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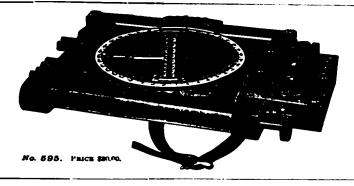
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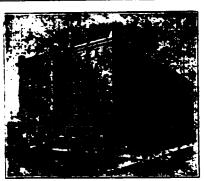
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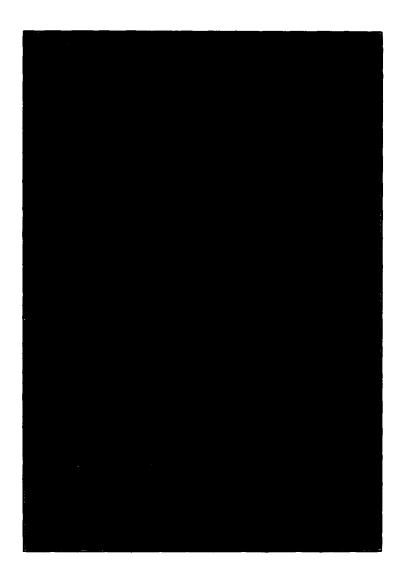
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JOURNAL

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United States Cavalry Association.

Vol. XX.

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No. 76.

VOLUNTEER CAVALRY.* THE LESSON OF A DECADE.

BY A VOLUNTEER CAVALRYMAN.

THE SABRE.

WE may say without boasting that at the close of the great civil war in America the armament and training of our volunteer cavalry on both sides were more practical and efficient than those of any regular cavalry in Europe.

If in drill and personal appearance many a crack regiment of the latter could surpass them, in a week's real hard campaigning over any country at haphazard, one of our regiments could have marched all around their opponents, decimating them without loss to themselves. Under the system of raids our cavalry, with a battery of flying artillery to each brigade, put the whole country in terror for a distance that would require a whole army

^{*}This article first appeared in the Army and Navy Journal as a series of papers in 1871 and was reprinted in book form by its author, Frederick Whittaker. Second Lieutenant and Brevet Captain Sixth New York Volunteer Cavalry. A copy of this book has been sent us by one of our members, a cavalry officer who is a student and a judge of good cavalry literature, with the recommendation that it be republished. Of it he says: "Herewith is a very rare and valuable little work by one who served in the Federal Cavalry during the Civil War, who was a keen observer, and who set down his observations before time had effaced them from his memory. There is one copy in the War Department library, and by having a search made in New York 'old-book-shops' I secured this copy for \$3.50."

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to influence in Europe. Infantry and artillery of equal force wedespised. The mobile and elastic dismounted skirmish line with artillery supports was far superior in destructiveness to the infantry line of battle, on account of its rapidity and dash.

This is the bright side of the picture. I expose the dark with the greater readiness now because the fault is easily remedied in the future, and if so done, our cavalry would then be the best in the world.

The fault is this:

Had one of our cavalry regiments been put into a level plain with no arms but sabres, opposed to a like force of European heavy cavalry, especially cuirassiers, they would in all probability have been routed. With lancers opposed to them in the same manner their defeat would have also been nearly certain. Deprived of fire-arms, our cavalry would have been overthrown.

The fact is an unpalatable one to an American cavalry officer, and many will utterly deny it from esprit de corps and national vanity. But a fact it is, and both the reason and the remedy are simple.

The reason was that our men had little or no confidence with the sabre. The reason of that again was that they were never taught to use it properly. The ultimate reason of all—our system of sabre exercise, as laid down in the tactics, is radically bad, and our men never fenced together.

The remedy is as simple as the reason. Introduce a good system and make your men fence constantly. Then American cavalry will be second to none other, heavy or light.

During the war many officers contracted a positive prejudice against the use of the sabre, and in some regiments, mostly Confederate, it was entirely laid aside, all charging being done with the pistol. But, so far as the author's observation goes, he never remembers an instance in which a sabre charge, resolutely pushed, failed to drive the pistols. But the individual fancy of a colonel generally regulated the matter for his regiment. If he were an enthusiastic swordsman he always managed to infuse the same spirit into his men, and such regiments depended on their sabres with just confidence. But very few colonels on either side were swordsmen. The sabre is a weapon that requires constant practice to keep one's hand in, and our cavalry

officers, as a class, are entirely deficient in that practice. Hence the contempt for the sabre inculcated by a class of men who simply could not handle it.

Many officers now advocate the pistol for a charging weapon in preference to the sabre. They insist that a pistol shot kills, when a sabre cut only wounds. We have heard officers openly avow the sabre to be uscless. In one regiment it was publicly boasted in the writer's hearing, that they never yet had drawn a sabre in the charge, and never would charge with anything but pistols. The slight effect of sabre cuts is noticed by cavalry officers on both sides. Several who have written their own adventures have mentioned it in their books, and have been quoted in their turn by the cavalry compilers.

But in all the instances during the war, in which the sabre proved ineffective, it may safely be asserted that it was owing to two things—want of fencing practice and blunt sabres.

The latter cause, as much as the former, conduced to this want of confidence in the sabre. The men shrunk from using a weapon with which they never had encountered a foe, and they knew also that the said weapons would not cut.

It is a strange fact, that after all that has been said and written about sharp sabres, by every one who has written on the subject of cavalry, they still remain, in every service known, as blunt as ever.

Nolan constantly insists that "a sharp sabre will cut in any one's hand." De Brack remarks: "Surtout conserves le fil de votre sabre, comme celui de votre rasoir."

Red tape at the head of affairs remains stolidly impenetrable. Sabres are issued blunt enough to ride on to San Francisco. The steel is hard. Grindstones are not to be found. The soldiers lose confidence in the weapon, and prefer the revolver.

Now if the War Department would simply require in all future contracts for sabres that they should be delivered, each sharp enough to cut a sheet of paper, by striking the paper on the sword lightly, the American cavalry of the future would be revolutionized.

If whetstones were furnished the men, or what are called scythe-rifles, a sabre issued sharp would be kept sharp. But as it is, the men cannot get them sharp. The writer has stood at • 628

some hair off his bare arm. This shows to what keenness of edge our own weapons might be brought. No mysterious Damascus blades, but the familiar Solingen sabre, which is adver-

VOLUNTEER CAVALRY.

tized daily in every military gazette; and we have no doubt that the Ames blades, from Chicopee, Mass., could be brought to an

equally fine edge with care.

Now for the performances of these weapons:

On one occasion a wild boar at bay created much trouble for Baker's party. He charged a German servant, who awaited his attack, and got knocked over by the animal, and put in imminent danger of his life. At this juncture, "Abou Do leaned over from his horse and let his sword drop over the hog's back. nearly dividing the animal in half."

On another occasion, chasing a rhinoceros, it gets into the bushes after a hard race, but, just as it has almost gained the cover, "Taher Shereef sprang almost out of the saddle, and made a blow. A gash nearly two feet in length appeared in the rhinoceros's quarter." etc.

We quote from memory; but the verbiage is the only inaccuracy.

The facts are as stated.

Taher Shereef, with a single blow, cut deep enough into the colossal leg of an old elephant to divide the tough back sinew and hamstring the animal, who bled to death in ten minutes, the artery being divided; and, in the Arab fights, men are quite frequently cut in two at the waist, Baker informs us.

If our men had weapons like that, which they might have without expense, almost, we should have no more of "useless sabres." A sabre should be kept as sharp as a razor. No halfway ought to be allowed. It can be done, and it ought to be enforced. Fancy our men armed with razors three feet long! What ghastly wounds they could inflict on an enemy, the very first fight, when every accidental slash would open a gash a foot long; and how shy any enemy would fight of such men, if in other respects well armed and horsed.

In the cavalry of the future, these "three-foot razors," if ever a man is found to introduce them, will be the greatest innovation of modern warfare since gunpowder.

But the greatest cause of the superiority of the sabre will be in its moral effect.

a grindstone turned by steam, and tried to grind an Ames sabre for over an hour. He can testify that it is hard, the hardest kind of work. But if ground while in soft temper, at the factory, the hardening temper subsequently received would leave them sharp still, and easily kept so.

And there is no fear but that the men, with very little looking after, would keep them so. Soldiers are fond and proud of good weapons, and take good care of them. All men are apt to be vain of bodily strength and skill. It gives a man a braver feeling to cut down an adversary than to shoot him. and by just so much as he trusts to his sword, his morale will be raised.

That the sword may be made a murderous weapon when sharp we have no need to quote Nolan.

A more recent book, unconnected with military science, and therefore unwarped by prejudice, gives testimony on this point, convincing to any one.

Sir Samuel Baker, the bold traveler, who discovered the ultimate source of the mysterious Nile, so long sought in vain, has published a book of his adventures on the Blue Nile and its tributaries of Abyssinia, in which he gives a full account of the Hamran Arabs of that region, who hunt all kinds of game, from the elephant to the wild boar or antelope, with no other weapon but the simple sabre.

Three or four of them combined are sufficient to kill the most vicious male elephant, if they catch him in the open. They hesitate not to attack the lion in the same way, and with equal success, if he, too, is caught in the open.

Their swords are Solingen blades, made in Germany, and quite common in the United States as officers' swords. It costs a poor Hamran half a life's labor to buy a new one, and they are handed down from father to son as heirlooms. It is their fancy to have them straight and cross-hilted, unlike the equally keen Damascus scimitar.

But the remarkable fact about these swords is their wonderful cutting power. This cutting power arises simply from their being kept sharp as razors literally.

Sir Samuel Baker says that the Arab's first care after a march is to draw his sword and strap it to and fro on his leathern shield. He never rests satisfied till with it he can shave

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Morale becomes more and more every day the secret of modern warfare. Every new weapon which is invented if good for anything is immensely exaggerated in its moral effect. The needle-gun has frightened ten men off the field for every one it has killed, because it was reported to be far better than it was. Its effects at close quarters and in the open field were awful. At long ranges and in wood skirmishing the muzzle-loader could have held its own besides shooting stronger. But the moral effect of the needle-gun scared away the Austrian jagers. Get a man well scared and give him a thirty-shot repeating rifle and a dozen revolvers, and he'll run like a hare from old Brown Bess in the hands of his moral superior.

VOLUNTEER CAVALRY.

A good sound thrashing, whatever the weapons used, leaves a greater respect for them in the mind of the thrashed party. I have heard men armed with breech-loaders talk longingly of the advantages of the muzzle-loading long Enfield rifle, because that rifle had been the instrument of their, thrashing the day before.

Now the moral effect of a charge is tremendous. The fierce charging yell, rising and swelling higher and higher till it overtops the sound of musketry, frightens more men than the bullets. Very, very few troops will stand up against a charge unsupported by works; we might say none. One side or the other is sure to give way, not from the force of weapons, but simply because they're afraid. And anything which encourages men to charge home doubles their morale, and morale is everything.

It was morale, which, after the first victory at Woerth, gained by overwhelming numbers (about four to one on the field), made the subsequent Prussian successes so much easier to gain over the French in 1870. In that battle the celebrated Zouaves were forced into a complete rout, for the first time in their history. That corps had, up to that day, been considered the most desperate fighters in all Europe, and practically invincible. They really were so, in any ordinary circumstances. Their morale made them twice as formidable as they really were. But, under the shock of numbers absolutely impossible for human beings to stand up against, they were routed at last. The spell was broken, and with it the heart of the Zouave. His morale was shaken to dissolution, and with it sunk the morale

of the whole French army. The men who could conquer their unparalleled Zouaves must be devils incarnate. So the French troops became easier to defeat every day, as bad generalship completed the wreck of their morale.

And as theirs fell, so rose their adversaries. This is always the case. A scared enemy, after the loss of one battle, is half beaten before he enters the next; and the attacking party, in nine battles out of ten, is the victor.

So with our cavalry of the future. Give them a weapon which they know to be irresistible at close quarters, and they will be only too anxious to charge. A charging regiment with "three-foot razors" will not lose half as many men as its opponent, the "pistol chargers." Half the pistol shots are thrown away, fired from a galloping horse at a galloping horseman who passes like a flash. Mixed up in a melee the pistol chargers will soon learn to give a wide berth to the "razor bearers"; and to do so they must run. Now a runner soon gets demoralized.

It may be said—I have heard it triumphantly instanced by an officer on the "pistol side"—that the revolver men may run away before the others, and then turn on them with their pistols as soon as the swordsmen halt to rally to the recall. Instances of the sort had occurred in that officer's knowledge, which had given him that opinion. He had seen a regiment so served. But the sabre charge was not pushed in real earnest, and the men had no confidence in their weapons. Had each man carried a sword, with which he knew he could cut his enemy in half at the waist with a good backhander, the revolver-armed enemy would not have escaped, so "gayly laughing," as the narrator said. The moral effect of those "three-foot-razors" would have kept them at very long shots, and a cavalry charge become a thing far more dreaded than it is now.

We have entered into this question fully, as its importance demands, without boring the reader with a long list of instances. It is a subject on which we contend that grave misapprehension exists. We have good sabres, excellent steel. The mere enforcement of what every cavalry officer must admit to be a good rule would at once work a revolution in the cavalry of the future. doubling its morale.

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THE REVOLVER.

Without any doubt the introduction of the revolver into cavalry service has doubled the destructive power of the latter; and of all revolvers introduced the old "Colt's" is by far the best. It shoots straight. No other revolver that I am acquainted with is sighted with the precision of Colt's. Many others shoot as strong, some stronger. Many are loaded with much more facility and more easily cleaned. But the fact remains that, for active service, Colt's revolver will be adjudged the best pistol extant by any and every officer or man who has had to stake his life on his weapons. The reason is this: Screw a Colt's revolver into a vise, with the two sights in line with an object, and when you pull the trigger the ball will go exactly where it is aimed. All six bullets can be put into the same hole. With no revolver that we have ever seen, other than Colt's, can this be done. Smith & Wesson's, Dean & Adams's, etc., all are nice looking revolvers, easy to clean, easy to load, shooting strongin all respects but one better than Colt's. But the one excellence of delicate and correct sighting has overbalanced all these other claims and rendered Colt's primus inter parcs.

It is a strange thing that gunsmiths and inventors appear to entirely overlook this fact of precision. Revolvers and pistols are advertised daily, whose simplicity, ease of loading, and penetration are duly vaunted to the public. Civilians buy them and keep them for possible burglars. It's all they're good for. Their sighting is simply nil.

What good is a strong-shooting, quick-loading pistol to a man if he does not know where his bullet will fetch up when he points it at a mark? The inexorable logic of experience teaches soldiers, sailors, hunters, and desperadoes, North and South, that they can rely on a Colt's pistol when a Smith & Wesson's, etc., will "shoot all over."

You must keep cool in loading a Colt's revolver. The weapon is a valuable one and requires as much care as a watch. Neglected, it becomes as useless as a blunt sabre, refuses to revolve, misses fire, and misbehaves itself generally. Arm a lot of greenhorns with it, and they will render it useless in six weeks. Give it to men who know its value and they will do wonders with it. In the hands of the Southern cavalry the revolver became their pet and pride. The terrible use to which it was put in broken ground, at close quarters, by Mosby's troopers doubled its real efficiency by its moral strength. Our future cavalry will do well to accept the lesson taught by this fact.

The true use of the revolver lies in irregular warfare, where single combats and sudden encounters of small parties take place, on horseback, in narrow lanes, among woods and fences, where the sabre cannot be used. In such places, and wherever regular order is broken up, the revolver is invaluable. In pursuits, patrols, and surprises it is superior to the sabre. In line charges in the field the latter is always conqueror if it is sharp.

The use of the revolver should be as carefully taught as that of the sabre. Ammunition, to practice with, is not thrown away here. The weapon should be inspected every day by company officers, as none gets out of order so soon if neglected.

But one thing should be impressed upon every man—never to try long shots when on horseback. This is the way ammunition is wasted. Target shooting may be made very instructive and useful, as men soon grow proud of proficiency in pistol shooting and improve from emulation.

For loading Colt's revolvers a powder-flask and bullets are much better than compressed cartridges. The latter have hardly any strength. I have seen pistols burst in firing a second shot from their use. The first bullet struck in the barrel midway, the powder not being strong enough to expel it fully. The second burst the pistol.

Copper cartridges, with fulminating powder inserted, are better than either. The Remington pistol uses these; but I have not seen any of Colt's pattern arranged for the same purpose. If they ever are, the pistol will be nearly perfect, as copper cartridges are waterproof, and stronger shooting than loose powder.*

The revolver on the right hip should have a cord fastened to it a yard long. The men should be practised in firing at a

^{*}The latest patterns of Remington revolvers are well-sighted and shoot well; as, using copper cartridges, they are preferable even to Colt's.

target when passing at speed, and then dropping the pistol on the opposite side, to use the cord while they handle the sabre.

Thus employed at the very instant before closing, the pistol is a terrible adjunct of the sabre. In the second part of this book the necessary drill will be given to practise this charge, the sabre in the left hand, or held between the teeth.

But in this matter the men must be taught never to fire before the word. The moral effect of a reserved volley is tremendous. Irregular file firing during an advance is both useless
and demoralizing. Patience under fire makes veterans so formidable. Their reserved volley sweeps everything before it.
Thirty or forty feet from the enemy's line is the time to fire, all
together and aiming low. Then the reserve of cold steel will
come with double the efficacy, real and moral, and no cavalry, be
they heavy or light, cuirassiers or lancers, that does not follow
the same system, can stand against your own line.

CARBINES.

With regard to the best weapon for dismounted men it is hard to decide. I have seen several different carbines, all good in their way. The Spencer carbine was latterly in very general use, superseding Sharp's. There was but little to choose between them. I have fired as many rounds in the course of twenty minutes out of Sharp's as out of Spencer's. The latter fires seven rounds pretty rapidly, but it takes some time to reload. The Henry rifle, or sixteen-shooter, is a magnificent weapon. quickly loaded, and firing as quick as a Colt's revolver. It is also very accurate. Colt's rifle, although very expensive, is, I am inclined to think, as good or better than any, in the hands of men who are cool and know how to use it. The six shots are fired more rapidly and far more accurately than by any other piece extant, but the loading must be done without flurrying. It is a poor weapon to give to green troops on this account. A simple breech-loader that requires no capping, is probably the best weapon for volunteer cavalry troops. We have seen one called Howard's rifle, or the "thunder-bolt," that excels in simplicity and lightness any carbine hitherto used in war. The cavalry carbine of this pattern weighs only six pounds, and loads and primes with only three motions; the two ordinary lever motions of Sharp's and Spencer's, and dropping in the cartridge. It cocks itself in loading, and has no external hammer to catch in dresses and let off the piece.

But, the weapon being selected, the men to use it are the real point of importance. The whole difference in action between green troops and veterans lies only in coolness, not courage. The difference in campaigning lies in the art of making yourself comfortable under any and all circumstances; rain or shine, winter or summer. We shall have more to say upon this in its proper place.

DISMOUNTED FIGHTING.

European cavalry officers and the world at large have no conception of the extent to which dismounted fighting was used in the American civil war and the perfection attained in it by our men after very little practice. The instructions therefor are to be found in our cavalry tactics of 1840, which are based mainly on the old French tactics. It will thus be seen that the idea is an old one. But the extent to which it was carried was purely an American innovation. Our country being much covered with woods, mounted fighting is often impracticable. But to men accustomed to fighting on foot no country is difficult. The rapidity exhibited in going into action by dismounted cavalry is marvellous, and the simplicity and adaptability of the system admirable.

In two minutes from the word, "prepare to fight on foot," a line of three-fourths of the men is formed, who go to the front at a run; while the column of horses led by the "number four" out of each set is moved off to the rear, out of danger of stray bullets.

The dash and impetuosity of a dismounted skirmish line is far beyond that of an infantry force of equal numbers. The men come into action perfectly fresh. It is a positive relief to get out of the saddle after a long day's riding. All of the fighting is done at a quick run. You could not get an infantry line to move so fast. They know well that if they tire themselves out running they will pay for it on the march. But the cavalryman is not fatigued. He has no knapsack to weigh him down. His sabre was left on his saddle. He fights alto-

gether on a skirmish line and can do much damage without suffering proportionately. The destructive strength of that thin, elastic line of skirmishers is amazing. A small force can hold a very large area. A large force is practically impossible to turn. Ten thousand cavalry, such as the cavalry corps of the Army of the Potomac once possessed, would form a line of battle from three to five miles long. Thin as was the line, woe betide the enemy that massed heavy forces to pierce it! The experiment was tried on both sides, and always to be repented of. The skirmish line would give back in one place only to advance in another. The enemy, overwhelmed by a cross-fire from a semicircle of invisible foes, finally fell back in every instance with heavy loss. The only way to drive a skirmish line is to flank it and threaten the led horses; and to do that requires superior force and a very wide-awake leader. And when, after fighting for two or three hours and driving the enemy at a quick run, till the men are fagged out and a success gained, the open ground appears beyond the woods in which the action has been fought. The enemy have retired and it becomes necessary to pursue. In such a case the infantry is powerless to press the enemy sufficiently; but just in the nick of time up come the horses in columns of fours by the roads. The skirmish line is called in and mounted. The men, tired with running, can still ride as rapidly as ever. The horses have been resting and are able to press on. So that we combine the advantages of both infantry and cavalry.

In covering a retreat dismounted cavalry are equally serviceable. Men who know that their retreat is quite secure at a minute's notice will defend a position far more stubbornly than in any other case. Occupying the edge of a wood, the line of a fence, any obstacle which affords a shelter, our skirmishers will hold on to the last minute, firing on the advancing enemy till they know that every gun and wagon is out of danger, and then suddenly breaking, silently and swiftly run to their horses, away over the open ground till another defensive position is reached, when the same game is repeated.

In such cases, to cover their retreat, a mounted line of skirmishers is always stationed behind, whose imposing attitude awes the enemy for a brief space, long enough for the foot-

men to get away in safety, when the recall brings in the horse-men.

I have seen this mode of fighting so often in both aspects that it has grown to be an old story. Its efficacy is great, and it is adaptable to any ground generally deemed "impracticable for cavalry." We knew no such ground in the U. S. Volunteer Cavalry.

Open fields were fought on mounted. Our line of battle in corps front was always formed in the one way. Each brigade detached one of its regiments to cover its whole front, often half a mile long, with a chain of skirmishers. Two more regiments followed behind each wing, at about two hundred yards apart, in line, with sabres drawn. The rest of the brigade formed a third line in column of fours.

There was plenty of room to manœuvre our guns, which took advantage of every hill to fire a few rounds. Advancing or retreating, this order was alike pliable and useful. It covered an immense front, and its supports were easily shifted. The brigades averaged four regiments, some five. On open ground, such as in central Virginia, around Brandy Station, the mounted fighting was of the most inspiriting, romantic, and thoroughly delightful kind, as also in the open fields of the lower valley of the Shenandoah. These were the only places where sabre charges were possible, and several times we shared in their wild intoxication. Glorious days were those, and green to the memory of those who shared in them in the fall of 1863 in that delightful climate.

Whenever woods intervened the mounted skirmish line was dismounted, each squadron officer attending to his own squadron, and the woods cleared on foot. When the ground opened again four legs superseded two.

SAVING AMMUNITION.

But there was one lesson which might have been learned in the war, which yet was not. Neither side seemed to give it a thought; and it was reserved for the sober, philosophic German, to teach it to us in 1870. This lesson, the most valuable of all, is how to save your ammunition.

General von Moltke, to whose genius the brilliant results

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of the campaigns of Sadowa and Sedan are owing, is the first man in high place who has had the wisdom to profit by experience in this matter.

The saving of ammunition, if ever fully carried out in modern warfare, will be found to be the greatest revolution since Leopold of Dessau introduced the iron ramrod.

The fault of wasting it is the crying sin of modern armies. It is the commonest thing in the world to see officers on the line of battle encouraging their men to waste ammunition. "Fire away, boys!" "Give 'em hell!" "That's it!" "Give it to 'em!" is the shout of almost every excited man on the skirmish line; and the officers, having no rifles, do nothing but yell to the men to fire faster.

What is the consequence? Ninety-nine bullets out of a hundred fired in action are fired at random. A dismounted man goes on the line with twenty rounds in his box, and perhaps forty or sixty more crammed in his pockets. The line fights for an hour and a half; and at the end of that time the cry arises, "Fall back!" "We're out of ammunition!"

Men who have never been in the ranks may scout the idea I am about to advance; but I am convinced that, in nine cases out of ten, an officer of dismounted cavalry fighting on foot would do well to borrow a carbine and sling from one of the horse-holders, instead of taking a sabre with him. In every dismounted skirmish line I have seen, the less company officers interfered with it the better it got on. The best officers on a skirmish line I remember always borrowed a carbine to use; and the men followed them. Sword-armed officers are too apt to get behind the line, and shout to men to "go on," instead of being well up with them. An officer taking a carbine, and carrying only a few rounds of ammunition, will better realize the necessity of saving it.

If a prize were offered to the man who should maintain his post on the skirmish line, and bring out by the end of the campaign the largest average number of cartridges in each battle, I am fully convinced that the regiment adopting such a system would kill more enemies and be twice as much dreaded as under the random system.

But, as in the case of sharp sabres, before mentioned, al-

though everybody admits the truth, practically it is set at naught. It is well enough to deplore the waste, but no one seems to try to remedy it, or at least no one did till Von Moltke. What he has done by his reform the world knows.

If every general officer in our service would enjoin upon his brigadiers to enforce the saving of ammunition upon their different regiments, the gain in efficiency would be enormous. The moral effect of an army which reserves its fire till sure of its aim is something wonderful, whether in attack or defence: and the corresponding weakness of an enemy which begins to fire at long ranges is equally marked.

If regiments drawing the smallest quantity of ammunition, and still holding their position, were praised in general orders, the emulation would be, we are convinced, productive of unmixed good. Forty rounds of ammunition ought to be enough for any cavalry skirmisher, if he fights from daylight till dark; and a regiment announcing itself "out of ammunition" in the thick of a fight ought to be severely censured in brigade, division, and corps orders, even while ammunition was supplied.

I write from practical experience. I lay on the skirmish line at Cold Harbor in June, 1864, when infantry and cavalry attacked us for several hours. I knew well that, during all that time, I could not get rid of more than twenty shots, aimed at anything certain. Bullets were flying about, but they were fired at random. A knot of cool hands lay on the ground near me, each by his little pile of rails; and a shot about once in a minute, with a long steady aim at the puffs of the enemy's smoke, was all we could manage conscientiously. At the same time a terrible firing was going on at our right, as if a corps of infantry were engaged; and then, the first thing we knew, men were falling back there "out of ammunition."

Again and again, have I seen the same thing—men reserving their fire, coming to the rescue of the squanderers, to be reproached by those squanderers for having "done nothing, while we were fighting superior numbers." A beaten man always has an excuse.

But these "out-of-ammunition" fellows have often got better men into grave peril, by falling back, and thus leaving a gap for the enemy to occupy. I have seen the whole of a brigade

forced into a retreat, and the loss of many prisoners, from the failure of a single regiment in this manner. It was at Trevillyan Station, near Gordonsville, Virginia, we fighting on foot, and before we were aware of it, a force of the enemy was in our rear, and firing into the led horses. Only the approach of darkness saved many of us, myself in the number, from capture, and I lost my horse and had to foot it until I captured another.

ORGANIZATION.

We have taken our lesson from the late war as to the arms of the cavalry of the future. Let us take also our profit from it in regard to organization.

In the United States any war that comes upon us, if of any magnitude, is sure to find us unprepared. It is the nature of our people that it should be so. They are impatient of all standing armies beyond a police force for the Indians. Our cavalry of the future will have to be hastily raised and put in service like our cavalry of the past, without many weeks for drill. Let us, in that possible future, follow the example of the South in the war, and organize our cavalry from men owning their own horses, whether in town or country.

The advantages of this system were remarkably illustrated during the War of the Rebellion. At its inception the Southern cavalry were far superior to that of the North. Born in a country where roads were bad, and wheeled vehicles, except heavy wagons and old lumbering stage-coaches, almost unknown, the Southerners as a rule made all their excursions for business or pleasure on horseback. As a consequence the poor riders were the exception, good riders the rule, among high and low.

In the North the rule was reversed. Buggies were and are the rule, riders the exception. Thus it will be seen that a nation of good riders started with a great advantage over those who, as a nation, considered the horse as a driving machine, to be hauled at with both hands.

The consequence was as might be expected. In the first year of the war the Southern cavalry displayed a marked superiority. On horseback they felt at home, while the green levies from the North were in a strange and uncomfortable position.

The Northern cavalry were well armed at that period, as far as revolvers went; the Southerners, many of them, carried

only double-barrelled fowling pieces with buck-shot.

And yet that first year was fruitful of instances where whole squadrons of the Northern cavalry were taken prisoners. The second year of the war passed away, with the Northern cavalry still in the slough of despond, but slowly improving. In the third year they suddenly came out and beat their old masters. The Southerners had taught them how to fight on horses, and they had learned to ride in the best of all schools, the rough and ready school of active service.

In the last two years of the war the superiority of the Northern horse over that of the Confederates became almost as marked as that of the Confederates had been in the beginning. It is true that no batches of prisoners were taken without resistance, but that was because we had old soldiers to deal with, not green recruits. But in the years 1863 and 1864 the Confederate cavalry slowly waned as ours rose in lustre. Morgan was taken; so was Gilmore. Stewart was killed, the flower of Southern chivalry. To the old Southern cavalry leaders none were found to succeed worthy to emulate their deeds. Even Moseby's ubiquitous band became less and less formidable daily. Our cavalry saw the day when it was able to outmarch and outfight that terrible horse, before whose far-reaching raids the whole Army had once trembled.

One cause of this change was the falling off of horses in the South, by which their cavalry became weaker in numbers. But, more than the weakness in numbers, it compelled the Southern cavalry leaders to be cautious and husband horses that could not be replaced. A cautious cavalry soon becomes over-cautious, timid for the safety of its horses; and timidity of action is the bane of success.

But all the good in the United States cavalry at the close of the war was originally owing to the teaching of their adversaries. Men inspired by sectional vanity and esprit de corps, may feel disposed to deny this. The impartial observer of future times will confess it, and also admit that the pupils finally beat their masters.

Good cavalry is the most valuable species of troops. Take two generals of equal capacity, with fifty thousand men each. Let one have nothing but infantry and artillery, the other nothing but cavalry and its proportion of batteries. The cavalry general in one week's campaign shall do what he pleases with the other, cutting his communications, harassing his pickets, starving him out, and keeping the field with impunity, when his antagonist is forced to retreat to his fortifications and ships. Even a due proportion of cavalry will do wonders toward the success of a campaign. The war of the Rebellion is full of such instances. Stuart's cavalry at the commencement of the war, Sheridan's at the close of it, each in its way, was the instrument with which the respective commanders-in-chief won their most important strategic victories.

In fact, the whole of the disasters of McClellan and Pope in 1862 might have been averted had we possessed cavalry. But, practically, we had none. What there was was scattered among corps and division infantry commanders, who knew nothing of its use, and who heartily disliked it. The infantry men sneered at it, and the universal opinion was that cavalry was useless except for outposts and orderly duty—in fact, to look at the enemy and run away. But in that, as in many other things, the enemy taught us a valuable lesson. By experimental proof it was knocked into the head of our wise leaders that cavalry was good for something. Stuart's raids and charges, Morgan's rapid successes in the West, showed that the enemy knew how to use cavalry.

And so at last our cavalry was gathered together from its places of contempt, and banded together in one corps as it should be. Its progress from that moment was positively marvellous. Not a disaster befell the cavalry of the Army of the Potomac from the day that it was first drawn into the cavalry corps. It went on from victory to victory.

The progress of the North and South during the war affords material for many valuable lessons for our American cavalry of the future. Our early disasters, the South's early successes arose from opposite modes of recruitment. Their cavalry owned their own horses from the first. Ours did not.

A man who owns his own horse generally knows something about riding him. If he's a poor countryman he's quite certain to. So that you start with such a man with a great advantage. You don't have to teach him how to take care of a horse. All

he has to learn is military riding, the combination of hand and leg. He soon learns this. The sabre he is only too eager to learn. If there is a good instructor, who can convince the most skeptical of the value of swordsmanship by a few smart raps with the single stick, your men will be practising in season and out of season. It is surprising in how short a time intelligent, able-bodied men will become fair swordsmen. Countrymen, too, who own a horse, have generally a gun somewhere, and are pretty fair shots—a second requisite for a modern cavalryman.

The South started with these advantages in their cavalry service.

Our troopers, on the other hand, came from anywhere and everywhere, and so did the horses. Some knew how to ride, others did not. Many were townsmen, and had never had a gun in their hands.

Prudence would have dictated drilling these men carefully before sending them into the field, and especially teaching them to ride.

The practice was to let them lie in barracks, here, there, and everywhere, drilling on foot, and with no arms but sabres. Threats of disbandment were constantly kept over their heads, and desertions were frequent. Then at last, all in a hurry, horses and revolvers were issued, and the whole regiment marched to the front next day, armed with weapons that they knew to be useless in the woods against carbines. The consequence was that men put on picket with revolvers became demoralized when they found themselves picked off at leisure by long-range carbines. They were ready for a stampede at the first opportunity.

I remember well in 1862, when the regiment to which I belonged was still in its green stage, coming across the Third Indiana Cavalry, recruited on the Southern plan. It was already good cavalry, though no longer in the service than ourselves, and made for itself a splendid reputation even while attached to an infantry corps. Every man owned his own horse, and, as a consequence, took care of him. In the last four words, italicised, lies the difference between good and bad cavalry.

The defects of the system of men owning their own horses are easily remedied. They should not be accepted into the service, unless the Government recruiting officer judges horse and

man to be sound, and capable of active campaigning. Doctors are appointed to examine the men; now veterinary surgeons should examine the horses.

And in order to combine the excellencies of the remount depots with those of the quickly-raised volunteers the horses should be replaced to the men in case of wounds, or breaking down, as they are in ordinary cases in an ordinary regiment.

We are convinced that this plan is the only one by which America can supply herself with abundant cavalry in future wars, at the least possible expense, and with the greatest efficiency in the shortest time. Infantry and rifles are quickly raised, and, in the hands of old officers, soon become tolerable soldiers. It requires far less training now to make an infantry man than in the martinet days of Frederic the Great. But cavalry has always taken a long time to bring to anything like efficiency, except in the instances where it has been composed of farmers and hunters owning their own horses.

Starting on a basis of good natural riders, it takes no more time to drill than infantry. In the instances of the Southern cavalry it attained a marvellous efficiency in six months. In India, moreover, the irregular native cavalry, which is raised on the same plan, each man furnishing his horse and arms, has for many years been considered the best of its kind in the world.

Any scheme of military service which requires long drilling and costly preparation is eminently unfitted for the United States. The only regular forces we have at present capable of sudden expansion are our artillery regiments. Every other species of troops we shall have to raise hurriedly in any future war. Is it wise to neglect the teachings of our last contest and court a renewal of the same humiliations and defeats as marked the years 1861 and 1862?

The American intellect proved itself capable then, like the Roman of old, of learning how to conquer from a victorious enemy. But the Roman kept his lesson in his heart and used it in his next war. And we are forgetting ours already.

The salvation of our country in the future lies in a good militia system rigidly enforced. The powers of such a system have been exemplified by Prussia in her late wars, and by little Switzerland, for three hundred years or more.

It is not that militia regiments are good for much, in themselves, in actual warfare, but they supply a raw material for, soldiers already decently drilled. A very little camp and picket duty will soon turn such men into soldiers, and volunteer regiments can be raised like magic from among the old militia organizations.

If a rigid militia system were enforced among all owners of horses, high and low, compelling each man to become a militia cavalry soldier, or furnish a substitute, the raw material for excellent cavalry would be found plentiful in time of war. In the country every farmer would send a man who could ride to training, and even in the cities, the very places where you would last expect to find the materials for cavalry, they exist in numbers little thought of.

It is not the tailors and shoemakers, the factory workmen and clerks. These poor fellows go into the cavalry willingly enough, and are as useful as dummies for a couple of years. It is the hackmen, the omnibus drivers, grocers, and bakers, the hundreds on hundreds of men who own horses for business, the express companies and car monopolies, and last but not least, the rich men who keep horses for pleasure, that ought to be made to do military service, as in the Middle Ages.

At present in the single city of New York there are probably forty or fifty thousand horses in active employment, and yet the whole milita cavalry of the city is comprised in one slender brigade, that never turns out over three hundred strong, and what does turn out is a "holy show." The men who own horses seldom join, and the cavalry men hire their horses from the livery stables for a day's parade. Is it any wonder that they form a ridiculous and pitiful exhibition? And yet even this small nucleus became useful in the war, and produced from its ranks that excellent cavalry officer, Brevet Major-General Thomas C. Devin. Under a better system the North might have turned out as good cavalry as the South at the beginning; but as it was, the riders were all in the infantry, and the cavalry was raised too late to avert many a crushing defeat.

Let us change all this in the future. This is not the place to propose a detailed and specific system; but the fact being once recognized, that every man owes the State his service to defend it from invasion, every owner of a horse owes the services of his animal in like manner.

It may never be necessary to resort to the draft again in actual warfare in this country. The probabilities are strong against our requiring such an immense army as that of 1865 a second time. But the light sacrifice of ease imposed by militia service is a positive duty, and ought to be enforced on every able-bodied man who does not know his drill already. The Prussian practice of drilling every male citizen for a period of time, becoming less and less onerous as he learns a soldier's duty thoroughly, and finally leaving him a well-instructed man in the ranks of the reserve, is so obviously wise and just that its spirit should pervade our future militia system.

And, with every horse owner a cavalryman, our cavalry would spring to arms all over the country with even more rapidity than the infantry. Enthusiasm is more easily raised for mounted service. There is a dash and romance about it that takes young men especially, and young men are the best naterial for cavalry.

OFFICERS.

Taken from a grade of society no whit above the men, and in many cases illiterate as well as totally ignorant of military science, the first batch of officers sent out in our civil war were compelled to keep at a great distance from their men to preserve the semblance of discipline. Our system possessed only the faults of the English, without one of its counterbalancing excellences; and the consequence was that we were beaten out of our boots till we learned to follow the French system of promotion from the ranks.

In an aristocratic country, with well-marked divisions of classes, the soldier, being a peasant, who can never be anything but a peasant, submits to ignorant officers, if taken from a class above him. The officer is an educated man, and belongs to a society whose ban on incapacity and cowardice is an effectual spur to advancement in his case. An English gentleman very soon becomes a good officer. But the case is very different in America. No such marked distinction of classes exists here, and lucky for us it is so. Our only aristocracy is that of intel-

lect; that is to say, the only aristocracy that is universally recognized, everywhere and at all times. Wealth in families is transient, seldom lasting three generations. The great families of the Revolution have fallen, and small ones risen to greatness.

But intellect and education command respect almost unconsciously. The very tones of voice of an educated man strike the ear as different from those of a boor.

And in this it is that the merit of West Point as a school for officers lies. It takes them in rude boys, from any and every station. It turns them out educated gentlemen; and, as a consequence, the old Regular Army was always in excellent discipline. The men felt that a great gulf divided them from their officers, and the latter could afford to be kind to their men without fear of lax discipline.

But the system which answered for a small Army, and which supplied that Army with gentlemen for officers, broke down with a million of men, until we began promoting from the ranks. Then we procured good officers, and not till then. Did we procure gentlemen? In many cases, yes. In some, no. Several of the first lot of sergeants raised to lieutenancies turned out drunkards, and were dismissed from the service within a year after. I use my own regiment to illustrate the point. It was an average representative regiment, and its history was repeated in that of many another of my acquaintance. But it was found that in most cases gentlemen had been hidden in the ranks; and I can remember several instances where the change of manners was surprising, from a first sergeant to an officer among officers.

The South followed our own system. But inasmuch as the institution of slavery had created in the South a privileged and highly cultivated order, their officers of volunteers were, as a class, superior to ours at the commencement of the war. They also promoted from the ranks, I believe, but without the same success as attended our experience. Their material was not so intelligent, and the aristocratic system suited them best.

What, then, would the lesson of the war seem to be on the officering of our cavalry of the future? Plainly, that with a people fairly educated as a mass, officers should be raised from the ranks. Intelligent men, I have often noticed, will follow such a one readily enough. But how about the commencement of a war? Men cannot be raised from the ranks till they have shown their fitness for commissions.

The answer obviously seems to be to insure, by some means, the appointment of well-educated men for your first lot of officers. The answering of two or three questions on tactics should not be all the examination required of a would-be officer at the commencement of a war. Tactics are very soon learned, but they form but a very small part of an officer's duty. The largest part requires intelligence and extensive reading to supply the place of the experience that comes later. Men of intelligence and bravery, promoted from the ranks to associate with educated gentlemen, soon catch the tone of their manners and become a credit to the service.

But in this matter, as in many others, a good colonel is the father of his regiment. The influence of such a man is something wonderful. Good colonels make good regiments, and good captains make good companies. I am far from being convinced that a green regiment would not be infinitely better off in our service in war if it only had a colonel, an adjutant, and twelve good captains for the companies, leaving the junior commissions to be filled up by the colonel, after time enough had elapsed to show the best men.

Sergeants and corporals are amply sufficient to do all the guard duty. The commissary and quartermaster-sergeants already do all the work of their departments, and their principals just sign their names.

The hope of promotion would be a great incentive to green troops to observe discipline and to behave well in action, and the country would be spared the shameful abuses of the last war.

And in sending reinforcements to the field. Heaven grant that they may not be organized into fresh regiments, as they were, at ruinous and suicidal cost, in 1864. Sent as recruits to fill up the gaps of the veterans, such men pick up their duty in a very short time under the teachings of their comrades.

Formed into new regiments to swell the vanity of more of those insolent incapables who so foully disgraced their uniform, even to the last year of the war, such regiments indulged in stampedes that a member of the old corps would have blushed to be involved in.

At Five Forks I remember such a green regiment, six hundred strong, driven back in a disgraceful panic after less than five minutes' firing, with their colonel at the head of the fugitives. An old regiment, depleted by the war to only forty-five carbines, was then advanced, and held the position till dark which the six hundred had vacated. But then their officers had risen from the ranks, and the men knew them; and the officers of the Twentieth Pennsylvania Cavalry were appointed from civil life, and the first to quit the fight.

In that single instance lies a volume of teaching on the selection of officers.

If you can get old Army officers among your captains, do so by all means. But if a man has not served, see to it that he has a good education; for as old as the Romans there is a proverb which says that "Learning softens the manners." And there is a good chance that a gentleman will do you credit—not because he's braver than another, but because he daren't run away for fear of the people at home.

And above all, as the last piece of advice given us by the war, promote from the ranks.

DRUNKENNESS.

I am not a "total abstinence man"—as far from it as can be; but still I hold that drunkenness is a vice so utterly degrading to a gentleman, which every officer ought to be, that a man with intemperate habits ought to be stricken from the rolls of any army. If the officers of a regiment are gentlemen in the true sense of the word sober and courteous, there will be no trouble to enforce temperance in the command; but if officers get drunk in public, the men will follow when they get a chance. A truly temperate colonel is a tower of strength to a regiment. Not an austere total abstinence fanatic. Such a man does more harm than good. But a true gentleman, by example and precept, will raise the character of his officers by unconscious steps, and prevent disorder, instead of vainly trying to stem it after it has risen to its full height.

MORAL DISCIPLINE.

If our cavalry of the future are fortunate enough to get such colonels, their regiments will gain proportionate reputations, not only in camp, but in the field. Well-ordered regiments always fight well. Oliver Cromwell's Ironsides, Gardiner's dragoons in English history, Havelock's "saints," Mahomet's army of so-called fanatics, the Swiss infantry in their wonderful success over the Austrian gendarmerie, all are instances of the resistless power of sober, religious men, banded together by moral discipline. Such corps have won the greatest successes of ancient and modern times, in all cases.

I cannot recall an instance in history, in which one army prayed before going into battle, and the other feasted, where the feasters were not overthrown; and the battles in which such was the state of affairs are innumerable.

Moral force is an engine that has never been rated at its true value in war. Whenever it has been tried it has proved all-powerful. It is the basis of all rigid and effectual discipline. Martinetry has always proved a failure in the end. Its spirit is totally opposite, and only drives men to mutiny. But moral discipline convinces men that a certain thing is right; and under that thought they will submit to restrictions and regulations that from a martinet would be utterly intolerable.

The best disciplined regiments are those that have the least number of punishments. An officer who cannot control his men without brutality, is unfit to be an officer. But natural disciplinarians are very rare, and experience, is a slow school; some men never learn anything in it.

LOGISTICS-FOOD-FORAGE.

In the matter of food, nourishing enough to support the soldier, and light enough to enable him to carry several days' allowance, there is much room for improvement in our service. The United States ration is plentiful, sometimes too liberal, but it fails in portability. Pork and hard tack, a pound and three-quarters a day, constitute our field ration, with a due proportion of coffee and sugar. It is very bulky and contains much waste matter. The best part of it is the coffee and sugar. The allowance of these is sufficient, with a very little experience in their use;

and a man can carry ten or twelve days of coffee rations without difficulty. But the practice in the Southern army, of issuing flour instead of bread, made their rations much more portable. As it is, eight days' rations of pork and hard tack is a very bulky mass, inconvenient to carry. Once or twice, when starting on raids, we had to load ourselves with that amount of food, to our great discomfort. Flour and other soft food makes much better rations than hard square biscuits, as regards portability.

In this respect, as in the saving of ammunition, we may again take a lesson from the Prussian wars of this decade. They have introduced into warfare a new element in the ammunition business. So in logistics they have invented a sausage. Not an ordinary sausage, but one composed of pease meal and meat, chopped up together, and containing in itself all the constituents of a full ration. These sausages are the requisite size and weight to make a meal; and their nutritive qualities are wonderful in proportion to their weight. If not perfection, they are yet a move in the right direction. One great advantage of them is that they are very easily made, and that by their means a great deal of food otherwise wasted may be utilized; for they absorb fat and lean, meal and flour. In fact, almost anything may be put into a sausage. A single chopping machine, following an army corps, would be able to keep up a full supply of these rations; and for long expeditions the sausages are much better to pack and carry than hard tack and pork.

