with and that these aeroplane corps will become the eyes and ears of an army.

On the other hand, several writers have advanced the idea that when the aeroplane becomes useful for scouting purposes, and they admit that this is so now to a certain extent, that their use will broaden the field of operations for cavalry. That these machines will be compelled to ascend to great heights in order to be safe from rifle and artillery fire and that, while their field of view will be greatly extended thereby, it would be impossible for even the best trained observer to gain more than a general idea of the enemy's movements; that it would be impossible for him to orient himself or the enemy exactly under such circumstances, and that it would be impracticable for him to make a serviceable sketch. For these reasons they claim that cavalry will still be required to confirm and develop the information obtained in a general way by the aeroplane observer and particularly to investigate and oppose the operations of the enemy so discovered. Especially will this be the case when the enemy is reported to be maneuvering on the flanks and at a distance or when raiding parties are reported as operating on our own flanks or rear.

As to their bomb dropping possibilities, one English writer states that he who believes that there is anything in it has only to go to a second story window and try to hit a shilling lying on the pavement by spitting at it, while at the same time some one is throwing stones at him from the street.

Regarding the subject of aeroplanes displacing cavalry, the following from "An Officer Abroad" may be of interest to our readers:

"Being far from home and without friends, I was much upset by picking up an American paper and reading the enclosed clipping. I do not want to be stranded in a foreign country and be out of a job if young Mr. Fichel's convictions turn out to be true. Thinking that this article might possibly have escaped your ever watchful eye, I am sending it to you."

The following is the clipping mentioned:

TO REPLACE CAVALRY.

UNITED STATES ARMY OFFICER PREDICTS BATTALION OF AEROPLANE SHARPSHOOTERS
IN NEAR FUTURE

New York, Aug. 24.—That a battalion of aeroplane sharp-shooters will take the place of cavalry in the army of the future is the conviction of Lieut. Joseph Fichel, U. S. A.,* who has been assigned by the war department to conduct a series of aeroplane experiments with Glenn Curtiss at Sheepshead Bay.

"My first flight," said Lieutenant Fichel in a preliminary report, "was to find out if it would be possible to aim a rifle from the air craft. I found it to be easier than when riding a horse.

"When I went up for the succeeding flights I had my rifle loaded with the regulation .30-caliber bullet. It was easy for me to sight the target in the middle of the field, and although I had to steady the rifle on one of the aeroplane supports it was not difficult to fire.

"Besides the actual shooting tests I am working on a table of figures on which to base the sighting and firing from the air. The completion of these tables will require six months' experiments. At present I believe it would be possible to shoot at a man from an altitude of 1,000 feet. The aeroplane sharpshooter would have the advantage of the shooting as it is well nigh impossible for the man on the ground to strike his opponent flying high.

"From a military standpoint the aeroplane is a most powerful machine for future wars."

^{*}The army list shows no such officer as Lieut. Joseph Fichel. Probably Lieut. Jacob E. Fickel, 29th Infantry, is meant, as it is understood that this officer has been making some experiments in this line.

ESPERANTO.

THE growth of the study and use of this international language has been phenomenal, there being now fifty nations in which it is being used more or less. We have learned that not a few officers of our army have become interested in the study of this language and to them the following may prove of interest.

The editor of "Amerika Esperantisto," a magazine of Esperanto published in Chicago, 700 East Fortieth Street, has recently sent us the following communication:

"Doubtless you have long ago formed your opinion as to the merits of Esperanto, the international language. I hope that it is favorable; but as there is much irresponsible criticism of Esperanto, especially on occasion of the recent international convention in Washington I want to offer an opportunity for every thinker to judge for himself. I have had prepared 100,000 brief grammars of the language in pamphlet form, and will send one free to any person who is sufficiently interested to ask for it, enclosing stamp for reply. I think it really due to this great movement for an international auxiliary language that you publish this letter, so that your readers may have the opportunity of judging for themselves."



WE have recently received from the U.S. Military Academy a "Classified List of Works on Military and Professional Subjects Recommended to the Graduating Class of the U.S. Military Academy" which has been prepared by a Board of Officers and which is a valuable compilation.

It was carefully prepared by expert officers, with the able assistance of Dr Holden, the Librarian of the Military Academy.