The quality of the meat, whether it be beef, mutton, pork, or whatever else, is a matter of indifference; as also whether pease meal, bean meal, corn meal, or flour, be the vehicle in which it is diffused. The economy seems to be in the prevention of all waste, the juices of the meat being absorbed by the flour. The sausage may be roasted, fried, or cut open and the contents poured into water, making a thick soup or porridge. In the summer time the meat must be dried or salted to enable it to keep. In the winter no such precaution is necessary.

This sausage has enabled the Prussian army to release from the duties of guarding communications many a man whose services were valuable at the front; and we cordially recommend it to our cavalry of the future, if our word may chance to be adjudged as of any value. Not that we desire to urge a mere wooden imitation of the German system. Imitation implies inferiority. But we submit that the principle of combining the two parts of the ration together is a good one, and tends to prevent waste and economize weight.

In regard to the carriage of rations, the experience of a single campaign is sufficient to decide one thing—that the haver-sack, as used in the United States Army, while very good perhaps for infantry, is a poor thing for cavalry. It is not nearly strong enough to stand the jolting of a trotting horse, and the shoulder-strap is continually giving way. Moreover, whatever the theory of the inventor and the War Department may be on the subject, practically you cannot get a cavalry soldier to wear it over his shoulder. He will tie it to his horse, where it dangles, bumping and crashing, till the band gives way, and down comes the load.

But our ready-witted men soon learned to provide themselves in a better manner. They used to take the white inside bag of the haversack, and make of it a trio of long narrow bags, one for coffee, one for sugar, one for salt. The pork they wrapped up in a piece of old shelter tent, and strapped to the saddle-bow. The haversack, with the hard tack inside, was rolled up and strapped on the cantle above the grain bag, and the nose bag was utilized in the same manner. But, with the best management, the hard, square biscuits were very ugly things to carry, and it is for that reason that flour or meal is so far preferable. But the coffee ration is the best part of the whole. No one who has not been through the hardships of real campaigning can rightly appreciate the comfort of a cup of coffee to a weary soldier after a hard day's tramp. Coffee and a quiet pipe have done more to comfort our men on long raids than anything else; and if nothing else in the way of provisions is carried on wheels, a single wagon laden with coffee and sugar will be found to amply repay the trouble of its guarding. Men can forage for everything except that.

In the matter of forage there is one thing to be said. In the United States cavalry there is no provision made by which the men can carry three days' grain. They did carry it repeatedly, but they had to provide the means themselves, and in a way far superior to the old-fashioned forage bags of European cavalry. The same invaluable piece of old shelter tent came into play here; and a long, narrow bag was sewed up, which just held thirty pounds of grain, and then resembled an immense sausage. This was strapped across the cantle of the saddle, exactly as the old valise, the centre strap being drawn tight enough to clear the bag from the horse's back. By this method we carried three days' grain with comfort to man and horse; the load lightening every day, and the narrowness of the bag rendering it easily compressible into a tight, compact mass. Such a bag as this, made of stout canvas, would wear for years; and if a strip of leather or canvas were fastened down one side longitudinally, with intervals between it and the bag to pass the straps of the cantles through, all danger of the load's slipping to one side or the other would be avoided.

CARE OF HORSES.

With regard to the question of forage, there is one thing to be said. In campaigning in a country where Indian corn is the staple horse feed, it is poor economy to send out car loads of oats for cavalry horses. When a raid comes, the animals have to live off the country; and the change of food is very apt to "heat the blood," vulgarly speaking. In the winter time, when there is much mud, it predisposes the horses to "scratches" or "grease heel," and when once that breaks out on a winter raid, the horse has to be abandoned.

The immense number of animals that were perforce left behind from this cause on Sheridan's last raid, in March, 1865, almost exceeds belief. The author himself started from Winchester on an excellent horse, with a second pretty fair animal, led in the pack train; but both broke down dead lame on the second day after passing Waynesboro, owing to the mud. While on the macadamized pike, up the valley, they went gallantly; but the mud brought the feet of both of them into such fearful condition that they had to be left. And three-fourths of the lameness in these cases was due to the change of feed from oats to corn, the latter being far more carbonaceous than the former, and therefore heating and predisposing to disease.

Cavalry horses are liable to several ailments. The principal of these, in summer, are sore backs and a disease known among cavalrymen as "the thumps."

VOLUNTEER CAVALRY.

The latter appears to be a species of heart disease, induced by long marching in hot weather. The sides palpitate suddenly at intervals, as if some one were giving thumps to the animal (hence the name), often in perfect condition, and a splendid horse; and then all of a sudden he will drop dead in the road, without a moment's warning. For "the thumps" I know of no remedy but rest; and as that cannot be given on a raid, the poor beast generally dies.

Still, an officer observing a horse in his troop afflicted with this disorder may often save his life, by ordering his rider to dismount and lead him for a day.

Bleeding from the mouth is often useful in this complaint. The same operation which is hurtful to a human being is often of benefit to a horse, whose blood runs so much more rapidly than ours does, and half of whose disorders arise from overheating of the blood.

If "the thumps" be a difficult thing to avoid, the same cannot be said of sore backs.

With the McClellan saddle there is very little excuse for these. This saddle, if the requisite care is taken in its use, is one of the best in the world, after the Mexican and Texan. If the blankets are kept smooth, and the load on the saddle carefully adjusted, so as not to chafe, there need be no sore backs with this saddle. Should one commence, however, there is nothing in the world to cure it like plenty of warm water and castile soap. "Cleanliness is next to godliness" in wounds.

I have found that a piece of coarse gunny bagging, laid under the blankets, will generally effect a cure in sore backs, even while marching. The remedy is well known among the old regular cavalry on the plains, and I have been surprised at its efficacy. The reason would seem to be that it keeps the harsh woollen fibres of the blanket from aggravating the old sore, and allowing it to heal.

With regard to the cure of scratches or grease-heel, it is a difficult, almost impossible task, if the disease breaks out when on a long raid in wet muddy roads. If lying in camp, and with any means of securing a dry stable, it is a different matter.

In this, as in sore backs, castile soap and warm water are the golden remedy; and if the animal is standing in a dry place, it is

well to bandage the pastern, between the time of washing, with a rag greased on the inside. It keeps out dust and dirt, and preserves the scab soft and pliable, while the new skin forms.

But if its cure on a march in muddy weather is difficult, its prevention is not so. "Scratches" in horses are a form of disease similar to chilblains and chaps on the human frame. They are prevented by warmth, dryness, and oiling or greasing the skin.

When a long march in the mud has been executed, if the horses are left standing out all night, whether their legs are clean or not, they will get cold. If you feel a horse's legs towards morning, they will generally be found cold. A long continuance of cold wet feet and legs always induces scratches. When a man goes out and gets wet, he comes in and changes his clothes, and puts on dry stockings, if he can. His horse can procure the same comforts with perfect ease, if his master knows enough to give them to him. A slip of old blanket made into a bandage, and carefully and closely rolled around the legs, beginning at the pastern, will save every horse's heels from scratches. Four such strips, warmed and dried at the fire, will put such comfort into the animal as to enable him to go through a mud raid unharmed. They weigh little or nothing, and are easily carried. With these, and a strong horse cover, weighing about ten pounds, a horse can go through a winter campaign without danger. The extra weight is paid for in warmth and consequent strength to the animal.

The heels and pasterns should be often hand-rubbed after cleaning, and a little grease rubbed in every now and then. Such a plan will save the whole force from scratches, if the use of bandages is combined therewith.

We have touched but lightly on the most general troubles with cavalry horses. The animal in a state of worse disease belongs to the province of the veterinary surgeon, a being very much needed in our cavalry of the future. But sore backs and scratches are so common, and so easily avoided, that we have mentioned them. The latter may be always prevented by careful cleaning and dry night quarters. If a general officer quarters his men for the night in mud holes, he has only himself to blame for his horses' falling lame.

If our cavalry of the future is recruited from among men owning and riding their own horses, there will be little trouble on the score of cleanliness. Every man who knows anything about horse care is aware that a good cleaning is almost as good as a meal to a horse, and that no horse kept in confinement will grow fat on nothing but food, unless he has therewith a liberal supply of currycomb and brush.

But if recruited as in the last war, the horses will have to be looked after most carefully by the officers, or the men will neglect them. Stable duty is perhaps the most necessary, as it is the most disagreeable part of a cavalry officer's duty. And the manner of saddling demands equal care. Careless saddling is the fruitful cause of sore backs. A wrinkle in a blanket, a strap getting under it, will start a sore hard to heal.

SHOES-SADDLES-BRIDLES.

With regard to shoeing, one thing is to be said, and only one thing. As long as it is not made the rigid rule, never to be disregarded, for every man to carry a full set of spare shoes for his horse, with the complement of nails, in the pouches of his saddle, so long there will be constant trouble. General orders are always recommending it; but I never yet saw such an order fully obeyed. As to the form of shoes, I should decidedly recommend plain flat fore shoes for summer, with low heel corks on the hind shoes. These enable a horse to stop short with much more ease, it suddenly pulled up. In the winter, both toe and heel corks on all the shoes should be used in slippery ice countries, as Canada. In mud countries they are not necessary. But, as our next war of any magnitude will probably be in the north our horses will have to be roughed with toe and heel-corks for winter campaigning.

Saddling is a different matter. On good saddling and packing depends all the efficiency of a cavalry force. Your men may be well armed, splendid swordsmen, and dead shots; their horses may start on the campaign full of life and vigor; but, if the saddling and packing are bad, sore backs will soon dismount all your cavalry, and render them useless.

During the Crimean war Captain George B. McClellan was sent to Europe to inspect and report on cavalry and infantry weapons, accountrements, and organization. It is a significant fact that that excellent organizer could find nothing in all Europe.

after due examination, worthy to compare, as a cavalry saddle, with our own Mexican or Texan tree.

The McClellan saddle, which is a modification thereof, is far better than any in use in Europe. This Mexican saddletree is the fruit of the experience of centuries. It is the offspring of the Turkish and Arab saddle, very slightly modified. It came into use among the people in whose country the horse took his rise, and it is, in all its modifications, a miracle of comfort and security to the rider. The only objection to it is its weight—a defect by no means remedied in the McClellan saddle.

There is far too much toggery on this saddle. The flaps, the sweat-leathers, the saddle-bags, are all useless dead weight. As for the saddle-bags, they are about as useless and foolish an appendage as I ever saw. Again and again have I seen them thrown away by men whose practical experience had taught them; and the whole reason is that they are too small to hold anything. Take them away and give two light simple canvas bags of twice or three times their size, and you give a man somewhere to put his food. The prime trouble with all military saddles is the want of room for provisions and forage, whereas that is all they ought to be made to carry.

A man wants no overcoat in summer campaigns. By universal consent it is thrown away before many days out, at the risk of wanting another. I never knew this to fail. All the weight a man carries besides rations and forage is himself and arms, one blanket, a piece of shelter tent or poncho, a shirt, drawers, and socks, a towel, comb, and piece of soap. The sleeping blanket and tent are put under the saddle by all old soldiers, and prevent sore backs instead of making them. But forage and food form the weight. As it stands, the men carry them the best way they know how. All the Government gives them is one haversack. This ought to be changed. Two good-sized canvas saddle-bags. with a girth in connection, would hold eight or ten days' provisions with ease. The girth would keep them down to the horses' sides, and save horse and rider from the flapping of his present load. Moreover, a cavalry soldier on his first day's march would no longer resemble a trussed turkey, incapable of motion, and could mount and dismount as easily as he does now with "light saddles."

The bare McClellan tree is quite light and convenient. It's the leathern toggery that weighs it down. The same bare tree is immensely improved in appearance by a brass rim on pommel and cantle. This also preserves the edge of the cover from wearing out. A McClellan saddle goes first at the edge of the cantle. and, once the rawhide cover is gone, the saddle soon racks to pieces. The Texan saddle, which strongly resembles the Mexican, would be better than the McClellan for troops. There are no buckles anywhere upon it. Instead of straps, leathern thongs are used to tie things to pommel and cantle. The broad, flat horn in front is quite a convenience for many purposes, especially to go to sleep on in long night marches. The girth fastens with two rings and a long strap between, being secured with an easy slip-knot.

But the Mexican form of girth has one disadvantage. Starting from a triangle of leather, which embraces pommel and cantle, it has a tendency to press on the ends of the saddle and produce sore back. If, instead of this, a surcingle were used, passing over the middle of the saddle, but fastening like the girth with the two rings, it would be far preferable. The ring fastening has this great advantage: You can girth any horse with it, no matter how he swells out. He cannot resist. Every turn of the strap through the rings doubles your strength like a pulley. The surcingle is far preferable to the girth as a mode of securing a saddle. It is so used by the Guachos all over South America.

One thing about the McClellan saddle as issued is radically bad. It has no breast-strap, and it has a crupper. This ought to be reversed. It may do with mules, who have no withers; but in nine horses out of ten, outside of Indian ponies, the fault lies the other way.

In active service the men universally threw away their cruppers in our war, and many who had slim-bellied horses were forced to buy breast-straps, by hook or by crook. Many used their surcingles for the purpose, but had to give it up. A breast-strap to a cavalry horse is almost an indispensable necessity. In ascending hills his load is almost sure to slip back, and much botheration ensues. With a breast-strap, the girth can be loosened and the horse much eased. Care must be taken to avoid losing the blankets in this case. More than fifty times I have seen the saddle blankets under a carelessly put-on saddle slide

slowly back, till it gently dropped over the croup, the rider being quite unconscious of his loss till warned of it by others. This is most apt to occur with slim-bellied horses. The blanket should be secured to the saddle in such cases.

The stirrups of the McClellan saddle are good and bad. They have good points, but sadly need improvement. The intention of the hood is excellent. It is to keep the foot from slipping through the stirrup, as well as to protect it from bushes, etc. In practice a man is very apt to get his foot stuck fast between the stirrup and the hood, and to find it worse than the open one for that reason. This part of the objection is easily remedied. A broad strap of leather, nailed across the interval from the bottom of the stirrup to the bottom of the hood, at once removes all the inconvenience. It ought certainly to be done in future in all cases.

The second objection is much more serious. It lies in the material of the stirrup-wood. Wood exposed to rain, wind, and weather, soon rots. Especially around rusty iron bolts does it become unsound. Twice has it happened to myself to have a wooden stirrup break down under me, once causing me a heavy fall; and I have seen the same thing happen to others so often that I at one time took a prejudice against it and used the open iron stirrup as safer. But there is no denying that the open iron stirrup gives nothing like so firm a seat as the hooded wooden one. The necessity of pressing upon it in order to keep your feet from slipping forward deranges the seat; whereas in the hooded stirrup the foot hangs as easily as when riding bareback.

I have come to the conclusion that a light iron stirrup hooded is better than either, and the wonder is that it has not been issued. It would be cheaper in the end, as it would last.

The McClellan saddle is a very poor one as far as lasting goes. Two years knocks all the glory out of it, and there are so many useless little bits of toggery about it, which are constantly getting lost or broken, that it is a wonder it has held its ground so long. But, as in the case of Colt's revolver, a single excellence has counterbalanced its many defects. It is comfortable to ride in, and if it fits the horse any way near, it never gives sore back.

Take it all in all, it is the best military saddle yet in use. The

Texan is still better in its way; but still, strip the McClellan saddle to the bare tree, use a leathern surcingle with a ring and strap girth and a breast strap, throw a pair of useful saddle-bags across the seat, and girth them a little in rear of the saddle girth, and you have as good a cavalry saddle as a man need wish for. Put a long grain bag behind, and all is complete.

With regard to bridling, the first thing that suggests itself is this, that all our military bits are far too heavy, as also the head gear in general. There is a bridle in use in Buenos Ayres for mounted troops that is excellent in this connection. There is no halter. Instead of this, a leathern collar is used, which goes just back of the ears. The French Chasseurs d'Afrique, the best cavalry of their country, use the same collar instead of a halter. No horse can slip out of it, it fits so close, though not tight. To the sides of the collar the cheek-pieces of the bridle hook in two little rings made for the purpose.

This bridle is wonderfully light and strong, and by far the simplest we have ever seen. Simplicity is a great recommendation for military purposes. It saves time in bridling, a great object on picket duty especially, to give the horses as much time to rest and feed as possible, without danger of a surprise finding you unready.

The bits of Mexicans, Guachos, Turks, and Arabs are alike savage things. Our military bits follow them too much. The lighter a bit, the better. A thin wire snaffle mouthpiece, quite straight, with two long but very light curb branches annexed to it, is the best bit I know of for military rough riding. It very much resembles the Pelham bit. The reins should be single, and transferable to either snaffle or curb to suit mouths.

As regards appearance, I am decidedly of the opinion that all metal work, buckles, curb branches, etc., intended for show, should be of brass, not steel. The difficulty of keeping steel clean in the field is almost inconceivable. At the end of the war, our cavalry, with their steel scabbards, blued carbines and pistols, presented the appearance of a pack of ill-clad bushwhackers, with dirty weapons and dingy saddle trappings, impossible to make smart.

DRESS.

The United States cavalry uniform is quite comfortable, no doubt. But there is as little doubt that it is by all odds the most completely hideous under the sun.

Especially is this the case with the present regulation hat. Without its brasswork, in the simplicity of its native felt, it is a steeple-crowned reminiscence of Praise God Barebone and the Rump Parliament, anything else but martial and heroic. Cocked up at one side, with its shabby-looking brass ornaments, and one little mangy feather, it reminds one of a broken-down brigand. Anything more hideous was never put on a soldier's head.

I remember well, that when first my old regiment was mounted and sent to the front, the road was strewn for miles with "that d—d fild hat," as our men called it, thrown away as soon as our parade days were over. Afterwards, for a couple of years, there was no sort of regularity in head coverings. A dress parade of one of our regiments reminded one of Donnybrook Fair, as regards hats. Every sort of battered old tile was used, and the effect was ludicrous. But when Sheridan took command, by a general order he compelled the adoption of the forage cap, and after that there was no trouble. True, the regulation forage cap, as issued, was even more worthless than the hat, in point of make. But the sutlers sold very nice little caps of similar pattern, and nine-tenths of the men preferred paying two dollars for a decent and serviceable cap, to drawing one at sixty cents, literally worthless.

Army caps ought to be made of cloth alone. The visor of leather is only a nuisance. The red fez of the Zouave is the most comfortable and convenient of any. All the contractors in the world cannot make it stiff and ungainly. The kepi, on the other hand, as we use it, is a miserably poor cap, which the first shower puts out of shape, and ruins for good, on account of the leather and pasteboard.

For the cavalry of the future we should decidedly recommend one of these patterns: the fez with its tassel, or a cap of the same kind as the ordinary Astrachan skating cap, something like the old turban or "pork-pie hat" ladies used to wear.

Both are confortable. They can be used to sleep in. They are jaunty and soldier-like. If ornamented with lace, or in dif-

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ferent colors, they are very handsome. And, lastly, the rain will not spoil them, and the contractors cannot make them ugly. A disk of cloth, with a broad band at right angles to its edge, is the fundamental principle of both, and there need be no pasteboard in them, to warp in rain and sunshine.

When we come to the rest of the cavalry uniform, we find but little modification necessary. The uniform jacket is hideous simply from the yellow lace. Strip that off, cut down the collar to one-half the height, and you have a neat, simple uniform. The service uniform of the cavalry corps under Sheridan was all that could be desired for work. Under a general order the men wore only the flannel blouse instead of the dress jacket, and their looks were decidedly improved thereby. This was well enough. But by experience the men learned one thing, that trousers are not the things for cavalry-men, especially in winter. Almost without exception they purchased jack-boots, and found themselves vastly benefited by the change. In the cavalry of the future the lesson should not be lost.

After careful comparison of cavalry uniforms in all parts of the world, the one that strikes the eye as best adapted for work in all weathers is a modification of the Hungarian hussar dress.

The light breeches and Hessian boots are the very thing for riding. They give to the legs a grasp on the horse impossible in loose trousers. In muddy weather there is no bedraggled cloth to and about the feet and ankles. They are equally good for dismounted fighting in brushwood. The dolman need not of necessity be tight, and the hanging jacket is an excrescence. A spencer cut in to the form, neither tight nor loose, reaching to the saddle, and barred across the breast, is an equally common form of the dress, and the fur cap is not high or cumbersome.

We are decidedly of opinion that the spencer, with tight breeches and boots and a light cap, is as good a uniform for real hard work as can be made. Everything is close, and nothing is left to fly away here and there. With regard to the color, I suppose we shall have to stick to the dark and light blue; but if there is a color not now in use which is good for active service, it is gray. An unfortunate prejudice will no doubt exist against it for many years yet in the United States, on account of its having been the uniform of the rebellion; but since it has been adopted

as the militia dress in many States of the Union, we hope that the prejudice will die away. Apart from the associations, it is an excellent color. It has the great advantage of being unlike any other national uniform. Our present dress is nothing but a copy of the Sardinian in colors, and the sooner it is changed the better. Gray possesses the quality of invisibility in action, a most valuable one. Our own men will often remember the ghostly gray lines of the rebel infantry in the battle-fields of the past, and how difficult it was to catch sight of them. And with regard to prejudice, if our enemy has a good thing in his possession, and we can use it, we are foolish to let prejudice interfere with our benefit.

The disadvantage of gray is that it gets dingy and shabby soon. But this objection is remedied by trimming it with black. Any uniform of a single color gets shabby when the color fades. It is the contrast of trimmings that makes an old uniform look respectable to the last. Gray or bluish-gray barred with black makes a neat and very handsome uniform. Its effect as seen in the New York militia, in several of its regiments, is very soldierly, neat, and handsome. Any uniform barred across the breast has a fine effect, and as such are generally double-breasted, another item is gained in comfort and warmth. A soldier's coat ought to be double-breasted: It lasts longer, looks better, and keeps the place warm that most needs it, his chest.

As for material of clothes, there is but one article in a cavalryman's dress that needs special mention, i. e., his trousers or breeches, whichever they be. Cloth very soon wears out under the incessant bumping of a cavalry soldier. A pair of ordinary trousers goes in three weeks, and the reinforce of cloth will not save a pair over two months. The reinforce, to be of any good, must be of leather, as in European cavalry. A single pair of trousers will then last a year and look decent, where three are now insufficient.

The sooner the Government discards trousers and adopts tight breeches for cavalry use, the better. Jockeys, hunters, and grooms, all those whose avocations lead them among horses and who desire a firm seat, wear breeches and boots. The cavalry should do the same. The material ought to be buckskin if possible; but as that is far too expensive for private soldiers' use,

its common substitute, corduroy or moleskin, is equally good in its way. A still cheaper and even stronger material for breeches to stand hard usage is canvas or sailcloth. This is almost everlasting, and costs but little, besides being easily cleaned either by washing or pipe-clay. If ever introduced, it will be found inimitable in its way.

WASHING AND PREVENTION OF VERMIN.

On long summer campaigns it quite frequently happens that the men are compelled to march and fight for weeks together without changing their underclothes. Washing is a luxury that those clothes never know for weeks at a time, the allowance of soap being small and irregular. The only time it is possible is when a day's rest near a stream comes, and then it is hastily and imperfectly performed. The consequence with woollen underclothes is very simple, i. e., vermin. They accumulate in a miraculously short time, and are almost impossible to get rid of. The greatest care is hardly sufficient to avert them in many cases, and they spread like magic, forming an intolerable nuisance, and a very wearing hardship to the sufferers.

Now from very disagreeable and painful experience the writer can testify that woolen underclothes in the summer are a terrible nuisance from this cause. If all the medical men in the United States were to swear to the contrary, he would still maintain that woolen underclothes for summer wear are totally unfit for soldiers. They may possibly avert some colds, but they are certain to breed vermin; and I for one would rather undergo the remote chance of a possible cold to the certain misery in ten days of vermin.

If there is one thing more than another that I would urge, it is to have the summer underclothes of cotton or linen, smooth. They are easier washed, dry quicker, and there is no cover for the vermin to harbor.

I may be thought singular in mentioning a subject usually ignored, but I know so well the universal misery caused by the pest of lice that I desire to save my comrades of the future from much that befell us ignorantly. If vermin do get into the clothes in spite of precautions, the only way to kill them is to boil the clothes, and that for a cavalryman is well nigh an impossibility. The quickest and easiest thing to do is to throw them away.

So much for dress in summer campaigns. In the winter flannel is a good thing, and a long overcoat is a good thing too. Our present cavalry overcoat is an excellent one, and when lined throughout with thick flannel, instead of the wretched stuff generally put in, is as good as can be worn.

A sleeping blanket, piece shelter tent, and poncho were carried by almost all our men during the war. With the horse blanket they made an excellent bed. But the horse blanket should not be taken for the purpose. It may be wanted in a hurry.

In the summer time a single blanket is amply sufficient to keep a man warm, but in the winter the case is different. Oftentimes, then, the cold of the ground strikes through all that a man can put there. In such a case, old campaigners will make themselves warm where young ones would freeze. Clubbing together in threes and fours, they make a common bed together, over which stretches a large and comfortable shelter tent, and thus illustrate the advantages of union.

SHELTER TENTS.

The shelter tent, as taken from the French, needs a change very much. Theoretically, two men are supposed to unite to make a tent. Practically, they might as well have none at all if they obey the regulations. They secure for themselves an open shed, which is of just no use at all. If it rains, the rain beats in at one or both ends. If it doesn't rain, the shelter may be dispensed with.

The fact is, that it takes three pieces of the present shape to make a tent that will shed water, or be any good. And three men are too much for one tent. A very little reform would make the shelter tent much better, even if used according to the regulations.

Instead of a square piece of cloth, as at present, it should have at either end a triangular flap, which would button over, and so make a tent close at both ends.

The dimensions of the quadrangle should be 6 by 5 ft.; the triangular part should have a base of about 3 ft. or 40 in. With a shelter tent of this kind, no man need carry more than one piece, and so the weight would be reduced, and the tent be even better than at present.

Thus supplied, any regiments who have used it will agree

that the shelter tent is a most valuable gift to the soldier, rendering him independent and comfortable at all times and places. It is infinitely better than the European practice of bivouacking in the open air, or billeting in houses, and possesses none of the disadvantages of transportation incident to ordinary tents.

Shelter tents have been often issued in the United States Army, made of oiled linen or india-rubber, and in the form of ponchos, with a hole in the middle to put the head through, covered by a flap. Once or twice I have seen them put up as tents, but their more general use was to cover the person from rain, and to keep the wet of the ground in the tent from striking through the blankets at night.

These ponchos are excellent things. The proof is, that they were in universal use among our men, who were very quick to reject the bad and take the good. If made in the form suggested above, they might even supersede the shelter tent, and so reduce the weight, for some india-rubber covering is almost a necessity, and certainly a great comfort, to men campaigning.

In pitching tents for a long stay, a ditch should in all cases be cut around them, the deeper the better. It drains the ground and prevents rheumatism, the only disease that affects men campaigning.

CAMP DISEASES.

In stationary camps and barracks the plague of soldiers is chronic dysentery. Especially among green troops fresh from comfortable homes this pest rages with violence. Campaigning generally cures it. In this matter the doctor is powerless. All the efforts of medical science fail to cure chronic dysentery when it has once taken hold among new troops. Medicine is useless. Change of scene and diet will effect a cure in a week, but no doctor can help the sufferers. I may be able, however, to throw some light on this subject from my own experience. On two occasions before going into active service I was attacked with this distressing and prostrating malady. The first time it was owing simply to constant wet feet, mounting guard in wet weather, and doing all sorts of open-air duty with dilapidated boots. A new pair, purchased, for at the time we could draw none, cured this. The second time, at Perryville, Maryland, I suffered, in common with the regiment, on account of bad water.

The spread of the disease was marvellous. On this occasion it was a matter of observation to me, quite unfailing, that there was but one class of men in camp unaffected by dysentery, namely, the "old bummers," or men addicted to strong drink, openly and secretly. Whatever else ailed them, dysentery or diarrhoea never did. Acting on this hint, I determined to test it by experiment in my own person. When the regiment moved to Washington I slipped out of camp, running the guard, and deliberately went to work to get drunk, with some others. The effect was magical. Three days' pretty free drinking seemed to effect a complete change in my constitution, and I never suffered from dysentery afterwards. This is the only case in which I can conscientiously recommend the use of spirits in the Army. On every other occasion, without exception, I never saw it do anything but unmitigated harm. It transforms many a good man at other times into a fiend; and as for officers, I feel no hesitation in saving that nine-tenths of the disasters in our civil war were owing to drunkenness among officers.

In the management of winter camps our Army in the field has no reason to fear comparison with any European army. In our second year's winter-quarters on the upper Rappahannock and Rapidan, the majority of our regiments lived in a state of comfort unequalled in European services. But inasmuch as the experience of the past is useless in future, unless the officers happen to be men who engaged therein, and as the probable composition of our future cavalry will be as mixed as in the first years of the civil war, a few words may not be amiss.

In our densely wooden countries, the easiest and best way to make comfortable winter quarters is to erect log huts, roofing them with pieces of shelter tent. The walls are chinked with clay, the chimneys thickly plastered inside with the same material, and the camp is finished. Inasmuch as our winters are fearfully muddy, the streets should be corduroyed in all cases, which renders a camp much pleasanter. If there are plenty of young pines and spruce about, a camp can be made exceedingly pretty and picturesque with rustic work of all kinds. Our infantry regiments frequently decorated their winter camps with wonderful taste in this manner, making rustic bridges over every ditch, and running neat fences around the camp.

But cavalry soldiers have little time for this. The great requisite of a cavalry winter camp, and one which cannot be too strongly insisted on and pointed out, is a good stable. In winter camps it is often too much the custom to house the men first and let the horses go uncared for. The exact reverse ought to be the case. The first care of a cavalry colonel on going into his winter quarters ought to be to see to his stables being put up and corduroyed. The men can make themselves comfortable in one night by pitching tents as in the summer, ditching carefully and corduroying their tent floors. A single day suffices for this. But every hour a cavalry horse stands in the mud, which is inseparable from winter stables, he deteriorates. The second day ought to be occupied in all cases with hauling logs to floor the stables. If the weather is fine, do it the first. The men will make themselves comfortable in any event. The poor horses cannot help themselves.

The stables should be floored the first thing, and a ditch at least three feet deep dug round it.

Dry quarters will save your horses from the scratches. In the spring they will be fat and in good condition, and able to stand a march. After flooring and draining the stables, which can be done in one or two days if the work is systematized and not left to the men, a roof should be put up, of straw if it can be got—if not, of brush, with a steep slope. It may not be quite water-tight, but it is better than the open air. A screen of brush should be put up to the northwest to secure the horses from that cutting wind, and the stable is complete. After this you need only tell the men to make themselves comfortable, and you may be sure they will do it in short order. But if you let them put up their own quarters first, it is ten chances to one that the poor horses will have to stand out all the winter.

In our thickly wooded country there is positively no excuse whatever for a cavalry colonel letting his horses stand out in the winter. The difference between one who does and one who builds stables is best illustrated by an incident within my own knowledge. In the winter of 1864-65, the brigade of General Devin, to which I was attached, was quartered at Lovettsville near Harper's Ferry, Virginia. One of the regiments, the First New York Dragoons, was commanded by a first-class cavalry

officer. Another, the Sixth New York Cavalry, possessed for its commander a recently promoted and very youthful lieutenant-colonel, as brave as a lion, but ignorant of horse-flesh beyond riding decently. The dragoon officer in one week from his arrival had stables, with good straw roofs overhead, for all his horses. The other built good quarters for his men, and left his horses almost unstabled, entirely uncovered.

The regiments were about equal in strength. In the ensuing mud campaign the dragoon horses suffered little or nothing; the Sixth New York horses went to the devil. At the battle of Five Forks in April, the Sixth New York Cavalry could only muster forty-five mounted men for action. The First New York Dragoons in the same action brought up one hundred and sixty-seven horses, exclusive of officers' chargers. Volumes could not be more instructive on the point in question.

Winter quarters shall be looked upon as the preparation places for next spring's campaign. The horses must be nursed, and fattened up, the men kept at drill to preserve their efficiency. Battalion drills once in two days, individual instruction in fencing, and pistol shooting on the alternate days, are the best. The change keeps the men in good humor; too much battalion drill disgusts them.

In pistol-shooting, two shots a day, at a target, under the instructor's eye, are better than the whole six on one day in volley-firing. Volley-firing ought to be practised only in action, and the exactitude of its timing is a mere matter of parade, useless in action. It may do for play soldiers to amuse their admirers with. In a campaign, correct shooting beats volleys out of sight, except at very close quarters.

The horses should not be drilled more than once a week. They learn their duty much quicker than the men. In the spring-time, after good dry winter quarters, every regiment ought to turn out fat, strong horses, and excellent swordsmen and pistol shots on their backs.

If every general were impressed with the idea, "In winter quarters prepare for spring," his camps would be got into order much more rapidly. That is the best time to bring in recruits. One month in winter quarters among soldiers who have seen campaigns is worth a year's drilling in barracks for a recruit; and a single campaign will have taught a green cavalry corps the necessity for drill. If the men are thoroughly impressed with this, officers will have no trouble. If not, all the martinetry in the world only disgusts them and breeds mutiny.

(To be continued.)



KIT CARSON.

THE Editor of the Cavalry Journal has been shown recently a portion of an old and tattered "Order and Correspondence Book" of the "Headquarters Navajo Expedition" of 1863-4, which was commanded by Colonel Christopher Carson, First New Mexico Volunteers, Brevet Brigadier General U. S. Volunteers.

This remnant of what was evidently the combined record of letters sent, letters received and orders of that famous expedition was procured, a few years since, by Captain W. T. Littebrant, Fifteenth Cavalry, from a descendant of a member of General Carson's regiment.

These scraps of that historically valuable record book are of such great interest generally, and particularly to those of our officers who are familiar with the country in which this command operated, that extracts from it are herewith published.

The following brief sketch of that celebrated scout, trapper, guide, hunter and soldier is taken from the New International Encyclopedia:

"Christopher Carson (generally known as 'Kit Carson') (1809-68). A famous American hunter, trapper and Western scout. He was born in Madison County, Ky., but when only a year old was taken by his parents to Howard County, Mo., where from 1824 to 1826 he served as a saddler's apprentice. In the latter year he accompanied a party of hunters to Santa Fe, New Mexico, and afterwards devoted himself almost entirely to hunting and trapping. He accompanied an expedition to California in 1829, and another to the Rocky Mountains in the following year, and from 1832 to 1840 was employed as hunter for the garrison at Fort Bent, at the headwaters of the Arkansas.

"He accompanied Fremont on the latter's expedition of 1842 and of 1843-4; then spent some time on a ranch, and in 1846-7 served as guide in Fremont's famous expedition to California. In

1853 he, with a few Mexican drovers, succeeded in driving 6,500 sheep to California, and on another occasion, this time unaided, he took fifty horses and mules to Fort Laramie, fully 500 miles, from his ranch.

"In 1854 he was appointed Indian Agent for the Utahs and Apaches, at Taos, New Mexico, and in this capacity was able, by reason of his remarkable influence over the Indians, to be of great service to the United States Government.

"During the Civil War he served the Government with great energy in New Mexico, Colorado and the Indian Territory, especially against the Confederates in Texas and the Navajo Indians, and in 1865 was brevetted Brigadier General.

"In the course of his career as a trapper, hunter, Indianfighter, scout and Indian Agent, he met with many remarkable adventures, some of which read like romance, and he soon became to be regarded throughout the country as the typical frontiersman, resourceful in danger, an adept with the rifle and skilled even beyond the Indians in woodcraft and the knowledge of wild animals."

Another author speaks of him as "The Prince of frontiersmen and one of Nature's noblemen."

He was appointed a Second Lieutenant in the regular army by President Polk, but for some unknown reason was never confirmed by the Senate.

It is to be presumed that he was a man with but little education, as all his youth was spent on the extreme frontier, and the many anecdotes related of him, in the various biographies and histories, attribute to him language that borders on illiteracy, yet these reports if composed by him would indicate that he was a man of fair education, although these are not in all respects the best English.

He died at Fort Lyon, Colorado, on May 23, 1868, after a brief illness, and was buried there with full Masonic honors, he having been a member of that fraternity for many years.

It will be noticed that many of the places given as being in New Mexico are within the present limits of Arizona: Headquarters, Navajo Expedition, Camp at Pueblo Colorado, N. M., July 24, 1863.

To the A. A. Adjutant General, Hdqrs. Dept. of N. M., Santa Fe, N. M.

SIR:—I have the honor to report that in obedience to General Orders No. 15, current series, Hdqrs. Dept. of N. M., I left camp near Las Luna, N. M., July 7, 1863, enroute to Pueblo Colorado, N. M., with Companies "D," "K." "L" and "M," 1st Cav. N. M. Vol., the only companies of the expedition which had arrived at the place of rendezvous up to that time.

I arrived at Fort Wingate* on the 10th inst., where I remained three days, receiving supplies and some necessary articles of outfit for my command.

Having ascertained that there were two trains with supplies for my command shortly to arrive at this post, I directed that Companies "B" and "C," 1st N. M. Vol., should remain at the post until their arrival, to escort them to the Depot. They have not yet joined.

Left Fort Wingate on the 14th and arrived at Ojo del Oso on the night of the 16th. Owing to a scarcity of water on the route my animals suffered a good deal, and many of the mules were completely broken down and unable to travel; I therefore concluded to give them a rest, and remained in camp on the 17th, 18th and until 2 o'clock p. m. on the 19th inst. There were two small fields of wheat near the camp, which I had fed to the animals on the 17th. I found some wheat at a spring about two miles west of the camp, which I sent for. The wheat found at the camp and at the west spring amounted to about forty thou-

This refers to the old post of Fort Wingate, which was abandoned in 1868, when the present post was established at the time the Navajos were returned from the Bosque Redondo to their former and present reservation. The old post was located about sixty miles southeast of the present one and not far from Grant's station on the Santa Fe railway.

The new Fort Wingate is located at the Ojo del Oso, mentioned below, where there was originally a temporary post called Fort Fauntleroy, afterwards Fort Lyon, and which was abandoned in 1862 at the time of the Texan invasion.

sand pounds, and with the grass, which at this place was abundant and of good quality, put my animals in good condition.

I was joined at this place on the 19th by Capt. Carey, * Chief Quartermaster, and Lieut. Cook, Chief Commissary, with a supply train, escorted by Capt. Sena's Company ("C"), 1st N. M. Vol., but as his animals also needed rest I left him behind for this purpose.

I arrived with my command at Fort Defiance on the 21st inst., where I found a large quantity of wheat—say one hundred thousand pounds, which was also fed to the public animals. The Utah Indians, that preceded me on this day's march, killed one man (Navajo) and captured twenty sheep. Shortly after camping I was joined by nineteen Ute warriors, who had been operating against the Navajos on their own account. They report having met a party of Utes returning to their country having eleven captives (women and children) and that there are two other parties now in this country. They themselves saw no Navajos. I have hired five of the party as spies.

I remained at Fort Defiance on the 21st. On the 22d I left for this place with the board appointed to select a site for Fort Canby, taking with me the Field and Staff and 70 men of the command, and the Ute Indians. About one-third the distance from Defiance I left the command and pushed on with the Utes. When about nine miles from this point, and on the Rio de Pueblo Colorado, we came on a small party of Navajos and killed three men. From a Pah-Ute woman captured I ascertained that a strong party of Navajos, with a large herd of sheep, cattle and horses, were at a pond of water about 35 miles west of here, and would remain there all night. I immediately determined to pursue them with the command as soon as possible after its arrival. It reached here about 5 o'clock p. m. and at 7:30 p. m. I started. At 5 o'clock next morning (23d) I arrived at the water, only to find that the Navajos with their stock had left the previous evening. I followed their trail for two hours, and until many of the horses had given out, and only returned on my own conviction.

supported by the superior knowledge of Kan-a-at-sa, that it would be impossible to overtake them without to travel some ninety miles without water, and this my horses could not do.

On my return route the Ute Indians killed eight Navajos, making a total of twelve killed since my arrival in this country.

I arrived at this place with the party yesterday evening, at 5 o'clock, having been nearly thirty-six hours continuously in the saddle.

The remainder of the command left behind at Fort Defiance arrived here yesterday at 4 o'clock, in the afternoon, also Capt. Carey and Lieut. Cook.

I would respectfully call the attention of the General commanding the Department to the valuable services rendered by the Ute Indians, and earnestly request that I may be authorized to send an officer to their country to employ at least thirty more Utes as spies for the expedition.

I am, Captain, very respectfully,

Your most obedient servant,

C. CARSON,

Colonel 1st Cav. N. M. Vol., Commanding.

Headquarters, Navajo Expedition, Fort Canby, N. M., Dec. 6, 1863.

Captain Ben. C. Cutler, A. A. General, Hdqrs. Dept. of New Mexico, Santa Fe, N. M.

CAPTAIN:—I have the honor to report for the information of the Department Commander, that on the 15th inst. I left this post with Co. "C," "D," "G," "H" and "L," 1st Cav. N. M. Vol., dismounted, for the purpose of exploring the country west of Oribi* villages, and, if possible, to chastise the Navajos inhabiting that region.

On the 16th I detached thirty men with Sergeant Andres Herrera, Company "C," 1st Cav. N. M. Vol., on a fresh trail which intersected our route. The Sergeant followed the trail for about twenty miles, when he overtook a small party of Navajos, two of whom he killed, wounded two, and captured fifty head of

^{*}Captain A. B. Carey, 13th U. S. Infantry, who afterwards was appointed Major and Paymaster and was retired February 12, 1899, when Paymaster General of the army, having filled all the intermediate grades in the Pay Corps.

^{*}Correct spelling "Oraybe."

sheep and one horse. Enroute the party came on a village lately deserted, which they destroyed. The energy and zeal displayed by the Sergeant and his party on this occasion merits my warmest approbation.

On the 21st arrived at the Moqui village. I found on my arrival that the inhabitants of all the villages, except the Mibis, had a misunderstanding with the Navajos, owing to some injustice perpetrated by the latter. I took advantage of this feeling and succeeded in obtaining representatives from all the villages—Oribi excepted—to accompany me on the war path. My object in insisting on parties of these people accompanying me was simply to involve them so far that they could not retract; to bind them to us, and place them in antagonism to the Navajos. They were of some service and manifested a great desire to aid us in every respect.

While on this subject I would respectfully represent that these people, numbering some four thousand souls, are in a most deplorable condition, for the fact that the country for several miles around their villages is quite barren, and is entirely destitute of vegetation. They have no water for purpose of irrigation, and their only dependence for subsistence is on the little corn they raise when the weather is propitious, which is not always the case in this latitude. They are a peaceable people, have never robbed or murdered the people of New Mexico, and act in every way worthy of the fostering care of the Government. Of the bounty so unspairingly bestowed by it on the other Pueblo Indians—aye even on the marauding bands—they have never tasted. And I earnestly recommend that the attention of the Indian Bureau be called to this matter. I understand that a couple of years annuities for the Navajos not distributed are in the possession of the Superintendent of Indian Affairs at Santa Fe. and I consider that if such an arrangement would be legal, these goods should be bestowed on these people.

Before my arrival at Oribi I was credibly informed that the people of that village had formed an alliance with the Navajos, and on reaching there I caused to be bound their Governor and another of their principal men and took them with me as prisoners. From the Oribi villages I marched my command sixty-five miles, with but one halt of two hours, and at 2 o'clock a. m. on

the 24th I arrived at a running stream—a tributary of the Little Colorado. Next day my command captured one boy and seven horses and destroyed an encampment. The mounted party while out scouting that day had two horses give out, and when the riders were returning to camp they passed three concealed Indians, one of whom fired off his rifle in the air, and then rode towards them. On his approach the soldiers were going to shoot him, but owing to his gesticulating they allowed him to draw nigh. He had two rifles on his saddle, both of which the soldiers took, after which they allowed him to depart as he came. One of the rifles was recognized by the Moquis as belonging to Manuelito, a Chief of great influence. It is more than probable that the Indian, whoever he was, desired to have an interview with me, but was deterred by the hostile attitude of the soldiers.

On the 25th we captured one woman and child, about five hundred head of sheep and goats, and seventy head of horses, and destroyed another Indian encampment. There were five Indians with this herd, but on our approach they fled. About three miles from this encampment the spies gave us the information. The mounted party and a few of the officers immediately rode forward. Capt. McCabe, Lieut. Dowhin, Mr. J. C. Edgar, myself and Lieuts. Murphy and Montova, with those of the mounted party, were the first to arrive at the herds, but only in time to see the Indians climbing the very steep sides of the Cañon of the Little Colorado where their herd was, and out of our reach. The conduct of the above named gentlemen on this occasion is worthy of commendation. Had our horses been in a fit condition there is no doubt but that we would have been enabled to overhaul these Indians, but they were unable to travel sufficiently quick. owing to the fact that they had been the three days previous without sufficient rest, and with but little grass. I encamped on the table lands of the river, and that night sent out spies, who, on their return, informed me that Navajos were in the vicinity.

At daylight next morning I sent out two parties of fifty men each under the command of Capts. Pfeiffer and McCabe to examine the localities indicated by the spies as occupied by the Navajos. The parties returned to camp late at night without

KIT CARSON.

having found any Indians, although they found every indication of where they had been recently. In some places the fires were still burning. From this place to where the Navajos went is three days without water, as I am informed by a Mexican boy, taken captive some time since by the Navajos, and recaptured by Capt. McCabe. This my animals could not stand, and I was reluctantly obliged to let them go unmolested. Our camp of this day is about twenty-five miles northeast of the San Francisco Mountains.

On my return to Moqui I took a different route from the one I came, but on neither road is water to be found for a distance of fifty miles. While enroute on the morning of the 3d I discovered at a distance the smoke of an Indian encampment. I took with me the mounted party and fifty Infantry, with the hope of being able to surprise them. After a rapid march of about eight miles we came to the valley, at the opposite side of which were the Indians, but, being obliged to descend a steep hill in view, the Indians, of which there were five, managed to escape. They left behind them their shields, clothing, etc., and we captured one horse and four oxen.

I arrived yesterday at the post and as soon as the animals are sufficiently rested I shall send a command to examine the Cañon de Chelly, and the smaller Cañons that intersect it. Were I not of the opinion that but few if any Navajos are in the Cañon, I should have paid at a visit long since, but of that I convinced myself while in that vicinity in September.

To the Zuni Indians whom I employed as spies, I am greatly indebted for the zeal and ability displayed by them, particularly the Governors Mauana and Salvadore, the latter of whom acted as my interpreter with the other Indians.

The boy who was taken by us on the 24th I allowed to go off that he might communicate to the Navajos the intentions of the General Commanding in regard to them, of which I took particular pains to inform him.

It is quite possible that owing to the extended operations of our armies elsewhere, that those of my command may be overlooked, but I will venture to assert that no troops of the United States have ever been called upon to endure as much hardship

as did the men of my command on this scout; and I am proud to say that all was borne with the utmost cheerfulness, both by officers and men.

I enclose herewith the report of Major F. T. Abren, commanding Fort Canby, and sub-reports showing his operations at the post during my absence on scout.

I am, Captain, very respectfully.

Your most obedient servant,

C. CARSON,

Colonel 1st Cav. N. M. Vol., Commanding.

Headquarters, Navajo Expedition, Fort Canby, N. M., December 20, 1863.

Capt. Ben C. Cutler, A. A. General, Hdqrs. Dcpt. of New Mexico, Santa Fe, N. M.

CAPTAIN:—I respectfully represent that unless some measures are taken outside of this command the express between this post and Fort Wingate will be very likely to cease running. The Chief Quartermaster has but one or two animals fit for this purpose, and I do not feel myself justified in ordering one or two soldiers on this very dangerous duty. The last express was attacked in the vicinity of the Ojo del Oso (Bear Springs), and, though he succeeded in making his escape unhurt, to render him again willing to take the risk it is necessary to give him such a compensation as will make it an object.

Capt. Carey assures me that he has used every endeavor to hire a citizen or two for this purpose, at good wages, but he could not succeed. I therefore respectfully ask that he be authorized to pay a compensation to the soldier who may be found to carry the express. This I understand was done under like circumstances in the Florida war, and by General Canby during the late invasion of this Territory by the Texans.

If the Chief Quartermaster had a sufficient number of mules in good order an ambulance with sufficient escort could be used for the purpose.

Until the action of the General commanding is made known,

the officers of the command have agreed to subscribe from their pay a sufficient compensation, and I trust that speedy measures will be taken to relieve them from an expense not expected of them by the Government.

I am, Captain, very respectfully.

Your most obedient servant.

C. Carson, Colonel 1st Cav. N. M. Vol., Commanding

Headquarters, Navajo Expedition, Fort Canby, New Mexico, Dec. 26, 1863.

Captain B. C. Cutler, A. A. General, Hdgrs. Dept. of New Mexico, Santa Fe, N. M.

CAPTAIN:—I have the honor to report for the information of the General commanding that I have made all the necessary arrangements to visit the Cañon de Chelly and will leave this post for that purpose with my command on the third or fourth of next month. To enable me to do this I will be compelled to use the ox train enroute to this post with Company "E" to transport my stores to the west end of the cañon, where I shall establish a depot from whence to operate. I will send a command to the east opening to co-operate with that at the west. This command I will be able to furnish with pack animals.

The command sent out under Major Jose D. Sena returned, I am sorry to say, without having overtaken the Indians. I respectfully transmit his report.

I have in the field at present two parties of fifty men each operating in the vicinity of the Mesa la Vasca, where I have good reason to believe there are Indians, whom I trust will be captured.

In the last few days we have had a considerable fall of snow, which shall greatly facilitate my operations against the Cañon de Chelly. Of one thing the General may rest assured, that before my return all that is connected with this cañon will

cease to be a mystery. It will be thoroughly explored, if perseverance and zeal with the numbers at my command can accomplish.

I am, Captain, very respectfully,
Your most obedient servant,
C. CARSON,

Colonel 1st Cav. N. M. Vol., Commanding.

Headquarters, Navajo Expedition, Fort Canby, N. M., Jan. 23, 1864.

Captain Ben C. Cutler, A. A. General, Hdgrs. Dept. of New Mexico, Santa Fe, N. M.

CAPTAIN:—I have the honor to report for the information of the General commanding that on the 6th inst., I left this post on an expedition to the Canon de Chelly with 14 commissioned officers and 375 enlisted men. Owing to the depth of snow on the mountains which divides the valleys of this section with those of the Pueblo Colorado, it took my command three days to reach that place, a distance heretofore accomplished in one day. While enroute on the 8th inst, my escort killed one warrior. On my arrival at the Pueblo Colorado, I was joined by the ox train and its escort under Major Jose D. Sena, which I had sent forward on the 3rd with the expectation that he would have time to recuperate his animals before the arrival of my command. In this I was disappointed, as it took his command five days to make twenty-five miles, and with a loss of twenty-seven oxen. This made it necessary for me to lighten the loads and leave one wagon, to enable me to accomplish my object, which I did, leaving behind ten days rations for my command and twenty-five men as a guard.

On the 12th I arrived at the west opening of Cañon de Chelly. In the morning I made a detour to the right of the line of march with my staff and escort, and struck the cañon about six miles from the mouth. Wishing to reconnoiter a little previous to commencing operations, I proceeded up the cañon on the south side some four or five miles further, but could find no

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means of descending to the bottom of the cañon, the height of the sides averaging about one thousand feet and nearly perpendicular. I saw several Indians on the opposite or north side of the cañon, but out of range of our small arms. Shortly after my return to the camp, Sergeant Andres Herrera of Co. "C," whom I sent out with fifty men the previous night, returned, bringing in two women and two children prisoners and one hundred and thirty sheep and goats, and having killed eleven Indians. As I expected, at daylight he discovered a faint trail, and following it up rapidly overtook the Indians as they were about to enter the Cañon de Chelly-when he immediately attacked them, with the result as above stated. This is the second occasion which I have had to record my sense of the energy and ability displayed by the Sergeant in the successful carrying out of my orders, and I respectfully recommend him to the favorable notice of the General commanding.

On the morning of the 13th I sent out two commands to operate on each side of the cañon, with three days rations in haversacks. The first consisting of Companies "B" and "G." 1st Cav. N. M. Vol., under command of Capt. A. B. Carey, 13th U. S. Infty., on the south, and the second command composed of Companies "E" and "D," 1st Cav. N. M. Vol., under command of Capt. Joseph Berney, 1st Cav. N. M. Vol., on the north side. Iaccompanied the former party, being very anxious about the safety of Captain Pfeiffer's command, whom I had sent out from Fort Canby to operate from the east opening, and wishing to gain a knowledge of the topography of the cañon, with a view to operating within it. I discovered the place where Sergeant Herrera had the fight the day previous. Found eleven dead bodies and five wounded (two mortally). The other three, though badly wounded, owing to the skill and care bestowed on them by Dr. Short, will no doubt recover.

On the 14th the command continued its march to a point whence a view of the canon was unobstructed to near its eastern outlet; and being unable to discover any signs of Capt. Pfeiffer's command, or any fresh sign of Indians, and there being no grass for the animals of my escort. I determined to return. I also satisfied myself of the feasibility of flanking the south side of the canon from west to east, without much trouble, there being no

intersecting canons of any extent. On my return to the main camp on the evening of this day, I found to my great surprise and gratification, Captain Pfeiffer and his party in camp—having accomplished an undertaking never before successful in war time—that of passing through the Canon de Chelly from east to west,* and this without having had a single casualty in his command. He killed three Indians (two men) and brought in ninety prisoners (women and children). He found two bodies of Indians frozen to death in the canon. I respectfully enclose his report (marked "A"), which is very interesting.

While enroute on my return to camp I was joined by three Indians with a flag of truce, requesting permission to come in with their people and submit. I told them, through my interpreter, that they and their people might come unmolested to my camp up to 10 o'clock a. m. next day, but that after that time if they did not come my soldiers would hunt them up, and the work of destruction recommence. Accordingly, next morning, before the time appointed, sixty Indians arrived. They had made known to them the intention of the Government in regard to them, and expressed their willingness to immigrate to the Bosque Redondo. They declare that owing to the operation of my command they are in a complete state of starvation, and that many of their women and children have died from this cause. They also state that they would have come in long since, but that believed it was a war of extermination, and that they were agreeably surprised and delighted to learn the contrary from an old captive whom I had sent back to them for this purpose. I issued them some meat and they asked permission to return to their haunts and collect the remainder of their people. I directed them to meet me at this post in ten days. They have all arrived here according to promise, and many of them with others joining and traveling in with Capt. Carey's command. This command of seventy-five men. I conferred upon Capt. Carey at his own request, he being desirous of passing through this stupendous cañon. I sent the party to return through the cañon from

^{*}The present Editor of the Cavalry Journal passed through this cañon in 1875. Probably no cañon, except that of the Grand Cañon of the Colorado, surpasses this in grandeur, and the difficulty of entering it from the eastern end is extremely great.—Editor.

west to east, that all the peach orchards, of which there were many, should be destroyed, as well as the dwellings of the Indians. I sent a competent person with the command to make some sketches of the cañon, which, with a written description of the cañon by Capt. Carey, in the shape of a report (marked "B"), I respectfully enclose.

This evening (the 15th) Capt. Berney returned with his command, having accomplished the object of his scout, with his usual energy and ability. His party surprised and killed two Indians and captured four.

Having accomplished all that was possible in this vicinity, I determined to return to Fort Canby for the purpose of being present to receive the Indians as they arrived, and take measures to send out expeditions in other directions, as I feel certain that now is the time to prosecute the campaign with vigor and effect: The speedy removal of all the Indians north and west of the Little Red River.

On my first return to camp I was visited by four warriors, who stated that they came from the vicinity of the Juanica Mountains; that they had great fears of being killed on approaching our camp, but that their necessities overcame their fears. They say that many rich Indians would come, but that they were afraid. He who appeared to be the most intelligent I furnished with provisions, and evidence of his having been in my camp, and he willingly agreed to go to those Indians and assure them of the protection of the troops, provided that they came in with the bona fide intention of immigrating. At this camp I left the captives, with three companies and the ox train under Major Sena, and pushed ahead myself with two companies and the mule train. I directed Major Sena to remain four whole days at the Pueblo Colorado to recuperate his animals. He has not yet arrived.

I arrived at this post on the 21st inst., after an absence of sixteen days. I found on my arrival about one hundred and ten (110) Indians who accompanied Captain Carey's command. Since then several parties have arrived, until the number now drawing rations is one hundred and seventy (170). This does not include small children. I have been anxiously looking for a train which should have arrived here two days since. Should it

not arrive by Friday, I shall send those Indians by transportation from the post. In summing up the immediate results of my operations on this expedition, I find the following: Killed, 23; prisoners, 34; voluntarily surrendered, 200 souls; captured, 200 head of sheep.

In addition we have thoroughly explored this heretofore unknown stronghold, and Cañon de Chelly has ceased to be a mystery.

But it is to the ulterior effects of the expedition that I look for the greatest results. We have shown the Indians that in no place, however formidable or inaccessible in their opinion, are they safe from the pursuit of the troops of this command; and have convinced a large portion of them that the struggle on their part is a hopeless one. We have also demonstrated that the intentions of the Government toward them are eminently humane, and dictated by an earnest desire to promote their welfare; that the principle is not to destroy, but to save them if they are disposed to be saved.

When all this is understood by the Navajos generally, as it soon will be, and they become convinced that destruction will follow on resistance, then they will gladly avail themselves of the opportunities afforded them of peace and plenty under the fostering care of the Government; as do all those now with whom I have had any means of communicating. They are arriving almost hourly, and will, I believe, continue to arrive until the last Indian in this section of country is enroute to the Bosque Redondo. The benefits to the Government, and the Territory, of the wise policy induced by the General commanding with regard to these Indians can not be too highly estimated. That any treaties hitherto made with the people—so long as they were permitted to remain in their country, were entirely disregarded so soon as the force applied to them was removed and both from inclination and from want they recommenced to murder and rob the citizens. The policy of placing them on a reservation changes all this. The force will still bear upon them; and their wants will be supplied, until such time as they by their industry are able to supply themselves.

In the accompanying communication from Captain A. B. Carey, Chief Quartermaster, (marked "C"), you will perceive

that Sgt. Martin Bird of Company "K" of my regiment has had a fight with a party of Navajos at Ojo del Oso, in which he was successful. The conduct of the Sergeant is deserving of praise.

To the officers and men of my command I return thanks, for the zealous and efficient manner in which they have seconded my efforts on this, as on all previous occasions.

To Capt. A. B. Carey, my Chief Quartermaster, I am greatly indebted not only for the able and efficient manner displayed by him in the management of his department, but for the valuable assistance on other occasions; as also to my Chief Commissary Lieut. F. Cook, 5th Infty. U. S. A.

I am especially indebted to the zeal and intelligence of my acting Assistant Adjutant General, Lieut. L. F. Murphy, 1st Cav. N. M. Vol., and I particularly recommend him to the favorable notice of the General commanding as a most efficient and energetic officer.

My thanks are due to Surgeon A. F. Peck, and Assistant Surgeon J. H. Short, for their untiring attention to their duties. I am, Captain, very respectfully.

Your most obedient servant,

C. CARSON,

Colonel 1st N. M. Vol., Commanding.

Headquarters, Navajo Expedition, Fort Canby, N. M., April 10, 1864.

General J. H. Carleton,

Comd'g Dept. of New Mexico, Santa Fc, N. M.

GENERAL:—I have the honor to acknowledge the receipt of your communication of the 1st inst., a copy of which I respectfully enclose as you requested.

On the 13th inst. I shall send from here all the Indians who may be here at that time. I have now here two hundred and sixteen. As they are poor the sooner they go to work to raise grain the better.

I have unofficially learned that Captain McCabe lost while enroute by desertion one hundred Indians, headed by a son of the

late Chief Juanico; cause, want of sufficient to eat. I would respectfully suggest to you the propriety and good feeling of giving to the Indians, while at Fort Canby and Wingate, and while enroute to the Bosque Redondo, a sufficiency to eat. It is here and when enroute that we must convince them by our treatment of them of the kind intentions of the Government towards them, otherwise I fear that they will lose confidence in our promises, and desert also. As suspicion enters so largely into the composition of the Indian character the greatest possible care must be taken not to awaken it by acts contrary to the promises. I think one pound of beef or of flour, wheat or corn, as entirely too small an allowance for an able bodied Indian for one day.

The strength of this command for duty is nine officers and two hundred and seventy-three enlisted men. Of this number one officer and thirty soldiers are in the field as a protection to the Navajos enroute from south of the Red River against attacks from the Pueblo Indians or the Apaches. There is also a force at the herd camp. All the available transportation at the post will be sent away on Wednesday with the Navajos then here; and an escort will leave to accompany it; it will, therefore, be impossible for me, at present, to send a force against the Apaches.

I presume you have not received my last letter relative to the strength of the Navajos, when yours of the 1st inst. was written. All the information which I can collect on the subject confirms my belief that we have not as vet one-half the tribe at the Bosque Redondo. I have no exact information as to their actual numbers, nor can this information be got from either the prisoners, the Zuni or the Moqui Indians, all of whom I have questioned; nor can I point out their exact locality; but, I know the section of country which they inhabit, and were it necessary I think I could very easily find them. I do not think, however, that it will be necessary to go after them, as I am satisfied that they will all come in of their own account, as soon as they can. The vigor and energy which has characterized this campaign has fully convinced them of the folly of further resistance; and the hostility of the Pueblo and surrounding tribes of Indians, warn them that their only security is in that protection which the Govermnent offers them.

I have the honor to enclose a list of the Navajo Chiefs who signed the Treaty of Peace made with them by General Canby, with such remarks opposite each as I have been able to collect. It is probable that Herrera Grande may be able to tell you the number of each Chief's followers, and so arrive at an approximation of their strength.

The wisdom of removing the Navajos from this country cannot be too highly appreciated, nor do I think that any better location could be found for them than their present Reservation. Aside from the fact that there is no one place in this country sufficiently large, combining all the requisites of fuel, water and productiveness of soil for a reservation—the permitting them to remain in their own country would have the same effect as a treaty of peace and the experience of the last one hundred and eighty years has proven the worthlessness of such treaties, and what little attention has been paid to them by these savages.

I am. General, very respectfully,

Your most obedient servant.

C. CARSON.

Colonel 1st Cavalry, N. M. Vols., Commanding.

List of Chiefs of the Navajo Nation, who signed the treaty of peace with General Canby.

NO.	NAMES.	RAN	ĸ.
1.	Herrera Grande—(At the Bosque Redondo)	•	1
2.	Herrera Chiquito—(Dead)		2
3.	Agua Grande No. 1, or Totisonisne or Grandos Much	nos	3
4.	Armijo	. . .	4
5.	Manuelito—(Known to be southwest of L. H. C. B. River—"Powerful").		5
6.	El hijo de Juanico—(deserted from Captain McCawhile enroute to Bosque)		6
7 .	Totisonisne No. 2 or		7
8.	Tayoji		8
9.	Canallada Mucho (el tio de Basbon)		9
10.	Tocara (see Hijo—Southeast of L. H. C. Red River)	٠	10

^{*}This indicates their rank as it existed at the signing of the treaty.

11.	El Flaco or Eskate-si-ne
1 2 .	El Basbon No. 2, or Basboncito (supposed to have been
	killed)
13.	El Basbon No. 1
14.	El Basbon No. 3, or Kla.
15.	El Gordo
16.	Li Deigito (at the Dosque Reconco)
17.	Vicente Baca ğ
18.	El Sordo or Esquierdo—(supposed to have been killed) 🖔
19.	El Tapador
20.	Soldad Sardo (El hijo de sarcillo Laigo—At the Bosque
	Redondo)
1.	Armijo Viejo)
)—Did not sign the treaty.
2 .	Gallegos)

Headquarters, Navajo Expedition,

Taos, N. M., May 17, 1864.

SIR:—As the Navajo War is now virtually closed and forever, it may not be considered inappropriate for me to give a short history of it, inasmuch as it has cost the government so many valuable lives, and so much treasure.

Since the first Spanish settlements were made in this country—a little less than two centuries—the Navajo Indians have subjected the people to a forced tax, which swallowed up the fruits of their hard earned industry. But it was not alone their property which would satisfy them; the lives and the honor of daughters were being continually sacrificed by the remorseless savages; and it was of common occurrence the carrying into "Captivity Captive" their innocent children.

Owing to the strength of this tribe, which numbered then not less than sixty or seventy thousand (60 or 70,000) souls, embracing as it did some of those Indians who now call themselves "Apache" but who still speak the same language, and who are so alike, and to the fact that they inhabit a country equal to one-third of the whole Territory; that this section was a "Terra

Incognito" and that there is no portion of the American Continent so well adapted by nature for the peculiar style of warfare adopted by the Indians, it is not at all surprising that the many powerful campaigns made against them by the Spanish Government were entirely barren of results as to their subjugation.

By the Treaty of Guadalupe Hidalgo in 1848, this Territory became annexed to the United States. In the furtherance of its well known policy the government immediately turned its attention to the protection of its citizens. Believing that the policy pursued toward the other tribe of Indians would be effectual in keeping the Navajos at peace, agents were appointed and presents or annuities were distributed; and thus a peace or rather a "truce" was established, to be broken as soon as the want of food compelled them to visit the settlements in their predatory manner. From the fact that agriculture was unknown amongst them-that there was very little game in their country, and that they had to depend for subsistence on the increase of the flocks and herds previously stolen from the people, it is not to be wondered that the Treaty of Peace was soon disregarded. and again the work of murder and robbery re-commenced. The government now tried coercion, and an expedition was organized under the command of an able and energetic officer (Col. Washington, U. S. Army), who after a short but vigorous campaign reduced a portion of them to apparent submission. Again a treaty was made and presents distributed, but like the first it was like a lull in the storm, which again renewed its violence, and death and destruction followed on its path. And other and several other expeditions were organized, all ending and being followed with like results, not because the troops did not bravely, energetically and intelligently carry out their instructions; but because the policy adapted was erroneous.

The last and perhaps most successful expedition sent against them under this policy, was that of 1860-61, under command of Bvt. Col. (now Brig. Gen.) E. R. S. Canby, U. S. Army. The treaty made on this occasion was signed by twenty-two Chiefs, a greater number than on any other previous occasion. From this fact and other concurrent causes, it was believed that permanent peace and security was at last bestowed on the Territory, and commensurate to the boon was the joy of the people. Grain

and other seeds were given to the Indians, and they made gardens after their own mode and fashion—they not having made much advantage in agriculture, although many attempts had been previously made during the short intervals of peace. But, alas, we were shortly to be convinced of the utter hopelessness of expecting the observance of treaties by these people, or of placing faith in their promises.

Early in 1861 the Rebellion broke out, and all minor affairs were swallowed up in the major one of preserving the Union. The troops were recalled from the Navajo country to take part in the struggle, and hardly had they left their stations when the "war-whoop" of the relentless foe smote the hearing of our peaceable citizens with appalling destruction, the more appalling from being unexpected—owing to their faith in the treaty just concluded. About this time rumors reached us of a threatened invasion of the Territory by the Texans, and all the available force was needed to repel it, and the Navajos were consequently undisturbed in their infernal work of destruction. Well did they take advantage of this opportunity. Never before were their atrocities so numerous. They overran the whole country, and carrying their boldness so far as to enter the settlements and towns, carrying off their stock from before the people's eyes, and murdering citizens, even within two miles of the capital. No place was secure, and every town and hamlet became a fortification to protect its inhabitants.

It must not be supposed that during all this time the people were inert, on the contrary several parties were organized to pursue and punish their despoilers. In many instances they succeeded in this and in recovering their property; but in many others, I am sorry to say, failure and disaster accompanied them—owing. I presume, to want of proper organization and direction in their efforts, and to the fact of the organized militia force being engaged with the troops in repelling invasion, and absent from their homes, and to the generally disturbed state of the country. Nor were the Mescalero Apaches idle. They took advantage of the withdrawal of the troops from fort stations to pillage and lay waste the flourishing settlements established on the Rio Bonita, Toolorosa and ajacent streams, and this they did effectually—out of a well cultivated country making a desert.

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Shortly after the ignominious expulsion of the Texas invaders, General J. H. Carleton was appointed to the command of this Department, and with the greatest promptitude he turned his attention to the freeing of the Territory from these lawless savages. To this great work he brought many years experience and a perfect knowledge of the means to effect that end. He saw that the thirty (30) millions of dollars expended and the many lives lost in the former attempts at the subjugation, would not have been profitless, had not there been something radically wrong in the policy pursued. He was not long in ascertaining that treaties were as promises written in sand, nor in discovering that they had no recognized "Head" authority to represent them; that each chief's influence and authority was immediately confined to his own followers or people; that any treaty signed by one or more of these chiefs had no binding effect on the remainder, and that there were a large number of the worst characters who acknowledged no chief at all. Hence it was that on all occasions when treaties were made, one party were continuing their depredations, whilst the other were making peace. And hence it was apparent that treaties were absolutely powerless for good. He adopted a new policy, i. e., placing them on reservations (the wisdom of which is already manifest); a new era dawned on New Mexico, and the dying hope of the people was again revived; never more I trust to meet with disappointment He first organized a force against the Mescalero Apaches, which I had the honor to command. After a short and inexpensive campaign, the Mescaleros were placed on their present reservation.

KIT CARSON.

And here let me observe that the Department Commander has shown no less wisdom in his policy, the judiciousness in the selection he has made of a reservation. In the campaign against the Mescalero Apache and Navajo Indians, I have traversed nearly the whole Territory, and, in my opinion, a more judicious selection could not have been made. Besides removing these Indians from their former haunts and fastnesses, and from old associations where they would be continually reminded of the comparative impunity with which they formerly made the citizens contribute to their support, and rendering it much harder, if not altogether impossible, to teach them to depend on their honest industry to supply their wants.

Immediately following the removal of the Apaches to the reservation, an expedition was organized against the Navajos, the results of which are already known through my official report. Suffice it to say, that there are now between eight and nine thousand of these Indians at and enroute to the reservation, and the remainder of the tribe are making preparations to follow. The wisdom which inaugurated the policy of placing these Indians on a reservation has, no doubt, prepared a plan for their government until they become reconciled to their changed mode of life, and it is to be earnestly hoped that the General commanding may be permitted to carry out to completion the work so nearly consummated. This will still take time as every person acquainted with the history of these Indians will readily understand-a lawless savage cannot at once be converted into a peaceful industrious Pucblo; but that it can be done the history of these latter prove.

The foregoing is a short review of the Navajo war as to its final conclusion so far as active military operations are concerned; but there is still a great deal to be done in the way of teaching them to forget their old life, and in reconciling them to the new. To this end some person well versed in Indian character who knows these people and by whom he is known, and in whom they place confidence, should be placed immediately over them as Superintendent or Governor. He would supply their wants, and settle their disputes, which are often of a grave character, and instruct them in and direct their labors. One in fact to whom they could look for counsel and assistance in every and all emergencies. They should not be prematurely forced into civilization, nor into the habits or customs of civilized life; on the other hand. steps should be taken to prevent them from retrograding. I should respectfully suggest that a few companies of troops should be stationed on the reservation, not so much as a guard as farmers, who by example would practically convey more instruction to them in the science of agriculture, and much more rapidly than could be imparted in any other manner. In the meantime I would permit them to raise their grain according to their custom. That they can now raise good grain I can bear

witness to, my command having destroyed over two millions of pounds during the past campaign. The proceeds of the labor of the troops might be applied to make up the deficiency in the amount raised by the Indians for their support, or, if this was not needed, it could be turned over to the Quartermaster's Department. They should be restrained without their being made to feel it—governed with gentleness but firmness—and particular care should be taken that every promise made to them should be observed to the letter. In this way I am confident that in a few years they would equal if not excel our peaceful and industrious Pueblos, and be a source of wealth to the Territory, instead of being as heretofore its dread and impoverishers.

Trusting that I may not be considered intrusive in giving my views and suggestions on the matter.

I have the honor to be, sir, very respectfully.

Your obedient servant.

C. CARSON,

Col. 1st Cav. N. M. Vols., Comd'g "Navajo Expedition."



SIGNAL CORPS TROOPS WITH DIVISIONAL CAVALRY.*

By First Lieutenant E. J. NOWLAN, First Infantry.

DIVISIONAL Cavalry is maintained primarily to provide the tactical security of the command, but "when there is no independent cavalry out in front it is required to gain contact with the enemy, or at least explore the country to a considerable distance." (F. S. R.) The purpose of this article is to consider the use of Signal Corps troops acting with the cavalry under the latter condition.

The first and most important duty of the cavalry serving as part of a command is to obtain information concerning the enemy. This information, to be of value, must be transmitted with the least possible delay to the commander of the force and to such other officers as should receive it. The duty of transmitting this information devolves upon the Signal Corps.

The following means of transmitting information may be used:

- 1. Mounted Messengers.
- 2. Visual Signaling.
- 3. Electrical Signaling \{ \begin{align*} 1. Wireless. \\ 2. By wire. \end{align*}

THE MOUNTED MESSENGER.

Each of the several methods used in transmitting information has its advantages and disadvantages. The mounted messenger would be the best and most rapid means of transmitting a long message a short distance, while any of the other means would be more rapid in sending a short message a long distance.

^{*}Thesis submitted in the course at the Army Signal School and published by permission of the Assistant Commandant of the School.

VISUAL SIGNALING.

There are numerous instruments used in visual signaling, such as bombs, smoke rockets, sequence rockets, etc., all of which are valuable under certain conditions, but the most used are the flag, the heliograph and the acetylene lamp.

Signaling with the flag is very slow compared with other means; unfavorable conditions of weather reduce its efficacy, and it is liable to be seen and read by the enemy.

The heliograph is much more rapid than the flag and can be used over great distances. Both stations must have the use of the rays of the sun. Clouds or rain would prevent its operation.

With the acetylene lamp messages can be sent at about the same speed as with the heliograph. It can be used, under favorable conditions, over distances up to about thirty miles. A bright moon, fog and rain interfere with its use and, like all other visual signaling, it may be seen by the enemy.

WIRELESS TELEGRAPHY.

Wireless telegraphy, in respect to its use with rapidly moving columns, is still in the experimental stage. A field wireless set, to be of value with divisional cavalry should be one which would stand being rapidly transported in wagons or on packmules; it should be one which could be rapidly put in operation, closed and moved to another point; it should be able to tune readily with stations with which it is desired to communicate and to tune against other stations than that from which it wished to receive.

We must remember that the enemy would probably be as well equipped with wireless instruments as we are, which would necessitate our using a cipher code in transmitting messages in order to prevent him from gaining information.

There are a number of qualities lacking in wireless telegraphy, the possession of which would greatly increase its value for military purposes. One of these qualities is the power to control the direction of the waves sent out from the antenna so that instruments in that direction only will be able to receive the message sent. Experiments along this line have been made with some success.

WIRE.

The Morse telegraph instrument, while the best for permanent or semi-permanent lines, is not efficient where "Certainty of operation and extreme mobility are the prime requisites in the construction of tactical lines of information."

THE BUZZER (FIELD AND CAVALRY).

These instruments will work over poorly constructed lines where the insulation is too imperfect for Morse working; they will work over various kinds of bare wire laid on the ground; wire fences can be utilized; existing telegraph lines can be used without interfering with the use of the wire for Morse working; they will work with breaks of several feet in the line; they can be used as telephones, by means of which the commander of a force could, if he so desired, personally converse with his subordinates; they are compact, light, and easily carried and are indispensable to troops in the field.

EQUIPMENT.

Signal troops serving with divisional cavalry should be thoroughly equipped with visual signaling instruments, field buzzers, cavalry buzzers, field wire, buzzer wire, automatic reel carts and wire wagons, pack animals, riding animals, instrument wagons, pay-out reels, repair kits, etc., so that they would be able to follow the cavalry wherever it might go and transmit information under all conditions.

THE SYSTEM OF LAYING LINES.

The system of laying the lines connecting the divisional cavalry with the main body depends upon the formation taken up by the former and the nature of the country in which operations are taking place. Normally the divisional cavalry, acting without independent cavalry, would follow the general direction of the road over which the main body intended to move; the cavalry commander with the bulk of his force would move on this road and would be connected to the main body by the main trunk line consisting of field wire. Flanking troops would cover any roads running parallel to the line of march. These troops would be connected to the main trunk line by means of mounted messengers, visual signaling, or by lines radiating from the

trunk line. If the latter method was employed the line would be either of buzzer or field wire according to the distance from the trunk line and the length of time it would be in use. If it was intended to follow the flanking troops with a line, it should be of field wire. In order to economize in wire and to avoid overloading the stations on the main trunk line with messages, new radiating points would be selected as the troops advanced, new lines laid out to the flanking troops and the old radiating lines, now not in use, would be taken up by the Signal Corps troops with the main body and sent to the front.

For the purpose of testing the ability of the Signal Corps to lay and maintain lines of information connecting divisional cavalry with the main body, the following map problem was selected. This problem was given to the student officers of the Infantry and Cavalry School for solution. The map used was that of Fort Leavenworth and vicinity.

DEPARTMENT OF MILITARY ART. INFANTRY AND CAVALRY SCHOOL, 1906-7.

COURSE IN TACTICS-ARMS COMBINED.

Map Problem No. 1 (Applied Tactics)—A March to the Front.

GENERAL SITUATION:

Our 2d and 3d Divisions, in friendly country, are concentrating about Leavenworth, Kansas. The enemy is approaching the Missouri river from the west along the line of the Union Pacific Railway. His advance troops are reported to have occupied Valley Falls (twenty-eight miles west of Leavenworth) with a column of all arms on the afternoon of August 2, 1906. Hostile cavalry patrols were seen near Easton about 6 P. M. the same day.

SPECIAL SITUATION:

A detachment, under General A, consisting of:

1st Infantry,

2d Infantry,

2d and 3d Squadrons, 4th Cavalry,

Batteries A and B, Field Artillery,
Co. A, Engineers (pioneers),
2 officers and 50 men, F Co., Sig. Corps,
Ambulance Company section, 4th Field Hospital,
is quartered for the night, 2/3 August, at Fort Leavenworth, behind the general line of outposts which is furnished by other troops.

At 10 P. M. General A receives orders to proceed next day with his detachment toward Easton, Kansas, to observe the crossings of the Big Stranger Creek in that vicinity, and to delay the enemy if he attempts to cross that creek.

REQUIRED:

- 1. General A's estimate of the situation.
- 2. His orders for the 3d of August.

DEPARTMENT OF MILITARY ART. INFANTRY AND CAVALRY SCHOOL, 1906-7.

COURSE IN TACTICS-ARMS COMBINED.

Map Problem No. 1—A March to the Front.

AN APPROVED SOLUTION.

1. ESTIMATE OF THE SITUATION.

Orders—General A is ordered to proceed in the morning with his detachment towards Easton. Kansas, to observe the crossings of the Big Stranger Creek in that vicinity, and delay the enemy if he attempt to cross.

There are two wagon bridges in the immediate vicinity of Easton and the Union Pacific Railroad bridge. About one and one-fourth miles north of Easton there are two bridges near 89 and probably another about a mile further north near Millwood. To the south there is a bridge near 114 about two and three-fourths miles from Easton and two more near 182, about two miles further south. The order does not specify the exact points that General A will observe. His objective is given as Easton but in order to carry out the purpose of his order he should also watch the crossings north and south of Easton within the

limits above described. From the statement of the problem it may be assumed that the Big Stranger is practically unfordable.

The Enemy—Information as to the exact strength of the enemy is lacking. A force of all arms occupied Valley Falls this afternoon and cavalry patrols were seen about 6 P. M. near Easton—some 18 miles further east. The presence of artillery with the column and the fact that cavalry patrols were pushed so far to the front would indicate that the hostile force consisted of at least two or three regiments of infantry and a considerable proportion of cavalry. It is, however, quite possible that the enemy may be in much greater strength.

The statement that these are his advanced troops indicates that a larger force is following, but there is no information as to its strength or distance.

The report did not say that the enemy passed through but that they occupied Valley Falls this afternoon. As the days are hot in August, and marching fatiguing, it is probable that he intends to halt there for the night, and advance in the morning towards Easton, while the cavalry will move up to the crossings over the Big Stranger and reconnoiter towards Leavenworth.

The enemy has assumed the initiative and is approaching the Missouri River. He doubtless has some information about the concentration of our divisions near Leavenworth. In carrying out an offensive movement against them, it is important to seize the crossings over the Big Stranger. It seems probable then that the intention of the enemy is to seize with this advance column the crossings of the Big Stranger near Easton and hold them until his main force arrives, when an offensive movement will be made on our troops about Leavenworth.

General A's Own Forces.—General A's detachment considering its size, is well supplied with artillery and cavalry and is thus comparatively strong in defense and reconnaissance, which is particularly desirable in this case. The Signal troops attached should enable him to maintain communication by wire or telephone between the groups watching the crossings along the Big Stranger, and he will thus be promptly advised as to any threatened point. The Engineers will assist in putting the crossings in

a state of defense and preparing the bridges for destruction in case of necessity.

Two divisions are concentrating about ten miles to the rear

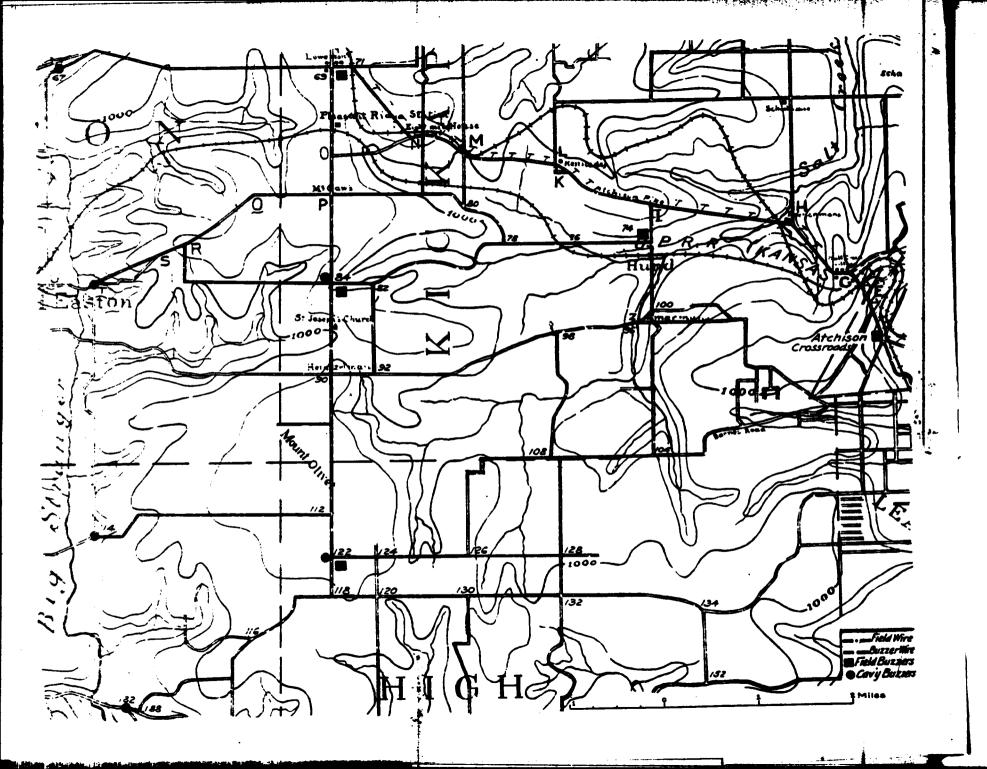
Two divisions are concentrating about ten miles to the rear and General A can count on a reasonable support from this force. The inhabitants are friendly, and this is a matter of considerable value to him.

Map—From Fort Leavenworth to Easton by the nearest road is about 11 miles. There is but one road (the Atchison Pike), leading from Fort Leavenworth toward Easton until a point I is reached about 1½ miles west of Frenchman. Here three roads become available, and at 78 still another road can be utilized. These roads are connected by cross-roads, and unite so as to enter Easton on the north and south.

The extreme southern road I—100—94—88 and the extreme northern road I—K—N—O—P—R—T are the longest and possess no special advantages, and the I—74—76 route will naturally be selected as far as 78. Here General A must decide whether he will take the 78—80—P road to R. or the 78—82—84 road to R. They are of about equal length. The former lies nearer the Union Pacific railroad and is less intersected by water courses, but crosses a high cleared hill at P, and from there on would be more or less under the observation of hostile patrols on the heights west of Easton. The lower road, while perhaps a trifle rougher, will conceal the march of the column much better.

At this season of the year (August) all the roads are good, and, as General A does not apprehend meeting the enemy in force, this side of the Big Stranger, the question of concealing the strength of his detachment is therefore one of the chief considerations on this march and decides him to select the lower road.

In general the country between the Missouri and the Big Stranger is hilly and rolling, well cultivated and dotted with farm houses. While there are numerous small water courses, whose banks are fringed with trees, the only streams of any consequence are Salt Creek and its tributaries. Salt Creek runs near Fort Leavenworth, is crossed by several bridges, and is in a friendly country. The hills which separate the Missouri from Salt Creek



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are steep and partially wooded. They overlook Salt Creek valley and the country to the west for several miles. The watershed between Salt Creek and the Big Stranger is practically of the same height, but is more open and the slopes are much gentler. This watershed passes through Lowemont P and Mt. Olivet and overlooks Salt Creek Valley to the bluffs on the east, and the Big Stranger Creek to the hills on the west. The A., T. & S. F. R. R. runs northwest from Leavenworth through Lowemont and the Union Pacific from Leavenworth west through Easton. Lowemont should be visited because of the telegraph station, and Millwood, a small town west of Lowemont, because it is near one of the crossings of the Big Stranger.

If the enemy's column camp at Valley Falls tonight it will have to march about 18 miles before reaching the Big Stranger, while General A has to march only 11. On the other hand, the enemy's patrols have already advanced to Easton and it is probable that his cavalry will attempt to occupy the Big Stranger crossings and push patrols east towards Leavenworth before the arrival of our cavalry in the morning.

It is moreover evident to General A that his cavalry must prevent hostile patrols from occupying the watershed east of the Big Stranger if he intends to conceal the march of his column through Salt Creek.

General A decides to push forward rapidly his cavalry early in the morning and to follow promptly with the detachment on one road. If the cavalry encounter the enemy and cannot make headway, it can thus be promptly supported.

He makes no arrangements yet as to how the crossings of the Big Stranger are to be held. He must first get there and the other question will be decided later.

If General A start at 5 o'clock, which is not too early in August, his cavalry if unopposed and moving in a friendly country should reach the Big Stranger by about 7:30 A. M.—his main body marching at the rate of $2\frac{1}{2}$ miles an hour by about 9:30 A. M. The enemy's main force if it leaves Valley Falls at the same hour, can hardly reach the Big Stranger before 1 P. M. So General A should have time to push back the enemy's cavalry

and occupy the crossings before the arrival of the enemy's col-

Having arrived at this conclusion, General A issues the following order:

(2) The Order:

Major A.

Advance Guard:

2 bns. ist Inf.;

Btry. A. F. A.

Btrv. B, F. A.

2d Inf.

(d. Signal Troops:

Lt. Col. B.

2d & 3d Sqs, 4th Cav.

(less | plat.)

1 plat 4th Cav.; Mtd. Det. Co. A, Engrs.

ist Inf. (less 2 bns.)

Amb. sec. 4th F. Hosp.

Lieut, D.

Det. Field Co.

Main Body - in order of march:

Co. A, Engrs. (less Mtd. Det.).

HEADQUARTERS DETACHMENT SECOND DIVISION,
FORT LEAVENWORTH, KANSAS.

2 August, '06; 11:30 P. M.

FIELD ORDERS)
No. 1.

TROOPS:

- A hostile column of all arms is reported to have occupied Valley Falls this afternoon.
- Hostile cavalry patrols were seen near Easton about 6 p. m. Our 2d and 3d divisions will re-
- main at Leavenworth.

 2. This detachment will march to-
- morrow to Easton to hold the crossings of the Big Stranger Creek.

 (a) Independent Cavalry:

 3. (a) The independent cavalry will
 - 3. (a) The independent cavalry will start at 5 a.m. and trot ahead to Easton, reconnoitering the crossings of the Big Stranger at Millwood, 80, 114, and 182, and patrol to the west.
 - (b) The advance guard will clear D at 5:15 a. m., marching by the E-G-Atchison Pike-I-74-78-82-84-R-Easton road.
 - (c) The main body will follow the advance guard at about 800 yards.
 - (d) The signal troops will establish and maintain a line of information along the line of march between the independent cavalry at Fort Leavenworth. Two of the stations will be at 74 and 84.
 - 4. The baggage train; escorted by r squad, 2d Infantry, will start at 6 a. m and follow as far as G, where it will be formed in column of route on the road G-16, with the leading wagon at G, and await further orders.
 - The detachment commander will be with the main body until 6 a. m. and thereafter with the advance guard.

By command of General A,

Major 2d Infantry,

Actg. Adjt. General,

Copies to Major A, Lt.-Col. B, commanders of the 1st Inf. (Col. C), 2d Inf., Arty., Engrs., and Staff.

Copy by wire to division commander.

In paragraph 3(a) of the order issued as an approved solution, the cavalry is ordered to trot ahead to Easton, reconnoitering the crossings of the Big Stranger at Millwood, 89, 114, and 182, and patrol to the west. In this order General A tells Major A (the cavalry commander) in general terms, what he wishes him to do, leaving the details of performing the same to be worked out by Major A.

As there is no independent cavalry in front, part of Major A's duties will be to screen the command during its advance. To do so he will have to reconnoiter the country as far to the flanks of the line of march as is possible without delaying too much his advance toward Big Stranger Creek. After looking over the map Major A decides to move the bulk of his forces via Atchison Cross — Frenchman's — I — 74 — 78 — 84 — R — T—Easton. This force would send detachments along the roads 78—80—P—Q—R and 76—96—94—90—86—Easton. Upon arriving at I he would send one troop over the road I—K—L—M—69—63 to Millwood.

When he reached 74 he would send two troops via 74—100—98—108—128 to 122, where they would separate, one troop moving by the road 118—174—182, the other troop by the road 112—114.

Having reached the foregoing decision as to the method he intended to use in carrying out General A's order. Major A would embody the same in an order, a copy of which would be furnished the Signal officer.

THE SIGNAL OFFICER'S PLAN OF LAYING LINES.

The Signal officer is directed, in paragraph (d) of General A's order, to establish and maintain a line of information along the line of march between the independent cavalry and Fort Leavenworth and to establish stations at 74 and 84. When he receives Major A's order, he sees that it will also be necessary to keep the troop, moving to the northwest from I, and the two

troops, moving to the southwest from 74, in communication with the main trunk line.

He therefore formulates the following plan:

To send thirty of his detachment with the cavalry, the remaining twenty to move with the main body, repairing the line, cutting in stations when necessary, and taking up wire no longer used. The detachment with the cavalry to establish a station and begin laying wire from Atchison Cross. The detachment with the main body to establish a station at Fort Leavenworth and lay a wire to Atchison Cross.

The detachment with the cavalry, after having established a field buzzer station at Atchison Cross, to lay a field wire along the line of march to 84, to establish field buzzer stations at 74 and 84; to lay a field wire from I, cutting in on the main line at that point, to 69 and there establish a field buzzer station; to lay a field wire from the station at 74 to 122, where a field buzzer station would be established. From 122 to lay lines of buzzer wire to 114 and 182 and to open cavalry buzzer stations at these points; from 84 to lay a buzzer wire to 122 and one to T, where a cavalry buzzer station would be opened; from 69 to lay buzzer wires to 84 and 67 and to open a cavalry buzzer station at the latter point.

As will be seen by referring to the map, submitted herewith, we now have 182—114—T and 67 all connected to the main trunk line at 84. The lines from I to 69 and 74 to 122 are now no longer needed and would be taken up by the detachment with the main body.

With the assumption that the cavalry advanced to Big Stranger Creek with little or no opposition on the part of the enemy, the above plan of laying lines was actually carried out, under the supervision of the undersigned, on May 24, 1907.

The personnel and transportation used in performing this work was as follows:

30 enlisted men (12 mounted), Company "A," Signal Corps;

- 3 civilian teamsters;
- 2 escort wagons with pay-out reels;
- 1 wire wagon;
- 1 automatic reel cart.

The detachment was composed of three wire platoons. The first platoon, which laid the wire from Atchison Cross to 84, consisted of the automatic reel cart and a soldier driver, four mounted men, and escort wagon with civilian teamster, a pay-out reel mounted on the wagon and seven enlisted men riding in the wagon.