The list as published is classified under the several heads as follows: Administration, Tactics, Horses and Horsemanship, Art of War, Transportation and Supply, Signalling, Military Tropograhy, Military Engineering, Fortifications, Care of Troops, Ordnance, Coast Artillery, Law, Civil Engineering, River and Harbor Work, General History, Military History, Battles, Campaigns, etc., Military Biography and General Reference, Military and Non-Military.

Opposite the title of each book listed and under the headings of columns "Recommended for Officers of Infantry," of cavalry, of field artillery, of coast artillery or of Engineers are inserted "E" or "R," (Essential or Recommended), wherever the particular work is considered essential or simply recommended for the officers of the respective branches.

While it is impracticable to print this list in full, it being a pamphlet of sixteen pages, those books which are thought to be essential for cavalry officers and the more important of those recommended for them are given below:

ESSENTIAL.

Army Regulations, Field Service Regulations, Manual of Guard Duty, Firing Regulations, Cavalry Drill Regulations, Manual of Arms and Equipment-Cavalry, Engineer Field Manual, Manual for Courts-Martial and Federal Aid in Domestic Disturbances. These are all government publications.

Officer's Manual, Moss; Studies in Minor Tactics, Army School of the Line; Aids to Scouting, Baden-Powell; Art of Reconnaissance, Henderson; Cavalry in Action, P. S.; Modern Horsemnship, Anderson: Army Horse in Accident and Disease, Mounted Service School; Army Horseshoer, Mounted Service School; Notes on Equitation, Mounted Service School; Military Policy of the United States, Upton; Transportation of Troops and Material, Baker; Handling the Straight Army Ration and Baking Bread, Holbrook; Transmission of Military Information, Scriven; Individual and Combined Military Sketching, Cole & Stuart; Military Map Reading, Sherrill; Elements of Military Hygiene, Ashburn; Journal of the Military Service Institution and The Journal of the U. S. Cabalry Association.

RECOMMENDED.

Tactical Principles and Problems, Hanna; Letters on Applied Tactics, Griepenkerl-Barth's translation; Rifle in War, Eames; Letters on Cavalry, Prince Kraft Hohenlohe Ingelfingen; Suggestions to Military Riflemen, Whelen; Cavalay in Future Wars, von Bernhardi; Cavalry on Service, Pelet-Narbonne; Notes on Field Artillery, Spaulding; Horses, Saddles and Bridles, Carter; Diseases of the Horse, Government Publication; Breaking and Riding, Fillis; Points of the Horse, Hayes; Veterinary Notes for Horse Owners, Hayes; Operations of War, Hamley; Conduct of War, von der Goltz; Nation in Arms, von der Goltz; Valur of Ignorance, Lea; Applied Principles of Field Fortifications, Woodruff; Military Government and Martial Law, Birkhimer; Constitutional Law, Black; Criminal Law, Clark; and Law of Evidence, McKelvey.

The following works on Military History, Battles, Campaigns, etc., are also among those recommended: Battles and Leaders of the Civil War, Century; History of Cavalry, Denison; War and the World's Life, Maude: American Revolution, Fiske; Mexican War, Wilcox; The Yalu, Wa-fan-gou and Liao-Yan, German General Staff Official Account of the Russo-Japanese War; Campaign of Santiago de Cuba, Sargent; American Campaigns, Steele; War in South Africa, German General Staff Official Account; Times History of the War in South Africa, and The War With Spain, Lodge.

The following are the books on Military Biography recommended: Military Memoirs of a Confederate, Alexander; Cromwell as a Soldier, Baldock; Frederick The Great, Carlyle; Alexander, Dodge; Casar, Dodge; Gustavus Adolphus, Dodge; Hannibal, Dodge; Napoleon, Dodge; Grant's Memoirs; Stonewall Jackson, Henderson; Manassas to Appomatox, Longstreet; Sheridan's Memoirs; Sherman's Memoirs; Forty-six Years in the Army, Schofield; and General Lee, by Taylor.

While some may differ with the Board as to the selections made, especially as to the distinction made in some cases between those reported as essential and those that are simply recommended, yet it is a fine choice of books for the military student to have.

It is not understood why Dwyer's Seats and Saddles, etc., is recommended for officers of the Field Artillery only, nor why Carter's Horses, Saddles and Bridles is not entered as essential for cavalry officers to have.