The second platoon, which laid the wire from I to 69, consisted of one civilian teamster, one escort wagon with pay-out reel mounted on the same, four mounted men and five enlisted men riding in the wagon.

The third platoon, which laid the wire from 74 to 122, consisted of one civilian teamster, one wire wagon, four mounted men and five enlisted men riding on the wagon.

It was originally intended to leave the post at 5 A. M., the hour designated in the problem, but as the men and animals available for this problem were in the field on another problem the day preceding, from 7 A. M. until 9 P. M., it was decided to make a later start.

The detachment left the post at 8 A. M. and arrived at Atchison Cross at 8:25 A. M. At this point the first platoon opened a field buzzer station, left two men, and proceeded to lay a field wire, using the automatic reel cart. When the wire reached I the second platoon tied to the main line and proceeded to lay a field line to 69. The first platoon continued on to 74, where it arrived at 8:55 A. M. At this point the first platoon opened a field buzzer station, left two men, and the reel cart, which was out of order, and continued laying wire toward 84, using the escort wagon. The third platoon tied to the station at 74 and began laying a field wire toward 122.

The first platoon arrived at 84 at 9:45 A. M. and opened a field buzzer station. At this point a cavalry buzzer station was also opened and buzzer lines sent to 122 and T.

At 9:55 A. M. 69 reported to 84, via 74, stating that buzzer lines had been sent out to 67 and 84.

At 10:10 A. M. 122 reported its arrival at that point, stating that the third platoon had not as yet reached that point.

At 10:13 A. M. T reported and the buzzer line sent from 69 arrived at 84.

At 10:18 A. M. 67 reported.

At 10:25 A. M. 122 reported the arrival of the third platoon at that point.

At 10:48 A. M. 114 reported and 182 reported at 10:55 A. M., which completed the problem.

In the approved solution it was estimated that the cavalry would reach the Big Stranger Creek in two hours and a half. It will be seen, by referring to the time of departure and the time that the several stations reported, that, with the exception of 114 and 182, all stations and lines were in operation within two hours and twenty-five minutes after leaving Fort Leavenworth.

Communication between 74 and Atchison Cross was interrupted for ten minutes, due to a break in the line. This was repaired by 74.

Shortly after 122 had reported, the buzzer wire between that point and 84 was broken by some loose stock. This was repaired by 84. With the exception of these breaks, all lines and instruments were in perfect working order at all times.

As the twenty men supposed to have been with the main body were not available, the line from Fort Leavenworth to Atchison Cross was not laid and the lines from I to 69 and 74 to 122 were not recovered until the end of the problem, when they were taken up by the platoons that laid them.

The automatic reel cart used in this problem was one recently received at this post. It is a two-wheeled cart with a drum, holding the wire, mounted on the axle. It is drawn by two mules in tandem, the driver mounted on the wheel mule. While it is an excellent piece of apparatus in many respects, the following defects were noted: The sprocket wheel which controls the reeling-up gear was not securely fastened to hub of the running wheel. During the solution of the problem the screws holding the sprocket wheel came out and were lost, making it impossible to use the cart to take up the wire. An escort wagon was therefore used in its place. This defect has since been remedied. The man riding the wheel mule not only drives the mules but also controls the mechanism of the cart, which gives him too much to attend to. The traces from the lead mule are fastened to the collar of the wheel mule. This arrangement is faulty, as the traces of the wheel mule do not form a straight line with those

of the wheel mule, but form an angle at the collar of the wheel mule, causing a continual pressure on the wheel mule's neck. The cart, when loaded with wire, is not balanced, being heavy in front. This weight, together with that of the rider, is very hard on the rear mule.

It is thought that a wagon built on the type of an artillery caisson would be better than this cart. A wagon of this sort would require two men, a driver and a man to operate the mechanism, and probably four mules, but it could go anywhere the cart could, could carry more wire and, it is believed, would do faster and better work.

The escort wagons, on which pay-out reels were mounted, did excellent work in this problem. The wagons are rather cumbersome. Placing the coils of wire on the reel and splicing causes some delay and a great deal of manual labor is required in taking up wire, but, in the absence of automatic reel carts or reel wagons, can be relied on to do fairly rapid work over good roads.

With the exception of the teamsters and the men operating the automatic reel wagons, all men should be mounted. Instruments, flag kits, etc., not carried by the mounted men, should be carried in light instrument wagons or on pack mules.

Signal troops properly equipped would have no difficulty in maintaining lines of information between divisional cavalry, acting as independent cavalry, and the main body of the division.

ORGANIZATION OF A REGIMENT OF VOLUNTEER CAVALRY.

BY CAPTAIN ALONZO GRAY, FOURTEENTH CAVALRY.

STATEMENT OF PROBLEM.

AM appointed colonel of one of the second line regiments of cavalry, that has been raised in Texas. My regimental staff has been appointed from non-commissioned staff sergeants. One major has been appointed from first lieutenant of a regular regiment. Six lieutenants serving with troops are ex-sergeants of regular cavalry. My men and officers can all ride, many are experts. They are an intelligent and good class of men, but know nothing of military matters other than above cited. The regiment is fully armed and equipped. Horses have just been turned over by the contractor and average about as remounts do in the regular service.

Required:

Outline a method of procedure to make this mass available as part of the army in the field in the shortest possible time.

Solution:

In working out this problem it is necessary to make certain assumptions, and in doing so I shall draw somewhat from my experience with the 14th Cavalry which was organized at Fort Leavenworth in March, 1901.

I was the first officer to join and was immediately appointed acting regimental quartermaster. I was taken to a set of barracks, now occupied by one of the cavalry troops, where I found the lower and upper floors stacked full of original packages comprising the complete clothing, arms, and equipment of a regiment of cavalry at war strength.

I was handed a stack of invoices about six inches high, and was told "Here are your invoices and here is your property."

It is not likely that the supply departments will be less effi-

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cient in the future, and it is a fair assumption that all clothing, arms, and equipment will, be found on hand in original packages.

The regimental staff officers have been provided for; and, having been sergeants of the general staff, they will be thoroughly familiar with their duties.

There is, however, a position which I consider very important, and that is a regimental ordnance officer. Some national guard troops now have them. Many now advocate that one captain be added to each regiment for this purpose. The matter is worthy of consideration. In time of peace he could be the Post Ordnance Officer, and hold on memorandum receipt all of the ordnance property in the post just as the Quartermaster now does the quartermaster property. He would render one return for all of it, thus saving paper work at Army Headquarters.

In case the supply departments do not ship without requisition the full equipment of the regiment, then it would be necessary to make requisition for the same, and the colonel should know how to go about it. G. O. 95, W. D. 1908, gives a complete table of all supplies and equipment furnished by the quartermaster's department. Pages 43 to 66, inclusive, give a list for a regiment of cavalry, and anybody that can read can find out just what will be supplied.

In the organization of the 14th cavalry, the Ordnance Department shipped, without requisition, everything that the regiment needed.

In case it should not do so, and a requisition should have to be made, the personal equipment of a cavalry soldier is given in G. O. 23, W. D. 1906.

The ordnance requisitions have printed on the back a supply table which shows exactly what will be furnished.

The Ordnance Department has tables showing:

- 1st. The arms and equipment of a cavalry regiment.
- 2d. A list of materials issued to different organizations.
- 3d. A list of tools issued to different organizations.

To a regiment completely organized, the Engineer Department furnishes reconnoissance material as well as material for demolition. I at first thought to give complete lists of all property furnished by the supply departments, but, as these lists

change frequently, lists furnished now would not necessarily be accurate for future use. I therefore omit them.

Personnel:

It is presumed that, in future, the same system would be followed as was followed in 1898. This system was to raise the troops in different towns and muster them in; then concentrate the regiment in some central place like San Antonio. The regiment under consideration is a second line regiment, and differs from a national guard regiment called into the service of the United States; the latter is called in with its organization complete, while the former is a Texas regiment whose organization is not complete. The Governor, however, appoints all the commissioned officers.

As colonel, then, I may expect to find the commissioned officers all appointed, and the appointment of non-commissioned officers still pending. While it is the Colonel's duty to appoint the latter, he can do so only on the recommendation of the company commanders.

The Colonel still has the power to transfer officers from one troop to another. He should not do so, however, unless for very good reasons. The officer coming from the same locality as his men, will know them better and take a local pride in the welfare of the troop.

Two methods of organizing this regiment occur to me:

- 1st. Organize one squadron with the greatest perfection, and use that as a model on which to build the others.
- 2d. Organize all three squadrons at the same time keeping them all at the same degree of efficiency:

If only about half of the personnel were present, the first method would be the best. In the present problem all the personnel are present, and the second method would be preferred. I would assign the six lieutenants who were ex-sergeants of regular cavalry so that each squadron would have two, each of these two being in different troops. It is to be noted that one major is a lieutenant of a regular regiment, and that neither men nor officers know anything about military matters other than as stated. I would appoint this officer temporarily to the position of Regimental Ordnance Officer for the purpose of distributing

the ordnance property. He could then resume a field officer's duty and be assigned to the command of a squadron.

Sanitation:

This regiment will have one surgeon and two assistant surgeons.

I would immediately appoint one of them Sanitary Officer and put him in charge of camp sanitation.

I would at once adopt and enforce a rigid set of sanitary rules and endeavor to impress on the men and officers, from the first, that their future usefulness depended upon a scrupulous regard of these same sanitary measures.

Messing:

I would find the best cook in the regiment and utilize him as an instructor of all the others, having him daily visit all kitchens and personally supervise the work of all the other cooks.

I would assemble daily, so long as necessary, all troop officers and mess sergeants and have them instructed by the Regimental Commissary, who has been a post commissary sergeant, in the best and most economical use of the rations.

A school of bakers would be established, field ovens of different types be constructed, and practical demonstrations held, all officers being required to attend. Each troop should then be required to construct and use one until good baking could be done.

Instruction should be given in the individual use of the mess kit. Great stress should be laid on the subjects of sanitation and messing. In my opinion they are the two greatest factors in the effectiveness of a command.

Clothing and Equipment:

It is necessary that clothing be issued as soon as possible for the reason that skin disease, lice and other vermin are of frequent occurrence in such a body of unorganized and undisciplined men. The issue of equipage should be in the order of its importance; that not being immediately needed, left till the last.

The Regimental Quartermaster will need help badly; but in his case, as in others, he will have to make the best of such talent as the regiment affords.

Drill:

Having seen to the sanitation, messing, clothing and equip-

ping the regiment, the matter of drill should then be taken up.

The dismounted drills would at first receive the greater part of the available time. Owing to the locality in which the regiment was raised, nearly all are familiar with the use of firearms and many are expert shots.

The best regiment will be the one where the men are brought to a uniform degree of efficiency. After recruits have had a few close order drills, extended order drill will be given, and the effectiveness of the weapon will not be impeded by the formalities of drill. (D. R., Par. 19 and 20.)

The training will be at first individual, progressing to small squads and later to full squads, platoons and troops. (D. R., Par. 21.)

Short and frequent drills are preferable. (D. R., Par. 22.) With a progressive system of instruction individuals can progress according to their ability; those with least aptitude being placed under the most capable instructors. (D. R., Par. 23.) It quickens the perception of any man to act as instructor, and it further stimulates his interest.

Use of Mounts:

While the use of mounts is important, during the first two weeks it should be made subordinate to the dismounted drill. It is hardly necessary to say that stables would be held daily.

The condition imposed by the problem is that "all officers and men can ride, many are experts." This condition will greatly facilitate the advancement of the regiment in mounted work.

I consider it absolutely essential that horses should be handled daily. The gentling of the horses is of equal importance with the training. The most effective work comes from blending the temperament of the man with that of the horse. While the assignment of horses is the captain's duty, it is essential that the men be given an opportunity to get acquainted with the horses. It will take at least a month for the captain to ascertain which men can get best results from certain horses.

At first the work should be individual, the men of most experience handling the least trained horses, and the well broken horses being handled by the poorest horsemen. These horses average about as remounts do in the regular service. Coming from Texas some will have broncho blood and will have to be handled carefully, so as not to bring out dormant inherited viciousness.

The proper way to train mounts is to first school them on the longe; but because of the condition imposed that "The regiment should be made available as part of the army in the shortest possible time," the best results will be obtained by endeavoring to get the horses to go quietly along, at first led with the saddle on, then ridden and then ridden with the pack. After the horses will go quietly and individually, they should be collected into small groups and so moved about. Then the individual work of the trooper mounted can begin with a view to applying the aids, suppling and bending. This should be concurrent with the close and extended order mounted drills.

Target Practice:

Target practice should not begin until after the second week. The good shots should not be given much practice, the time being spent on the poorer shots with a view of bringing all men up to a uniform degree of excellence.

• During this time the horses should be kept on a picket line near the firing point, so as to accustom them to the sound of firing.

General Observations:

In the regular service, where we have a nucleus of trained troops, we do not claim to make a good cavalryman out of a recruit of ordinary aptitude under two years, although an indifferent one can be made in one year.

Such multitudinous duties as mounted and dismounted drills, messing, sanitation, care of horses, first aid to the injured, demolition, target practice, scouting, reconnoitering and reporting, signalling, individual training of the horse, proper use of the three arms in individual and shock action, etc., cannot be learned thoroughly in a short time.

In the problem before us the effectiveness of the regiment as a unit should be the controlling idea. This can best be accomplished by specializing.

Scouting:—No doubt a number of expert shots, scouts and trailers could be found in the regiment, who had served in the

Texas Rangers. I would group them together as a scout and sharpshooter corps, and give them a field organization under a capable leader and depend on them for scouting and reporting.

Reconnaissance:—One should also be able to find a number of bright young college or high school men who would respond to a course in road sketching.

Signalling:—There should be no trouble in finding a number of men who know the Morse code, and with these a competent signal party could be organized. I take this opportunity to say that I think the War Department made a mistake when they went back to the Meyer code, for no other reason than because it is used in the Navy. The advantages of the Morse code are so numerous, in time of war, that we cannot afford to disregard them.

Demolition:—There will, without doubt, be a few miners in the regiment who can be organized into a demolition squad.

First Aid should be extended to everybody but only to the extent of stopping bleeding and putting on bandages.

Records:—One of the greatest trials that a commander finds in dealing with a mass of men like this, is to get them to appreciate the value and necessity of records, the use of written reports, or formal requisitions.

This instruction might be given, as shown in the schedule, by the Major who is also a regular lieutenant.

The appointment of non-commissioned officers should be, at first, only acting, and made by the troop commanders. After the non-commissioned officers have demonstrated their efficiency, their appointments can be made permanent by the regimental commander.

It is deemed advisable to formulate some scheme of progressive instruction for the regiment and it is given below. It is likely, however, that in the organization of different regiments, the conditions will vary considerably and the scheme here adopted will not necessarily apply to other regiments. Each regimental commander will have to work out his problem according to the conditions as they actually exist.

SCHEME

Setting up drill daily for 15 minutes after reveille.
1st Squadron Draw clothing
1st Day 2d Squadron Draw ordnance
[3d Squadron Draw camp equipage
(1st Squadron Draw ordnance
2d Day{2d Squadron Draw camp equipage
(3d Squadron Draw clothing
• (1st Squadron Draw tamp equipage
3d Day 2d Squadron Draw clothing
3d Squadron Draw ordnance
JA. M. Instruction in messing
(1st Squadron) P. M. Instruction in sanitation
4th Day{2d Squadron Issue ordnance and equipage to men
[3d Squadron Instruction in keeping records
[1st Squadron Issue ordnance and equipage to men
5th Day{2d Squadron Instruction in keeping records
[3d Squadron] A. M. Instruction in messing
(P. M. Instruction in sanitation
[1st Squadron Instruction in keeping records
6th Day{2d Squadron \ A. M. Instruction in messing
P. M. Instruction in sanitation
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3d Squadron Issue ordnance and equipage to men

In six days, then, the regiment will have been completely clothed and equipped, and will have had some instruction in messing, sanitation and keeping of company books and records.

7th Day:-Rest.

This I regard as necessary in order to allow the men to straighten out their numerous outfits and to clean up.

We are now ready to start drills and other instruction.

SECOND WEEK.

First three days:—Dismounted drills (individual and squad), and first aid to the wounded.

Last three days:—Dismounted drills, close order (platoon and squad), extended order (squad and platoon).

Mounted drill during this week will be confined to handling and gentling of horses.

THIRD WEEK.

Target practice with the rifle. Mounted drill (individual and squad, close and extended order, squad leading).

FOURTH WEEK.

Target practice with both rifle and revolver. Mounted drill (platoon and troop, close and extended order).

FIFTH WEEK.

Squadron drill, mounted, (close and extended order, suppling, bending and schooling horses); individual messing, camping.

SIXTH WEEK.

Regimental drill, and in the School of the Soldier, setting up exercises and saber drill.

Signalling, map making, scouting and demolition are provided for, at first, by special detachments and the instruction extended to others as time and opportunity will permit.

Officers' school will have to be held at some time. At first it would probably have to be at night, going over the work for the following day.

From this schedule it will appear that the regiment will be able to go into the field at the end of four weeks and do some kind of fighting. At the end of five weeks, the squadron will be able to maneuver some; and at the end of six weeks, the regiment will, after a fashion, be able to execute regimental maneuvers.

It will be said that the progress is too fast; I answer that the conditions fixed by the problem are exceptionally favorable to rapid progress. The problem also requires that "The regiment be made available for use as a part of the army in the shortest possible time."

It may also be said that the men have been worked too hard and that they will not submit to such hard work. I believe they will. They are volunteers and it is time of war. If the men can be made to understand that their chances of getting to the front depend on their advancement, they will, under such circumstances, give a hearty response to the efforts of their officers.

NOTES ON RIDING AT THE MILITARY ACADEMY AND THE MOUNTED SERVICE SCHOOL.

By Captain GUY V. HENRY, TWELFTH CAVALRY.

THE Editor of the Cavalry Journal has stated that it is the desire of the Journal to discuss the question of riding as taught at West Point and Fort Riley in the January number of that magazine. A proper survey of this work would take much more time than is at hand between now and December 1st, when the January number goes to press.

I do not desire to enter into any discussion as to the merits of anything which is now being done at West Point or the Mounted Service School, although I realize that much criticism, both favorable and adverse, is going on and that there are many officers in the service that would like to know what instruction is really being given.

Having served at the Mounted Service School as a student, and as its Senior Instructor of Equitation, and now being the Senior Instructor in Cavalry at the Military Academy. I feel that I know pretty well what has been done at both institutions since the recent renewed attention to horsemanship has started in our mounted services.

As to adverse criticism there has been some, but I thoroughly believe that it has come from those who are not really conversant with what the instructors have tried to teach. No one can visit these schools for a day, or two days, and draw a fair estimate of what the student is expected to learn. Only about ten per cent of any class in equitation will really ride and handle their horses as their instructors would wish, and even many of this ten per cent will make errors when they get out from under their instructor's eye, this due to inexperience in equitation. To show that you must not expect too much even from this ten per cent, I will quote a few lines from last year's annual report of Captain Walter Short. 13th Cavalry, now Senior Instructor of

Equitation at the Mounted Service School: "The detail to the French Cavalry School at Saumur should be given as a reward to that graduate of this school who has shown himself best adapted for higher education in horsemanship. An excellent graduate of this school would be about abreast of his foreign comrades upon admission to Saumur."

All the above is given as a preliminary because I have seen classes come and go, and know the advances that they have made, and also because the criticisms of those who actually know what has been going on at these two schools have almost universally been highly complimentary to the work.

In the following I will briefly try to outline what I have attempted to teach the various classes of officers, cadets, and enlisted men that I have had under my instruction in as far as it relates to the seat, and the use of the English saddle, these being the two points the Editor of the Journal has requested me to specially cover.

THE SEAT.

Many seem to think that some new seat is being taught at these schools, and this is not only the idea among outsiders, but to some extent among many of the students as well. The instructions that I have always given have been the same for either the McClellan or English saddle, and are as follows:

Upper portion of the body and buttocks as usual, stirrups for the average man of such length that when the leg is hanging naturally the tread of the stirrup will strike the foot between the top of the heel and the spur, the thighs and heels well shoved down, foot approximately parallel to the horse's side, and a light touch of the calf against the horse's side. Briefly repeating, if the rider has a good, firm hold with the upper leg, the legs and heels well shoved down, feet approximately parallel to the horse's side, light touch of the calf against the same, and his stirrup straps hanging vertical, his position is in all probability correct.

Analyze the above with the Cavalry Drill Regulations and you will find that the only differences are that the stirrup straps are about one hole longer, the lower leg slightly further to the rear and slightly touching the horse's side instead of hanging entirely free. Compare the seats of the officers, or troopers, in your vicinity with that prescribed by the drill regulations and I

think you will find that the majority of them have the thigh and lower leg too far to the front. It is the difficulty that these men have in pushing the thigh down and drawing the lower leg to the rear that has caused some to believe that a new seat is being taught. Also the extreme drawing of the lower leg to the rear and a turning of the toes out, that at times becomes necessary during purely horse training exercises, have caused the casual observer who sees a class at horse training work to believe that this extreme seat is the regular seat that the instructors are trying to impart.

The reasons for riding with the lower leg further to the rear than I believe is usual in the American riding, and for riding with a light touch of the calf against the horse's side, are as follows:

The legs are the logical rudder for the horse, as they control practically all of his body in rear of the forehand. We convey our wishes to him through the hands and legs. As the horse progresses in training he becomes more sensitive to the action of the aids. If these are applied gently, and quietly, the average horse in the hands of the average rider will soon become so amenable that it requires only the contraction and expansion of the muscles in the calf of the leg to communicate the rider's wishes to the horse. This being so, the rider must ride with a light touch of the calf and attempt to control the horse's body with the same nicety of touch through the legs that he attempts to exercise over the horse's mouth by riding with a light pressure of the bit against it, and obtaining his control over it by the expansion or contraction of his fingers on the reins. If this light pressure of the calf is not maintained against the horse's side, the rider cannot apply his leg aids with sufficient nicety to bring his horse to a high state of sensibility. If he happens to be riding a horse already very sensitive the animal will be kept unsteady and nervous, due to an irregular application of the legs if they are held free of the side, and an effort is made to apply them from time to time as some special movement from the horse is desired.

Practically all authorities on equitation advocate the control of the horse by the use of the lower legs. Our drill regulations direct the use of the legs as aids, but are more or less hazy

as to how much use is intended to be made of the lower leg, and how far to the rear it should generally be carried. I assume that the drill regulations contemplate the use of the lower leg at, or slightly in rear of, the girth, and in order to do this to the best advantage the rider is required to take the seat that I have described above.

General Orders published to both the Third and Tenth Cavalry in 1896 and 1897 on the subject of equitation held this same assumption. To show that it was practiced at even an earlier date I will quote a line referring to the excellent training of the horses from "A Model Squadron" in Fredric Remington's book, "Pony Tracks": "It is all in the books if anyone cares to go into it. It is in the gathering of the horse; it is the legs carried to the rear of the girths."

THE ENGLISH SADDLE.

There are a number of reasons for the use of this saddle at the Mounted Service School and at West Point. The one which stands out above all others, however, is that the student may be taught the proper use of his legs, and learning this he will come to understand their importance in equitation. Having thus learned, he will then be able to proceed with the training or handling of his horse unimpeded by quarter straps, quarter strap ring and safe, cincha strap, and cincha, as in the case with the McClellan saddle as at present constructed. Due to these obstacles on the McClellan saddle, it is almost a physical impossibility for the average man to properly apply the aids when riding this saddle, and it is utterly impossible for him to apply them with any nicety. The result is that a horse cannot be highly trained, or a highly trained horse thoroughly well controlled while using this saddle.

These obstacles to the use of the lower leg with the Mc-Clellan saddle have, in my opinion, caused us in general to assume the position referred to in the beginning of this article, i. c., the legs carried further to the front than is contemplated by the drill regulations, and also to minimize their use as aids. This, I think, is well illustrated with the recruit. The shorter the quarter straps the further he shoves his legs to the front to avoid the discomfort of the ring and safe; the longer the quarter straps the

more nearly his legs assume their normal position of hanging naturally by their weight alone.

The use of the English saddle for the training of the horse applies, of course, more to the Mounted Service School than to West Point. However, at the latter place a determined effort is being made to teach the cadet the principles of equitation, and the importance of the use of the lower leg in this work. Also it is considered part of an officer's education to be at home in this saddle. If he is ever ordered on duty with foreign armies, or visits hunting or polo communities, or is asked to ride while on leave, the chances are that he will be given the English saddle. Many officers have told me of their discomfort and embarrassment at these times.

For these reasons and to assist in their instruction in polo, about one-half of the instruction of the first class at the Military Academy is with the English saddle. A small amount of instruction with this saddle is also given the third class before their departure on furlough.

These give some of the reasons why the English saddle is officially used, and the following are a few of the reasons why its voluntary use is continued by those familiar with it:

For them it is a far more comfortable saddle than the Mc-Clellan. The horse can be controlled with much more ease and precision, due to the free use of the legs. It is lighter and neater in appearance. It is more suitable and safer for polo, for jumping, or for cross-country riding. Above all, it is always with you and in place, no matter how long, how hard or across what country you ride, with no dismounting for readjustments, or for the rescue of a saddle blanket dangerously near disappearing to the rear.

To explain all the work going on in equitation at the Military Academy and at the Mounted Service School would be to write a treatise on this subject. It is hoped, however, that the above will give those interested my general ideas regarding the seat and the use of the English saddle.

THE WAR GAME AT ARMY POSTS.

By CAPTAIN ROGER S. FITCH, SECOND CAVALRY.

I N all modern European armies the value of the war game is universally recognized. Practice in playing the game is correspondingly general, and, in most armies, is compulsory not only at the various staff colleges and service schools, but also at all posts and in all regiments.

In our service, however, the war game is not very generally played outside the War College and the various service schools. True it is that one or two department commanders have included the war game in the post-graduate course of the garrison school, while there are a number of posts where, due to the progressiveness of the post commander or some of his subordinates, the game is frequently played. A considerable number of officers have introduced the game into their companies as an aid in the instruction of non-commissioned officers in patroling and in the general service of security and information. Nevertheless, the fact remains that the war game is not yet universally appreciated and used throughout our army.

Why is it that the playing of the war game is not more general in our various posts and regiments?

The answer to this, in many cases, may be that so many officers are absent from the regiment that those remaining have little or no time to devote to such work. In the case of other posts and regiments, however, the answer must be either that the value of the game is not fully appreciated by those in authority or else that there is a real or imaginary lack of competent directors or of the necessary material. It is believed that a lack of appreciation of the value of the game is the answer only in isolated cases; hence no discussion upon the merits of the game is here considered necessary.

We must therefore assume that the chief reason why the game is not more generally played in regiments having an ade-

quate number of officers present for duty is that either competent directors or the necessary material are apparently not available. Let us first consider what qualifications are necessary in a director.

To direct a game well an officer must be able to read a map readily, must have acquainted himself with the mechanical part of the game, and should be familiar with the powers and limitations of the various arms with which he has to deal. He should also possess a good imagination and the ability to describe events in a clear and forceful manner.

There are few regimental posts in which there are not one or more recent graduates of the War College or service schools who, through long practice in playing and directing war games, have become expert in this line of work. As a matter of fact, however, any officer of good tactical sense who will study Captain Sayre's "Map Maneuvers" (and possibly, also, "The Regimental War Game," by Immanuel) will be able to direct war games in an interesting and instructive manner. The lack of trained directors is therefore not an insurmountable obstacle

Let us now consider what material is necessary. A good sized room (or, better still, two or three adjoining rooms), a large table and a few chairs are readily obtainable at any post. Given these, all that is necessary is a suitable map with appropriate blocks and scales.

Until this year there were obtainable by the service at large no large scale war game maps of American territory except a few small battlefield maps and the old twelve-inch map of Fort Leavenworth and vicinity. These maps are, however, so limited in area as to render them not entirely suitable for war game purposes. A new twelve-inch map covering an area of forty-five square miles in the vicinity of Fort Leavenworth is, however, now procurable at cost of production. The map, at present, consists of twenty sheets, each representing a section one and one-half miles square. Each year new sheets will be added until the map covers several hundred square miles of diversified country. The first twenty sheets can now be obtained from the Secretary of the Army Service Schools at from three cents for the uncolored and unmounted sheets to thirteen cents for sheets in full colors and mounted on cardboard. These twenty sheets are now

used for a large part of the war game work in the school of the line and the problems played upon them are printed (usually with outline solutions attached) and sent to every officer and organization that possesses one of these maps.

It will be seen from the above that obtaining the necessary material is a matter of but little expense. The present map (twenty sheets) costs anywhere from sixty cents to \$2.60 and the set of war game blocks eighty-five cents. With this equipment a large variety of games is possible •

In Captain Sayre's "Map Maneuvers" is to be found so complete a description of the manner in which the war game is conducted that it seems unnecessary in this paper to do more than merely invite attention to the following suggestions in the hope that they may be of help to such officers as may be called upon to direct or umpire war games at their posts.

Although one officer can act both as director and as umpire, still in ordinary games it is believed that the best results are secured where the two duties are kept separate and where the umpire is an officer of rank and experience. In any series of problems the same director, if proficient, should be used throughout the entire series, as interest in the game will lag unless the game is well directed.

The director must insist upon players giving their orders as they would actually give them under the assumed circumstances. For example, if the commander of one side desires to detach a force for some purpose, he must be required to give his orders directly to the officer commanding that force and in the exact language in which he would word his orders on the ground. If there be no player representing such subordinate, then the commander should be requested to give his orders to the director, who, for the time being, will act as the commander of the element detached. It should be remembered that one of the chief advantages to be derived from the war game is the practice obtained in making prompt decisions and in actually issuing clear and decisive orders.

Frequently games are seen in which the director does not

^{*}There is also being prepared, at the Service Schools, a large scale war game map of the vicinity of Gettysburg. Pennsylvania. The first section of this map will probably be ready for distribution and sale early in 1910.

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use the troop-blocks as much as he should. A liberal use of them is, however, a great aid to the director, as it lessens the demand upon his memory and imagination, while to the player the position occupied by his troops (and possibly some of the enemy's) can be indicated much more clearly as well as much more quickly than if the director used no blocks, but attempted to explain the respective positions of the troops.

The notes kept by the director or his assistant need be only full enough to enable the former to keep properly oriented on the positions of the troops and the progress of the game. After a little practice it will be found that but few notes are necessary.

Whenever a play is made that is considered particularly good or particularly bad, the director should jot down a note of it so that he will not omit to comment upon it at the conclusion of the game. The umpire, if there be one, should similarly make note of the things he considers specially deserving of commendation or criticism.

The game must not be allowed to drag. Frequent and unnecessary delays must be avoided. Moreover, each game should be finished at one session of not more than two or two and one-half hours of actual playing time. A game that lasts three or four hours doubles the mental strain on the director and is apt to cause the players to lose interest unless the director possesses unusual ability.

When the game is brought to a close, the director should give a brief outline of the situation of each side at the beginning of the game. It will be found more satisfactory for him to give these situations in his own words, pointing out on the map the original positions of the troops, than for him merely to read aloud the written or printed "situations." He should then describe the progress of events on both sides up to the time that the game was concluded. He would ordinarily follow this by comments on the tactical dispositions made, or he might leave such comments to be made by the umpire. Ordinarily, however, it is believed to be better for the director to make his comments and then for the umpire to make such additional ones as he deems necessary. A general discussion should then be invited. Ample time should be allowed for these comments and the final free-for-all discussion.

+ Reprints and Cranslations.

EMPLOYMENT OF THE CAVALRY IN THE RUSSO-JAPANESE WAR.

From the German "Armen und Flotten," May, 1907.

THE literature on the Russo-Japanese war is voluminous, and we can point to many instructive accounts of the experiences of the war. It is strange that so little has been said of the service of the Cavalry, and the question is seldom asked, what conclusions can be drawn in regard to the future employment of this arm? Even the most earnest writers treat this question superficially, under the pretext that the Cavalry has done so little and had such a restricted field that no correct conclusions can be drawn. This is, however, incorrect. A careful study of the war will show that the Cavalry was not so inactive as is usually supposed, and that many a lesson can be derived from its positive and negative services.

It is well known that the greatest error that the Russian military administration committed before the outbreak of hostilities and which can be traced all through the war, was to underrate the value of the enemy. This circumstance explains also why the higher Russian military authorities did not think necessary to provide the field army with a sufficient portion of their regular cavalry from European Russia. Only 3 regiments were sent out, and of them Regiments Nos. 51 and 52 reached their destination, only toward the end of July, 1904. These two regiments demonstrate at once the use of well trained and reliable regular cavalry. They were able to reconnoiter the movements of the enemy efficiently, which the cossacks did to a very limited extent and, among other things, they ascertained, during the bat-

tle of Liaoyang, the departure of Kuroki's Army to the right bank of the river, via the Taitseho, above Liaoyang.

Instead of regular cavalry, the field army was provided with portions of the numerous cossack organizations, as it was believed that the latter's horses were the most suitable for the peculiar conditions of the Manchurian ground and climate. This might have been right, if the military administration had detailed the elite of the cossack troops. But more than half of the Asiatic cossack organizations, which formed the bulk of the cavalry on the theater of war and reached a force of 207 sotnias before fall of 1904, consisted of men of the older classes of reserves. And even before the opening of the campaign it was well known in foreign military circles that the Don Cossack Regiments could hardly meet half of the requirements of a modern cavalry force. All the cossacks had been experiencing a want of horses for years. The new cossack recruits, who had been supposed to enter the service with their own horses and weapons, could no longer do so. Thus, the government had to take care of their mount and equipment, and this was so difficult that the state of these troops, especially of the 2d and 3d reserves, was far from satisfactory. Under these circumstances it is hard to understand why the Government placed its hopes in the cossacks. Some excuse may be found in the fact that the reports on the cossacks, that were with the 1st, 2d and 3d Siberian Army Corps at the beginning of the war, had been exceptionally favorable, which circumstance could have easily misled the military circles into the belief that these troops were the most fit to solve the problems of the cavalry on the theater of war. That this estimate of the abilities of the Siberian cossack formations was not exaggerated, we can see from the account of Colonel Csicserics (pronounced Chicherich). who was with General Kuropatkin's staff during the battle of Mukden and who states in his Journal that "most of the men of these troops had been already in war, had participated in the China troubles, and were, therefore, experienced warriors, to whom war was evidently pleasure. Remarkable power of locating oneself in the field, skill and tact in questioning the inhabitants, are the most prominent characteristics of the cossacks, and when properly trained, they are able to render excellent service." But training was just the thing that was particularly wanting

in the cossacks. Organized only at the moment of the opening of the war, they entered the campaign, unprepared, uninstructed, and unpractised, while the tasks and operations that they had to perform, could be met only by the most perfect cavalry troops. The Petersburg authorities believed that these defects could be remedied by detailing officers from the Guard troops and from the regular cavalry forces for service with them. This added a new complication to the other defects, namely a lack of homogeneity in the corps of officers and made matters worse. Among higher commanders there was a lack of suitable persons, who could assume the role of cavalry leaders and make up by their personal knowledge and experience for the shortcomings of the troops. Without questioning the reputation of General Kuropatkin or the courage and energy of Generals Mishtshenko and Samsonoff, we must say that, unsupported as they were by their subordinate leaders and troops, they did not prove equal to the enormous problems that were pouring on them from all sides. Thus, this war has proved again, and on a large scale, that no cavalry can be "improvised." and that cavalry divisions, to achieve results, must be properly organized and trained, and that they must not be dug out from the ground on the eve of great events. A good cavalry force must grow together with its leaders in time of peace, must be uniformly trained, and taught to keep in mind that the most far reaching events depend upon its success.

The Japanese cavalry also was lacking in a good organization, beside being numerically too small to meet the numerous and important tasks required from modern mounted troops. At the beginning of the war, Japan had one regiment of Guards and 16 regiments of regular cavalry, of which force 13 regiments, of three squadrons each, were attached to the 13 divisions of the field army, while Regiments Nos. 13 to 16 were organized first in two brigades, and subsequently, before the battle of Mukden, into one division. When later, in the course of the campaign, a number of infantry reserve brigades were formed, each of them received a squadron of reserve cavalry. However, in view of the pronounced deficiency of the Japanese cavalry, they would have done better if they had detailed to each of the infantry divisions only one or two squadrons, as divisional cavalry, and had organ-

ized the balance of the cavalry into brigades and divisions. In view of the excellent intelligence service organized by the General Staff, and in view of the position battles that were the rule, even smaller cavalry forces than those that were actually available. could suffice for the reconnaissance and security duties of the individual divisions. Then the bulk of the cavalry, free from these minor duties, organized into large independent bodies and cleverly conducted, would have had many chances to achieve farreaching results, especially on the Japanese left flank, where the conditions of the ground were so favorable, and where they could endanger the Russian line of communication. That Marshal Oyama would have turned the defeat of the Russians at Mukden into a complete catastrophe, if he could have availed himself of more troops than the single cavalry division he had at hand and whose points reached the railroad line, Mukden-Tielin, on March 3d, is a fact recognized by the Russians themselves and frequently referred to in the latest accounts of General Kuropatkin.

When we think of the extensive preparations made by the Japanese Government for the war, and of the otherwise excellent organization, training, and equipment of the Japanese army, we are surprised at the comparatively poor and neglected state of the cavalry. To some extent this can be explained by the generally unfavorable conditions prevailing in Japan for training and employing this arm. The mountainous nature of the country on one hand, and the utilization of the ground for agricultural purposes to the utmost, on the other hand, greatly interfere with the freedom of action. Horse raising is little developed in the islands of the Empire. In addition to the difficulty of securing pasture land in this overcultivated country, the soil in Japan contains too much salt and is, therefore, not suitable for grazing purposes. Thus, even before the war the Japanese cavalry, scant as it was, could not secure enough horses to meet its needs and had to resort to Australian ponies, which are not fitted for cavalry service. Besides these features of the ground and the want of horses, hamper the development and do not permit of training cavalry troops in large bodies, we must mention another circumstance, namely, that the Japanese, with his short limbs, is by nature a poor horseman. This explains to some extent why the Japanese Government did not take any particular interest in this

arm. Finally, as the Russians were known to possess a large force of cavalry, the Japanese military authorities were backward in raising new cavalry troops at the beginning of the war, and rather decided to leave this arm within the limits of its peace organization, training, and employment. And after all, we hardly wonder at this decision, when we remember that the regular army contained a number of good horsemen and cavalry leaders, only a few of whom had a chance to display their abilities, as Generals Tamura and Akiyama, or Prince Kanin.

But if the Japanese is a poor horseman, he makes up for this deficiency by his intelligence, abilities, and training for action. In this respect the Japanese cavalry rendered excellent service in the war against Russia. In the field orders and circulars of the Japanese army commanders we find numerous acknowledgments of the excellent reports and information delivered by the reconnoitering patrols and detachments, and in one place Marshal Ovama states that without this support of the cavalry he would have been compelled to make all his dispositions "entirely in the dark." This fact deserves particular attention in view of the repeated claims made in the literature on the Russo-Japanese war, that the efficient information service of the Japanese army was due exclusively to the well arranged system of intelligence and espionage. No doubt, this cleverly arranged system did render excellent service to the whole army and contributed to the success of the campaign, but it would be quite unjust to affirm that all the information of the enemy could be collected through

The Japanese cavalry was efficient in dismounted action, not only when operating independently, but also when fighting in combination with infantry troops. It is remarkable how often the Japanese cavalry had to fight during the war dismounted and shoulder to shoulder with the infantry. This circumstance can be partially explained by the above mentioned shortcomings of the Japanese cavalry, which do not permit of its operating independently. Also the numerical inferiority of the Japanese cavalry explains to a certain extent their backwardness, especially at the beginning of the war, before the awe-inspiring masses of the Russian cavalry. Their cavalry detachments did not go too far and were often followed by infantry troops, toward

whom they would retreat in case of an encounter with superior Russian forces and with whom they would then fight together.

Count Wrangel, Captain in the Austria-Hungarian service, reports in his highly interesting pamphlet, "The Cavalry in the East Asiatic War," a whole series of engagements where the Japanese cavalry contributed, by dismounted action, to the common victory. Thus, for instance, at Wafangu General Akiyama succeeded in getting with his 1st Cavalry Brigade just in time to defeat Glasko's attack. He relieved in this way the Japanese 3d Division from the very critical position in which it was then, as the enemy had been threatening to envelop it from the right flank.

When the entire Russian eastern wing started to retreat, in view of the general tactical situation, the Japanese cavalry brigade pursued it with unfailing energy and repulsed its rear guard from its strong position at Tsaitsyatum. All this was accomplished by dismounted action and with remarkably few losses.

In the battle of Sha-ho the independent 2d Cavalry Brigade, under Prince Kotohito-Kanin, so strongly helped with its dismounted fire action the weak reserve troops that they were able to defeat Generals Rennenkampf and Bonsiku's attacks conducted with far superior forces. In the same way Akiyama's cavalry held the village of Sandepu against the energetic Russian infantry attack during a whole day. And what is quite remarkable in this case, the Japanese used their explosive cartridges as projectiles here.

As to cavalry battles proper, we do not meet any of them on the Japanese side during this war, except in one case when, at the battle of Wafangu, General Akiyama's cavalry engaged in a hand-to-hand fight with several sotnias of Samsonoff's Cavalry Brigade, in which case the cossacks made very good use of their pikes. We have seen already that the Japanese could not do much on this ground. On the other hand the Japanese cavalry is to be highly commended for the cleverly arranged and successfully conducted raids made during this war on the Russian lines of communication. Thus, for instance, two squadrons succeeded on February 12, 1905, in getting at the rear of the Russian army and blowing up the fortified railroad

bridge near Fantsiatum, north of Guntshuling. This created such a panic at the Russian headquarters that General Kuropatkin decided to detail a whole infantry brigade and the Don Cossack Division, to protect the railroad. Numerous deeds of daring were accomplished by the cavalry detachments under Majors Naganuma and Sasegawa. These detachments consisted of 150 men each, picked out from the two cavalry brigades, and with one captain picked out from each regiment. The task of these squadrons was to proceed separately toward the railroad between Mukden and Kharbin (Harbin), in order to destroy the railroad there, and also to annoy the enemy's rear. It is hardly probable that these squadrons were helped in their task by the "chunchusen," but they were probably informed of the moment when the destruction of the railroad would be most proper. Sasegawa's detachment succeeded in destroying the railroad at Bodnio, 150 km. southwest of Harbin, on February 25th.

Major Naganuma's detachment assembled at Sumpano, not far from Heikowtai, on January 9th, and marched on the following day past the Russian regiments of General Mishtshenko. which were proceeding then in a southwestern direction, with the intention of attempting to destroy the railroad bridge across the Hsinkao, south of Shang-shun and 256 km, north of Mukden. No transportation was taken as the small troop was to feed on the country, and each trooper carried in his pack a seven days' ration of condensed rice. This small detachment covered in 43 days, under a temperature of 25° to 30° C., a distance of 480 km., riding mostly by night. Men and horses were perfectly fresh. This sudden appearance of the Japanese troopers, apparently mistaken for hunhuses, hindered the Russians from taking necessary counter-measures in time, and on February 11th the bridge over the Hsinkao was destroyed. This ended the task of the detachment, and the leader decided to return to the army. But on the evening of February 14th the Japanese succeeded in repulsing the attack of two cossack sotnias with two guns, and even captured one gun. This encounter and the rumor that the bridge had been destroyed by a strong Japanese cavalry force, induced General Kuropatkin to detach the cavalry from his right wing and to send it out from Mukden toward Shangshun. The Japanese succeeded, however, in escaping and joined

their army on March 13, after 63 days of absence, just at the time when the battle of Mukden had been decided in favor of the Japanese.

We cannot but acknowledge the commendable service of the Japanese cavalry. It estimated its duties and tasks clearly and always performed them without restriction; the horses were treated sparingly, and in this way great services could be rendered. It has proven what a weak cavalry can do against superior masses, if it is guided by clever and energetic leaders. On the other hand, one of the most extensive raids undertaken on the Russian side by General Mishtshenko is quite instructive by the numerous errors committed. Sixty-six squadrons, 5.2-3 batteries, 4 machine guns, and 4 platoons of mounted infantry assembled on January 8, 1905, at Sakudiapu, 20 km. southwest of Mukden, to set out on the raid under the command of the popular leader. A battalion of miners, a bridge train, and 4 sotnias of mounted frontier guards, were attached to this detachment, as well as 1600 pack animals for the transportation of the baggage and provision supplies. The best of the cavalry forces of the Russian army in Manchuria-3 regiments of Don cossacks and 3 regiments of dragoons—were with this Flying Corps, a circumstance to be well kept in mind for the correct appreciation of General Mishtshenko's achievements. The General's intention was first of all to raid the port of Inken, on the lines of communication, and to secure the supplies that were supposed to be there. He overlooked the fact that Inkou had lost its importance, as the port there was ice-bound, and, therefore, almost all of the supplies for the Japanese army were being shipped via Dalni. The destruction of the important railroad line, Port Arthur-Liaoyang, which should have been the main task of the Flying Corps, as after the fall of Port Arthur it must have been of the greatest importance for the advance of General Nogi's army, was considered only as a matter of secondary importance. Although the march of the Flying Corps, divided in 3 columns, and frequently molested by gangs of hunhuses and infantry detachments, was very slow, and not more than an average of 29 km. per day was covered, the situation of the Corps was not unfavorable when it reached Niutshwang on January 12th. With a certain amount of energy, directed toward

the accomplishment of a definite purpose, the troops could have proceeded on the same day without any particular difficulties to attack and get hold of Haitshon, which was reported to be occupied by a force of about 1500 men of Japanese infantry and artillery. Eight thousand five hundred troopers and 34 guns could have easily achieved this task. But even if the leader wanted to spare the losses which the capture of this strongly fortified place would have cost, he should have advanced his columns to some other points of the railroad line, in order to destroy the latter thoroughly and completely. Instead, the detachment kept, however, to the original plan of capturing Inkou. The railroad station was destroyed by 12 dismounted sotnias of different regiments, and several magazines were burned; also a few strong officers' patrols caused some damage to the railroad lines, Dashitsao-Haitshon and Inkou-Dashitsao. These were all the results of that raid undertaken with such a strong force.

On January 1st Mishtshenko's cavalry returned to the Russian lines. The detachment had lost 7 officers and 71 men killed, and 32 officers and 257 men wounded. True, this raid had spread some uneasiness among the Japanese authorities and caused them to detach some troops from the field army for the security of certain individual points and villages, so that they remained away from the battlefield for several days; but these few battalions did not count much in view of the enormous armies employed on either side. The material damage done was slight. To serve the army efficiently, the cavalry should have remained united for a longer period of time, keeping itself near the railroad line and endeavoring to hold it for hours.

Thus, General Mishtshenko overlooked his main task from the very start; he sought success where he could get very little of it, in any case, and did not once ask himself whether the results were worth the means employed. It has been already mentioned that the expedition to Inkou, in view of the reports that the magazines there were insufficiently guarded, proved a failure. And even if the few magazines there had been actually destroyed, they could have been easily replenished again. What the Flying Corps achieved, could have been easily done by a few individual regiments or squadrons, or even by a few strong officers' patrols.

In its other undertakings, as well as in its reconnaissance service, the Russian cavalry was as inefficient as in the case of the Flying Corps, whether its operations were of an extensive nature or minor ones, of greater importance or lesser significance. It has been already mentioned that this was due first of all to the deficient training of the troops in time of peace and to the want of well drilled, closely and permanently organized units, as well as to the lack of proper and efficient commanders and troop leaders, who would understand how to make up for these defects by their own energy and abilities. The Army Commander is not to be blamed in this respect. General Kuropatkin issued during the course of the war a series of "Instructions" for the cavalry, which touch upon very important points and show that he duly appreciated the duties of this arm. Thus, one of his instructions, issued to his troops from Liaoyang on April 15, 1904, says: "There are a good many cavalry leaders who understand well how to lead their cavalry masses into attack and how to rally them after the battle. But this knowledge is useless, if they do not know to keep pace with the operations of the whole. The cavalry leaders must understand that their activity is of an auxiliary nature, the cavalry never pursuing any independent purpose of its own. Their main task is to provide accurate and reliable information, upon which decisions and dispositions can be based."....."We must make the best use of our numerical superiority over the enemy. First of all we are to endeavor to annihilate or to disable, at the least, the Japanese cavalry. The next task of our cavalry is to ascertain thoroughly and accurately the movements of the hostile main forces, to watch their dispositions and learn their plans, up to the moment of the tactical encounter, when the cavalry passes to the flanks. learns what is going on behind the wings, and generally watches all his tactical movements. And with all this, a wisely led cavalry will still have chances enough to lend its support to the fighting troops in the critical moments of the battle, and especially in the pursuit of the enemy."

Had the Russian cavalry always followed this advice of its commander; had the subordinate leaders always placed definite purposes before their eyes; had they possessed the will to overcome difficulties, they would have, certainly, rendered better service and achieved greater results than they actually did.

At the beginning of the operations it looked as if the cavalry was the most promising arm, and one going to play a great role. Thus, General Mishtshenko not only ascertained accurately and cleverly the advance of Kuroki's army from Andshau toward the Yalu river, but he even succeeded in keeping it back for several days. But very soon, in the battle at the Yalu, the reconnaissance of the cavalry proved to be so inefficient that General Sassulitch was surprised by the enemy's enveloping of his left wing, and he escaped complete annihilation only with great difficulty. After the battle at the Yalu, Kuroki resumed his march to the northwest, without pursuing the retreating Russians. But neither the strength, nor the whereabouts of his army was ascertained accurately by the Russian cavalry, although it kept itself permanently at both flanks. Toward the end of May, 1904. General Stackelberg's column got into no less a dangerous situation than that at the Yalu, when Samsonoff's Cavalry Brigade, detailed to this column, failed to come to its help. The commanders of the latter brigade explained then that they had lost view of the enemy because of the difficult mountainous country and numerous fields of "gaulian" that were on their way. Of course, these circumstances do not excuse the failure to ascertain and report the enveloping movement of the Japanese left columns. The unexpected attack of the latter columns put General Stackelberg in such a position that it is quite wonderful that he escaped only with the loss of 130 officers, 3500 men, and 16 guns, while in case of a more energetic pursuit on the part of the Japanese, he would have been totally annihilated. Not much better was the information and security service carried out by the cavalry during the further course of the campaign. True, on the left Russian wing the nature of the ground was unfavorable, and the cavalry detachments were not sufficiently provided with mountain guns, while at every important point they came across numerous forces of dismounted Japanese cavalry supported by infantry troops. But at the right Russian wing, on open ground, the cavalry should have rendered much better service. Many a gross error was committed here by the Siberian Simonoff Cossack Division and the Orenburg

Cossack Division, that were here in view of Oku's army from the beginning of July, 1904. The concentration of the three Japanese armies, that were directed by Marshal Oyama from August 5th to August 24th, preparatory to the great battle of Liaoyang, were almost entirely overlooked by the numerous Russian cavalry. In this case it was absolutely necessary to ascertain the movements of the Japanese forces in time.

We have mentioned already that during the battle of Liaoyang the cavalry was not so inefficient and that the Dragoon Brigade of the 17th Army Corps learned and reported in time the threatening march of General Oku's army. But this report, for some unexplained reason, reached the headquarters at so late a moment, that General Kuropatkin could not do anything to help himself and to make the situation less dangerous. The rest of the cavalry, however, was not efficient at Liaoyang, as the movements of the enemy in turning the left wing were entirely overlooked.

The battle of Liaoyang resulted in the retreat of the Russian army toward Mukden, where the main forces were assembled on September 7th. The Japanese had discontinued the pursuit on September 5th; then the military operations came to a standstill for almost a month, when they were resumed by the offensive movements of General Kuropatkin. But during this long standstill the Russian cavalry did not learn the exact disposition of the Japanese main forces. Although Samsonoff's and Rennenkampf's divisions had been sent out on an extensive reconnaissance, they returned without any positive results, as at Pianyupusa they had come across superior Japanese forces and had been repulsed by them to the north.

When Kuropatkin finally set out on the march, everybody believed and hoped that now his superior cavalry was going to display its abilities. But any possibility of making good use of this numerical superiority was excluded from the very beginning, as the cavalry forces had been divided and split. After Mishtshenko's, Samsonoff's and Rennenkampf's divisions had been detached on various independent missions, Kuropatkin remained with 143 squadrons. Of them 22 squadrons were detailed to the Western part of the army, 16 to the Central part, and 15 to the Eastern part, while 38 squadrons remained with the main

reserve. Fifty-two squadrons were distributed, besides, among the 8 army corps. But these 52 squadrons, averaging 7 squadrons per corps, did not perform any reconnaissance service at all, as they were mostly employed as staff guards, orderlies, etc. This incredible waste of cavalry forces was the more incomprehensible, since the army corps had sufficient commands of mounted scouts at their disposition. Only such waste of forces can explain the fact that at the battles of Sha-ho, from October 11th to October 18th, the reconnaissance service of the cavalry was more than inefficient.

So far we have given a short review of the reconnaissance service of the cavalry on either side, and of their operations against the hostile lines of communication. It now remains to say a few words on the fighting capacity of this arm, and to consider what experiences can be drawn from the proceedings of this war. These conclusions are interesting because in no other respect do opinions differ so much as in regard to the possibility of cavalry troops taking part in a modern battle and contributing to the result by their mounted action. But the Russo-Japanese war can help the solution of this problem by its negative results, just as has been shown in the above sketch of positive features of cavalry service. Neither the Russian nor the Japanese cavalry succeeded in bringing forth any positive results of a cavalry attack in that war. The fault was again with the lack of proper training in time of peace and with the want of fit leaders. But it would be erroneous to draw conclusions from the inability of the cavalry in that war to achieve results. A thorough study and a correct appreciation of events show that in spite of the high efficiency of modern weapons, the war afforded many moments when a good cavalry, wisely employed and properly led, would have been able to do much.

The battle of Liaoyang presents the most instructive instance of what the Russian cavalry could have done on the battlefield proper, if it had been well trained, well led, and properly organized. On August 31, between 7 and 8 o'clock in the evening, the last reserves of the Japanese army had been used without succeeding in their attack upon the main line of Russian fortifications south of Liaoyang. With heavy losses and entirely exhausted, Oku's and Nodzu's columns of attack withdrew from

the battlefield. On the Russian side there were the following cavalry forces: the Siberian Samsonoff Cossack Division, with 19 squadrons and 6 guns; the Transbaikal Cossack Division, with 21 squadrons; and the Usuri Cavalry Brigade, with 14 squadrons and 6 guns. But because of the wrong disposition of these troops, out of these 54 squadrons there was only one single squadron at the proper place at that time. Had this strong cavalry force been used between August 28 and August 31, in a wide turning movement against the enemy's left wing and the railroad in the rear, somewhere near the Sha-ho station, they would most likely have been able to make good use of that moment and to attack the retreating hostile infantry. Had this attack succeeded, General Oku would not have been able to carry out the attack during the following night. Neither would Kuroki's weak attempt to turn the left wing have induced Kuropatkin to give up his south front. We must agree, therefore, with Count Wrangel's statement, that had the enormous cavalry masses of the Russians been employed on the right wing, the battle of Liaoyang would have resulted in a complete defeat of the Japanese. No other battles offered the Russian cavalry such a favorable opportunity to attack as that of Liaoyang. But still an enterprising cavalry leader could have found at the last stages of the Sha-ho battle more than one opportunity of attacking from the rear the hostile lines, thinned and tired out after fighting for days and nights. We have already mentioned that the Japanese cavalry had an opportunity, towards the close of the battle of Mukden, to turn into a catastrophe the disorganized retreat and wild flight of the Russians, but failed to make a proper use of that moment.

Should we now sum up all the experiences of the Russo-Japanese war in regard to the service of the cavalry, we must repeat again that even the unfavorable results may be "instructive." We would particularly warn against the conclusion that the war has demonstrated that the cavalry is no longer able to influence the result, that there is no use to drill large cavalry bodies in attacking infantry, or to show them in maneuvers. We have endeavored to bring out the reasons why the role of the cavalry in the Russo-Japanese war was less conspicuous than it should have been, and we assert that in the wars of the future

a well organized cavalry, led by an energetic and dashing leader, will find plenty of opportunities to fight in large bodies and to have its say at the decisive moments. But first of all, care must be taken in time of peace to train the cavalry, in small units as well as in larger bodies, which should not be created at the moment before the opening of hostilities, but should be organized in a sufficient number in the days of peace. The cavalry leaders must be particularly trained to correctly estimate the "why's and when's" of the employment of their troops. In this way we shall be able to make use of this expensive arm and to realize that it is wrong to organize frequent mass attacks, and that only the correct estimate of the proper moment for a cavalry attack on infantry can turn this arm into a dangerous and efficient one. Our western neighbors have come to realize these features. The leaders of the eight cavalry divisions, existing there in time of peace, are chosen with particular care; and as to the President of the Cavallerie-Comite, who directs the annual great cavalry maneuvers, he is required to be of the highest possible physical and mental abilities. At the present time the latter post is occupied by General Burnez, the same who issued last year the famous short and concise notes on the value and importance of well conducted cavalry attacks upon infantry. This year the French eight cavalry divisions have been summoned again for tactical exercises, and we cannot but keep on repeating that we would do well in giving their example the greatest consideration.

But although we have stated our opinion that in spite of the negative results of the Russo-Japanese war, the cavalry will play an important role in the wars of the future, we do not hesitate to recognize that the main value and importance of this arm is to be looked for in its reconnaissance service and in its independent undertakings against the hostile lines of communication. On this ground the cavalry will be able to accomplish, under proper circumstances, almost anything, provided it is properly organized, well equipped, and carefully trained, especially in firing and field service.

So much has been said lately on all these questions, and so fully have they been discussed by Lieutenant-General v. Bernhardi, in his highly interesting lecture "On the Organization and

Training of Cavalry for Modern War," delivered before the Military Association, that little can be added of interest. We shall, therefore, confine ourselves to touching upon a few questions in regard to the cavalry's weapons and equipment, which are in need of slight improvements, if we want to make the cavalry independent and able to solve strategical problems. But first of all we must say that the equipment of cavalry must be confined only to what is indispensable, and that although the cavalry divisions employed in front of our own troops or in the rear of the enemy must be equipped fully and completely, this equipment should not be such as to interfere with freedom of motion. Just imagine the 1600 pack animals of Mishtshenko's Flying Detachment! Beside the necessary material for transmission of information, and for the building and destruction of bridges, railroads, etc., each cavalry division must be provided with a company of pioneers, trained also for fire action. We prefer these troops to the troops of cyclists, for the latter, together with some advantages, combine also the disadvantage of being less "versatile" than mounted infantry troops, as they must mostly keep to the open roads and in bad weather they may even become a burden for the cavalry. A mounted pioneer company can follow everywhere and, with its technical knowledge and the firing capacity of an infantry troop, it can be of great help to the cavalry and find employment in many ways. Thus, for instance, detailed to the mounted artillery or to the machine gun detachments, the mounted pioneers will relieve the cavalry from the necessity of securing these arms, while the latter themselves will also command a larger range of activity under the cover of a mounted infantry force. And the latter arms need such an enlarged sphere, as fire action has become an important factor in the cavalry's reconnaissance service. One more remark in regard to the weapon. Beside the lance and saber, our cavalry must be also provided with a good long range carbine, and the officers and non-commissioned officers with good automatic loading rifles; and to each cavalry division must also be attached, beside the battalion of mounted artillery, two machine gun companies. But these two companies must be mounted, i. e_i , the weapons and the ammunition being transported on horses, and the men riding as well, as in Switzerland and partially in Russia.

The machine guns of the army, as well as these attached to the cavalry, played an important and efficient role in the Russo-Japanese war; but, according to the very interesting report of the Japanese Captain Matsuda, the mounted companies proved to be of greater use, in spite of the somewhat longer time required for mounting and dismounting the guns.

If we improve the organization, equipment, and training of our cavalry, on the above mentioned lines, the war between Russia and Japan will have delivered a good lesson, and we may hope that no task will be too difficult for the cavalry in the future.

TRAINING OF ITALIAN CAVALRY OFFICERS.

By MARCHESE ORAZIO PUCCI.

From The British Cavalry Journal.

THE numerous prizes won by Italy's military officers at the horse show at Olympia last year and this year have not unnaturally drawn attention to the horsemanship of that country.

It is proposed in the following article to give a short description of the training an Italian Cavalry officer receives before he can be passed into line as an efficient horseman. The system itself is quite modern and a vast improvement on the one that preceded it.

Every student desirous of obtaining a commission either in the Cavalry or Infantry has to pass through the school at Modena. Before presenting himself he must have already received such an education in one of the various schools of the country, answering to the public schools of England, as would entitle him in civil life to graduate at the university. At the beautiful old palace of the ancient Dukes of Modena two years is passed. In the vast, sparsely furnished and unheated rooms, once the scene of gorgeous banquets and brilliant balls, a life of spartan simplicity is endured, and there is now little to recall the splendor of bygone days and the almost regal magnificence of the ducal house. The young "aspirant," shivering in the large rooms, ob-

livious of the past and living only in the present, wears for the first time the uniform of his country and looks forward, with eager anticipation, to the moment when, in the spacious court-yard, he will swear fealty to the reigning house of Savoy and will wear on his collar the five-pointed star of Italy which proclaims him a soldier.

It is not necessary in this article to refer to the various studies, other than equitation, which are carried on during the two years' course; I will draw attention only to the preliminary training which he receives in the art of riding.

The young men, many of whom possibly have never ridden before, have to pass an hour each day in the riding school. After a few days of the saddle of "ordinanza" he is promoted to an ordinary saddle without stirrups. The saddle of "ordinanza" is that used by the troopers, formed of two padded leather flaps, high in the cantle, which gives a sense of armchair security to the rider, and, though heavy, is easy to the horse, and with the aid of a blanket prevents that bugbear to the Cavalry officer—a sore back. As soon as he gains confidence he is encouraged to practice various gymnastics on horseback for the purpose of gaining his balance and becoming independent of either reins or stirrups.

At one time about eighteen young men divided into two sections were trained simultaneously, the leading files being answerable for both cadence and distance, but now more individual attention is given by the riding master to each pupil, who is answerable for his own time and distance. This improvement is due to the initiative of the present Inspector-General of Cavalry, General Berta, who has also simplified the previous complicated system of aids, to the advantage not only of the recruit, but also of the horse himself, who thus more easily understands what is required of him. The Italian system was and still is to train a horse to trot slowly and gallop fast.

Simplicity is aimed at, and all complicated parade movements have been abolished. The riding school is now used only for preliminary instruction and during inclement weather. The object at Modena is to gain a perfect seat and learn the first principles of equitation, which is all that time allows, as his various other studies absorb most of the student's attention. In the past all that was required of a Cavalry officer was courage, but today a more technical education is necessary, and the modern Cavalry officer must be not only courageous, but highly trained. With every campaign the mission of Cavalry grows in importance, and the more so as the Commander's strategy has now to a greater extent than ever to depend on the information which they can obtain, as well as on their general efficiency in the vanguard of the army.

After having passed the necessary examinations the aspirant obtains his commission and is transferred to the Catalry school of Pinerolo, where the real hard training begins.

A small town not far from Turin, surrounded by mountains, Pinerolo is situated in one of the most picturesque valleys of Italy, and when the sun is shining the contrast between the silver of the snow-clad mountain tops and the green of the valleys makes a most pleasing picture. Historically, the place is not without interest, for in years gone by it was the site of a political prison, recalling the sufferings of vast numbers who had ideals of freedom and independence in advance of their age. These dismal memories of an unhealthy past have little effect on the spirits of youth, and the months spent at the school remain with the Cavalry officers as amongst the happiest recollections of their lives. They have reached the object of their ambition, they are officers, they wear the brilliant uniform of their regiments for the first time, they are free and independent, or imagine themselves to be so, they have a horse of their own and plenty of others at their disposal; moreover, all worrying studies are finished and they can give their undivided attention to horsemanship.

Originally the school called "Scuola Normale" was situated at Veneria Reale on the other side of Turin. Italy being composed of many different nationalities, each having its own school of equitation. Carlo Felice, King of Piedmont, established in 1823 Veneria Reale for the purpose of giving uniformity. This school lasted until the Austrian war of 1848, when so many officers were on active service that it was disbanded and removed the following year to Pinerolo, where it has since remained.

In 1868 a special course of training "corso magistrale" was added to furnish good riding masters to the regiments of Cavalry. Colonel Lanzavecchia di Buri went to France and Ger-

many to find a good instructor, and chose Cesare Paderni, an ex-officer who had received his training at the final school ("scuola di perfezionamento") of Vienna.

Cesare Paderi's methods long held sway in Italy. No doubt he turned out many good riders and was himself a famous horseman, but to the modern views his methods were faulty and inept, inclining more towards subjecting the horse to his rider's will than encouraging freedom and training the quadruped by gentler methods to obedience. He taught that the horse should be subject always to his rider and be ruled by fear. Controlled by the bit, his head firmly held, and constantly punished by whip and spur, the horse became fidgety and restless. In jumping the rider was taught to pull up the horse, and many a poor beast suffered in the mouth and back in consequence. To elude this torture the horse frequently refused, and then began a fight for mastery with whip and spur, ending, if the rider were efficient, in the horse rushing at the obstacle.

Under such a system no formidable obstacle could be cleared, and it is one of the greatest and most pleasing results of the modern method that heights previously deemed impossible are now easily negotiated.

Colonel Cav. A. Berta (now General), Maggiore Barallis, Captain Savoiroux, Captain Giacometti (now Colonel), and Captain Caprili were the principal leaders in the campaign against the old theories, and the Count of Turin, General of Brigade and ex-Colonel of the "Bianchi Lancieri," the beautiful regiment of the Lancers of Novara, a brilliant horseman who has done so much to improve the Cavalry, has always given the new method his most earnest support. Little by little, at the suggestion of either one or other of these officers, the conviction has been arrived at that the horse should be as free as possible and that the rider should only suggest what he is to do, and help him to do it in the way that is most natural to him. To be a good rider it is not sufficient merely to be bold and firm in the saddle, but one must have a complete knowledge of the powers and disposition of the horse. The greatest results from these improved methods have been achieved in jumping, which will be now described in detail.

It is considered necessary that the horse should first be

studied and trained in jumping without a rider, not only to give the animal confidence in his own powers and freedom from fear of any penalty in the shape of a whip or spur for absolute or partial failure, but in order that the man who is afterwards to mount him may observe his methods—all horses naturally do not jump in the same way, and a correct appreciation of each case will assist considerably when the lesson is more advanced.

As young men are trained in athletics to jump higher and higher by putting the bar up a peg at a time, so horses can be gradually accustomed by slow and sympathetic training to take higher leaps until without fatigue they excel all their early efforts.

Confidence in his own powers having been established, the horse is now ready for the second stage and, with a rider on his back, the bar is raised gradually and the leap taken first at the trot and afterwards at the gallop. The seat of the horseman during the jump is of considerable importance. To give a clear idea of the new method it will be as well to divide the jump, as now practiced, into three parts. First the approach, second the leap, and third the landing.

In the approach, great stress is laid on the horse being given absolute liberty; he must not be rushed or in any way coerced; his neck must be free, so that he can judge for himself the height he has to clear, and see exactly what is required of him. In the leap care must be taken not to interfere with the natural action of the animal, who knows better than his rider how he can best perform his task. Here the study above referred to of the animal's action will greatly assist the rider.

In the landing it is unnecessary to do more than convey the feeling, moral very often more than actual, that in case of mishap he will have the support of his rider. The art of the rider in the above movements, though apparently simple, can rarely be acquired without considerable practice and the most painstaking tuition; whilst free play to the animal is imperative, control must not be lost, the rider must be absolute master, able to keep the horse resolutely to the task in hand, sensitive at once to any attempts to swerve and able immediately to check them.

As the actual leap is being taken, the rider's body should be slightly bent forward, the arms extended, hands kept low, and when just over the jump the body should be perpendicular to the horse's back, remaining in the same position when landing, but with the hands drawn in.

In the broad jump the same principles apply, but the pace is quickened to increase the impetus and give the horse a better chance of getting over; and in a combination of the two—height and breadth—the principles applicable to broad jumps must preponderate.

The method of jumping has been discussed in some detail because of its importance, but simultaneously with this practice the rider is trained in the higher art of horsemanship, which may tersely be described as a thorough understanding of his animal. For this purpose he is given different classes of horses to ride—the thoroughbred, the Irish, and the native-born animals—each having their own idiosyncrasies, and the best horseman will be he who understands them and is consequently able to get the most out of each horse without exhausting, or in any way impairing its efficiency. How often do we read in the history of a campaign that the Cavalry were ridden to a standstill. Except in very occasional cases this should never occur, and usually implies not only bad horse-mastership, but bad horsemanship.

The principal outdoor exercises are carried out at the Galoppatorio di Baudenasca, distant two or three miles from the school, where in any weather the ground is fit for riding. Artificial obstacles, which are made to resemble as closely as possible those found in nature in all countries, have here been erected, commencing with the easiest and increasing in difficulty towards the end of the course. Amongst the latter may be included the "Banchetta irlandese" (Irish Bank), well known to the followers of hounds in that island.

When time and weather permit, the instructor takes his pupils, usually twice or thrice a week, into the open country, where various natural obstacles are encountered, and here may be found many steep inclines closely resembling the famous descent of Tor di Quinto near Rome.

The most typical ride in the neighborhood is the Rocca di Cavour, a rather steep high hill surmounted by a dismantled tower from which the descent is made by artificial steps cut out of the rock, a somewhat formidable task when undertaken for the first time.

The life at Pinerolo is ideal, the constant hard exercise conducive to robust health and high spirits drives away all worry, and no young man leaves the school to join his regiment without regret and the keen recollection of the healthy surroundings in which, for the last eight months, his life has been passed.

After two or three months' regimental duty the young Cavalry officer will be drafted to the school at Tor di Quinto, which may be likened to the university course of his riding.

This school is probably the best organized in the world, and is frequently visited by Cavalry officers of other nations and many others, amongst them crowned heads, as well as many ladies, who take an interest in riding.

Here is put into practice the knowledge previously gained at Pinerolo. Daily cross-country rides of several hours' duration are undertaken, and the habit of thinking nothing impossible for the noble quadruped is ingrained. The utility in active service of the knowledge thus acquired cannot be over-estimated, and is bound to prove of advantage in seouting and covering the advance of an army in new and unknown countries, in conveying messages, or in rapid communication between outposts and their supports.

Two exercises at this school call for special mention, one because it is so well known, and the other, though not so famous, on account of its greater difficulty. Close to the school is the famous descent of the Tor di Quinto. This small hill, about 20 feet high, is almost perpendicular from its summit and even on foot could only be descended by sliding. The descent on horseback looks more difficult than it really is, and Italian officers are unable to understand the surprise that the descent so constantly evokes. It does not require much training, the whole secret being to keep the horse's head and shoulders straight, in which case he will slide on his haunches in the most natural way from top to bottom. Any deviation from the correct poise would, of course, result in disastrous consequences, but confidence in the rider and the necessary moral conveyance of that feeling to the horse is the principal factor of success. Many people seeing this reproduced in photos or cinematographs think it is a trick of

REPRINTS AND TRANSLATIONS.

photography. This is incorrect; the photos have been taken from an actual occurrence.*

The other and far more difficult obstacle is a fence at the edge of a hill with a considerable drop on the far side leading by a steep descent into a valley of considerable depth with a rapid ascent on the opposite slope. To be able to ride at high speed and clear the fence successfully may be considered the blue ribbon of riding, and requires great "sangfroid" and knowledge.

The country round Rome being very undulating and with meadows divided by well-known "staccionate," which are too stiff to be easily broken, makes hunting difficult and dangerous, but this is part of the young officer's training and completes his riding education.

It would have been easy to give a more detailed description of Cavalry training, but in an article of this description I have attempted only to give a general idea.

Before closing I should like to express my appreciation of what is of such importance for horsemen, the knowledge of the horse possessed by English riders, to whom the above description of Italian Cavalry training may not be without interest.

PSYCHOLOGY OF THE HORSE.†

By Dr. STEPHAN MADAY.

BEFORE taking up the study of the horse as it is today, we must inquire into his condition in olden times and into the causes bringing about the change. Although the horse has been man's servant for a period of more than five thousand years, and during that time has acquired fixed habits, it had before that time lived in freedom and many of the traits, even

if but faint, of the wild horse may be seen still in our domestic horse today.

Every utilization of the horse, every method of its training, should be based on a thorough knowledge of the horse's natural powers and movements. As training concerns itself not only with the horse's physical strength, but also with its mental powers, i. c., instinct, intelligence and will, it is very material to study these powers also. These latter powers, like the physical powers, have been developed, in the wild state, under pressure of necessity—in the battle for existence. Therefore, we should examine not only the mammer of life of the wild horse in its main features, but also into every peculiarity which we find in the domestic animal and trace them back to their origin.

The wild horse, which is somewhat smaller than our domestic horse, is to be found on the steppes of Central Asia; these horses there live in herds of from 150 to 200 head; these herds subdivide themselves into families consisting of one stallion and from twelve to eighteen mares, with their foals. The family is led and protected by its stallion; he regulates the number of mares in the family by driving off supernumerary and undesirable ones.

The wild horse lives off grasses and herbs; it changes its pasture ground twice a year, wandering north in the spring and south in the fall of the year. Against enemies, the larger and more ferocious beasts of prey, it protects itself mainly by its speed; it always runs against the wind, and thus never gets unexpectedly within proximity of an enemy; it can, by its excellent sense of smell, discover an enemy's presence at a distance of several kilometers.

There are cases when the wild horse takes the offensive; for instance, a stallion will attack a single wolf and a mare will attack any single beast of prey in defense of its foal. In former times there was a common belief that a family of wild horses, in case of danger, would adopt a regular tactical formation in the shape of our "square"; the mares forming a circle, facing inward, foals in the center, and the stallion outside of the circle on guard. In this manner, it is said, the attacks of swarms of beasts of prey were defeated by the mares belaboring the enemy

^{*}See cut on page 250 of CAVALRY JOURNAL for September, 1909.

^{&#}x27;Translated from "Kavalleristische Monatshefte," October. 1909, by HARRY BELL, M. S. E. U. S. Army.

with their hind hoofs. Such scenes we have seen pictured in old books, but a close inquiry into the truth of the matter does not warrant the acceptance of this as a fact. In a fight the stallion, as a rule, uses his teeth and fore feet, the mares their hind feet; in that manner also the mares will fight off the stallion when his attentions are not desired.

The wildness of the horse, that means his dislike and fear of man, is instinctive and hereditary; it is of such a high degree that captured wild horses live but a few days in captivity; they reject all food proffered by man and hurt or kill themselves in their endeavor to escape. Still, Count Falz-Fein of Tauris succeeded in capturing an entire family and domesticating it; some of that family are now in the Zoological Gardens in Berlin. The wild horse is hunted by the natives of Central Asia for its hide and is also killed off for the reason that wild stallions, whenever getting near a village, lure domestic mares away.

There is another class of wild horse, i. e., the horse which has become wild. It is a descendant of horses which ran away in times of war; it can be found all over the world (especially in Southern Russia); its manner of life is similar to that of the wild horse, except that it does not regularly change its habitat twice a year; it is also much easier to tame than the real wild horse.

Let us now turn to the domestic horse. The horse is one of the oldest domestic animals of man. According to reliable Chinese sources, the horse was first tamed in the times of Emperor Fo-Hi, in the year 35 B. C.; its use for riding and driving was general in the 27th century. There are similar data in Abyssinia reaching back to the 25th, and in Egypt to the 18th century, B. C.

Undoubtedly man held on to captured wild horses, and to their progeny, for several generations only by physical force. Undoubtedly also their instinctive wildness could give place to instinctive tameness but very slowly.

By instinctive tameness we understand those hereditary mental powers of domestic animals which conduce to their willingness or inclination to stay with man and not to leave his service even when maltreated. Similar instinctive friendships may be found not only between man and domestic animals, but also between other species, for instance, between ants and plant-lice. The development of instinctive tameness is dependent on the following conditions: heredity on the part of the animal; on the part of man, the necessity of having the animal, and selection of broken animals to tame others. This artificial selection is far more common than natural selection of wild animals; even today those animals which are addicted to biting and kicking are sold to the butcher and only the tame ones kept for breeding purposes.

Let us now see how the manner of life of the horse is changed by domestication. The domesticated horse is free from all cares imposed on the wild horse in regard to finding food, protection against enemies and seeking of night quarters; on the other hand, it has to work physically and frequently mentally also.

This complete and unnatural change of life has a material effect, in different ways, on the mental life of the horse. On the one hand those organs and functions which it does not absolutely need in the domesticated state become stunted; and in this sense the domestic horse may be compared with the drone, which has lost the ability of procuring its own sustenance; still, the educated man is in the same situation, for by the general division of labor he has become so one-sided that he needs the help of others to exist. That is, the help of one man to prepare his food, of another to build his domicile, etc. And it is just this one-sidedness and helplessness which we call "stupidity of domestic animals." On the other hand, a large amount of mental energy which the wild horse has to expend for preservation of life, lies dormant in the domestic horse. This energy can be used by man. It is the docility and susceptibility to training which we call the "intelligence of the domestic animals." "Intelligence" in this sense does not mean ability to serve our own interest (which we use when speaking of man); on the contrary, it means the ability to place our mental gifts at the service of other interests, at the disposition of another's pleasure. Looked at from the animal's standpoint, this is neither intelligence nor all of which the animal is capable. Still, this mental activity (which is often expressed in mere mechanical methods) is a part of the natural intelligence; that is, the intelligence acquired in the wild state; and the horse can be trained only by utilizing and partly changing its original ability, instincts and customs, and not by inoculation of strange human abilities.

THE MENTAL ORGANS OF THE HORSE.

We will now proceed to a systemmatical discussion of the separate mental faculties, in which we will first examine the activity of the senses, for each impression had to pass through the mental organs before it became part of the mental life. What is of special interest to us of the five senses of the horse is, first, their relation to each other and, second, a comparison of each sense with that of man. To pay proper attention to the first point, we will discuss the senses in relation to the importance attached to them by the American horseman. Rarey.

Rarey says: "Of the five senses of the horse the worst is that of sight, better is that of taste, still better that of touch, that of hearing is excellent, and most excellent is that of smell." We will keep to the same sequence, commencing with the sense of sight and ending with that of smell.

The sense of sight in the horse is about the same as that in man; the horse can make no distinction in exact contours and outlines of objects if some distance away. This is the main cause of the horse shying so frequently. It was formerly thought that the horse saw everything materially enlarged, but that of course was a mistake. Not all authorities agree as to whether the horse's eye is less perfect than that of man or of a bird, or if the nebulousness of the formation of the retina in many horses is a consequence of defective eyes (astigmatism).

The fact of the horse's mane very often hanging over the horse's face indicates the lessened importance of the sense of sight; if that were not so nature would not have that the case. A further proof is the daily experience that completely blind horses graze and sustain life and can be used for all kinds of labor. The absence of the sense of sight is never betrayed by the action of the horse, which seems to prove the correctness of the assumption that the normal action or behavior of the horse is dependent on its other senses. On the other hand, we find that the horse's sight is superior to man's in several ways

and that on account of the location of the eyes. The horse sees almost the entire horizon with its two eyes at the same time. It was of vital importance to the wild horse, pursued by beasts of prey, to enable it to see what was going on in its rear.

Another superiority the horse's eye has over that of man is that it is able to perceive in its immediate vicinity the most infinitesimal movements. It was sought to explain this ability, which also served the horse against its enemies, by the fact that the horse's eye, in consequence of its peculiar conformation, enlarged all objects. The secret of the "Kluge Hans"* of Berlin rested entirely on this ability, for Dr. Pfungst proved by numerous tests and measurements that the horse could neither read nor figure; his entire knowledge consisted in keeping sight of the very slight movements of the trainer's and exhibitor's head, in just the same manner as the well trained horse in a circus obeys the movements of the ringmaster's head. Still, the movements made by the trainer of the "Kluge Hans" were less than one-fifth of a millimeter in extent. Of course, the extraordinary feats of that horse were also based on another ability besides the sense of sight, i. c., continuous and indefatigible attention, which is also an inheritance from the v. ild horse.

A further peculiarity of the horse's eye is the location of the sensitive retina (that oblong or round spot in the eye) which reflects in a special manner objects lying on the ground. Thus the beasts of prey, lying in wait in the grass, were instantly perceived by the running wild horse, without it having to take special care to look out for them. Unfortunately this advantage of the wild horse's eye has become but a hindrance to its descendant, the domestic horse, as it has become the root of his fear of the ground.

Finally, the horse's eye is capable of receiving more rays of light at one time than that of man; the horse sees in the darkest night, and man profits by this ability. In a night which is dark as pitch, the horse sees well enough to find its way home, if we but give it the reins; it avoids trees and holes with ease,

^{*}The "Kluge Hans" was a well trained horse on exhibition a number of years ago in Berlin—said to have been the most marvelously trained ever known, and by many believed to have been able to read and figure.

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and some horses have been known to jump ditches in the darkest night.

In how far the horse is able to distinguish colors has not yet been ascertained. It is certain, however, that it knows the difference in uniforms; it can distinguish between soldier and civilian, between officer and enlisted man. I have known a horse which was mistreated by an officer at one time and which ever afterwards would not allow an officer to approach, unless he changed his uniform to that of an enlisted man. Another horse that I knew would not allow its master to ride it after he had been retired from active service. This latter fact proves the correctness of what we have above stated, namely, that the horse's sight is inferior to its other senses, for the horse had no knowledge of its master's features, although having seen them daily for years.

The taste of the horse, as far as we can judge from the food it selects, is very well developed. The food of the horse in pasture consists of some 200 to 300 different kinds of grasses, which it carefully selects from all others. The knowledge of the most nutritious grasses becomes instinctive in time. But if a horse happens to get into a strange locality and the grasses there are unknown to it, it will eat harmful grasses and learn the difference between good and bad varieties only after it has become wise by experience. The horse is also very choice in the selection of its food and will often go hungry rather than eat damaged food. Still, it appears that the horse is guided in its selection of food more by the sense of smell than taste. This we conclude from the fact that it seeks out and takes up its food with the upper lip, i. e., with the nose, instead of with the tongue, as is the habit of cattle.

The organ of touch is the entire surface of the horse, as in man. As the human hand has developed into a special organ of touch, so serves the forefoot, the tongue and especially the upper lip in the horse as a means of touch. The upper lip (nose) is supplied with long sensitive hairs, enabling the horse to feel, as it were, an object without actually touching it with its nose; the onlooker gains the impression that the horse simply smelled the object, which is erroneous of course, as the horse, having an exceedingly sensitive smell, does not need to

get close to an object to smell it. Based on the observation that the horse will not be satisfied until it has actually touched with its "touch" hairs (feelers) an interesting object, Rarey once said, in contradiction to his statement cited above: "It is possible that the sense of touch and not that of smell is the best developed sense of the horse."

The flesh of the upper lip is composed of very delicate tissues under the muscles and is so sensitive that the horse may be stupefied or even stunned by a firm pressure or twisting of the lip, thus being made insensible to other pains. This method is resorted to successfully in surgical operations and also when shoeing restless or kicking horses. The horse can pick up the smallest object from the ground with its upper lip, being similar in that respect to other animals which have a mobile nose, such as the tapir and the elephant.

The horse's teeth also serve its sense of touch. Many horses get very proficient in this, as is substantiated by all circus men; they even learn to find and retrieve articles like handkerchiefs, etc. If the horse is kept sufficiently employed with such and other feats, it will very soon leave off the habit of biting.

We will finally also state that with very many horses the forefoot becomes a very good and sensitive "touch" instrument.

The sense of hearing of the horse is so far superior to that of man that the horse can hear far fainter sounds than man; but it is inferior to that of man in that the horse can distinguish words and musical sounds in but a minor degree. The horse's sense of hearing is materially assisted by its ability to turn the ears at pleasure, and especially to the rear. This attribute is common to all animals which are pursued or hunted by beasts of prey (the hare has it in a marked degree). The wild horse moves its ears continually and quickly, to even up, by hearing, deficiencies in its other senses.

As a rule, we judge the hearing of the horse on the basis of its ability to remember commands and trumpet signals. We should remember, however, that success of training in this direction is also dependent on memory; it is possible also that the horse distinguishes between a far greater number of different sounds and groups of sounds than can be proven.

The horse knows the voice of its master or its attendant. It can easily learn from ten to twenty different commands or calls, which it will finally execute even in case its rider (for instance, a recruit) misunderstands the command or call and works against the horse's better understanding. However, it cannot distinguish the sound of the different letters or syllables of the word of command; only the cadence and melody is understood by the horse. To illustrate; we need not call the horse by its accustomed name to make it pay attention or come to us; all that is necessary is to pronounce any word in the same tone and cadence as the attendant usually calls the horse.

More uncertain is the matter of trumpet calls. The horse presumably responds only to the call and not to the different melody of the call. If, for instance, the hour of feeding arrives and the waited-for call sounds, the usual unrest breaks out in the stable, no matter whether the regular call or some other call has been sounded. But in spite of this we cannot reject offhand the truth of the following: In case of a stable burning it is said that a trumpeter saved all the horses of his squadron by sounding the regular call for "assembly," upon which the horses ceased their endeavor to get back into the stable and assembled at their usual place of rendezvous.

It must be apparent to the critical observer, however, that commands or acoustic signals are never given by themselves by trainers, but that each is always accompanied by some visible motion, however slight; the horse moves with assurance or certainty only on perceiving the latter. In consequence of this the system devised by a Parisian trainer, Descroix, failed entirely. This system, which its inventor called "volapuk hippique," consisted in five syllables—ha, he, hi, ho, hu—to be used in a variety of combinations for giving different commands.

We must also mention here the musical rythm. Up to the present day all efforts have been unavailing to discover the sense of rythm in the horse, although its existence is vouched for by many horse lovers.

Of very much interest is the fable of the dancing horses of the Sybarites. Aelianus and other writers of ancient history state that the citizens of the city of Sybaris had become so effeminate during the long period of peace that instead of using their horses for their proper purpose they used them for entertaining purposes, training them to dance to the accompaniment of flutes. When, thereafter, another war broke out their enemies, the Crotonians, played flutes and made the horses dance, and the Sybarites, thus losing control over them, were easily defeated by the Crotonians.

If, however, we see a horse in a circus stepping to the sound of music, it is generally the band which keeps time with the horse, and not the horse with the band. Still, the reverse is said to be also true. Dr. Z. Dalmady informs me that he saw two carriage horses, which for several hours had to stand close to where dance music was continuously played that finally stepped (or danced) in time with the music.

According to almost unanimous opinion of all horse owners, the sense of smell is the most important sense of the horse. It is so superior to that of man that there is no necessity for comparison. If we desire to form some judgment of the importance and the manifold utilization of this sense, we can compare it only with our sense of sight. The horse knows the members of its family and other horses by smell pure and simple; by it it discerns human beings and beasts of prey, the nutritious and the poisonous plants and grasses, the opposite sex, the roads, the stable, its own place in the stable as well as in ranks, its harness and saddle, the sex of man (if male or female) and even the good or bad will of man towards the horse.

The horse belongs to that class of animals which are endowed with scent; that is, in favorable wind, it perceives the same smell at a distance of several kilometers which man can perceive only at the distance of about one meter; at very short distances the horse perceives smells which are not perceptible at all to man as, for instance, the track of a man or an animal on the ground.

The horse is guided in the dark (where, as already stated, it also depends on its sight) by its delicate sense of smell, and also in fog, in dust, and in a dense forest, which I could easily prove by numerous examples taken from my own experiences and from history. For instance, a perfectly blind horse, driven singly in a rig, was known to always leave the high road at

the correct spot leading to its stable. My mare, Fatima, a very lively and attentive animal, never entirely depended on her sight. Before leaving the road for a new one, she always smelled it first to ascertain whether or not it was a bona fide road, and whether or not the tracks of men and horses were to be perceived on it. She always smelled the gates of the barracks and of other houses, without paying any attention to the different colors. And more than once the mare erred in entering an enclosure which contained many horses, but which was not the barrack yard. It is said that a horse hitched to a plow discerned by smell a corpse buried in a field, which led to the discovery of a murder. The horse is very susceptible to the smell of blood and consequently causes much difficulty to butchers in leading it into a slaughter house. It also will pass a butcher-shop where horseflesh is sold only under compulsion. If a horse is suffering from thirst, it is able to find water existing below the surface, which was proved in several instances . in the last German expedition in Western Africa.

A horse perceives the fear in a man approaching it by the fear scent emanating from the man and may attack him, while it will not do so in case of a determined, energetic, fearless man.

Strong scents, like perfume and petroleum, the horse dislikes as much as does a dog, because they interfere with its perception of minor scents. The effect of a strong scent on the horse is about the same as a strong light has on the human eye, which deprives man for the time being from perceiving all minor objects.

Considering all which has been stated in regard to the horse's five senses, it follows that the horse is well compensated for the inferiority of its sense of sight by the other four senses, and especially by that of smell. Still, we cannot deny that sequence of the value of senses, being entirely opposite to that of man, means a great disadvantage in comparison with human organization. The disadvantage consists in the fact that the sense of smell can never equal or compare to that of sight. Perception of anything by means of smell takes place only when the matter serving the purpose of perception (in the form of gas) enters the nose, while the eye takes up rays of light and energy. Therefore, the reaction of smell (the origin

of a sensation, the celerity of which so far has not been measured) is much slower than the reaction of light (the latter is as quick in the horse as in man). A further difference is that we can take up but one smell at a time, while the eye can take up many objects at the same time. And, finally, sight ascertains the different attributes of an object, such as shape and color, while the sense of smell shows but a single attribute of the object.

The disadvantages of an organization which has given the horse a minor or incomplete sense for its main one are perceptible in different ways. The wild horse, living in freedom, is a pursued animal. For it, time means not money, but life. In many cases it is compelled to utilize its less serviceable but more rapidly working sense of sight or hearing, because it has not the necessary time or facility to reconnoiter the unknown place or object thoroughly with its sense of smell. Therefore, the horse resorts to flight, even if it sees but a leaf falling or hears the flapping of the wings of a bird; for, if it would ascertain the true reason of the movement by its sense of smell or touch, it might easily fall a victim to a tiger or wolf hidden in the woods. Consequently, it is not stupidity but rather intelligence on the part of the horse that it flees on every occasion, where the origin of a disturbance is unknown to it. In the Hungarian language the expression to shy ("megbokrosodni") is derived from the name of woods or brush. In which derivation the cause of shving is assumed to be the effect of the woods or brush; the sight of the woods, in the horse's experience, is connected with the conception or idea of danger, as in similar manner, in the imagination of many men, the sight of blood, or, in the case of children the dark room, is connected with the idea or thought of danger.

THE RUSSO-JAPANESE WAR.

(Extract from an article by COLONEL L. J. H. GREY, C. S. I., under the above title reprinted from the fournal of the United Service Institution of India.)

VII.

N considering the lessons to be learnt from the war in Manchuria, the Japanese virtues to be imitated need as much study as the Russian vices to be avoided. The latter I have before discussed, the former appear from the British reports to be as follows:—

- 1. Patriotism.—The Japanese must be invincible "so long as they remain animated with their present flaming patriotism" (Sir Ian Hamilton); from their devotion to their country springs the fact "unique among all the armies of the world, that the personal element is quite unknown" (Captain Hart-Synnot); "Perseverance and unselfishness" are the Japanese qualities quoted by Kuropatkin to his own army, "they never relax their efforts by day or night." Russian Commander-in-Chief and British attachés alike recognize that "all have but one aim and object in view, and that is that Japan may win." Therefore they never give in, but they bear in mind Grant's maxim that "when their own condition seems least hopeful that of the enemy is perhaps no better and often worse" (Colonel Haldane).
- 2. Method, preparation, thoroughness.—These were evident from the very first. "The organization for landing was most perfect" (Commander Wemyss); "the arrangements for the men's comfort during the Manchurian winter were most admirable" (Captain Robertson). The clothing, feeding, transport, bivouacs—every detail of efficiency are subjects of constant praise by our attachés. Everything, from strategic combinations to the sterilization of water, was thought out beforehand and worked machine-like. With the Russians it was far otherwise; that "the Russians could starve and yet fight I saw for myself at Wufang-kou (Telissu) where the majority were without food for two days" (Major Home). Red tape caused this there, and at

Liaoyang, and often elsewhere. For instance, "on the 17th June the men were desperately hungry and some wagon-loads of rye bread arrived by rail, sealed up for the north. The intendance declined to break the seals" (Colonel Waters). The Japanese, on the contrary, recognized that "an army marches on its belly," and fed their men well. They knew, too, that health is as necessary as courage. "The health of this army is perfectly wonderful" (General Burnett), owing to the care and fore-thought of the Japanese Government, backed by the "flaming patriotism" of the men, whose self-restraint avoided whatever could diminish their efficiency. Colonel Haldane writes of their "self-control," of their "strong sense of subordination." "It is this spirit of self-effacement for the public weal which has won Japan her victories."