To this list the Board would have undoubtedly added the following had they been in print at the time the list was prepared: Cavalry Tactics as Illustrated by the War of the Rebellion, by Captain Gray; Cavalry in War and Peace, by General von Bernhardi; Tactics, by Colonel Balck, translated from the German by Lieutenant Krueger; Sherrill's Military Topography, Map Reading and Military Sketching and The Schaho, German Official Account of the Russo-Japanese War.

A MONTHLY JOURNAL.

THE following extract from a letter received from one of our members who is also a capable writer of many articles, notes, etc., for the CAVALRY JOURNAL, is flattering and consoling to the managers of the Association and JOURNAL, the Executive Council:

"I have just received the CAVALRY JOURNAL for September, and read most of it. I want to congratulate you on this splendid number, for it is certainly full of most interesting and useful reading for all of us. In fact there is so much good reading in this number, as indeed there generally is in all of the numbers, that I wonder why you do not publish the JOURNAL monthly.

"Of course the reasons which guide you, economic and otherwise, escape me, but simply from the point of view of the one who reads the CAVALRY JOURNAL, it would appear that there is really more in each number, as at present issued, than is necessary to give a man in one dose; that if the JOURNAL should reach us every month with even one-half as much matter, it would be more carefully read and produce greater effect.

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"I simply suggest this as it has occurred to me. Doubtless that, for many reasons, my suggestion is not a practical one."

While the recommendation to give smaller doses and give them more frequently to our readers is in some respects a good one and has been fully discussed by the Executive Council, yet it has been deemed inadvisable to make the change.

Before the change from a quarterly to a bi-monthly was made, a year and a half ago, two of the former and most capable editors of the CAVALRY JOURNAL wrote that, in their opinion, the proposed change was a mistake. They believed that it would be found difficult to procure sufficient original articles for publication in the JOURNAL to keep it up to the usual standard and that it would be found necessary to pad with reprints, translations, etc.

To a certain extent their prediction has come true, as at times the outlook for original matter for forthcoming JOURNALS have been dismal indeed.

It is true that it was the intention, when the change from a quarterly was made, to reduce the size of the JOURNAL to about that of the other service journals but for some reason or other this has not been done. However, that is the intention still and when done, the dose will be at least smaller, and it is hoped will produce the effect suggested by our correspondent.

LONG DISTANCE OR ENDURANCE RIDES.

The extracts from the report of General Thomas appearing in this number of the CAVALRY JOURNAL, and a letter received not long since from one of our old time cavalry officers, has drawn the attention of the writer to the fact that he had long ago promised to prepare an account on this subject, particularly an account of a ride made by him in the Nez Perce Campaign in 1877.

With this end in view, much data, including several translations and reports of famous rides, has been gathered from various sources but as yet the time has never been found to put this material in shape for publication.

A long article on this subject appeared in the *Militaire Spectator*, of March, April and May, 1906, which gave accounts, more or less complete, of many long distance rides made by riders of all nations from the time of one made by Cæsarius, a Roman, in the year 700 B. C., down to those made in recent years from Berlin to Vienna and from Vienna to Berlin by officers of the German and Austrian armies.

From these and the other reports gathered, it is almost impossible to make comparisons as to the relative merits of the horses ridden, as so little is given as to the conditions under which the races or rides were made. In order to do this, it should be known whether or not the horses were conditioned for the ride and how; the condition of the roads and the weather; whether or not the horses could receive food and shelter regularly and the kind and quantity of the feed supplied.

It appears in some of the accounts that the horses were evidently stimulated or "doped" by the use of drugs or strong food, and especially in the races of recent years in Germany, France and Austria, molasses and sugar were regularly fed to the horses, generally with other food but sometimes mixed with the water given them.

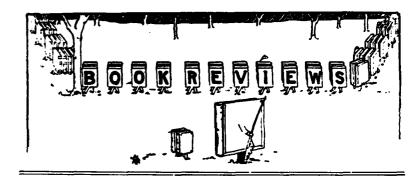
In nearly all of these noted rides, it was a test of the endurance of the horse alone, as but one was ridden, although in some it became a test of the endurance of the rider where two or more horses were used.

In some of these rides, the means used to keep the horse alive and going were brutal in the extreme and had a tendency to bring these rides into disrepute.

To be of any practical use to our officers of the mounted services, any account of such rides should give the condition of the horse and the method used to condition him; the gaits used; the halts made, and the care and feeding of the horse during the ride. What would be still more beneficial are accounts of marching commands in raids, on scouts, and when going to the relief of others where long distances are covered in a short time, by commands of various sizes.