3. Physical exercises and activity.—All the reports show Japanese physical activity as phenomenal. Their success in bayonet-combats is attributed to this as much as their immunity from heavy loss in frontal attacks. The Japanese even in marching order, and carrying one or two parcels of reserve ammunition, "covers the ground at a great rate," due "to the constant practice which he gets." "The most striking feature of their attack is that when they move they do so with great rapidity. the pace increasing as they near the enemy; by this means their own morale is increased, while that of the enemy is correspondingly diminished, and the target for his fire made more difficult" (Colonel Haldane). This "quick double, carrying packs, equipment, arms, and 300" (often 660) "rounds of ammunition, without exhaustion is attained by gymnastic training" which is described at page 670 of Volume II. What the men carry may be seen in the photograph facing page 210-more kit than soldier! The "one or two parcels of reserve ammunition," mentioned above, are 180 rounds each (in addition to the normal 300 rounds) carried slung over their shoulders, by the men who reinforce the firing line running "at their utmost speed" (Colonel Hume). "A Japanese soldier crossing a space of six hundred vards of plough can cover the distance in one rapid rush with all his heavy equipment on his back," "a European will have twice as many bullets fired at him in any assault as a Japanese" (who covers the ground in half the time), and the latter is "twice as . 764

difficult to hit because he moves twice as fast" (Sir Ian Hamilton). Take one instance, the assault of Temple Hill at the battle of the Shaho. "I saw the Japanese firing line doubling across the open (about 1,000 yards) in successive single lines extended with an average interval of about three paces. Quite a dust arose from the number of bullets which struck the ground among the running men and it seemed marvelous that so few fell. The lines came on in rapid succession, running as hard as they could. only halting once to fire and get their breath" (Captain Vincent). Such activity, explain our attaches, dispenses with wide extensions; and thus not only keeps the men better in hand but affords more weight to the attack. This war has shown that the slow soldier is out of date. In respect of activity, and the exercises which afford it, the Japanese have only rediscovered what the Romans knew and practiced 2,000 years ago, but like the Romans, they take as soldiers the pick of the population.

4. Use of cover.—"The Japanese employ entrenchments in their attacks to a degree probably unparalleled," but only "utilizing them as points d'appui." The Russians also entrenched enormously, but "solely for defense, their many lines encouraging the inclination to retire," while the Japanese entrenchments were "mere footholds, whence to spring forward when the moment came" (Colonel Haldane) The Russians, writes Sir. W. Nicholson, chiefly used Chinese labor, and he concludes that "the Russian troops are not adepts," whereas the Japanese artillery and infantry were thoroughly trained to dig themselves in. "The Japanese invariably dig cover for their guns before bringing them into action" (Colonel Hume); and they are "very clever at concealing their positions" by the aid of background or of screens. Again and again we read that the Russian artillery could not find them, and wasted ammunition enormously. A further reason for this failure was that, when the Russians learnt by bitter experience not to expose their guns, they went into the opposite extreme of hiding them away and using indirect fire. Such fire not only fails to find artillery but also "to check rapidly advancing infantry," hence the successful Japanese infantry attacks.

"For the infantry to pass the hours of darkness in preparing for the engagement of the morrow is a matter of common occurrence"; the Japanese have no "scruples in ordering troops

which have fought all day to dig at night" (Colonel Haldane). As with the artillery so with the infantry, concealment was the first consideration. "Given only a limited time, cover from view would appear to be of more importance than actual cover from fire" (Colonel Agar): and "the Japanese used kaoling stalks, rods, straw, etc.," extensively for screens. "When the earth was frozen, sandbags were distributed to the infantry, and before the attack was launched some earth was placed in them and carried forward, so that a few inches of cover might be had" (Colonel Haldane). "They were used to make cover during the night, behind which the attacking troops assembled before daybreak as near as possible to the Russian position, from 800 to 600 yards off" (Captain Robertson).

After Mukden "a small, comparatively light steel shield has been manufactured * * * to which is attached a rope. A man creeps with head thus protected, up to cover and then the shield is hauled back by the firing line and used again." It is considered that such a shield "must be used in the final stages of the attack, at a time when a kind of stalemate often ensues" (Colonel Haldane). Similarly "during the battle of the 31st July the six field batteries of the 2nd Division had during the previous night constructed wooden shields," and "since the battle of the Shaho the Japanese field gun is fitted with a light steel shield." Colonel Hume who reports the above was told that there was no "sense in the Continental objection to shields on the ground that they furnish a big mark." The Russians also adopted artillery shields after Liaovang but they were too large and heavy (165 lbs.). "The extremely high percentage of losses in engineer companies" leads Colonel Haldane to suggest "protection for those engaged in destroying obstacles." "A few bullet-proof shields, to move on wheels, might be allotted to each engineer company." Such "barrow-shields," evolved after costly experiment, were offered 30 years ago to the Indian War Office, and declined.

Cover, of course, means weight, for whatever arm. In the infantry, for instance, "the experience gained during the war" increased the proportion of tools till, towards the end of the campaign, "two out of every three soldiers carried either an entrenching or a cutting tool" (Colonel Agar). "Were they not provided with entrenching tools they would be placed at a grave disadvantage, * * * the occasions must be rare when battalion tools on pack animals have been able to come sufficiently far to the front to be of service except at night" (Colonel Haldane). "Our army will undoubtedly have to carry entrenching tools, at least two days' emergency rations" (for long, modern battles), "and more ammunition in the future," as the Japanese do. They have 120 rounds in "normal order," 230 rounds additional when going into action, and one or two parcels of reserve ammunition (of 180 rounds each) when running to reinforce the firing line. "I can see no reason why a British soldier should be less capable than a Japanese" (Colonel Tulloch) of carrying for himself the food, ammunition and tools which cannot otherwise reach him in battle.

5. Night movements.—"This war has proved that when ofposing forces are in close contact, night attacks are feasible and when carried out with determination successful" (Colonel Tulloch). The italics are mine to indicate that the "successful might advances of our allies differ from maneuvers such as preceded Tel-el-kebir, the Atbara, and Magersfontein" (Colonel Haldane) No doubt, as Colonel Waters says on the Russian side, "a common tactical experience of this war has been the frequent marches and operations by night in all weather," as in the wars of Frederick the Great: but actual night attacks were successfully used by the Japanese to an extent hitherto unparalleled. Their principle is to gain close touch by day. "During daylight the enemy's position and strength is as far as possible ascertained; after dark specially selected men push close to the defensive line Both officers and men have been thoroughly trained to observe and to note marks for maintaining direction, and they plant sticks or flags to aid in this. Exrtaordinary care in reconnaissance before and during battle is a special feature of the Japanese system, wrote Kuropatkin to his troops, and notably is this the case in night attacks. Hence their frequency, with almost unvarying success. But such are only attempted over short distances, which have "rarely, if ever, exceeded 1.500 yards" (Colonel Haldane).

The five chief causes detailed above sufficiently explain Japanese victory. Other points in their practice may be referred

to circumstances, e.g., they, like the Russians, dispensed with long-range rifle fire; this was due perhaps to their poor shooting as well as to difficulties of ammunition supply. Their disregard of artillery preparation, Colonel Hume explains by saying "the artillery has never been strong enough to silence the Russian guns, and the Japanese, recognizing this, launched their infantry without waiting for the result of the artillery duel." But "their infantry officers seem to think that artillery co-operation was by no means a necessity" (Colonel Haldane), because the Russian shrapnel caused them so little loss. But Colonel Haldane points out that, at any rate, the ineffectiveness of the Russian rifle was due to the Japanese artillery. Till Mukden the Russians neglected head cover, and by the Japanese "practice of continuing shrapnel fire until their troops have actually reached the enemy's works regardless of losses caused to their own infantry, the defenders are prevented from using their rifles with the confidence which they would have if they were able to fire through loop-holes." Partly, no doubt, the Japanese economy of artillery fire was due to difficulties of supply. But certainly it contrasted favorably with the Russian waste of ammunition and wearing out of guns, as noticed by all our attachés. Very pithy is Kuropatkin's order on this subject found by the Japanese at Liaoyang: "The enemy fear the ammunition yet so be fired far more than the rounds already fired or being fired."

This summary has been written in the hope of serving those who have not time or opportunity to study the War Office volumes. As regards facts it is I hope accurate, as far as it goes. As regards the lessons of the war it is, of course, far from exhaustive of the comments and deductions contained in the excellent reports of our attachés, but I have endeavored to bring out the main points accounting for the Japanese success and the Russian failure

COMPULSORY MILITARY SERVICE.*

(From Arms and the Man.)

OW, as I said, I am a little bit old fashioned in my views. I will not detain you but a moment. But, gentlemen, you are men of experience and most of you are past middle age. If ever we have an Army fit to defend this Government in time of peace, if that time ever comes, and it will, compulsors military service in the United States is necessary; and I think that today, you gentlemen whose years of military service are about passed should be the ones to sound the warning and approve and advocate compulsory service in the United States.

I will venture a cigar that an army of two hundred thousand men would be and could be maintained in this country at practically the cost of the seventy thousand men you have in the Army today. I arrive at that in this way, that every citizen of this country owes service to his Government. You can create compulsory military service and you have a right to call upon me, if I were a young man, or any other gentleman for his service in time of peace as well as in time of war. That service is gratuitous; you are entitled to it without pay. Under compulsory military service you would be perfectly justified in calling into the service 200,000 men, if that is the necessary number, and you would not be required—it would not be just for you to pay those men the monthly pay that you pay the United States soldier today. If you paid them \$8 a month it would be a fair compensation. They would not be paupers. You take care of them, you clothe them, you feed them, you transport them, you treat them when sickeverything that is required; the Government supplies them and you give them say \$8 a month for pin money. That is proper service to your country. The Government is entitled to it, and every man should be glad to serve it on such conditions.

I would advocate a three-year service with the colors. Every year a third of the Army would pass to a reserve list. I saw in the paper here only yesterday, I think it was, that some gentleman

in this hall advocated a reserve to the Militia or National Guard. We want a reserve for the Government, the Army of the United States, and if we will do that thing that way I think it would be best. They would pass into a reserve list. There would be, if you had 150,000 men, 50,000 men who would pass to the reserves every year. Those men should be on a roll; their residence should be known. Suppose you fill up and you want 50,000 men. Call them. They are required to come back, because there is compulsory military service. Their service is required. They return to the colors and serve for the period that is necessary, and then are returned back to the reserve list. Each year you add to the reserve list 50,000 or a hundred thousand men and in ten years' time there would be half a million instructed men throughout the country all upon that roll. You should call those men by years.

Now, I have heard said that it would be impossible in this country. I don't believe it, and I believe we will come to it. Supposing you wanted 50,000 troops in a year. It is perfectly easy for the War Department to adjust equitably the call upon the congressional districts of the United States. Put all the young men's names who became twenty-one years of age, twenty-two years of age, twenty-three years of age that year, into a list and draw out the numbers.

Now, I want to impress upon you this one point, that compulsory military service in the United States will bring the Army right to the heart and home of the people. It would be their affectionate care. Their sons, your son, my son, every man's son will be called or liable to be called. The consequence would be that it would raise the appreciation of the Army immensely. You would get young men of good family. Instead of seeking them, they would come upon orders and the result would be that the Army would be highly respected. My son is liable to go. I am going to appreciate it because his service will be to the Government, and I am going to send him. This community in which we are today will see that young men were called from this community to serve in the Army, would see that they go and that they stay. What is the result? The result will be that this awful disgrace which we have now in the country of seven or eight or ten per cent of deserters of the Army will be wiped out effectually,

^{*}From an address by Lieutenant General Adna R. Chaffee, U. S. Army, Retired, made before the National Guard convention at Los Angeles, Cal.

because if one of those young men deserted from the Service you would see that he came back, for the very reason that if my son deserts your son is liable to take his place, so you are going to be watchful. It makes everybody interested in the Army, and you will have what we need—the basis of an efficient Army in the United States.

THE CAVALRY OF FREDERICK THE GREAT

By Major W. H. GREENLY, D. S. O., p. s. c., TWEIFTH LANCERS, BRIGADE MAJOR

(From the Journal of the United Service Institution.)

THE ARMY BEFORE THE ACCESSION OF FREDERICK THE GREAT.

I N order to form a clear idea of the work accomplished by Frederick the Great in raising the Prussian Cavalry to that pitch of perfection to which it attained under his instructions, it is necessary to consider the condition of the Army as he found it in 1740 on his accession to the throne of Prussia.

The creator of that Army, with which Frederick was afterwards able to more than hold his own against the whole of Europe, was his father, Frederick William the First, generally known as the Drill-Sergeant of Europe.

In all matters connected with the Army his right-hand man was Prince Leopold of Dessau, well known to readers of Carlyle as The Old Dessauer. He, like his chief, was a veteran of the wars of Marlborough and Prince Eugene, and in these had greatly distinguished himself.

That these men understood their business, in so far at least as the training of the infantry was concerned, was amply demonstrated soon afterwards by the Prussian victories in the first Silesian war.

Traces of two of their most important reforms are visible in the German Army of to-day.

In the first place, the corps of officers was put on a sound footing and established in that high position in the State which

they still most worthily occupy. Secondly, the introduction of the Canton system in 1733 laid the first foundation of the principle of universal service on a territorial basis.

"All dwellers in the land"—so ran the edict—"are born to arms, and every man belongs to that regiment in whose district his home lies."

Exemptions, however, were numerous; the numbers required for the Army were small in proportion to the population; the period of service was unlimited, and of those actually serving one-third were allowed to be foreigners, and were recruited abroad.

Both enlisting and maintaining the soldiers was the private concern of the company and squadron commanders.

Except for reviews the squadron commander was only supposed to keep with the colors three-quarters of the establishment, and in actual practice he also allowed a third of the remainder to be on special furlough.

Only those present with the colors received any pay, and the balance thus saved was supposed to be used for recruiting purposes. Accordingly, when he could obtain recruits cheap, the squadron commander made a profitable business out of the squadron, and the command was naturally a much-desired post.

Horse-breeding in Prussia at this time was at a low ebb, and the bulk of the horses for the Army were brought from abroad.

As regards the organization and methods of fighting of the Army as a whole, time does not admit of more than a brief reference.

The proportion of cavalry to infantry was, roughly, one to three, and of artillery one light gun, usually a 3-pounder, to 1,000 of the other arms; in addition there were a few heavier guns and howitzers.

A battle generally began by the artillery advancing and engaging in a duel, while the infantry, with the cavalry guarding their flanks, halted out of range awaiting the result. When the infantry lines had arrived within 500 or 600 yards of each other, the opposing horsemen advanced to the cavalry fight.

During this they often drifted away from the battlefield, and not infrequently remained absent for the rest of the day.

After a battle the victorious army usually re-formed on the ground it had won, and rarely pursued. The cavalry never followed up the beaten enemy, and touch was quickly lost.

To turn now in more detail to the cavalry. It was organized into Cuirassiers, Dragoons and Hussars. The Cuirassiers rode large, heavy horses, nearly all blacks, while the Hussars were mounted on animals which averaged rather under 15 hands. All were armed with a sword, two pistols, and a carbine. Dragoons having in addition a bayonet. They rode in panelled saddles of the German pattern, and bit and bridoon bridles, the bit being first introduced shortly before Frederick the Great's accession. The dress of the period is too well known to need description. The only armor still retained was the breastpiece of Cuirassiers.

Regiments of Cuirassiers and Dragoons had five or ten squadrons, Hussars three or six. The squadron was the real unit for all purposes; it consisted of six officers, twelve non-commissioned officers, and about one hundred and thirty troopers. It was divided into four troops, and formed up in three ranks, the largest men and horses in the front rank. Line was the formation for attack, which was carried out at the trot

Speaking generally, the drill of the cavalry corresponded closely with that of the infantry; much of it was extremely complicated, and without the slightest value in the field. All cavalrymen, especially the Dragoons, were trained to fight on foot; but the methods employed were practically the same as those of the infantry. Mounted drill was only carried out once or twice a week, and drill on foot once a week.

The cavalry regulations, in spite of their defects, containe? a good deal of sound instruction for the training and employment of cavalry. The practice, however, fell far short of the theory, and during 13 years of peace matters in this respect had been growing steadily worse. The endeavor to economize by saving horseflesh had had the inevitable result that the men had been more and more exercised on foot, less and less on horseback. The constantly recurring fallacy that the rifle is the cavalryman's chief weapon was also widely accepted. The

fact is, that, good soldiers as they were in many respects, neither Frederick William nor Prince Leopold, both infantrymen, had any conception of the true functions of cavalry or of the principles which should govern its training.

Significant of the whole state of affairs is the order prescribing the trot as the pace of the charge. Even under Frederick William's father, the attack had been practised at the gallop, while in England, nearly 100 years before, Cavaliers and Roundheads had ridden at each other at the full speed of their horses. But with all these faults the cavalry, though wretched horsemen, were, in common with the rest of the Army, imbued with the most perfect discipline—a fact which goes far to explain the wonderful rapidity with which they improved when once they came under the direction of a true cavalry soldier.

FROM THE ACCESSION OF FREDERICK THE GREAT TO THE END OF THE SECOND SILESIAN WAR.

Frederick the Great came to the throne in May, 1740.

The cavalry at that time consisted of:-

12 regiments of Cuirassiers, 60 squadrons.

6 regiments of Dragoons, 45 squadrons.

2 corps of Hussars. 9 squadrons.

i.e., in all 20 regiments in 114 squadrons.

The King thus described the Cuirassiers: "They consisted, like the infantry, of very big men, and rode enormous horses. They were giants on elephants and could neither maneuver nor fight. There was never a parade at which some of them did not fall off. They were not masters of their horses, and were far more drilled on foot than on horseback. The officers had no idea of mounted duties at all, least of all of their duties in war, and had no knowledge of the use of ground. As regards what is required of cavalry in battle, they were absolutely without instruction."

Then again: "My father left me a bad cavalry: hardly an officer who knew his duty. The men were afraid of their

horses, and hardly ever mounted them; they only knew how to drill on foot."

Six months after his accession war broke out, and the poor opinion he had formed of the cavalry received only too clear a confirmation.

The Austrian Hussars at once showed themselves superior to the slow and clumsy Prussian cavalry. In the first two months they had surprised a regiment of Dragoons, captured their standard, and nearly made a prisoner of the King himself. They had also slipped through the Prussian outposts into Silesia, and were already carrying on there a harassing guerrilla warfare.

The first serious action of the war was the battle of Moll-witz, fought on the 10th of April, 1741. Here the Prussian cavalry certainly proved themselves brave enough, but in other respects they hopelessly failed. They were too slow to take advantage of an excellent opportunity of charging the Austrian cavalry in flank, and as they were beginning to be got on the move to do so they were themselves charged by other Austrian cavalry and completely routed. The King put himself at the head of some squadrons in reserve and endeavored to save the situation, but the whole Prussian cavalry was quickly swept from the field.

The King himself found safety among the infantry, whose steadiness gave him the victory.

Nothing can show more clearly the results of the training of Frederick's predecessor. On the one hand, the infantry "a splendid instrument of war"; on the other hand, the cavalry "neglected and completely ignorant of its duty."

Frederick's comments were: "The cavalry are so bad that it isn't worth the devil's while to take them away. They can drill with the precision of Grenadiers, but are equally slow; in front of the enemy they are useless, and invariably arrive too late."

Improvement, however, was already beginning, and by the end of July we find the King in his camp at Strehlen showing off 62 squadrons to the French Ambassador. The latter, who had seen their wretched condition at the time of Mollwitz, now reports to the French King: "This cavalry is the most sur-

prising thing in its kind that can be imagined"; and this only three months after the battle.

In the following March, 1742, the King issued some important instructions. "Instructions for the Cavalry in Battle" and "Instructions for the Colonels and other Officers of Hussar Regiments." These instructions breathe the true cavalry spirit in every line, and are full of sound cavalry teaching. Among the points emphasized are the importance of the squadron as the tactical unit, and the necessity of the squadron leader being ever ready to act on his own initiative. The Prussian cavalry was always to be the first to charge, and never wait to be attacked. The gallop was laid down as the pace of the charge. "When the cavalry advance they are to do so at the trot until within about 100 paces of the enemy, then, still well closed, the horses are to be driven in at the gallop, and the enemy ridden down."

Squadron commanders are made responsible that not a man uses carbine or pistol in the mounted attack; the enemy is to be ridden at sword in hand.

The instructions for the Hussars, too, are most comprehensive. The officers are told that their first care must be to have their troops as well drilled as the Dragoons, and that their usual form of attack is to be at close files with sword in hand. In attacking Hussars, not more than one troop in each squadron is to skirmish in loose order, firing from their horses; the remainder are to keep closed, and seek for opportunities to attack with the sword.

The principles laid down for outposts, patrolling, and attacks on convoys are much the same as those of to-day. Officers are cautioned that when sent out reconnoitering, "it is a poor kind of bravery on this service to get engaged with the enemy; they should rather act by cunning and stealth."

Meanwhile the war continued. The next considerable battle, that of Chotusitz, May, 1742, showed that the sound teaching and indefatigible energy of the King was already bearing fruit.

The cavalry, though finally defeated, achieved some success and on the whole the day was by no means discreditable to them.

That they took their fair share in the fighting is proved by

their losses—1,280 men and 2,500 horses out of a total of less than 10,000 cavalry.

The King attributed their defeat chiefly to two causes: too great intervals between the squadrons and the want of a third line. These defects he immediately set about remedying.

Less than a month after Chotusitz the Treaty of Breslau brought the King the peace he so much needed for continuing his reforms.

He now made time, among the countless other duties which claimed his attention, to devote much of his energy to personally instructing his cavalry. He showed in this work an expert knowledge of his subject and a true appreciation of those qualities, moral even more than physical, which alone can convert a collection of men and horses into cavalry.

From this time forward progress was rapid and continuous. In the second Silesian war, but two years after its disaster at Mollwitz, the cavalry had reached a high state of efficiency. Hohenfriedberg, Soor, Hennersdorf, and Kesseldorf are all names glorious in the annals of Prussian cavalry.

In this war it was the Austrian horsemen who felt and showed their inferiority to the Prussians; their excuse at Hohenfriedberg proved unmistakably which way the balance was inclined: "We could not charge the Prussians' right wing," they said, "partly because of the morasses that lay between us, and partly because they rushed across and charged us."

We are reminded of Cromwell's cavalry charging across the ditch at Marston Moor, and can recognize the same initiative and dash, the same confidence of the leaders in the riding of the men.

Then followed ten years more of peace—1745-1756—and at the end of those ten years, that is, in the early part of the Seven Years' War, the Prussian cavalry first reached its zenith.

FREDERICK'S PRINCIPLES OF TRAINING.

We must now turn again to the King, and examine the methods by which he transformed the cavalry of Mollwitz into that of Rossbach, Leuthen, and Zorndorf.

During these years of peace Frederick had worked unceasingly at his own military development. The opinions he had formed in his war experience he now put practically to the test, and communicated to the Army in the form of instructions. His first care was the training of the leaders; he knew that the education of these to the same principles of thought and action was the only means by which to guarantee the cooperation of all parts of his Army when in the presence of the enemy.

"The campaigns which I have fought," he wrote, "have given me the opportunity to reflect upon those principles of the great art by which different Empires and States have triumphed or been overthrown. I have thought it right to communicate these ideas to those who stand next me in command, so that on half a word from me they shall understand my intentions, and when I am not present be able to act upon my principles."

The King strove continually to direct the military education of his officers towards what was useful for war. Under Frederick William they had learnt to drill; Frederick the Great taught them tactics.

He regarded maneuvers as the chief means of educating the leaders, especially in teaching them the use of ground, and he insisted far more upon their recognizing the object of every movement than upon the repeated practice of the mere forms.

Prussia was still a small State, and surrounded on all sides by greedy enemies; her only chance, both in strategy and tactics, was to compensate for want of numbers by skill, mobility, and a vigorous offensive. Towards this offensive, therefore, Frederick's training was continually directed. In speaking of generalship, he writes: "It must become the common custom for Prussian generals to act in a way which in any other country would be considered rash; they must always be ready to undertake everything which it is possible for fiesh and blood to carry out."

The spirit of boldness and energy which he infused into the Army as a whole was, from the very nature of cavalry, of particular importance to that branch of his Service. To return to detail.

In the first place, the greatest possible care was devoted to the individual training of man and horse. Just as the efficiency of all larger units depends upon the thoroughness of the training of the squadron, so the squadron can only be brought to perfection by the most careful individual instruction of each man and horse in the ranks. "The cavalry must be instructed man by man and horse by horse," was Frederick's order. "The officer must see that the men ride continually, so that each man can turn and twist his horse and be completely its master." He also said that "the day was wasted on which the rider had not exercised his horse."

Time does not admit of going into the details of the individual training, but those who care to do so will have their trouble well repaid. The point that stands out most clearly is that Frederick never mistook the means for the end; he aimed at producing a good "campaign horse"—one that would go collected and in the rider's hand over the roughest ground and could be trusted to jump with safety all ordinary obstacles to be met with in the field. In the same way every rider was to have his horse completely under control and to have such complete confidence in his mount that he could devote his whole attention to keeping his direction and his proper position in the ranks.

As regards mounted movements in formed bodies, a totally new atmosphere was introduced; the key-note was mobility and the aim in future was to be the highest speed combined with precision and absolute cohesion.

The maneuvering power of Frederick's cavalry, certainly in large masses, has never been surpassed, and yet modern conditions make this power of rapid maneuver of even greater importance than it was in his day. A large body of cavalry can only maneuver as well as its worst squadron, and though there are many squadrons in our cavalry which are admirably trained, yet it is open to doubt whether we have as yet attained to that uniformity of excellence which can alone permit of the precise and rapid maneuver of really large bodies.

Constant exercise in the "rally" was another point on which great stress was laid. It was carried out daily, not only after an attack, and was practised over all sorts of ground. "The men are not to look for their original places in the ranks, not even for their proper troops, in order that the squadron may be rallied the quicker. The order does not matter only that the men are there."

"I do not want a mêlee," he says, "the cavalry must charge knee to knee."

He aimed at decisive results, and these are only to be obtained by the knee-to-knee charge, with the fixed determination to ride the enemy down or to force him to seek safety in flight.

The King at this time personally supervised the training and was his own inspector of cavalry.

From time to time he summoned the higher leaders from the farthest parts of Prussia to Potsdam or Pomerania that they might see his methods with their own eyes. On these occasions he would sometimes take command of a squadron himself in order to make perfectly certain that they understood what he wanted. He thus secured that uniformity of system and training which alone made it possible to maneuver 40 or 50 squadrons hastily collected from widely separated garrisons.

At his inspections he was most particular that the cavalry should move over every sort of country; he would often take up a position wherever he happened to be and make large bodies of cavalry charge towards him, criticising severely if the ranks became disordered by the rough ground.

He set up as his ideal that "the Cuirassiers and Dragoons should be as adroit as the Hussars." that "the Hussars should be able to charge with as much cohesion as the heavy cavalry." This ideal he fully attained, and without damaging the special qualifications of each branch.

As efficiency increased so the King's demands on the cavalry became greater. In 1750 he lays down that in approaching an enemy 1,200 yards away, the first 600 are to be covered at the trot, the last 600 at a good gallop. Four years later he demands 4,000 yards at the trot, 1,800 at the gallop, and the last 300 to 400 at full speed.

While constantly reminding leaders of the importance of individual training as the necessary foundation of the whole, the King was careful to afford them opportunities of handling large masses, and in his camps of exercise he often assembled as many as 60 to 70 squadrons.

Such, then, were the methods of training of this great cavalry soldier; but in addition to his untiring zeal for efficiency he

REPRINTS AND TRANSLATIONS.

possessed a delightful human personality which called forth the complete devotion of all with whom he came in contact.

THE CAVALRY IN WAR.

Having considered the principles on which it was trained in peace, it is now time to examine the cavalry at work in war.

Armies at this time moved very slowly, and remained closely concentrated both at the halt and on the march; for this reason no great necessity was felt for strategical reconnaissance as now understood.

The imperative need for this arose later on. From the time of Napoleon onwards all campaigns have shown the vital importance of such reconnaisance in order to insure "strategical liberty" for the commander of an army. This liberty can only be secured by the right use of cavalry—the strategical instrument of the Commander-in-Chief.

Modern conditions make strategical liberty more important than ever; the enormous masses of troops employed and the wide fronts on which armies operate make it increasingly difficult to alter dispositions once made, or to assign to an operation a new objective. In other words, the strategic direction of armies has grown in importance, and, as an inevitable consequence, the value of good cavalry has increased accordingly.

Yet there is no reason why Frederick the Great should not have made more use of his cavalry as a strategical instrument. Cromwell had set the example nearly 100 years before, and the method in which he employed his cavalry before the battle of Preston must have been known to Frederick, who was a great student of history.

The instance is worth recording: In 1648 a Scottish army under Hamilton crossed the English border and advanced southward along the western coast. Cromwell, who was with the English army about York, nearly 100 miles away, at once pushed forward to the Pennines a force of cavalry under Leslie. This cavalry not only kept Cromwell constantly informed of the position of the Scotch, but also effectually prevented the latter from gaining any information. The result was the complete surprise and almost total annihilation of the Scottish army at Preston.

Frederick certainly laid the greatest stress on reconnaissance, but it does not appear to have been carried out to any great distance. For instance, in the advance on Lobositz the Duke of Brunswick-Bevern, when at Fishbach, had Hussar patrols on the Elbe about 10 miles to the front. On a certain occasion in the Rossbach campaign Marshal Keith sent out 15 squadrons on reconnnaisance; they made a fairly wide movement and covered about 30 miles in all without meeting the enemy, but they did not touch any point more than 10 miles from where they started.

In the same campaign the King himself cannot have had patrols very far to the front, as he received the first news of the position of the allied army when he was only four miles away from them.

On the other hand, the tactical reconnaissance, when the enemy had once been located, was very thorough. This reconnaissance was usually entrusted to Hussars: but "Hussar service" was taught as part of the duty of all cavalry. The commander of the force often accompanied the reconnoitering squadrons.

On the day of the battle of Lobositz, at half-past five in the morning, the King rode out to the outposts to reconnoiter. There was a thick mist, and the Austrian cavalry was found covering the front of their army. To clear up the situation the King ordered forward a force of 16 squadrons. This reconnaissance led to a cavalry fight and the opening of the battle.

On the day before the battle of Gross Jaegersdorf the hostile camps lay about five miles apart. Early that morning 40 Prussian squadrons were sent forward to reconnoiter, the Commander-in-Chief, Field-Marshal von Lehwald, accompanying the reconnaissance. The Russian position was covered in front and flank by light cavalry, and the Prussian attack on these caused the Russians to occupy their battle positions. The reconnaissance successfully located the flanks of the position, and the squadrons then returned to camp.

Again, before Leuthen 50 squadrons were sent on in front of the advance guard to reconnoiter the Austrian position; they were met by 5 Austrian regiments, and a cavalry fight ensued. The Austrian cavalry, heavily outnumbered, were driven from the field. The King, who had followed the victorious Hussars,

was then able, with a small escort, to personally reconnoiter the position from the Schönberg.

These examples are sufficient to show that the same principles operated in the days of Frederick the Great which still hold good to-day. Information of any value had to be fought for then as it has to be fought for now; great cavalry fights took place in the endeavor to gain information, and heavy prices had to be paid before it was obtained.

Our "Cavalry Training" clearly lays down that the ultimate objective of our independent cavalry is to discover the enemy's main columns. The first obstacle will usually be the enemy's independent cavalry, but when that has been defeated there will still remain a second obstacle—the protective cavalry, which will have to be pierced or thrown aside before the information can be obtained.

These cavalry fights were not, in the days of Frederick any more than at present, the object in themselves; they were and are the means, and the *only* means, by which the end of obtaining information can be gained.

Great importance, too, was attached to reconnaissance of ground. Officers were often sent ahead to reconnoiter routes to be used, and all cavalry when maneuvering sent forward scouts, frequently officers, to examine the ground in front and report upon its practicability. We see frequent evidence of this careful reconnoitering. At Zorndorf Seidlitz found the boggy valley of the Zaber between him and the Russian right flank, against which the was operating. He sent officers and pioneers to reconnoiter it and to improve passages across it, marking the crossings with whisps of straw. This reconnaissance made possible his subsequent crossing to charge the Russian flank.

When waiting in positions of readiness, too, the cavalry were always careful to reconnoiter the ground in the vicinity so as to be able to deploy rapidly and operate at once in any direction required. Had their example in this respect been followed by the French in 1870, many disasters would have been avoided and some great successes might have been gained.

As regards the employment of cavalry on the battlefield itself, the King's usual plan was to draw them up in three lines on one or both flanks of the infantry.

The first line was generally the strongest, and in it the intervals were small. The second line was about 300 yards behind the first squadrons at wide intervals, and some of them often outflanking the first by about 150 yards. The third line, or reserve, stood about 200 yards in the rear of the second, the squadrons at wide intervals.

The principle of their employment was as follows:

The first two lines were the attacking lines; the first was meant to ride down the enemy, and was therefore the strongest, and formed of Cuirassiers; that is, the heaviest men and horses. The second line was in close support of the first, its primary duty being to fill up the gaps and to attack any bodies of the enemy who might break through. It did not, however, merely follow the first line, but often maneuvered round its flanks and brought off a flank attack on the enemy's supporting lines, as, for example, at Rossbach. Dragoons were usually employed in this line, as they were held to be rather more mobile and capable of quicker maneuver than the Cuirassiers.

The third line was often used as a general reserve for the whole army; it was nearly always formed of Hussars, the most mobile of the three sorts of cavalry. It was employed where most needed at any particular time to re-establish the fight or to protect the rear and flanks of the lines in front.

It was forbidden by regulations to completely use up all three lines until the battle was decided, and at least four squadrons were to be kept back in reserve. "Only when the enemy's infantry have been finally driven from the battlefield are these four squadrons to be thrown into the pursuit of it."

The above was the usual distribution and employment, but the King did not tie down the cavalry leaders to any particular form, and was quite content to leave them a free hand to adopt whatever formation they found most suitable.

No tactical unit higher than the regiment existed, and the grouping of squadrons was settled on each occasion by the order of battle.

As regards intervals between squadrons in line, the practice seems to have varied at different times. In one place we read of 12 paces between squadrons, in another of lines of many squadrons charging with no intervals at all.

In studying past campaigns, nothing stands out more clearly than the all-important influence exercised on cavalry by the quality and character of the leadership. With cavalry everything depends upon the initiative of the leader, his personality is the decisive factor; the battle of Kolin is an excellent example. On the one hand, the want of grasp of the situation, the lack of energy and dash of the 68-year-old Penavaire resulted in total failure. On the other hand, the brilliant leading and personal magnetism of Seidlitz, then 36, inspired his squadrons with the most devoted bravery in their attempt to avert disaster.

The Prussian cavalry at Kolin lost about 25 per cent in men and 30 per cent in horses. At this time, however, the cavalry considered themselves a means of deciding battles equally important as the infantry, and they were equally prepared to suffer losses.

The unfortunate expression of "death ride" for every cavalry attack entailing casualties, had not then been invented, and the higher leaders were not prevented from using their cavalry in battle by the thought that it was so valuable that it must avoid all losses. On the contrary, Frederick was of the same opinion as that later expressed by General vonSchmidt: "This arm is far too costly to have any check placed upon its employment." He believed in his cavalry, and was careful to teach them to believe in themselves. He educated them up to a readiness to act and to a determination to conquer absolutely regardless of consequences.

This sound principle is apt to be forgotten, and not only the Prussian Army but our own as well has suffered from its neglect.

Writing of the Prussian cavalry in the war of 1866, Moltke says: "Our cavalry failed, perhaps, not so much in actual capacity as in self-confidence. But all its initiative had been destroyed at maneuvers, where criticism and blame had become almost synonymous, and it therefore learnt to shirk bold independent action."

Self-confidence, moral, is the very life-blood of cavalry, and moral is a delicate plant which must be carefully fostered. Every officer would do well to ponder upon the words of Moltke's, and when acting as umpire to pause before giving his decision that

"the charge was hopeless and the whole of the cavalry must be put out of action."

The principal features of Frederick's mounted attacks were these:

- 1. The simultaneous action of the whole force available, with one common object; no niggardly pecking with isolated detachments in succession, but a bold launching of a great mass against one objective.
- 2. The combination of front and flank attack; the chief blow in flank if possible.
- 3. Surprise.

As the best means of effecting surprise it was the constant endeavor to carry out the deployment for attack under cover, and when this was possible the attack was nearly always successful. Examples of this are seen in Ziethen's attack at Prague, Driesen's at Leuthen, and Seidlitz's two attacks at Rossbach.

The effect of cavalry has always been more moral than bloody; their successes counted by the tactical results produced, not by the actual losses inflicted. In producing this moral effect, surprise is one of the most potent factors, and all modern campaigns furnish incidents which show that "surprise is still the deadliest of foes."

The above principles are eternal; it is their application only which varies. Let us now see how the Prussian leaders applied them.

At the battle of Prague the Austrians had a mass of over 100 squadrons on their right wing. They were drawn up in four lines, one behind the other, and with a few squadrons of Hussars in echelon to the right front.

The Prussians attacked this mass in front with 20 squadrons in one line. The Austrian first line awaited the attack at the halt, received it when quite near with fire from horseback, and then advanced a very short distance to meet it. The result was the overthrow of the Austrian first line; but the Prussians came to a standstill against the second line, were charged in flank by the Hussars, and had to withdraw.

The attack was soon renewed, this time with 20 squadrons in the first line, 20 squadrons supporting in second line, and

a simultaneous flank attack on the Austrian right by two regiments of Hussars. A desperate hand-to-hand fight amidst dense clouds of dust ensued, and finally the Prussians, greatly outnumbered, again withdrew.

The Austrians then sounded the "rally," and began to reorder their line, without, however, taking any measure whatever for security against surprise.

Meanwhile Ziethen had arrived with 45 fresh squadrons, and deployed them under cover opposite the right flank of the Austrians, who at the moment of attack were still in four lines. Ziethen's formation was two lines—27 squadrons in the first line and 18 in the second.

The Austrians were completely surprised. A shout arose in the ranks that they were surrounded, and nearly the whole mass, seized with panic, broke and fled.

The Prussians then committed the mistake against which the King had so constantly warned them, and instead of rallying rushed wildly in pursuit.

A proper study of history would have saved the leaders from so fatal an error; they would have seen how often in the battles of Cromwell and Rupert the difference between rallying and failing to rally had meant the difference between victory and defeat. By thus getting out of hand the cavalry failed to be of any further use to their army for the rest of the day. They had made a night march the night before, had been saddled up for twelve hours, and had made three mounted attacks. This thoughtless and unnecessary pursuit put on the finishing touch, and completed the exhaustion of the horses.

At Leuthen the Prussian cavalry was divided into three principal masses, each of which brought off successful attacks against the Austrian cavalry. The following were the formations used:

Of the 50 squadrons with the advanced guard under Prince Eugene, 30 attacked in first line, 5 delivered a simultaneous flank attack, and 15 followed up in support in second line.

Ziethen drew up his 53 squadrons with 23 in the first line. 20 in second line, and 10 in third line.

Driesen's attack is explained in the plan attached, which shows the situation at about 5 o'clock in the evening. At this hour, as it was beginning to grow dusk, 70 squadrons of Aus-

trian cavalry, under Lucchese, formed in three lines, one behind the other, advanced to attack the left wing of the Prussian infantry.

Driesen was then in a position of readiness behind the Sophienberg, with 40 squadrons.

While his squadrons were resting, Driesen himself had remained constantly on the lookout and had carefully watched the whole course of the action. The ground all round his position had doubtless been thoroughly reconnoitered, and security patrols posted in every direction from which attack was possible. When he saw the Austrian advance, Driesen wheeled to the left by squadrons, advanced, still under cover of the hills, sufficiently far to outflank the enemy, then wheeled into line to the right and attacked. His formation was 25 squadrons in the first line and 15 squadrons in the second line, while he detached 10 squadrons of Hussars round his left to attack the enemy in rear.

At the same moment Prince Eugene, who had also been carefully watching the fight, detached 30 squadrons from the reserve to meet the Austrians in front. This brilliant combination, a concentric attack of 80 squadrons, from widely different directions, and acting by surprise, was completely successful.

The Austrian cavalry were routed, and dispersed in wildest confusion. Again the leaders were to blame for the surprise, not a single patrol had been detached from this mass of several thousand horsemen. Their formation, too, of four lines, each directly behind the other, was faulty; it allows of no maneuvering of lines in rear, and leading lines if overthrown are driven back on the top of those following, often throwing them into confusion.

The battle of Lobositz is interesting as showing a mistake in the Prussian leading.

Old Field-Marshal Gessler, who was in command of the whole cavalry, carried away by his eagerness, took part in the charge of the reconnoitering squadrons.

After defeating the cavalry opposed to them, these squadrons came under infantry and artillery fire, and were finally driven back in considerable confusion. The remainder of the Prussian cavalry, about 60 squadrons, then charged; Gessler, who ought to have been commanding them, was engaged in

endeavoring to rally individual squadrons defeated in the first attack.

This attack was entirely contrary to the intentions of the King, who was exceedingly angry when he saw what had happened; it ended in the defeat of the whole Prussian cavalry, a result entirely due to the want of appreciation of his duties on the part of the cavalry commander.

It is the business of the supreme cavalry commander to direct the operations of his main body; it is his duty to decide the attack formation, the direction of the charge, and the moment for deployment. When once the squadrons have been launched to the attack he can only further influence the fight by the use of whatever force he has retained under his own hand with which to meet eventualities. The rest must depend upon the skill and initiative of subordinate commanders.

Perhaps the most remarkable of all the achievements of the cavalry in the Seven Years' War, was that under Seidlitz, at the battle of Zorndorf. As a concise and excellent account of this battle is given by Colonel Maude in his "Cavalry: Its Pust and Future," it will only be necessary to refer to it very briefly

On this occasion Seidlitz charged and railed three times with the same squadrons, a feat which later, for no sufficient reason, came to be looked upon as impossible.

In his first attack, made with 33 squadrons, he surprised the Russian right by crossing ground which they considered impassable, but which, as previously mentioned, he had carefully reconnoitered and prepared for crossing.

His first line consisted of 3 regiments of Cuirassiers, that is, 15 squadrons; each regiment had but one crossing place, and that so narrow as to compel them to form in columns of half-troops. Crossing in this formation, each regiment formed line to the front at the gallop and attacked: 18 squadrons of Hussars followed in support, and completed the success of the first line.

In his third attack Seidlitz was in command of 61 squadrons. Owing to the habit of the Russian infantry of throwing themselves on the ground to let the cavalry pass, and then rising to pour a fire into their backs, he determined to form in three lines, each directly covering the other, and at 250 yards distance. In

first line, which he led himself, he had 18 squadrons of Cuirassiers, 15 squadrons of Dragoons followed in second, and 28 of Hussars in third. There was no panic, and the Russians received the charge with stubborn determination and steadiness. They were only finally defeated after a long and desperate hand-to-hand fight, their losses in the whole battle being about the heaviest ever recorded in history.

THE BATTLE OF ROSSBACH.

The Battle of Rossbach, fought on the 5th of November, 1757, furnishes a striking picture, both of the supreme military genius of Frederick the Great, and also of the fighting methods of his army as a whole. No battle shows more clearly the different elements which formed its strength, and in no other do we see those elements working together in better combination. First we are struck by Frederick's boldness, both in strategy and tactics, his comprehensive grasp of the situation as a whole, and the lightning rapidity of his decision. Hardly less admirable are the skill and certainty with which he handled the three arms on the battlefield.

Considered as a cavalry study, it is impossible to watch better squadrons at work under a better leader.

Before describing the battle it seems desirable to say a few words on the subject of the cavalry leaders.

The names of Ziethen and Seidlitz are known to almost everybody who has heard of Frederick the Great. Certainly they stand out above the others, and Seidlitz was probably the greatest cavalry soldier that ever lived. But there are many more names scarcely less famous in Prussian history, and known to-day to every cavalryman in the German Army. Yet most of these men were by no means geniuses, some of them quite the reverse. When Frederick heard of the brilliant attack of Driesen at Leuthen, which we have just described, he exclaimed in surprise: "What, Driesen, that fool?" and no one knew his men better than Frederick the Great. The fact is that a good system of training produces good leaders. Given such a system, and the opportunity for practice, men of quite ordinary ability can, if they will, fit themselves for the leadership of even large bodies of cavalry.

Seidlitz, at 17, had joined as a cornet a regiment of Cuirassiers, and at 20 took part with them in the First Silesian War. His first experience of the real business was in command of a troop of 30 dismounted Cuirassiers defending a village on outpost duty. Attacked by superior numbers of the enemy's Hussars, after some hours' defense with the rifle. Seidlitz found himself short of ammunition and determined to cut his way out on horseback. In this attempt his horse was shot under him and he fell into the enemy's hands. The King, who soon afterwards heard of his conduct, arranged for his exchange, and presently promoted him to a captaincy of Hussars. In 1752 he was made lieut.-colonel of a regiment of Dragoons, and in 1757 colonel of Cuirassiers. He had thus had experience of all three branches of the cavalry. The Seidlitz Cuirassiers were described by a contemporary as a "Pattern for the cavalry of the whole world: indeed, it is impossible to bring cavalry to a higher pitch of perfection than Seidlitz has brought this regiment."