Of course, in time of war or in such campaigns as we had on our plains in former years, it was often necessary for scouts and couriers to push their horses to the extreme limit of their endurance and often with little or no feed for the horse outside of what could be obtained by grazing during the brief halts.

It was hoped, and it is still the wish of the writer to obtain accounts of long distance rides made on the plains by officers and men of the army as well as by scouts and others for incorporation in the proposed article. It is, therefore, earnestly requested that any one having knowledge of such rides, particularly those of our older cavalry officers who served on the plains, will communicate the particulars of the same to the Editor of the CAVALRY JOURNAL.



Cavalry If you want to know what our cavalry can do and Tactics.* has done, get this book. It is most valuable and is unique in its conception of the way to treat the subject of cavalry tactics.

The author has carefully selected from the Rebellion Records, personal memoirs of commanders, etc., the most reliable testimony as to the use that was actually made of cavairy under the varying circumstances of the Civil War. No attempt has been made to write a connected story. In place of so doing, the author has collected his facts in some 500 extracts, numbered serially and indexed. In each case the authority for the statement is given.

In the margin opposite each extract is a short note giving the substance of the extract, together with a statement of the battle and date to which it refers.

^{*&}quot;Cavalry Tactics as Illustrated by the War of the Rebellion." Part I. By Captain Alonzo Gray, Fourteenth U. S. Cavalry. Published by the U. S. Cavalry Association, Fort Leavenworth, Kansas. Bound in cloth, price \$1.50, postpaid.

⁽For the convenience of those who may wish to bind the succeeding Part II (to be issued later) with Part I, the book may be procured in paper binding for \$1.25, postpaid.)

BOOK REVIEWS.

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The extracts have been carefully collected under the subheads under which they naturally fall, such as:

"Arms and Their Uses-Revolver vs. Saber."

"Security and Information."

"Transportation of Supplies."

"Animals-Care, Endurance and Diseases."

Each set of extracts is followed by a short comment, pointing out the principle of modern tactics illustrated or violated.

The work gives examples of all possible uses of cavalry, from the charge of saber against saber to the attack of a gunboat or of a semi-permanent fort with eight-foot relief and a ditch fifteen feet wide.

In a short review it is not possible to even mention all of the points that are brought out and illustrated. A few additional ones to those already mentioned are:

Brief resumé of the organization and armament of our cavalry from its beginning till the present time.

Illustrations of the relative value under varying circumstances of the lance, carbine, revolver and saber, showing that each has its advantages and disadvantages and the circumstances under which each will have the advantage or be under a disadvantage. These illustrations are numerous and exceedingly instructive. They do not lead to a conclusion in favor of any one arm, but show that each has its place and exactly what this place is relative to the others.

Numerous examples of the following expedients are given:

Use of carbine mounted.

Charges in column of fours.

Charges in line of fours.

Mounted reserve on each flank when using dismounted action.

Mounted charge of small units to assist an infantry attack.

Mounted skirmishers to cover the formation for a charge.

A few of the shorter extracts are here given to show their character:

Extract No. 47.—Such was the momentum Momentum of the Federal charge, that one of their horses, wilson's Baid, striking squarely against the wheel of a piece, April 1, 1885. broke every spoke and split his own breast open. (Campaign of Forrest, etc., p. 667.)

Extract No. 55.— Devin, with his gallant Cut seems to be brigade, burst like a storm of case shot in their thrust.

Opequan Creek, midst, showering blows on their heads and shoulders, Sept. 19, 1894.

trampling them under his horses feet and routing them in droves in every direction. (Merritt in Reb. Records, Vol. 43, Part I, p. 444.)

Extract No. 80.—Wilson, with McIntosh's Cavalry catches infantry inacasion brigade leading, made a gallant charge through where it cau't deather the long cañon, and meeting the advance of its successfully. Ramsen's rebel infantry division, drove it back Sept. 19. 1864. and captured the earth works at the mouth of the cañon. (Sheridan's Report, Reb. Records, Vol. 43, Part I, p. 47.)

This book will give the reader a far more clear and complete understanding of the whole subject of cavalry tactics than any work yet published. It does not theorize—it states the facts. If you desire to learn more about the exact situation covered by any extract you are told where to go to find the original.

The author has in mind the writing of a second volume which shall be a complete cavalry study, and the combining of the two volumes in a single work. For the benefit of those who will later desire the complete work, the first volume has been printed in paper covers, so that it can be bound uniformly with the second volume or combined with it in a single volume.

I advise every cavalryman to get this book at once, and I believe that those of other branches of the service who purchase the book will be glad that they did so.

With it the cavalryman can strengthen his own belief and be able to convince others that "modern cavalry can do anything if it is properly trained." ELTINGE.

Troop Leading and Sanitary Service,*

This is a study, essentially in two parts, covering the movements of a division for a march toward the enemy, the resulting engagement, and the dispositions made for the

pursuit after the enemy is defeated, each portion of the study in the handling of the line troops being immediately followed by a study in detail of what the sanitary service did to meet, sometimes to anticipate, the requirements arising from the movements of the other troops. The study as far as concerns all but the sanitary service is by Major J. F. Morrison, General Staff, whose reputation throughout the service is a sufficient guarantee of its tactical excellence. The study as concerns the sanitary service is by Major E. L. Munson, Medical Corps, also well and favorably known to all of us, both personally and through his writings. In this work Major Munson has taken up a line of work never before attempted in English. The many and varied situations that will confront the sanitary service in war are brought about in a perfectly natural way, correct and reasonable dispositions are made to meet them, and it is shown why these dispositions are made. In each case that arises he clearly shows the interdependence that exists between the fighting troops and the sanitary service and illustrates how they should work together in team work for the good of the whole division.

As the title indicates, the work is a study in troop leading that gets down to the minor details of all the work of the division, not hesitating to devote considerable space to the work of a section or platoon when these fractions are performing duty which is in any way different from that of all such fractions as part of a higher command.

The book has already been accepted and adopted by the Surgeon General of the Army and the Surgeon General of the Navy for study by the officers of their respective Corps.

DRINK ALSTA BOTTLED BEER. "THE CHOICEST PRODUCT OF THE BREWER'S ART."

^{*&}quot;A Study in Troop Leading and Management of the Sanitary Service in War." By Major John F. Morrison, General Staff, U. S. Army, Senior Instructor Department of Military Art and Assistant Commandant Army Service Schools, and Major Edward L. Munson, Medical Corps, U. S. Army, Senior Instructor Department Care of Troops, Army Service Schools. Approved by the Surgeon General U. S. Army and published by authority of the War Department. 1910. U. S. Cavalry Association Agent. Price \$1.25.



We can furnish back numbers of the CAVALRY JOURNAL. Also complete sets of the JOURNAL bound as desired.

Copies of CAVALRY JOURNAL No. 47 desired.



In active campaign every line officer would need to know of what the various sanitary units consist, how much road space and camp space they require, where and how they may be found during an action, what they can and will do for the line troops which they serve, how long it may reasonably be expected to take them to perform such service, what dispositions the line commander, whatever his rank, should make of his sanitary units and the interdependent relation that exists between the line commander and his medical adviser, in order that the sanitary service may be able to efficiently serve the fighting troops, thereby enabling them to exert their full fighting strength.

This book does not deal in glittering generalities; it gets right down to particular cases and covers, by examples, a wide range of conditions. The book is printed in good type on good paper and comes in three bindings, viz., paper, khaki cloth and limp leather.

Every officer of the mobile army should make haste to familiarize himself with this study, which contains professional information that is necessary to him and that can, so far as I know, be found nowhere else. I do not think that any officer will regret having added this book to his library.

Medical Service

in direction of the Surgeon General of the
Campaign.*

Army and published by authority of the
War Department, Major Straub has done a
most valuable service not only for army medical officers, but for
officers of the line as well.

He covers a variety of subjects which are of fundamental practical importance in relation to the work and tactical use of the Medical Department in the field, and gives in condensed form a large amount of information with which every officer in the army should be familiar, but which has previously been so scattered through the literature as to have practically been unavailable to those most interested and concerned.

^{*&}quot;Medical Service in Campaign" by Major Paul F. Straub, Medical Corps (General Staff), U. S. Army. 1910. P. Blakiston's Sons, 1012 Walnut St., Philadelphia. Price \$1.50 net.