A story is told of how at this time an anxious mother of a young Cuirassier came to remonstrate with the colonel about the dangers to which she thought her son was exposed. "I assure you, madame, there is no danger," said Seidlitz, "cats and cornets never break their necks."

Two days after the battle of Kolin, in which he had greatly distinguished himself, Seidlitz was made a major-general. When congratulated by old Ziethen on his promotion, he said: "It was high time, Excellency, if they want to get anything more out of me; I am already 36." A few months later, on the morning of Rossbach, the King put him in command of all the cavalry present, passing him over the heads of two generals senior to him. "Gentlemen," said Seidlitz, on this occasion, "I have got to obey the King, and you have got to obey me."

At the time of the battle the position of Prussia appeared almost desperate. The North German allies had been driven back into Hanover by the French, a second French army was on the Rhine, the army of the Emperor on the march from the Maine to the Elbe, the Swedes were threatening an advance on Berlin, the Russians on East Prussia. All attempts to bring the Austrians to a decisive battle in Northern Silesia had failed

As the only chance of success, the King determined to attack the now united French and Imperial armies.

On the 4th of November he found the allies in a strong position northwest of Rossbach, with an army of 90 battalions and 84 squadrons, in all, 64,000 men; Frederick had 27 battalions and 45 squadrons, a total of 22,000.

Even Frederick thought the enemy too strong to attack in the position they had taken up, and he withdrew his army that night behind the little Leiha stream, between Bedra and Rossbach, hoping that the morning would bring him the chance of the battle which he needed. By 2 o'clock next day the King was on horseback, reconnoitering with Seidlitz and his Hussars. The allies, too, were early astir, and by 8 o'clock were on the march towards the south, Seidlitz at once sending information to the King.

Knowing the allies were short of food, the King at first thought they were retreating, and made preparations to overwhelm their covering detachments on the Schortau Hill and the Galgen Berg. When, however, on reaching Zeuchfeld their main columns changed direction to the east, he at once determined to attack them. Orders were issued for the army to march off from its left and to move eastwards behind the Janus Ridge.

The allies, whose intention was to cut Frederick off from the Saal, took his movement to be an attempt to escape by Merseburg. They therefore hastened their march, and the cavalry pushed on some 2,000 yards in front of the rest of the army.

The Prussians, leaving seven squadrons of Hussars and one battalion near Schortau, moved off eastwards behind the Janus Ridge, the cavalry under Seidlitz trotting on in front.

Only a few minutes before moving off Seidlitz was put in command of the whole cavalry. His first act was to assemble his officers and explain his plan, which was to move under cover of the Janus Ridge, and, using the Janus Hill as pivot, to attack the heads of the enemy's columns. He moved off in a double column of squadrons, taking rather more than wheeling distance in order to give a broader front when he wheeled into line, as he knew the enemy greatly outnumbered him.

His right was covered by the Székeley Hussars on the Janus Ridge; making good use of their carbines, they secured his pivot of maneuver and effectually prevented the enemy's patrols from watching his movements. He himself, with his staff, and perhaps some of his leaders, rode along the ridge keeping the enemy in view.

Seidlitz seems to have preferred columns of squadrons to the heavier and denser formations, such as mass or double columns of troops, and doubtless found that it had many advantages. Being more elastic there was an avoidance of checking, lengthening of the column and bumping whenever obstacles had to be crossed, the increased distance between ranks gave the horses room to jump, there was less trouble from dust, leaders could see better and horses got more air.

After passing the Janus Hill Seidlitz changed direction half right, and then, still under cover, wheeled into line to the right and halted. He formed up in two lines, 15 squadrons of Dragoons in the first line, 18 squadrons of Cuirassiers in the second line, covering a front of 1,300 to 1,400 yards. The Székeley Hussars, having finished their task of protection, had rejoined the main body, and were now in the third line a few hundred yards on his left rear.

By the time the cavalry had reached the Polzen Hill. Frederick had got 18 heavy guns on the Janus Hill. and now opened a sudden and effective fire on the hostile cavalry, throwing them into considerable confusion. Seidlitz was watching for the opportunity, and when the enemy's cavalry were within about 1.000 yards he gave the signal to attack. The enemy were completely surprised; their deployment was hampered by the road cutting—a serious obstacle—10 to 12 feet deep, and practically forming a defile 700 yards broad immediately in front of them, and the fall of the ground was also in favor of the Prussians. In addition, the artillery on the Janus Hill were able to continue effective fire up to the moment of actual collision.

Amidst the praises heaped upon the Prussians, the prompt action of the French battery, which was engaging the guns on Janus Hill, is apt to be overlooked. Directly the Prussian cavalry appeared over the ridge the battery commander turned

his fire upon the charging squadrons, and was able so effectually to influence the result that the first collision proved indecisive. Seidlitz's first line was met by two Austrian regiments, and the result was one which is most unusual in cavalry charges. Both sides rode home, but no part of either was able to break through the other—a proof of equal daring and determination and equal cohesion in the ranks.

Seidlitz, who personally led his second line, now launched it to the attack, and the Székeley Hussars simultaneously attacked the enemy's right flank. The whole thus brought off a converging attack as shown in Plan I. of the battle, which resulted in the enemy's squadrons being overthrown and put to flight. Meanwhile 24 more French squadrons had arrived, and now attacked the Prussians on both flanks. While only a few Prussian squadrons had pursued the defeated Austrians, the remainder had rallied, and were in consequence quite ready to meet the new attack. They now charged again, overthrowing the French cavalry and capturing the French battery. The whole allied cavalry then turned and fled.

Seidlitz, who had been wounded in the fight, at once called off his squadrons from the pursuit, quickly rallied them behind the hollow road, and then moved to a position of readiness near Tagewerben. Here, completely hidden by the ground, he again formed up in two lines and took the opportunity to rest his horses, ready at a moment's notice to intervene in the main battle or to launch his squadrons in pursuit. He himself remained on the lookout watching the course of the action.

Meanwhile the Prussian infantry, having completed their deployment behind the Janus Hill, advanced to the attack. The allies were completely surprised, and the fire of seven battalions in conjunction with the artillery sufficed to throw them into considerable confusion.

On seeing the enemy thus disordered. Seidlitz again sounded the charge, and, riding over their few remaining squadrons on his way, crashed into the flank of the hostile infantry. Panic at once became general, and the whole allied army broke into flight. The Prussian artillery continued to fire on the retiring masses as long as light lasted, and the infantry pursued as far as Obschütz. The cavalry, who had done a very hard day's work, were called off when darkness fell.

The King's dispositions for the night should be noticed: While the infantry bivouacked on the high ground between Obschütz and Markwerben, the cavalry were withdrawn behind them and put into billets in Reichswerben, Tagewerben, and Storkau. While the casualties of the allies amounted to 650 officers, 9,500 men, and 72 guns, the Prussian losses were only 30 officers and 518 men killed and wounded, 4 generals, including Seidlitz, being among the latter.

The infantry fight had only lasted 15 minutes; two Prussian battalions had expended from 12 to 15 rounds each, 5 others a few less, while the remainder had not fired a shot.

Next day the army moved forward in pursuit, and by the evening of the 8th the cavalry reported that the whole country this side of the river Gera. 50 miles from the battlefield, had been swept clean of the enemy.

The chief credit for this amazing victory belongs, of course to the King. His was the big decision, his alone the responsibility. His conduct of the battle shows the highest possible skill in the use of all three arms combined. He knew where to retain personal control, where and to what extent to give his leaders a free hand. The discipline of the troops, too, and the skill of the leaders, cavalry as well as infantry, were the results of his ceaseless efforts. Nothing can show more clearly the effect of his training than the mere possibility of maneuvering as a single body a mass of nearly 40 squadrons handed over to a new leader on the battlefield itself.

Seidlitz and his cavalry require no further praise: their performance remains as a model of perfection to all times. It must, however, always be remembered that under another Commander-in-Chief they would probably have found themselves covering with dismounted fire the Prussian retreat to the Saal. In Seidlitz's handling of the cavalry his self-restraint was quite as important a factor as his magnificent dash. The charges were well timed and well carried out; squadrons well closed, mutual support of all three lines, combination of front and flank attack, and above all surprise.

The whole battle shows the most admirable co-operation of

the cavalry with the rest of the army, and the perfect control which the leaders exercised over their troops.

CONCLUDING REMARKS.

During the first and second Silesian wars the main strength of Frederick's Army had lain in the infantry, and it was only in the Seven Years' War that the cavalry were able to perform their fair share in deciding the issue on the battlefield. This fact shows that their early failure and subsequent success was not a question of the firearms of their enemy, but depended entirely upon their state of efficiency and the skill or want of skill in the tactical leading of the officers.

A charge against unbroken infantry, fresh and ready to receive it, no more promised success in those days than it does to-day.

We need not wait for the days of magazine rifles and Q. F. guns to find instances of such failures. There are several in the battles we have been considering.

In one important particular, indeed, the odds against the cavalry were greater then than they are at present. In the time of Frederick, infantry in line three deep could fire thirteen shots a minute per yard of front, and the projectile was an 8-bore bullet, which brought a horse down in a single stride. The small-bore rifle of to-day has very small stopping power in comparison, and I have myself seen a spring buck shot through the heart with a Mauser bullet travel over half a mile before it stopped and fell dead. It will take many such bullets to stop a line of charging cavalry determined to reach the firers, cost what it may.

But war does not consist of isolated duels between the different arms. It is by the close and effective co-operation of all three arms that battles are won, and the value of cavalry on the battlefield depends upon the skill with which its leaders can take advantage of situations created by the other arms.

In the future as in the past, leaders will sometimes make mistakes, precautions will be neglected, troops will become exhausted and demoralized. That "the long-fire fights of the present are more destructive of the moral and physical energy of the infantry than the close-quarter conflicts of the past" is

amply demonstrated by the events of the recent war in Manchuria.

The Austrian, Captain Spaits, in a recent book, gives his personal experiences of the Russian retreat from Mukden. He describes the terrible condition of the crowds of fleeing soldiers, many of them weaponless, and all vestiges of discipline vanished. When these masses of fugitives, horse and foot mixed together in hopeless confusion, hungry and frozen, reached the Pulto River, a block occurred owing to difficulties in crossing. About three o'clock in the morning part of an ammunition column, fleeing from the Japanese, broke at full gallop into this mass of shivering humanity, upon which the wildest shooting began in all directions, and the most complete panic set in.

"At such moments," to quote Captain Hoeing, "it is quite a matter of indifference whether these remnants carry a repeating rifle, a flint musket, or a pitchfork, for the men's nerves are overstrained and their weapon counts for nothing."

All campaigns, especially the latest, furnish examples of such demoralization, and prove the utter fallacy of statistics based on rifle range experience.

To again quote Hoeing: "If battlefields were simply rifle ranges, then the effect so generally attributed to firearms to-day would certainly be due to them. Battlefields, however, are not rifle ranges, but a confused mass of heights and valleys, of fields and ravines, of woods and villages, which give to each arm a field for its action, provided, of course, that the arm is capable of maneuvering in such country."

The moral of this seems to be, first, that the cavalry leader must be a tactician, and must study the other arms in order to be able to recognize the opportunities which will inevitably occur; and secondly, that he must know and have confidence in the capabilities of his own arm and develop to the utmost its tactical knowledge, its speed and maneuvering power. By this means only will the cavalry be able to act by surprise, and thus make the most of the possibilities which the future certainly has in store for them—possibilities even greater than those which the Great King and his leaders knew how to turn to such glorious account.

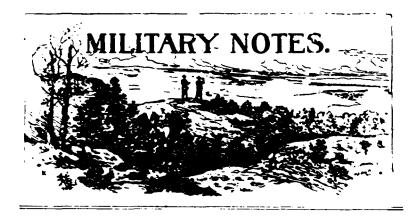
REMARKS

MATOR G. W. REDWAY:-I think those who have most studied the subject of tactics in the Eighteenth century will be best able to appreciate the very able lecture to which we have listened. I have studied the subject somewhat during the last few years, and having followed the lecturer very closely, I noticed that Major Greenly has gone greatly into detail, and I hope that when the lecture is published he will be kind enough to quote his authorities for some of these details, which are not found in any general history. That brings me to the point on which I wish to say a few words, and that is the question of deployment. The word "deployment" has been used twice by the lecturer, instead of an expression which I expected would occur often in his lecture, namely, "wheeling into line." I should very much like to know whether Major Greenly has found any evidence that "deployment" was known and practiced by Frederick the Great. We are generally under the impression that deployment, which was the special feature of the later French Revoluttonary system, was invented by the Frenchman Mesnil Durand, and that in Frederick's time battle formations were based on wheeling into line from the pivot flank, that is, the "directing" flank of the column. It is a very interesting point, and a vexed question among students, and if the lecturer has discovered any evidence that infantry and cavalry formed line to the front in those days, one would like to know something about it. Even so late as the Crimean period Captain Nolan, of Balaclava fame, in his wonderful book on cavalry, which the lecturer probably knows, shows that the old "right in front" or "left in front" conditions for maneuvering were still in vogue, and he loses no opportunity of ridiculing the system. If in Frederick's time the military world did know anything about "deployment," that is, the unfolding of column into line, the forming line to the front as distinct from wheeling into line to the flank, it would be interesting and valuable to have evidence of the fact. Another point the last speaker alluded to, and that is "horse" artillery. Itywas on an occasion in 1759 or 1760, towards the close of the Seven Years' War, and during a cessation of hostilities that Frederick wanted to engage in a strategical reconnaissance, and since he could not take infantry with him, he organized a mounted force. He also wanted to take guns with him, and knowing he could not have foot artillerymen, he mounted his gunners. I think that was the earliest experiments in what we call "horse" artillery, and it was used in connection with strategical reconnaissance, which is the particular point I want to emphasize. The only other thing I wish to refer to is a question of what I suppose we still call Grand Tactics. I think the lecturer did not perhaps sufficiently emphasize the fact that, according to the general histories of the subject, Frederick utilized his cavalry as a means of gaining maneuvring power at a time when infantry was singularly immobile. Owing to the so-called "linear tactics" which then prevailed, if you once got a body of troops in column of companies you could only form line in one way, and when you got infantry into line you could not shift them to either flank without again wheeling the companies into column. That is what I have gathered from what I have read, and how Frederick secured his great successes was by taking advantage of this curious habit of anchoring infantry to one spot. As Hamley says: "He walked round the Austrians like a cooper round a tub." But he did it by means of mounted troops. He could not utilize his infantry for such a purpose, because they also were immobile under the conditions of training at that period. In later days cavalry's mission was said to be that of sacrificing itself to gain time for hard-pressed infantry. Frederick had no such ideas; he used the cavalry as his arm of offense. He won his battles with his mounted troops. I think that might be more emphasized in the lecture. I do not think more need be said, except in high praise of Major Greenly's lecture. The difficulty of all lectures at this Institution is that the better the lecture the less room there is for discussion. That is the unfortunate situation today

The CHAIRMAN (General Sir J. D. P. French, G.C.V.O., K.C.B., K.C.M.G. Inspector-General of the Forces):-I am very sorry that no more cavalry officers will speak on this great subject. I therefore propose to say a few words, generally reviewing what has been said, and expressing an opinion on the points which I think we should most usefully attend to with regard to the lecture. All who have the efficiency of the cavalry service at heart-and I will go further and say all who desire to see the British Army maintain its great traditions in the field-must feel deeply indebted to the lecturer who has so ably and concisely put before us the fundamental principles upon which alone cavalry can be successfully employed in war-principles of everlasting truth and steadfastness which were first preached and practiced by one of the greatest warrior monarchs the world has ever seen. When I say Frederick was the first exponent of these principles, I am not perhaps strictly accurate, for the lecturer has himself referred to the achievements of Cromwell's cavalry, and no doubt if we go back to days even more remote we shall find the same spirit animating successful cavalry in war. The lessons we can learn from this lecture are so numerous and so weighty that it is difficult in commenting upon them to give prominence to one more than another; but in reviewing the subject I should be inclined to base the whole discussion upon these pregnant words which follow the lecturer's remarks on the battle of Leuthen, on page 1309, taken in conjunction with Frederick's instructions to his cavalry on page 1304. These paragraphs run as follows: "Information of any value had to be fought for then as it has to be fought for now; great cavalry fights took place in the endeavor to gain information, and heavy prices had to be paid before it was obtained. Our 'Cavalry Training' clearly lays down that the ultimate objective of our independent cavalry is to discover the enemy's main columns. The first obstacle will usually be the enemy's independent cavalry; but when that has been defeated there will still remain a second obstacle—the protective cavalry -which will have to be pierced or thrown aside before the information can be obtained." "These cavalry fights were not in the days of Frederick any more than at present, the object in themselves; they were and are the means -and the only means-by which the end of obtaining information can be gained." Then amongst Frederick's instructions comes this very important one: "Squadron commanders are made responsible that not a man uses carbine or pistol in the mounted attack; the enemy is to be ridden at sword in hand." The ability to beat the hostile cavalry opposed to him must ever be the first consideration in the mind of one who aspires to lead cavalry in war; and why is this? Because then, and not till then, a field of enterprise will lie open to him which is incalculable in its possibilities, and endless in

its far-reaching results. I should like to quote here the remarkable words of one of the ablest writers on military subjects of the present day. Colonel Kiggell, in the revised edition which he has published of Hamley's "Operations of War" says: "It is true that new inventions have necessitated a perpetual development in tactical method, but history shows clearly that all successful tactical methods have been based on great fundamental principles which are as changeless as the human nature on which they depend." Another writer on the same subject says as follows: "It is quite true that the introduction of improved arms has produced very considerable modifications in the method of fighting, but these modifications are not so changed as the growth and development of principles that have been known for hundreds of years. And it is the most dangerous thing to ignore all experience obtained prior to the introduction of improved arms, for it is only by a careful study of the development of tactics that the true direction in which improvement is possible can be determined." In view of the doctrine expressed, established and practiced by all great military powers of the world, that the only main elements in a cavalry fight comprise the men, the horse, the sword and lance, with what force do these extracts from military writers of great ability, who are not horse soldiers, come home to us as cavalrymen? I should commend, then, cavalry soldiers to search this lecture and the history of the times to which it refers, in the first place, to learn how cavalry can be best prepared to overthrow their enemy in the field. The lecturer tells us clearly where to begin and how to proceed, in putting before us the instructions of the great King, and how at Leuthen and Rossbieh the peace practice of these instructions here fruit. They were to begin with the individual man and horse, then the troop, the squadron, the regiment, and the brigade were to be progressively and successively brought to efficiency and perfection, and finally, the keynote of all was to be a mutual understanding permeating throughout the whole force. These instructions were obeyed to the letter, and with what result? The attainment of such mobility and maneuvering power as enabled large bodies of cavalry to intricately maneuver in secrecy and under cover of hills and features of ground, to ensure a sudden deployment and surprise, and the almost immediate rout of the immobile, unwieldy Austrian cavalry. The lecturer has pointed out very clearly to us that Frederick never tired of telling his generals that this primary role of cavalry is but a means to an end. The hostile cavalry is defeated and driven from the field. What then? The same dash, the same energy, the same endurance, fut combined on the part of the leaders with a profound and far-reaching knowledge of strategy and tactics, and the higher art of war, and on the part of the troops a thorough training in musketry and efficiency in the use of the rifle. I have always held that the role of cavalry, when victory over its own arm has made the road clear to its enterprises, is summed up in three words-reconnaissance, deception, support. We have heard that the cavalry in the time of Frederick was somewhat deficient in the practice of far-reaching reconnaissance. May not this well have been because its leaders were not profound students of the higher art of war, a knowledge of which alone can enable mounted troops to direct their researches so as to make the most important and valuable discoveries, and effect the most thorough clearing of the fog of war? Let cavalry leaders remember this, and understand that to be of real use to the Commander-in-Chief they serve they must them800

selves possess the knowledge and education—only to be acquired by close study-to enter into his plans and justly appreciate the military situation on both sides. The idea of surprising the enemy is the very spirit and life of Frederick's instructions; but to surprise we must know how to deceive. What said Stonewall Jackson? "Always mystify, mislead, and surprise your enemy"-one of the principles which Henderson describes in his "Science of War" as "the foundation and crown of all strategical method." Now, I am one of those who believe that an enormous field of useful work is open to leaders of mounted troops in this work of deception and consequent surprise. But here again a most intimate knowledge of battlefield tactics is essential, and I earnestly commend this study to cavalry leaders. Given this knowledge, many kinds of ruses can be studied and thought out which only require constant peace practice to be effectual in war. Then the immense mobility of a highly-trained cavalry renders its power of bruging speed, succor and support of immense value, whether strategically in the theater of war or tactically on the field of battle. The rifle now in the cavalryman's hands will render this support of infinitely greater value than formerly. Whether we consider the cavalry fight, or the enterprises which its successful conduct opens up, it is the true cavalry spirit which must ever be the cornerstone of all instruction and preparation, and it is this cavalry spirit which breathes through every line of the admirable lecture which we have heard this afternoon. Finally, I should like to draw particular attention to the vivid picture which the lecturer has drawn of the Prussian army, assailed on all sides by vastly superior numbers, and securing the victory against tremendous numerical odds by their superior training, efficiency, and knowledge of war. These constitute some of the principal factors in the moral of an army. We all remember Napoleon's great dictum, that in war the moral was to the physical as three to one. Had Napoleon lived in these days I am inclined to think he would have increased his estimate in favor of the moral factors in estimating their relative importance. To us soldiers of the British Army, who may also find ourselves assailed by vastly superior numbers, the example of the great Prussian King and his army furnishes a special lesson. Let us do our best to profit by it, and increase to the utmost those moral factors of which I have spoken. In conclusion, I am quite sure I shall be only anticipating all your wishes if I express our most grateful thanks to Major Greenly for the admirable lecture he has given us.



SELECTION AND ELIMINATION.

Selection, like Hamlet's ghost, will not down. Press notices, personal observations, official reports, and so on, issuing from Washington, indicate that this subject is far from dead. In view of this state of affairs, there are at least two fundamental principles which it would be well for the army at large to recognize. These are:

- 1. The War Department is determined to secure for the army some form of legislation enforcing selection.
- 2. In self-defense, the army had best unite upon and adopt for enactment some plan that is more to the true interest of all concerned and less detrimental than are any of the schemes so far advanced by higher authority.

The various arguments, pro and con, on the subject have been frequently ventilated. Summed up, the army condemns selection and in a less degree is unfavorably inclined to many of the elimination schemes so far proposed.

A prominent factor in the general condemnation of selection is the fact that its most ardent advocates are those who are either

prominent examples of past selection or else are those who hope to be selected and who, by virtue of personal or political influence and irrespective of their deficiency in real ability as soldiers, probably would be selected.

In a model army, selection would be the ideal form of promotion. But, in one like ours, containing so many self-seekers who will take every advantage within their power to accomplish their individual ambitions and where the existing unofficial system of preferment favors such method of advancement, selection in any form will be most pernicious, will multiply heart burnings, promote discontent, and go far towards undermining respect for equity and true ability.

No legislation for selection so far proposed will disabuse the minds of our officers at large that we have need of any form of selection other than that of promotion by seniority after proper examination. The service is less unwilling to agree to some sane scheme of elimination, though most of us are quite certain that present practices, as indicated above, will continue under pretty nearly any law. It would also appear that if the services raise its voice in unison, loudly and persistently, those most determined on selection will, in order to save their face, find it necessary to compromise on such elimination measure as the army at large agrees to.

H. R. H.

MOUNTED PUSH BALL.

To the Editor:

. Mr. Tight, the president of the Albuquerque fair association, persuaded us to try a game of mounted push ball to enter the fair tournament, and we have had such sport out of it that it seems worth telling about. The game has been played as a gallery stunt in "Buffalo Bill's" show for some time, and I believe there are several teams in southern California which have played it on cow ponies, but I think this is the first try in the cavalry.

It is not a game that will take the place of polo, but it has

the advantage that it may be played on most any kind of level ground and of most any size, and we proved that ponies are not necessary, as our troop horses have, in a very short time, taken to the game with a real "maltese cat" interest. At the tournament in Albuquerque the "M" troop team, which was entirely mounted on troop horses, won from "I" troop of the Third, playing two polo ponies. The ball itself is a glorified football, the standard Spalding make of some six feet in diameter, with the only disadvantage that it costs two hundred and fifty dollars. However, the ball seems to last for quite a while, as the one used by our troops has been played with for two years by teams in Pasadena, California, and it is just beginning to show signs of wear. We thought to provide for that by putting on a canvas covering, but this seemed to deaden it and take much of the life out of the game. It is a hard going game and rapidly develops into a case of horsemanship and team work. It is surprising how often there is a deadlock which can only be broken by working the ball sideways and around the ends.

I give the few simple rules under which Troops "I" and "M," Third Cavalry, played the game:

- 1. Ground.—At least 300 by 150 yards. Polo ground with the side boards is the best possible.
- 2. Goal posts.—To be 24 feet apart, at least ten feet high and light enough to break if collided with.
 - 3. Ball.—The Spalding Standard.
- 4. Mounts.—Cavalry horses or polo ponies; but they should not be used together. The mounts should be protected by canvas breast plates attached to the pommel rings and cinch.
- 5. Periods.—Time of play shall be divided into ten minute halves of actual play, with an interval of ten minutes between periods.
- 6. Teams.—To consist of five men each; three forwards, two backs.
- 7. Uniforms.—Teams to be distinguished by uniforms or attached colors. Breast plates of horses to be the same color as that of the team. Spurs, if worn, to be dummies or wound with flannel. No crop, switch or quirt to be used.

- 8. Field rules.—There shall be a field captain for each team and he shall have the sole right to discuss with the referee questions arising during the game. Referee to be chosen by the two captains and his decisions shall be final. The two captains shall agree upon a timer and scorer, who shall be under the direction of the referee.
- 9. Choice of ends.—Shall be determined by the toss of a coin. Ends to be changed after every goal.
- 10. Scoring.—Pushing or shoving the ball between the goal posts shall count three (3) points; pushing or shoving the ball over the back lines will count one (1) point, and a "safety" shall count one (1) point.
- 11. Method of starting play.—The ball shall be placed in the center of the field at the beginning of the half and after each goal is scored, the play to be started at the sound of the referee's whistle. Teams to line up as follows: Three forwards (Nos. 1, 2 and 3) on the twenty yard line; two backs (Nos. 4 and 5) on or back of the twenty yard line from the goals.
- 12. Out of bounds.—When the ball crosses the side lines it is out of bounds and should be put in-play by being placed on the side lines where it crossed and the forwards of either side line up ten yards outside of the line and parallel to it.
- 13. The ball is to be pushed, shoved or stopped solely by the mounts' or the players' legs as they rest properly against the horses' sides.
 - 14. Penalty.—Twenty yards for fouls

The above rules are tentative and were varied frequently during the tournament, under Second Lieutenant M.C. Shiverick, Third Cavalry, acting as referee.

To make the play more open and to break deadlocks, Nos. 4 and 5 were forbidden to cross the 100 yard line from the goal unless the ball crossed that line and they joined in the game only until it was pushed back over the 100 yard line.

The Chief of Staff, while here, and others who have watched

the game, have enjoyed it thoroughly, and the troopers have played it with vim and vigor. I shall enclose several pictures which may also interest you.

FRANK R. McCoy.

Captain Third Cavalry.

Fort Wingate, N. M., November 3, 1909.

A COURSE OF INSTRUCTION.

The following brief outline would seem to furnish an excellent course of instruction for our many garrisons and would help, where help seems to be most needed, in approaching that ideal state—Field Preparedness.

First. That immediately all posts have prepared accurate maps of their respective reservations. These maps should not only include the entire military reservation, but all adjacent country to a radius of at least fifteen miles.

Maps should be drawn to two scales, three and six inches to the mile, from which should be blue printed enough copies to furnish each officer of the garrison with one copy.

Second. The Post Graduate course each year should consist of problems on the maps above mentioned. These problems should cover forces from a platoon to the strength of the garrison.

If the garrison be composed of more than one arm the schools should be conducted separately and toward the end of the Post Graduate course the classes should be combined to solve problems involving the strength of the entire garrison.

All solutions should be in writing and should follow the requirements of the service schools:—requiring estimates of the situation, writing of messages and orders, setc., etc.

Solutions should be criticised and discussed.

Third. When the open season is available and field training is the order of the day, the best solutions of the various problems solved during the Post Graduate course should be taken as a

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basis for preliminary orders and the problems carefully worked out on the ground with troops.

During these maneuvers orders and messages should be written wherever practicable and the enlisted personnel carefully instructed in those duties which are so highly important, scouting, carrying of messages, etc., etc.

The maneuvers should not be performed in a perfunctory manner but should be allotted all the time necessary—several days being allotted a single problem, if actual conditions would seem to warrant it.

The Inspector, before his annual visit, should prepare problems for the various arms and for the combined garrison. These problems should be worked out under the observation of the inspecting officer and should furnish the real basis of his report.

GEO. W. WINTERBURN,

Lieutenant Ninth Cavalry.

HEADQUARTERS

DEPARTMENT OF TEXAS.

San Antonio, Texas, 10th Dec., 1909.

The Editor:

I have just received "A History of Military Government in Newly Acquired Territory," compiled by David Yancey Thomas, Ph.D., Prof. of History and Political Science at Hendrix College, and have been interested in it.

I suppose that you have some scheme by which such books are noticed and if this book comes under the proper head you may give my impressions as follows:

Prof. Thomas gives on the first and second pages of his introduction, Chief Justice Chase's proper classification of military jurisprudence and almost immediately shows that he does not appreciate the difference, now generally held by legal writers, between the military government exercised in our own country in times of popular or national upheaval and that exercised in a foreign country or a conquered land having different local laws and customs.

The writer has the usual exasperating lack of charity when he considers a military man or his acts, common to the college instructed writer, and also the honesty that compels him to give the facts that disapprove such uncharitableness.

Glancing over the book hurriedly the criticisms that may be properly made against military government seem to be based in all cases, upon the acts of inexperienced officers. These officers having had but little experience, and also probably no legal knowledge, are no better than they were the day before when they were free and enlightened citizens of the Republic. They were not properly prepared to assume the role thrust upon them.

In short the entire compilation is a fine record for the regular officer to note and be proud of.

On page 16, the author states that with military law "we shall have no further concern." This must mean that in the writer's mind that law is all right.

In conclusion, the book is valuable as a compilation of official reports, and is only weak when the personal equation is visible.

If some legal luminary at Leavenworth would make a fair criticism of it, the book would be put in its proper place as a text to combat the common absurd idea that the use of the regular troop, under proper officers, is ever a contingency to be feared.

Geo. H. Morgan,
Adjutant General.

METAL FOULING NO LONGER A MENACE.

From Arms and the Man of November 11, 1909.)

In the opinion of the officers of the Ordnance Department, of Captain Hay of the Cavalry team. Lieutenant Shaw of the Infantry, others who are students of ammunition, and lastly in our own opinion, the trouble and difficulty surrounding the use of the Service rifle arising from metal fouling have been pretty well done away with. The use of a new primer, one without powdered glass, has contributed to this effect. The employment of powder liberally graphited as well as the insertion of a small

quantity of unctuous graphite in the powder charge has so alleviated the difficulty as to make it now of no very serious consequence.

The new ammunition which is being manufactured by the Ordnance Department, with the lightly cannelured bullet, when tested at the arsenal and tried out at Sea Girt by the Infantry and Cavalry Teams gave very satisfactory accuracy, excellent results with relation to metal fouling, and created a very good impression from the standpoint of mechanical excellence.

MACHINE GUNS IN THE GERMAN ARMY.

(From the Broad Arrows)

The number of mitrailleuse companies in the German Army is raised from seventeen to fifty by the creation of thirty-three new units, taken from the twelve senior companies, and thus do not appear in the Budget charges. They form the 13th Mitrailleuse Company, with four officers, all mounted. The mitrailleuses (six Maxims per company) are drawn by two horses each. These companies are quite independent of the sixteen matrailleuse detachments already mentioned by The Broad Arrow, which appear in the last War Budget, and are destined solely for cavalry units. Thus the Germans will have two of these guns per battalion, whilst the French have only four to each three battalions The experiences of Manchuria proved that there should be from six to eight mitrailleuses told off to each infantry regiment. The Japanese had six to each regiment in the First Army, and a larger proportion in the other armies in that campaign. For efficient results no time must be lost in (1) the choice of position; (2) the opening of fire. It was their slowness in these essentials that placed the Russian gunners in an inferiority in Manchuria. From the Grand Duke Serge Michaelovitch's report of his recent Siberian tour as Inspector-General, these defects still characterize all the Siberian artillery except that of Irkutsk, the capital. Half the rounds fired by the various units in the Grand Duke's presence were thrown away, as far as hitting went. Yet he notes

the results as "nearly always good." At "Oky" something better than this is required. We all know that to "hit, hit, hit," is the essential to gunnery. But to have good horses, well shod, inured to cold and hardship, good carriages, with wheels or runners proof against lumps of ice and snow, are also important matters. In these the Siberian army corps could give our own or the French or German gunners points. The officers of quick-firing or mitrailleuse detachments should be men of rapid decision, quick eye, good health, temperate habits, and good temper. A mitrailleuse is the finest thing in the world. But if it jams! Some of our readers remember El Teb. The spears, and the white, patched gabbus or coats, the fuzzy-wuzzy hair, the yells, and the accursed gun that would not fire a round; then the rush, whilst one is pulling at a breech-block or trying to get a strap in!

EVERY MAN HIS OWN MACHINE GUN PLATOON.

What is the matter with equipping every soldier of a Cavalry regiment with an automatic rifle firing 60 shots per minute?

In the Cavalry the problem of supplying ammunition (which for the Infantry would be almost unsurmountable) can be largely overcome by filling the saddle bags and nosebags full of cartridges when going into action and making the horse convey the ammunition to the battlefield. At any rate, it is easy to see that it is possible for a cavalryman to take into action much more ammunition than an infantryman.

During the Civil War one of the reasons for the greater effectiveness of the Federal Cavalry, after 1862, was the fact that a large proportion of them were armed with what were called "repeating rifles," which enabled the Cavalry, when in action, to fire much more rapidly than the Infantry.

It is suggested that our Cavalrymen be armed with automatic rifles or carbines, either of the Swedish type or some other.

The present machine gun has but one barrel. Its capacity for fire is little more than one automatic rifle.

In our Machine Gun Platoons twenty-two men serve two machine guns. How much greater volume of fire could be thrown by twenty-two men serving seventeen automatic rifles! How much better advantage of cover could they take!

Make your Machine Gun Platoon a whole regiment, each man armed with an automatic rifle and with all the ammunition he can carry and a regiment of Cavalry, as at present constituted, (three battalion formation) would for certain purposes be worth a Division of foot troops. Fire is everything, and mobility is everything, and opportunity is everything.

J. PARKER, Colonel Eleventh Cavalry.





PROBLEM NO. 14.

See JOURNAL U. S. CAVALRY Association, November, 1409, page 600.)

SOLUTION.

1. Major A's Estimate of the Situation.

I have completed my mission to the north of Kickapoo and am complying with instructions to return to my division at Lansing. I have no other orders nor reasons that would cause me to make a detour and, consequently, have chosen the most direct route for my return march. I have been allowed a free hand as to that and can select some other route if necessary or expedient. Nor do my orders prevent me from entering into a combat, should such be necessary or offer commensurate results. My orders allow me that latitude that must necessarily be reposed in all subordinates who have been detached on missions to a considerable distance from the main body of their commands.

I am now in the midst of three bodies of hostile mounted troops. The apparent length of the columns, supplemented by the information obtained from the captured trooper, leads me to believe that this is an entire cavalry regiment, or the greater part of one. The column moving from Fort Leavenworth must have entered it while I was to the north of Kickapoo. While I cannot figure out what the regimental commander has in mind by splitting up his regiment in this fashion, it is apparent that it is now concentrating on the City of Leavenworth. The exact strength of any one of these columns I cannot now tell; but, considering the general principle that units should be kept intact where possible, each is probably, though not necessarily, a squadron in

strength. As my destination, Lansing, is south of Leavenworth, the column now on the Dakota Street-60 road blocks my direct route. The escaped members of the patrol encountered near 18 will very quickly inform their commander of my presence. The hostile column now west of the Mottin house will, if its commander has not already done so, soon discover my column, though at first he may mistake it for one of his own.

My squadron may be as strong as, or even stronger than, any one of the hostile columns. Separately, I might be able to defeat any one of them. But, should I engage one, the chances are that one or both of the others will come to their comrades' assistance. In that event, things would probably go hard with me. There are several alternatives open to me. It is clearly out of the question for me to move across country toward the Missouri River and thence south through the City of Leavenworth. I would thus encounter the force now on Grant Avenue, which would have ample warning and be ready to meet me. To move via Atchison Cross and the U. S. Penitentiary would be sure to bring me into collision with that force and the one now on the Dakota Street-60 road, one force on each flank, which would be a most undesirable predicament.

I could continue my advance via Atchison Cross to 64 and thence through Leavenworth, or to 60, preferably at an increased gait, trusting to surprise to thrust the hostile column there encountered off the road, thence escaping southward before either of the other columns could arrive. The collision incident to such an advance would probably block the road so much as to make it difficult for me to extricate my command, which would be thrown into much confusion.

I could retrace my steps, trusting to defeating the column now approaching on the Atchison Pike and then to escaping by some road to the southward from a point farther west on the Pike. This double condition imposes a considerable uncertainty as to a successful outcome of such an undertaking.

I observe a secondary road leaving the highway near where I am now halted. This by-road takes a general southwesterly direction and follows the crest of the ridge, overlooking the country in all directions. About a mile from here it joins the Zimmerman Road, which is a main traveled road from the west

and which descends into the valley west of 60 where it joins the Barnes Road. The column now in this valley may have come by either of these roads. About a third of a mile west of where the by-road joins the Zimmerman Road, a side road leaves the latter and goes south, crossing the Barnes Road. This road undoubtedly connects with some road that will take me in the direction of Lansing. Or, by continuing west on the Zimmerman Road, some road will eventually be found, and that probably not far away, that will lead south toward my destination.

However, should I take this by-road via 18-22, I may encounter a part of the column now south of me on the Zimmerman Road or on the Barnes Road. It seems to me, though, that considering the present location of the head of this column, its direction of march, and the ordinary road distance occupied by a squadron on the march, the hostile column, even if on the Zimmerman Road, will all have descended into the valley by the time the head of my command will reach 22 or 24. Or, should any part of the enemy's column still be on this road, such part would be at the rear of the column, far removed from the immediate influence of its commander, and my appearance would be so sudden as to prevent any concentrated efforts by my opponents. Should the hostile column all have descended into the valley before its commander receives definite information of my near presence, several minutes will elapse before effect can be given to any orders he may issue to engage me. To be sure, the escaped troopers of the Red patrol will by now probably have returned to their command and given some information as to their encounter. This, probably, will lead to the sending out of another and stronger reconnoitering party. Should this column have advanced by the Barnes Road, the same general line of argument would apply as applies to the advance by the Zimmerman Road.

The road via 18-22, though not entirely concealed from view of parts of Atchison Pike, is sufficiently concealed from such view so that the first part of a movement by it would not be observed by the hostile column now on the Pike.

Considering all of the various courses which I might choose, an advance via 18-22-24 seems to offer greater chances of success. I will, of course, have to detail a new advance guard, re-

PROBLEMS.

calling the present one. A small force should be left near 22 to protect the flank of the column as it marches past, and to prevent hostile reconnaissance. I should keep on the north crest, if possible, from 22 to 24 to prevent hostile observation. It is needless to say that I should get out of my present predicament as quickly as possible and, therefore, my whole movement should be rapid. After arriving at 24 or 28, if the latter point can be reached, circumstances will determine whether I shall turn off towards 44 or continue on the road to the west.

2. Orders.

In accord with these decisions, I would issue the following orders:

To Captain B, commander of the leading troop:

"You see that column of hostile cavalry now advancing on ATCHISON PIKE, do you not? There is a similar column on the road just south of this (Government Southwest Hill) ridge. I want to avoid a serious combat and we will change our direction of march to this by-road to the south and west.

"Your troop will be the new advance guard. Follow this road (16-22-28) around the crest of the ridge to the west. Keep out of sight of the column now south of us. At 22 detach one platoon to remain there as a guard on our left flank, with orders to follow the rear of the squadron.

"You will receive further orders after reaching ZIMMER-MAN ROAD. Move out at once, gaining your distance at a gallop.

"I will ride with your reserve."

To the trooper who brought the information that the advance party has halted:

"Ride back quickly and tell your advance guard commander to bring in his advance guard and join the rear of the squadron. We are going to march by this (16-22) road."

To Captain C, my senior troop commander, who has come up pursuant to my instructions, and who has heard my orders to Captain B:

"Follow the advance guard with the other three troops and Machine Gun Platoon at the trot."

3. Further intentions.

My further intentions are dependent upon circumstances as

they develop after my arrival on the Zimmerman Road. Should I encounter the enemy there, I will fight sufficiently to get past. Should I pass the road fork at 24 without an encounter and arrive at road fork 28. I will turn south there, if matters seem favorable; otherwise I will continue west and turn south at the first favorable opportunity.

It is my ultimate intention, after having disengaged my squadron from the enemy, to proceed to some favorable point between my division and Leavenworth, whence I can observe the hostile cavalry, and I will advise my division commander of past events and of my intentions.

Howard R. Hickok, Captain Fifteenth Cavalry.

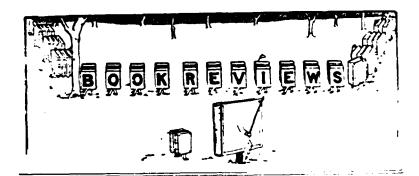
PROBLEMS.

There having arisen in the minds of some of our members a doubt as to the advisability of continuing the publication of problems and their approved solutions, as has been done for the last three years, it has been deemed best to discontinue them for the present, or at least until the consensus of the opinion of our members can be obtained.

That some do take an interest in these problems is evidenced by the occasional call for fresh maps, as those in use have become worn out or destroyed, but at the same time it is seldom that any point is raised or discussion provoked by the publication of the solutions as might be imagined would be the case if many men, of many minds, should read and make a study of the problems when published.

Of course it is understood that the published solutions of these or any problems are not the only ones nor, possibly, are they the best in all cases, and it would seem that some of our students would make a protest to some of the solutions.

However, the Executive Council will be pleased to hear from our members on this point and the Regimental members of the Sub-Council are requested to, as far as practicable, obtain the opinion of the members in their respective regiments and report the same before the next annual meeting of the Association on the third Monday in January.



Since the veterans of the Great War have ceased American to form a large proportion of the army list, the Campaigns.* study of our own military experiences can hardly be termed our favorite professional pursuit. If proof is needed of the truth of this assertion, it is only necessary to point to the book under review as tangible evidence of the fact, for it was called into being by the necessities of the very representative body of officers who are annually detailed to the Army School of the Line. The main reason for the neglect of the subject is not indifference, but because the majority of our officers are so circumstanced that they have neither the time nor the equipment for an extended course of reading. Good military histories of our wars prior to 1861 are few in number, and are not accessible to most of our posts. The Civil War has produced so vast a literature of its own that the task of gaining an outline of the whole struggle calls an amount of research, and for library advantages, that most officers find prohibitive. The Service has long needed a text, the work of a military man, which, while giving a narrative of the principal events, and deducing lessons therefrom, would do so in a sufficiently condensed form to entitle it to transportation to Alaska, or the Philippines, and be within the time limit of the busiest officer.

This want has been filled by Major Steele's book. Without omitting any operation of primary importance, he has limited his text to 628 pages. Thanks to his eclectic ability and literary skill, while excluding all superfluous incident, he has not reduced the narrative to a bald statement of fact, but holds the reader's interest to the end. The comments are logical and apposite, and if they provoke discussion, are all the more valuable on that account. The text is admirably supplemented by the maps, which are well selected and executed, and are conveniently arranged for reference in a separate volume.

The use of this book as a text should not be limited to the School of the Line. As a part of the garrison School course, it would lift the veil of ignorance in some quarters, and add an interest to the work which it does not now possess. It would awaken a spirit of inquiry among the younger officers, and by stimulating independent investigation, it would accomplish its highest mission.

S. H. E.

Lioa-Yan.* The third volume of the German Official Account of the Russo-Japanese War maintains the high standard set by the two previous volumes. Certainly there is nothing yet published that can compare with this history, at least that has come to my notice. What the English work, "Official History of the Russo-Japanese War," now being published by the historical section of the Committee of Imperial Defense, will be in comparison, it is not possible for me to state, for neither of the two volumes of the English work, already published, are yet in my possession. So I can form no idea what the relative merits of the two publications will be. While I am satisfied that the English History of the Boer War is a far better work than the German Official Account of that struggle (an opinion that

^{•&}quot;American Campaigns" by Major Matthew Forney Steele, Second U. S. Cavalry, 1909. Byron S. Adams, Washington, D. C.

^{*}The Russo-Japanese War. "The Battle of Liao-Yan." Prepared in the Historical Section of the German General Staff. Authorized translation by Karl von Donat, Late Lieutenant 33rd (East Prussian) Fusileer Regiment, German Army. With ten appendices and ten maps. Hugh Rees, London. The U. S. Cavalry Association, Sole Agents for the United States.

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will unquestionably be combatted), yet it is not safe to assume the same to be true of the Russo-Japanese conflict. If the English could not prepare a better account of their own struggle than anyone else it would be remarkable. Of course England was a quasi ally of Japan, but I doubt if her representatives at the front, not even excepting that agreeable man and writer, Sir Ian Hamilton, derived more information from the Japanese than did the German, and certainly the latter were much more liable to get correct information as to the Russian side.

One thing that impresses me in the German Official Account of Liao-van is the evident intent to be fair, and statements that et is not known what the action was at such and such points, when the compilers are not sure, are frequent. For instance, on page 87, we find the following: "A description of the combat of August 31st is rendered very difficult owing to the accounts on both sides being strongly at variance, and still hopelessly contradictory in some portions, making it impossible to give anything like an accurate picture." And again in the comments, on page 215, we find the following: "When reviewing the measures adopted by Japanese Headquarters, we are greatly handicapped by the fact that our knowledge of their measures is incomplete, and the exact words of the orders given are frequently not established, and that the motives for action are not sufficiently cleared up. A critic must therefore be particularly reticent. The comments made here are therefore meant to stimulate, without claiming to be correct and free from objections."