The author has long made a special study of the subject and is eminently well qualified to prepare such a guide as the one in question. The treatment of the subject is thoroughly practical, and the writer has very wisely handled it from the standpoint of general principles to be adapted to varying special tactical conditions and has not fallen into the error of attempting to lay down fixed and inflexible rules. The general scope of the book is indicated by the subjects listed in its table of contents, as follows: Preparation for field service; orders; map reading; weapons; efficiency of cover; battle casualties; transportation; sanitary organization for war; administration; battle dispositions; sanitary service with the regiment; dressing stations; field hospitals; stations for slightly wounded; sanitary service of the line of communications.

No elaborate sanitary organization being necessary for service with such small forces as are ordinarily found together under our military system in peace, there has been too much of a tendency on the part of both our line and medical officers to overlook the fact that a very large and complex sanitary organization is an absolutely essential component of such large forces as must compose a modern army in war. The tactical management of its sanitary units has also been generally disregarded, though, of course, of essential importance not only to the efficient internal administration of the Medical Department, but also in relation to the tactical handling of the combatant forces.

These matters are well considered and clearly explained in the book in question. They deserve careful study by line officers, who cannot properly disregard the sanitary service in connection with tactical problems having to do with any considerable number of men. And both line and medical officers will find much of great value therein in relation to the internal economy and administration of the various sanitary establishments which must accompany fighting troops.

The book is very attractively got up in a convenient pocket size volume, with limp leather cover and gilt edges. Typographically, also, it leaves nothing to be desired.

It is not too much to say that it should be in every library which makes any pretense at covering the elements of a military

education and should be available to every officer who has to do with the tactical handling of troops or the disposition of the disabled.

EDWARD L. MUNSON,

Major, Medical Corps.

Map Maneuvers and Tatical Rides.*

The large and increasing call for Captain Sayre's book, entitled "Map Maneuvers," made it necessary to reprint the work, former editions of which were exhausted.

In this 3d Edition Captain Sayre has changed the title, carefully revised and rewritten the greater part of the book, and added about forty pages of new matter, a portion of which deals with "tactical rides" (or walks), of which there is no other simple and practical discussion in English.

The method of giving instruction to younger officers, noncommissioned officers and the militia by these tactical rides is continually growing in favor in our service, so that the addition of this portion is most timely.

The chapter relating to maps not only explains the function of the map in map maneuvers, but it gives detailed descriptions of the principal war game maps that can be procured in this or foreign countries, and tells where they may be procured and the price.

The discussion of war game and maneuver problems has been rewritten and contains a number of suggestions which will be found useful to officers preparing problems either as map exercises or for field maneuvers.

Many officers believe that the one-sided map maneuver is superior to the two-sided for the giving of instruction. This phase of the subject is fully illustrated in the new edition.

Captain Sayre's book was originally intended for use at the Army Service Schools, but since map maneuvers have been taken up by the militia of many states, and, in consequence of recent

^{*}Map Maneuvers and Tactical Rides. By Farrand Sayre, Captain and Adjutant Eighth Cavalry. Formerly Instructor Department of Military Art, Army Service Schools. 1910. The Army Service Schools Press, Fort Leavenworth. Kansas. Price 75 cents.

orders from the War Department, are to be taken up by postgraduate schools throughout the army, its sphere should be greatly enlarged and it should be greatly appreciated by and find a large sale among those who are taking up the exercises for the first time. Those of wider experience who are likely to be called upon to devise problems for or act as directors of map maneuvers will find many useful suggestions in the book.

Manchurian

Battle-Fields.*

College in India, made an official visit to the Manchurian battlefields in 1907, and while there made panoramic sketches of all points of historical importance. This book consists of a reproduction of these sketches, each accompanied by a sketch map showing actual distances and relative location, while the panoramic sketches show how the terrain appears to the eye. This book will be found invaluable by all who undertake a critical study of the Russo-Japanese War. It is a necessary adjunct to any good history of that war. There is no text in the book except a few short paragraphs, supplementing the panoramic sketches, which give a word picture of the terrain.

Field Service

Regulations.†

This book takes each paragraph of the new British Field Service Regulations and gives a synopsis of its most important provision.

It is intended as an aid to one who desires to pass an examination on these regulations after a careful study of the original. It has no value whatever for the American army officer. E.

Napoleon's A concise history of Napoleon's European Campaigns written by one who ap-European Campaign,* pears to know his history well. Each battle is illustrated by a sketch map showing the general character of the terrain and the relative positions of the opposing troops, while the salient features of the battle are covered by a few pages of text. The work is much too condensed for use in serious study of Napoleon's campaigns, but it will serve admirably to give one sufficient knowledge to enable him to talk intelligently about them without serious study; to permit him to coordinate among the rest a particular campagn under study; to supplement works that are without maps or those, like Bourrienne, which deal more with the court scandal than with military movements; or to serve as a guide to a general review after a critical study of the campaigns by bringing to mind all he knows and showing what he has forgotten.

Journal. We have received for notice a copy of the first number of the second volume of the Journal of the Leinster Regiment.

This is a monthly magazine of a semi-military nature which is well gotten up and finely illustrated. By being of a semi-military magazine, it is meant that it contains several articles that in no way relate to military matters although of interest to general readers, military as well as others. This refers to such articles as "Derby Day," "The Rubaiyat of a Bachelor," a poem; "From Liverpool to Lokoja," etc.

Among the military articles are the following: "A Trip Through Siberia to the Battle-fields of Manchuria;" "The Strategic Value of Ireland;" "On War Correspondents;" "Leinster Battle Series;" "The Storming of Fort Niagara;" "The Battle of Liao-Yan;" "The Law Relating to War on Land;" etc.

In so far as we know, this is the only magazine published by a regiment, and a very creditable one it is.

^{*&}quot;Sketches of Manchurian Battle-Fields." With a verbal description of Southern Manchuria. An aid to the study of the Russo-Japanese War. By Major A. I. R. Glasfurd, Indian Army. Hugh Rees, Ltd., London. Price 8s. 6d., net.

^{†&}quot;Synopsis of the Field Service Regulations." By Captain M. Muirhead. Gale and Polden, Ltd., London. Price 1s. 6d., net.

^{*&}quot;Napoleon's European Campaigns." By Captain F. W. O. Maycock, D. S. O. Gale and Polden, London. Price 5s., net.

Dublisher's Motices.

ARMY OFFICERS' RACES.

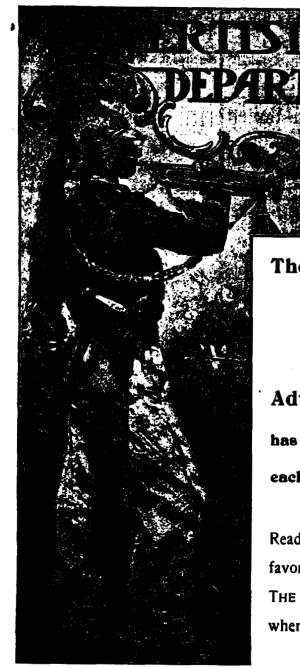
The recent successful running of races open to officers of the army, and the interest in this class of racing shown by the officers and the public at the late meetings of the clubs at Baltimore and Saratoga, has induced the United Hunts Racing Association to offer two races for army officers under similar conditions, at their race meeting to be held at Belmont Park Terminal, Queens, L. I., on election day, Tuesday, November 8th, and the Saturday following, November 12th.

The flat race is confined to horses owned by officers and the steeplechase, of about two miles, is open to horses owned by the government or officers of the U.S.A. In both races the horses must be ridden by officers.

In addition to the value of the purse to the winner, the winner will also receive a handsome silver cup in commemoration of the win. Officers should not overlook the opportunity to win one of these cups, and those desiring to make entries should address the United Hunts Racing Association, 571 Fifth Avenue, New York.

The well known firm of S. N. Meyer - Meyer's Military Shop -of Washington, D. C., appears as one of our advertisers in this number of the CAVALRY JOURNAL for the first time. This firm deals not only in military trimmings of all kinds but also in novelties of various classes, such as military pins and emblems, class pins, flags, designs, etc., etc.

This firm has long been favorably known to officers stationed in Washington, and we bespeak for them a liberal patronage from the service at large.



The

Cavalry Journal

Advertiser has grown with each issue.

Readers will confer a favor if they mention THE CAVALRY JOURNAL when they write.

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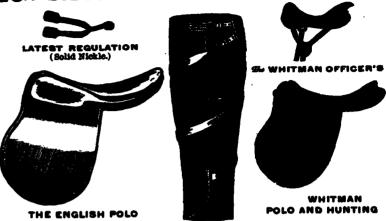
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