We now have Kuropatkin's narrative, only a portion alas, of his entire work, but enough to enable us to understand his position. I must say, admirer as I am of "The Unfortunate General," that the comments of this work upon Kuropatkin are about deserved, severe though they are. While subsequent history shows us upon what broken reeds Kuropatkin had to rely, when we think of his corps commanders, yet at the date of the battle of Liao-yan, they had not proved themselves so utterly worthless. He was not at that date encumbered with the blundering idiot, Grippenberg, nor with the insubordinate Kaulbars. True he had Bildering and unfortunately the worthless Orloff happened to fall into a most responsible position. It will be remembered by the readers of the "Times History" how cruel

fate imposed this hardship upon the Russians, where in speaking of Orloff it states (page 309): "This general had gotten into trouble during the Boxer outbreak owing to initiative attributed to insubordination, and had been put on the shelf in command of the 54th Reserve Brigade. The fortune of war now ordained that this commander and a body of untrained troops of secondary value, just out of the train after a thirty days' journey, should decide the issues which were being fought out over this immense battlefield."

It is to be expected, of course, that Kuropatkin's position as Minister of War previous to the outbreak must have shown him how little was to be expected of the Russian generals, and unquestionably this inefficiency haunted him like a specter from the time war commenced till certainty was demonstrated in the inexorable ordeal of battle. But even so, had he taken the chance of resting the decision south of the river with the corps commanders there, who had continually repulsed the armies of Japan with great valor, and gone himself to handle the situation created by Kuroki's crossing of the river and taken the matters there entirely into his own hands, the events would probably have been far different.

Kuropatkin seems to have fallen into the common error of ascribing too large forces to the commander of the 1st Japanese Army. Kuroki. The never changing strategical situation of Kuroki on his left flank, threatening his communications, seems to have shaken his determination and will power, and made him far more desirious of keeping his line of retreat open at all costs than of risking a battle, where, if victorious, he would need have no further worry about his rear and the indispensable railroad. Had his intelligence department informed him that only one and one-half divisions were across the river, what an awful calamity would have overtaken the Japanese! But if a battle, not merely a reconnaissance in force, but a battle in which he had army corps at his command, failed to show him how small was the force on his left, it is hard to see how he ever could have found it out.

Certainly it seems to me that the Russians should have won the battle of Liao-yan. That they did not can only be attributed to Kuropatkin's fear of the railroad and the moral superiority STATE OF THE PARTY OF THE PARTY.

of the Japanese, and not so much that of the soldiers as that of the commanders directing the affair. It must be admitted that the comment is true, "The will to conquer, conquered."

I am not inclined to believe the statements of all the accounts I have yet read, that the Russians were superior in numbers. Kuropatkin's book makes it plain how his depleted battalions were never filled up, while those of the Japanese were. Americans, who remember how our Civil War constantly saw fresh regiments with new colonels and officers going to the front, but never saw the old regiments replenished, may again see the folly of a military policy that must accommodate itself to the wishes of politicians and office seekers, and not to the safety of the state, considered as a purely military business proposition.

This German account has many lessons in tactics, though it is mainly concerned with the movements of battalions and regiments getting into first positions and not with the actual tactics of advance under fire. And here again I must call attention to the great value of the reports of our own attaches and I wish every officer in our army would read Major Morrison's description of the Japanese Infantry attack.

Liao-yan has been called an artilleryman's battle, and there is much to learn for an artilleryman from this account. The great expenditure of artillery ammunition in this battle of which Kuropatkin speaks, is here shown much of it to have been useless. The searching of the ground by the Russian batteries on the 31st and the little accomplished is a lesson well worth while to those inclined to shoot up the whole country. While the moving of the 3rd battery of the 9th Russian Artillery Brigade from its covered position to the crest line where it overwhelmed the Japanese with rapid fire at decisive range, makes me wonder if our artillerymen are not getting to trust too much to sweeping sections of atmosphere and terrain by indirect fire, and too little to direct fire at advancing infantry.

It appears from this history that defects and misunderstanding of orders occurred in the Japanese armies as well as in the
Russian. The trying position of General Matsunaga commanding the 3d Brigade, 2nd Division, on the afternoon of August
30th is a lesson for all military men to read over carefully and
ponder over seriously.

Space prevents a pointing out of all lessons or even many. The machine gun problem looms to the front and I can only recommend a serious study of the whole volume to those desiring to acquaint themselves with the effect of all the modern machinery of war. No one, who ever expects to command forces in war, large or small, can consider that he has done his whole duty until he has mastered the lessons taught in the great battle of Liao-yan.

WHITE.

Russian Army One may truly say that Kuropatkin's work on Russo-Japanese War is unique. We have had many generals writing of a war after its close, and many of them have written while yet in.

the military harness, but there has never been just such a discussion of war, military policy, and statesmanship as we find in this intensely interesting work. Mistakes of all kinds, those of the government as well as those of the directors of campaigns and military affairs, are laid bare with an abandon such as will be found in no other memoirs in the world.

The two great points made by Kuropatkin, and to which he is so constantly returning that they seem like the main airs in the score of an opera, are:

1st—That the war was not, as far as Russia was concerned, fought to anything like a finish; that it was brought to a premature conclusion; that peace was declared at the moment when victory lay within Russia's grasp, when her strength was at its greatest. and that of her enemy had begun to ebb.

, 2nd—That national wars, as opposed to army wars, are now the order of the day, and unless a nation is back of its armies at the front, defeat must be expected.

As regards this second proposition no one will gainsay it, and the remarkable difference in attitude of the Russian and of

^{*}The Russian Army and the Japanese War," by General Kuropatkin.

Translated by Captain A. B. Lindsay and edited by Major E. D. Swinton,
D. S. O., R. E. Two volumes with maps and illustrations. John Marray,
London, price 28 s., net, and E. P. Dutton & Co., New York, price \$7.50.

the Japanese people toward the war are so generally well understood that we hardly need Kuropatkin's statements for complete comprehension. The apathy of the great mass of the Russian people, if not to say their hostility, as regards the war was sufficient to have presaged defeat in any conflict with a people thoroughly possessed of the idea that they were fighting a war for national existence. Considering this factor alone, it is not surprising that the Japanese always won. Of course this attitude of the Russian people is now more clearly understood than at the time of the struggle, and it makes clear against what terrible odds the Russian general was contending, aside from fighting an intelligent and aggressive adversary. This is a point for the American people to remember and the less we have of Hartford Conventions the better will it be for our country.

As to the first point, that, for Russia, the war was prematurely concluded, Kuropatkin marshals an array of facts and drives home his point by analogy from the military history of his country for two hundred years. Whether he has proved his point is for the reader to judge. Certainly, to the military student, no more interesting history of a nation for two centuries has yet been written. Here a master is speaking and the fact that Kuropatkin's advice was not followed, and the catastrophe resulting therefrom, shows the wonderful caliber of the man.

The military policy of a nation must be one of its striking features. In a militant nation like Russia, whose principal object is to acquire territory in order to reach an open sea, it is the most important part of her life. With us, geographically situated so far from likely important enemies, an efficient military policy is not so vital, for which we may be duly thankful, considering the fact that we have never had any military policy of any kind. But even considering our geographical position, no intelligent person can read our history correctly and be overjoyed at our development along this line. It is to be regretted that more men of Upton's prescience have not lifted up their voices as did that gifted officer.

The first five chapters of Kuropatkin's work are devoted to this historical resumé and to the description of measures (inability to secure adequate funds and all that trouble) to meet the problem of the advance to the Pacific. Then next we have a

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chapter devoted to the War Minister's (Kuropatkin) opinion on the Manchurian question and what he did to avoid war and the conflicting opinions as to what should be done. This chapter forms the matter given to the American public in the first of the four articles published in McClure's magazine. The translations of this work and that in McClure's are strikingly alike. Possibly Kennan's (McClure's) is a little the better. Of course the publication in McClure's was for a reading public and hence not so complete as the work now published in two volumes from the English translator. But Kennan's selections were well made and much of the meat is in McClure's only not in so attractive a form. It is believed that the articles in McClure's contain only one-fourth the matter given in the publication now under discussion.

It may be remembered that the Cavalry Journal of July, 1907, contained quite a discussion of Kuropatkin's book, mostly taken from the Broad Arrow. As stated at that time, the work is composed of four parts, three parts being devoted to the battles of Liao-yan, Scha Ho, and Mukden, and the other part to the causes of Russia's defeat and the measures that might have been taken to avoid them. This last part is the one that is given to the public in the two volumes now published. Chapter 13, the last chapter, contains the introduction and conclusion of Volume 3 of Kuropatkin's original work. We are told in the translator's preface that "the pages given in the publication are an exact translation of the portion of the work comprised within them. That much repetition has been allowed to remain in order that the English version might adhere as closely as possible to the shape of the original. As the translation had to be made mostly from a faint carbon copy of type script, the work was attended with considerable difficulty. The faults in style and arrangement can perhaps be explained by the fact that the original had evidently not been corrected in proof by the author." We have in the published work about 150,000 words. It is said that Kuropatkin's complete work is one of 600,000 words.

We have not the three volumes dealing with the three large battles. Will we ever get them? We find the following note on page 288 of the publication: "The body of Volume 3 in the original deals in great detail with the battle of Mukden, and is

omitted in this translation." Whether this means this volume was in the hands of the English translator is not known. The following is quoted from the Broad Arrow of March 23rd, 1907: "The official Russki Invalid gives an unqualified denial to the report, published in certain foreign papers, to the effect that Kuropatkin's book was suppressed by order of the Russian Government. It points out that the first three parts of the work, Liao-yan, Scha Ho, and Mukden, were published at the cost of the state with money placed at General Kuropatkin's disposition for that purpose, and that official documents were made use of in their compilation. Thus these parts of the book constitute a historical study of the highest interest, although, as the General did not possess all the necessary information, they cannot be termed complete. Copies have been sent to the principal military authorities, who have been asked to tabulate their observations or any corrections they may have to make, and to send the same in to the Headquarters Staff, General Staff Building, St. Petersburg. The fourth part of the book treats of the causes of Russian defeat and the measures which might have been taken to avoid them. It must be considered to a certain extent as confidential. Only a small number of copies of this part have been printed, which have been issued to certain high military and civil officials." It would seem that since the confidential part has leaked out that the other three parts might be easy to obtain. And from Chapter 13 of the translation, which is part of the original Volume 3, we wish the whole of the work would appear as this part is most interesting.

And now that so much has appeared, what is our opinion of Kuropatkin? It will be remembered that the London Standard stated as follows in speaking of Kuropatkin's book: "When every allowance has been made for Kuropatkin, it is impossible not to hold him a man in whom undoubted military skill and sound strategical conceptions failed to compensate for a fatal lack of character. He was, one may say, a very Hamlet among generals, his native resolution sicklied o'er by the pale cast of thought. Practically, Kuropatkin admits the truth of this conclusion when he blames himself, in his summing up of the battle of Mukden, because he did not insist sufficiently before the battle began, on the assemblage of as large a strategic reserve as pos-

sible. A commander-in-chief who sees the necessity of a thing, and does not insist on its being done, is evidently out of place at the head of an army, for is it possible to hold a high opinion of Kuropatkin's resolution when we know he permitted General Orloff to be reinstated in his command after his ludicrous and disastrous fiasco at Liao-yan which is detailed in his history of the war."

With this we do not agree. Our admiration for the unfortunate General is rather enhanced by this work. It is no apology. If it were, it would soon be in the oblivion where go all attempts to explain by one who has failed. It is rather a great lesson to the Russian people, and one they well stand in need of, and that he can so clearly see the troubles and so succinctly state his views on the main questions is the evidence of one of the greatest men of history. It is believed that the fair critic will lay down the work with a feeling that no other Russian or no other person could have done much better with the tools the Russian general had to work with. It took even the resolute Grant two years to become the conqueror of Vicksburg and four years of war training to become the conqueror of Lee. What Kuropatkin might have done had he been left alone as was Grant in '64, and with his million of good soldiers, will never be known. But it seems the Japanese never played their cards better than at Portsmouth.

Kuropatkin's work is a study, a critique, of military policy. It should rest along side Upton's Military Policy of the United States on the library shelves of our officers, of those who are seriously studying the question of the betterment of military conditions. We have quantities of hot air artists in this army of ours that merely growl. Place them in positions of prominence, they would be of no use, for of original ideas they are bereft-no, not bereft, that is the wrong word, for they never had any original ideas to be bereft of. They lack the gray cells of originality. We are cursed with unintelligent criticism. It seems that God Almighty ought to hate an iconoclast, for he that simply tears down with no conceptions of rebuilding is a useless member of society. For those who are serious in the desire to better our military policy, who try to gain from the mistakes of the past some lessons for improvement of the future, Kuropatkin's book will be a great delight. His book should be read by every officer

BOOK REVIEWS.

in our army, it should be a constant reference work for members of the General Staff and heads of all Departments. And no Secretary of War could better employ his study of military matters than by spending some of his reading time in the pages of "The Unfortunate General's" book.

The Cavalry Journal has reviewed most of the books on the Russo-Japanese War as they appeared and recommendations were made from time to time as to what books were considered best for purchase by officers of moderate means. If I may give a resume of the work already done in the light of the last works I would submit the following as my own views of the valuable works:

Of Primary Importance:

First.—The German Official Account. (Three volumes, now ready.)

Second.—Kuropatkin's Book. (Two volumes.)

Third.—The London Times War in the Far East. (One volume.)

Fourth.—Hamilton's Staff Officer's Scrap Book. (Two volumes.)

Fifth.—Port Arthur. Ashmead-Bartlett. (One volume.)

Sixth.—Mukden. Scha Ho. Von Donat's Translation from Military Wochenblatt. (Two volumes.)

Seventh.—Lessons on the Russo-Japanese War. De Negrier. (One volume.)

Eighth.—For Comparison. The Chinese-Japanese War. Vladimir. (One volume.)

Ninth.—On the Causes. Asakawa's Russo-Japanese Conflict. (One volume.)

Of Secondary Importance:

Chasseur's Work. The Work of Asiaticus. Cowan's Book. Wrangel's Cavalry. The Truth About the War.

In the above I have not considered the English work by the Committee of Imperial Defense, nor the work of Nojine, "The Truth about Port Arthur." These should be good, but not having read them I cannot make recommendations concerning them.

No large sum is required to possess the books of primary importance above mentioned. The first costs \$3.00 per volume; the second, \$7.50 for the two volumes; the third, \$5.00; the fourth, \$9.00 for the two volumes; the fifth, \$6.00; the sixth, \$1.87 1-2 per volume; the seventh, \$1.00; the eighth, \$1.25; the ninth, \$2.00.

Some saving can be made by purchasing these books, or at least some of them, from The Cavalry Journal, which will secure any book for anyone.

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Troop Mess.*

Troop Mess.*

Of Troop "G," Ninth Cavalry, by Lieutenant Coleman. Captain Moss has also obtained some of his material for this book from Captain Holbrook who is in charge of the Training School for Bakers and Cooks at Fort Riley.

"The successful management of a company mess may be said to be based on the following general principles:

- 1. Personal attention (on the part of the company commander, or a competent mess sergeant);
 - 2. Economy;
 - 3. System;
 - 4. Good cooks and good service;
 - 5. Cleanliness."

Of these, personal attention on the part of the company commander or one of his officers is the most important. By means of personal attention a competent mess sergeant may be developed, cooks instructed; a good system put in operation, and economy, good service and cleanliness may be enforced. Without the personal attention of an officer the best mess will deteriorate.

Economy in drawing the ration, in cooking and serving it

^{*&}quot;The Story of a Troop Mess," by Captain James A. Moss, 24th U. S. Infantry. Illustrated. U. S. Infantry Association, General Agent. Price 75 cents, postpaid.

BOOK REVIEWS.

and in making purchases is thoroughly discussed. The system of making out the bills of fare for a week in advance and ordering for the same period is an excellent arrangement.

All companies should be able to get good cooks by sending men to the Training School for Bakers and Cooks.

Under the heading "How to Draw Rations," each component is discussed as to its use and importance and the advisability of making savings. By keeping cows and pigs and having a garden a considerable income is had in addition to improving the mess.

Several convenient cooking utensils and articles of kitchen furniture designed by Captain Holbrook and Lieutenant Coleman are illustrated and described.

Bills of fare are discussed in detail, and the bills of fare of Troop G, 9th Cavalry, for the month of March, 1908, are given in full and followed by twenty-four recipes for preparing some of the articles served during the month.

Bills of fare for ten days, with a model ration return giving the amounts of the several components that should be drawn in order to carry out the bills of fare have been prepared by Captain Holbrook, who also tells how to use the ration in individual cooking in the field and gives a number of useful recipes and methods.

This book should be read by every company officer in the service.

C. E. STODTER, Captain 9th Cavalry.

Riffe Range This is a handy volume of 141 pages, very neatly bound and containing thirty-five plates showing in a most complete manner the details of range construction, both outdoor and indoor.

Under the heading "General Remarks," the principal considerations affecting the selection of a range are discussed. Next

a model range is fully described and illustrated by plates. This range has a general firing line with targets in echelon. The 1000 yard butt extends across the entire range and the skirmish firing is done on the 600 yard range. Other types of ranges such as a continuous firing line with butts in echelon and a continuous butt with firing lines in echelon are described and illustrated by plates.

The selection of a site is then taken up and an illustration given showing what may be done with an unfavorable location. This is followed by a description of the method of laying out firing lines and pits, grading and draining the range, the targets generally used, and a very complete description of the construction of pits and butts of various types and materials and adapted to various sites, the installation of targets, construction of tunnels, backstops, baffles and screens, and this is followed by two chapters on the necessary range buildings and flags, observation equipment and accessories. The use of a push button at each firing point connected with a buzzer at the corresponding target avoids much of the trouble incident to marking, particularly at long ranges. A very convenient adjunct is a rifle cleaning rack so arranged as to hold the rifle securely in a convenient position for cleaning from the breech. A very convenient marking device for use in conjunction with the spotter has been devised by Captain Casey.

The construction of small ranges is given a chapter and is followed by a description of the following ranges: Bisley, England; Rockliffe, Canada; Camp Logan, Ill.; Fort Riley, Kansas; Saunder's Range, Maryland; Sea Girt, New Jersey; Camp Perry, Ohio; and Guantanamo, Cuba.

Two chapters are devoted to the operation of a range and the running of a competition. This is followed by a very complete description of various types of indoor ranges.

The text is arranged in numbered paragraphs with a good index, making a very complete and valuable book for all who have occasion to construct a range or operate one.

C. E. STODTER, Captain Ninth Cavalry.

^{**}Rifle Range Construction," a text book on the Construction of Rifle Ranges with Details of all parts of the Work. By Major H. C. Wilson, N. G., N. Y., and Captain K. K. V. Casey, N. G., Pa. Edited by Colonel J. G. Ewing. Published by the Du Pont Powder Co. Price \$1.00.

General Manual.* In a volume of 417 pages the author has covered very completely the duties of the non-commissioned officer by compiling from the Army Regulations, Manual of Guard Duty, Manual

from the Army Regulations, Manual of Guard Duty, Manual for Court-Martial, manuals of the staff departments and from various other sources those parts which pertain particularly to the duties of the noncommissioned officer. In addition, Captain Moss has added much useful information derived from his own experience and from that of old and experienced noncommissioned officers.

Under the heading "General Considerations" the position of the noncommissioned officer and his importance are explained, together with some very excellent advice on the subject of growling and whining, drinking, military courtesy, dress, punctuality, promptness, industry and perseverance, forethought, treatment of privates, obedience, and loyalty.

Discipline, its object and methods of maintaining, are briefly treated. The duties of the company noncommissioned officers are then discussed, including the 1st sergeant, the quartermaster sergeant, the mess sergeant, the noncommissioned officer in charge of quarters and the chiefs of squads. The duties of a noncommissioned officer in charge of recruits are treated in great detail and much useful information is given.

Ninety-three pages are devoted to the duties of the sergeant major, the post quartermaster sergeant, the post commissary sergeant, and the ordnance sergeant. This includes forms for routine orders, blank forms and much useful information on running the office and the care of property. The following advice to the quartermaster sergeant is worth repeating: "Do not lose sight of the fact that the Quartermaster's Department exists for the convenience of the troops and not the troops for the convenience of the Quartermaster's Department, and also remember that the property does not belong to you, but that it belongs to the Government and that it is intended for the use of the troops."

Similar advice is given the commissary sergeant.

Control of the state of the sta

In a chapter on "Military Courtesy" the nature and origin of the salute and the use of the various salutes is explained. This is followed by a chapter on "Guard Duty."

In a chapter on "Applied Principles of Information and Security" the subject of patrolling is thoroughly discussed and illustrated by six problems on infantry patrols and four on cavalry patrols. Advance guards, rear guards and outposts are also illustrated by means of problems. Other chapters discuss field service; the construction of trenches; care of the health and first aid to the sick and injured; use, description and management of the rifle; military map reading; military sketching; customs of the service; and articles of war affecting enlisted men.

A removable supplement, published annually, gives the changes that have occurred, together with a useful list of reports, returns, estimates and requisitions.

This manual should be very useful to the noncommissioned officers of the militia.

C. E. S.

At Iuka this battery was twice captured by the Confederates and twice retaken. At the end of the day its losses were about half of its men and all but three of its horses; the guns were spiked and the carriages splintered. New men and horses being secured by transfers, the material was refitted and the battery reorganized in time to take part on the action at Corinth, only two weeks later, where it again fought, this time successfully, against the same Confederate troops as before.

O. L. S.

[&]quot;Noncommissioned Officers' Manual," by Captain James A. Moss, 24th U. S. Infantry. U. S. Infantry Association, General Agent. Price \$1.50, postpaid.

The book contains two papers read before the Ohio Commandery of the Loyal Legion—one by the battery commander himself and the other by the commanding officer of the infantry regiment which supported the battery at Corinth.

Hersemenship in In considering a work on equitation, it Sebest and Country.* is necessary to look first for a system, which is applicable to the work that is intended for your horse. There are many good systems of training, and their value depends upon the personal skill of the trainer or the lack of difficulties encountered in the horse.

Unquestionably Mr. Lombardi understands equitation thoroughly, but his book, entitled "Horsemanship in School and Country," has no system in it.

While the statements and directions of Mr. Lombardi are more or less correct, yet the book is not worth the excessive price charged for it.

W. C. S.

Privates' This little book of 114 pages is made up from the Manual.† chapters on Guard Duty, Military Courtesy, Care of Health and First Aid to the Sick and Injured; Field Service; and the Use, Description and Management of the Rifle, which form a part of the Non-Commissioned Officers' Manual. In addition a chapter headed "Miscellaneous" treats of obedience; military deportment and appearance; personal cleanliness; forms of speech; and care of clothing, arms and other equipments.

The book thus places in a convenient form certain information which privates should possess if properly instructed.

C. E. S.



THE BATTLE OF GETTYSBURG.

No article that has appeared in the Cavalry Journal for years, certainly none that has been published since the present Editor has been in charge, has attracted as much attention as has the one under the above title that was the leading article in the September and November, 1909, numbers.

Many favorable comments—also one unfavorable one—regarding it have been received from our members and others and the demand for extra copies of these numbers has been unprecedented.

The unfavorable comment noted was not so much as to the article itself but to the fact that the one published was an expurgated copy, not correct in all respects and that correct copies of the same had been heretofore published, one soon after the Civil War and the other recently by the Historical Society of Wisconsin.

As was stated in the footnote in the September number of the Journal, this pamphlet was received from Major General Wiley, of Pennsylvania, who wrote that Haskell was an officer of a Michigan regiment who served on General Gibbon's staff during that battle. The Editor found, upon looking up his record, that he belonged to a Wisconsin regiment and that he was killed at Cold Harbor when Colonel of the 36th Wisconsin and made the correction accordingly in the footnote mentioned.

The following are extracts from the many comments received:

"For my part, I have never read a more thrilling, soul inspiring account of a battle than is that of the Battle of Gettys-

^{*&}quot;Horsemanship in School and Country," by L. U. Lombardi, formerly Sergeant Instructor of the Italian Dragoons. Lombardi's Riding School, Chicago, Ill. 140 pp. Price \$3.00.

^{+&}quot;Privates' Manual," by Captain James A. Moss, 24th U. S. Infantry. U. S. Infantry Association, General Agent. Price 50 cents, postpaid.

burg in the two numbers, September and November, written by Lieutenant Haskell. One might sit for hours reading such an article and yet the time would seem short. Even the most minute details being told in such an interesting and attractive manner as to rivet attention. I believe this is an account that it will take some time to equal and it is doubted whether it can be excelled."

"What the old Editor says is to a large extent true, school essays and problems may be well enough in their way, but to fill magazines with them will prove interesting to but few. But articles similar to the Gettysburg account, which are statements of not what might occur in certain contingencies but which actually did occur in one of the greatest of wars, can not fail to be interesting to all students of military history. I for one would welcome the advent of all accounts that could be obtained from eye witnesses or participants during our great conflict, particularly such as might bear upon the cavalry service on both sides. It is certain that the student could obtain information of a most beneficial character from a study of these actual engagements. You are to be congratulated upon having obtained for the Journal such a stirring account of Gettysburg as that in the last two numbers and let us hope that more of the same nature may follow."

General Charles King writes as follows:

"The republication of 'Gettysburg' in our Cavalry Journal and the apparent ignorance as to the identity of its most soldierly author suggest to me that the story, which a great college president has called a classic, ought long since to have been in the library of the Association and I blame myself greatly that the fine publication of the Wisconsin Historical Society with its portrait of Colonel Haskell had not long since been sent you. Copies are now scarce and dear but if I can not get a new one, and if you have none at Leavenworth, a slightly worn, much-read copy shall be sent. In any event the Association may care to know something of the author and I give it herewith.

"In August, 1861, the Sixth Wisconsin arrived in Washington and was assigned to the brigade of General Rufus King. It was made up of excellent timber—but very green. The one notable and conspicuous figure was the Adjutant. In carriage,

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voice, magnetism and soldiership he towered above any Adjutant in the many fine, strong regiments camped about us.

"I had seen Horace Porter and Henry Kingsbury, model Cadet Adjutants, in boy visits to West Point, and tall, bearded Webb at Governor's Island, but our Wisconsin Staff Officer seemed every bit as 'Military.' He was the soul of the regiment. He rode at the old Colonel's elbow and coached him through battalion drills. More than any three men, he made the Sixth what it was in '62 and they hated to see him go, even to be Gibbon's best Staff Officer.

"Killed at Cold Harbor, as Colonel of the 36th Wisconsin, he was mourned throughout the Eastern Army. Another month would have seen him a Brigadier General."

Later, General King wrote as follows:

"I am sending you today, under separate cover, Haskell's 'Gettysburg,' unexpurgated—the Wisconsin Historical Commission's work—which I hope you may safely receive.

"It is just as well, I think, to edit, as you did, those references to our Southern Brethren that were written during the heat and passion of the War. Haskell himself, had he lived, would have become as fervently their friend as he was loyally their enemy.

"I have read no work on that great battle that brought its incidents so vividly before me nor have I seen a description of our generals that was so accurate and picturesque."

OUR CAVALRY OFFICERS AT THE HORSE SHOW.

It is a matter of congratulation and pride for the Cavalry service that our representatives at the New York National Horse Show of 1909 acquitted themselves so well and, considering the short time for preparations and the class of horses ridden by them in comparison with the thoroughbreds of their competitors, the fact that they brought away four out of six ribbons when competing against foreign riders on Irish hunters is remarkable.

Of them the New York Evening Post of November 13, 1909, mys:

"The officers from the Cavalry School at Fort Riley, under Lieutenant Gordon Johnston, Third Cavalry, who have been exhibiting their horses at the Horse Show in this city, have made an excellent showing, fully convincing the horse experts assembled at Madison Square Garden that the cavalry seat, as taught at Fort Riley, is essentially practical and useful. They sat their horses admirably, and took their jumps without moving in their saddles, although there were many who prophesied that the riders would land on the necks of their horses, and in every way exhibited the high degree of efficiency at which the school has been carried on in late years. Indeed, the work of this institution is not yet thoroughly understood by either the press of the country or the service. For the first time, although we have heard much of our cavalry's feats, equitation is really being taught as a science, and an effort being made to put our cavalry on a par with the foreign service. It was, however, noticeable that the Fort Riley officers made their record this week, not on the horse flesh they brought with them, but on their own skill and ability, and the excellent training given to their horses. These were horses practically discarded from various troops of cavalry; not one was a specially purchased horse, all being paid for in the usual contract way. It is this poor material that the Government gives to its officers to work upon, and that the officers were able to do so well speaks volumes for their ability and mastery of their subject and their enthusiasm for their work. It is all very well to teach a well-blooded, high-bred horse, but the test comes when you have to train horses that are naturally third-class. At any rate, the service may be proud of the showing made by these Riley officers, and the same cannot be said of some of the regulars who took part in the show. The achievements of the Riley School are, finally, all the more notable because the officers were not told until a month ago that they could come to this exhibition. It is greatly hoped by all interested in the school that the comparisons drawn by this show will induce the War Department to give to the School of Equitation the high-class horses it needs to do its work thoroughly, and to develop officers' chargers which shall be worthy of the name."

Bit and Spur has little to say regarding the work of our officers, although giving a full page to their photographs on their mounts, yet from their account of the military events one may learn of the class of horses ridden by the British competitors as compared with the troop horses used by our officers.

Of them this paper says:

"The greatest ovation ever accorded one man at a National show was bestowed upon Major Beresford when he appeared in the ring on his favorite hunter, Flighty, as one of the contestants in the class for officers' chargers.

"In the class for officers' chargers open to all nations and to all branches of the service, Major, the Honorable J. G. Beresford, D. S. O., won the blue ribbon with his mare Flighty, who, within the last few months has traveled with her master from England to Buenos Ayres, Argentine Republic, to take part in military competitions and back, when she went with her owner through a month's military maneuvers. Together they then went to San Sebastion. Spain, for other military competitions; then back to England and from there to New York to take part in the National."

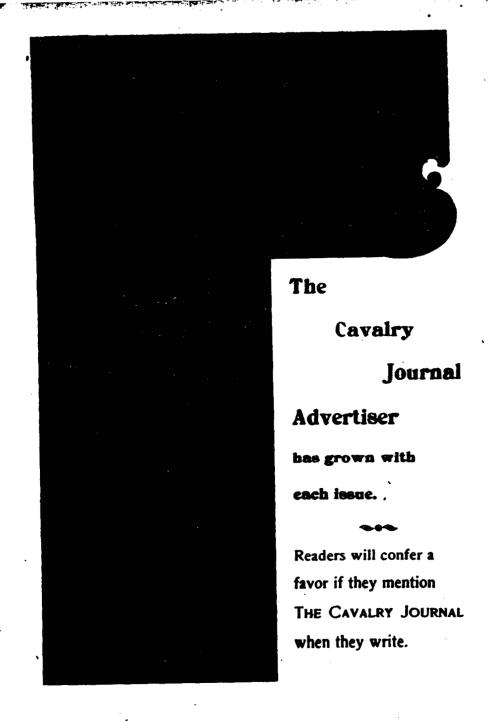
HORSE SHOW AT FORT LEAVENWORTH.

Anything that will increase the interest of our officers in horses and riding is of undoubted value to the mounted services.

Probably no recent event, either social, athletic or military, in the garrison at Fort Leavenworth has aroused more general interest than did that of the horse show lately held at that post under the auspices of the Polo Club.

Notwithstanding the fact that the weather was abnormally cold—the thermometer indicating nearly zero—the four large galleries of the riding hall of the Service Schools were filled with an enthusiastic audience that remained until the last event was over.

It is hoped that this may be a starter for other similar exhibitions at this and other garrisons.



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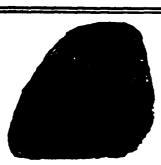
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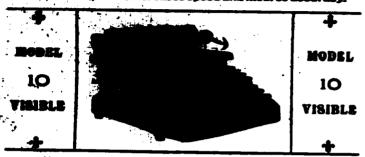
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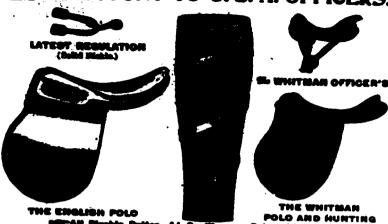
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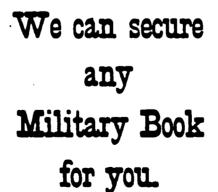
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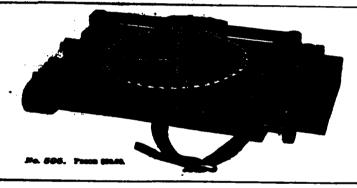
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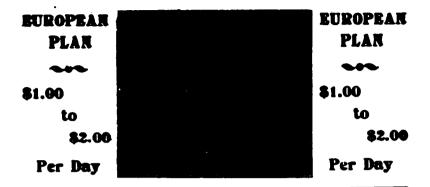
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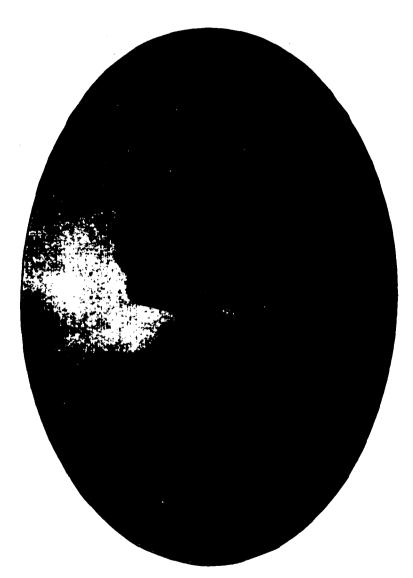
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(Concluded.)

MARCHES-HALTS-UNSADDLING AT NOON.

WARS are made up of campaigns and sieges. Campaigns are made up of marches and battles. Cavalry takes part in both, and excels in marches. Good cavalry can execute stupendous feats in marching if its horses are in good condition, but horses fall away from fatigue and privation much faster than men. Weight and time tell on horses. With a light weight, and at a brisk pace, they will execute far greater distances than if heavily loaded and traveling slowly. Every moment a load remains on their backs, standing or moving, is a penance to them. The removal of weight rests them very quickly. A spare horse, that has been led the same distance as a loaded one, will seem to be perfectly fresh when mounted for a change. Good food, plenty of it, dry quarters, and room to lie down, will carry the horses of a regiment triumphantly through the hardest marches, if they are not loaded too heavily.

Keeping these landmarks in sight, the principles of managing cavalry on the march are not difficult to acquire.

In the fir.t place, with green cavalry and experienced officers, those last should see that the saddling be careful.

If the light McClellan tree without flaps or saddle-bags is used, and if the soldiers are restricted rigorously to a blanket and shelter tent, with one suit of linen underclothes, the weight of the packed saddle, exclusive of rations, ought not to exceed ten pounds. Three days' grain in the grain-bag makes thirty pounds more, and five days' rations ten more. Thus it will be seen that the weight of a saddle with three days' forage and rations can be reduced to fifty pounds, the ordinary weight of a dragoon saddle in Europe without a single pound of food. Counting an armed man at one hundred and fifty pounds, it will thus be quite easy to bring the total weight on the horse to two hundred pounds, a little over fourteen stone, at the commencement of the march, when the horse ought to be at his best condition. As the march progresses, the weight decreases, so that in three days nearly forty pounds has been taken from the load. The average weight of our future volunteer cavalry ought to be brought to this standard, and the maximum of efficiency will be reached. There will be room for medium-sized men of stout and active frame, and neither will the horses be overloaded, nor will the men be weakling pigmies, the extreme that some cavalry theorists would lead us to. A man under one hundred and twenty pounds is not much use in a sabre charge, unless he is remarkably muscular for his weight. But from one hundred and thirty to one hundred and forty pounds weight has often turned out some of the most formidable athletes, and activity and skill with the sabre will counterbalance the rest. For dismounted work, the lighter and more active a man, the better.

The weight being reduced to the minimum, and the saddling attended to, the men should be kept on foot to the last minute. The practice of assembling mounted, and sitting on horseback, watching the rest of the column defile past, till it is the turn of the regiment to move, is bad. Brigade and division commanders should always keep a staff officer whose special duty it is to indicate to each regiment its place in the column. In this matter it is for the best to keep the same officer constantly detailed for this duty, and to attend to marches and camps in general. Such a practice is better than the rotation by different officers. I have seen both plans tried, and the first always worked the best.

Regimental commanders should, when waiting for the route, mass in column of squadrons, dismounted, and not move out till the leading regiment has fully passed. It is not of near the same importance in cavalry to keep a column closed up as in infantry. If fighting begins, it is quite easy to trot up to save distance, and the advantages of close intervals are neutralized by the dust at other times.

The first hour of a day's march should be taken at a brisk walk, when a halt of five minutes should be called. At such times the men should dismount in their sets of fours. This halt is very beneficial to the horses, as it gives them time to stale, and horses checked in the operation receive much injury therefrom.

At all halts throughout the day care should be taken that regiments halt together. Many colonels, from an ever-eagerness to keep "closed up," waste their halting time in closing intervals. Every halt ought to be fully enjoyed by every horse in the command. Colonels of regiments should be warned to dismount their men as soon as brigade headquarters dismount, and each regiment is to follow without waiting for orders, as it sees its leaders dismounting. The only persons allowed to remain on horseback at halts are the staff officers on duty. All others, officers and privates, should dismount. After the first halt a trot should be taken for the next half hour. During this trot regiments may be closed up, and, after the horses begin to sweat, they should be pulled up and walked. Cavalry generals should not judge of the severity of the pace by its effects on their own horses alone. Costly and well-bred animals, with very little weight on them, and relieved from duty alternately, they are no fit criterion for the horses in the column. A good general keeps his eye constantly on his troops, and concerns himself with them during the march.

A second halt should be called at midday for half an hour, when officers will be charged to see that all saddles in their troops are readjusted if any necessity exists for it. The grain bag and ration wallets should be taken off at the midday halt, as also the sabre, which is fastened to the saddle by a snap hook at other times of dismounting, particularly to fight on foot. The loosen-

ing of the girths, even taking off the saddles, is advisable at the midday halt, if the enemy are not too near, and in dusty weather a good brushing will refresh the horses wonderfully.

Half an hour's halt at noon employed in unsaddling will reanimate the horses to such an extent that when the advance is once more sounded they will seem as fresh as in the morning. The operation is quite easy with a saddle having no flaps and properly packed. A horse can be saddled in perfect order in two minutes, the packing having been done in the morning; and, if the men are accustomed to saddling and unsaddling rapidly, the gain to the horses will be great. Many cavalry officers will stare aghast at the notion of saddling and unsaddling twice a day, but I have seen the experiment tried, and it always paid. Officers can detect by this means the first beginnings of sore backs better than at night, when every one is tired, and they can prevent the evil from spreading by dismounting the man and making him lead his horse till it is cured. If colonels and company officers are strict on this point, it will prevent a great deal of suffering to the poor animals. At these midday halts brigades are massed by regiments, in columns of squadrons, in some convenient field. Shorter halts are more conveniently made in the road in the morning. Afternoon halts are better when made in mass to avoid tedious length of columns in coming into camp in the evening.

When the distance to be gone is settled, it should be made as rapidly as possible, to give an opportunity for going into camp by daylight. This system saves both men and horses, gives plenty of light whereby to post pickets, allows of foraging parties, and is better on every account. Slow marches and late camps wear out horses more than great distances more rapidly made.

A cavalry general should consider these matters, and his men will appreciate him. A martinet who wants his men to encamp in particular manners, to suit his individual whims, soon earns their dislike.

CONTRAST OF SYSTEMS.

The first division of the cavalry corps of the Army of the Potomac was successively commanded by two officers as different in this respect as light from darkness. The first was General Buford, a model cavalry commander. Under his orders, the

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division pursued a course of victory united with comfort in marching, remarkable in the history of the war. Cautious and bold at the same time, he never allowed himself to be flanked in battle or delayed in marching. In all the time the division was under his orders I never remember an uncomfortable camp; and the condition of the horses was excellent all the time.

After his death in the spring of 1864, General T. was put in command of the same division. It is safe to say that during the whole time he commanded us, our division never had a comfortable camp. An infantry general if anything, General T. was utterly unfit to have control of cavalry, and soon proved it. He had a peculiar partiality for encamping his whole division in a single field if he had to hunt for one for hours. Many and many a time do I remember him keeping his whole division sitting, waiting for an hour and a half while some member of his staff was riding about the neighborhood trying to find a large field. Somehow or other, when it was found, it was always a ploughed field. Down in the dust we had to lie night after night. horses and men alike tired and disgusted. Our chief trouble was securing our horses. We had to leave them in charge of some comrade who held three or four while we started off to find wood for picket pins. If a horse was at all disposed so to do, all our picket pins would not hold him from pulling them up out of the locse soil. In the morning horse and man arose alike unrefreshed, dirty and uncomfortable, after a wretched night. The water was always distant from us, and when we went down to it we generally found the other divisions close to it and in good camps.

The result was that this whole division, which Buford left at the end of a campaign nearly four thousand strong, was dwindled to less than two thousand at the commencement of 1865 and what horses were left were in miserable condition. All which might have been saved had a eavalry general instead of a pompous infantry martinet been put over that division after John Buford's death.

The change was wonderful when General Thomas C. Devin, an old cavalry officer, took command of the same division. Although in the midst of a raid of unexampled severity of marching, we had twice as much comfort as we had had in T.'s time.

Our camps, except in one or two instances quite unavoidable, were made in daylight and pitched among woods. Our pickets were secure; our horses, in spite of hard marches, kept their own, and three days' rest and food at Whitehouse Landing put them all in trim for the final campaign.

EUROPEAN CAVALRY DEFECTS.

As a general thing, our cavalry generals, and particularly regular cavalry officers, were very careful in the matter of horses, frequent dismounting, and comfortable camps. European cavalry in this respect are far behind our own. General Philip Kearny, when a subaltern officer of dragoons, was sent to Europe in 1840 to examine and report on European, particularly French, cavalry in campaign. He was fortunate enough to be attached, during an Algerian campaign, to the celebrated Chasseurs d'Afrique, at that time by far the best light cavalry in Europe. He published on his return a small pamphlet (the only copy of which now extant is in the possession of General I. Watts De Peyster, of New York city), describing his experiences. In this pamphlet he especially remarks on the carelessness of the French cavalry in this very matter of horses and on the length of time frequently allowed to elapse while the regiment stood waiting for orders to dismount.

The same care that a good infantry general shows for the comfort of his men, a cavalry general should have for his horses. A cavalry soldier will take care of himself under any circumstances, and grumble if neglected. But the poor horse cannot complain. He can only die if neglected. A cavalry general should remember this maxim, at all times and in all places: "Take care of your horses; the men will take care of themselves."

Camps should therefore be made in one of two places, deep grass fields near water, or woods. The latter are best on many accounts. The trees are handy to hitch to. A horse can pull up a stake in a meadow if he wants to. In a wood he cannot get away from his tree. His rider has not far to go for wood for his fire, and, not being tired out and dispirited by a bad camp, has heart to attend to his horse. Bad camps and comfortless nights disgust more mea with campaigning than battles, and kill more horses than marching.

The experience of the First Cavalry division of the Army of the Potomac will illustrate this. When men are tired out and disheartened by a careless commander, their horses and themselves suffer alike. Camps being good, marches brisk, and halts frequent, the first three days of a raid are pleasantly passed. Then the forage gives out, and it becomes necessary to "live on the country," unless supplies are at once forthcoming.

PORAGING PARTIES.

The question whether foraging is advisable for the subsistence of cavalry is not difficult. The answer undoubtedly is, that regular issues of grain are by far the best for the force. Foraging relaxes discipline and injures efficiency, encourages maranding, and pulls down horses by hard riding and heavy loading, to a greater degree than is compensated for by the grain procured. But still the fact remains that for cavalry to be fully used to the best advantage it must make raids; and in long raids it is very often necessary to live on the country. Cavalry that sticks close to the Army loses half its strength. It must be employed on distant expeditions to cut the enemy's lines, to be worth its cost in strategic combinations. Tactically, it should be used to turn the enemy's flanks, attack his rear, capture his batteries and wagons, and seize by swift movements the key of a position, thereafter to be stubbornly defended by dismounted men, till the infantry come up to relieve it.

For its full strategic effect cavalry is obliged to live on the

country after the first three days.

Since foraging parties are necessities, then, it only remains that they should be systematized so as to attain two objects with the greatest facility, viz:

1. The obtaining of the largest quantity of food and grain,

to be equally distributed to the regiments.

2. The infliction of the smallest amount of suffering on

the farmers and women of the country.

As foraging parties are at present constituted, they are full of defects. They are sent out too late, and the forage is not distributed properly. The march during the day may have been through a rich and fertile country, whereas in the evening the troops have possibly entered a strip of sterile ground. Common

sense would dictate the gathering of forage where it is plentiful; but common sense does not always govern military commanders. Where it does, it is called genius or sound strategy, and strategy is nothing but organized common sense.

Foraging parties are generally sent out near nightfall, and often have to ride for miles before they find anything. In the case of large forces of cavalry several thousand strong, the operation is particularly difficult, as the country is very soon skinned by the swarm of hungry troopers. But the worst feature of foraging is its waste and destruction. If the forage in a country were properly collected and distributed, there would be far less suffering on all sides. As it is, the foraging parties run races for the nearest barns, pack all they can get on their horses, and the result is that one horse gormandizes where another starves, and the most rapacious marauder is best off.

Now all this might be avoided by a different system. In the first place, foraging ought not be intrusted to any and every officer. The only person properly competent to take charge of it is the quartermaster of the cavalry corps. While on a raid the whole of the quartermaster's department of a body of cavalry generally indulges in a life of ease and dignity. The gentlemen belonging to it have nothing to do, and enjoy themselves amazingly. Most of them stay behind at the depots in charge of the wagon train, and are quite free from responsibility in the matter of food and forage.

The foraging parties are intrusted to officers in rotation from the different regiments, without experience in the issue of grain or food. This ought to be changed. The only proper people to attend to foraging parties are the officers of the Quartermaster's Department. They ought to be made to attend to it in the same manner as to regular issues, the corps quartermaster mapping out the ground for his division quartermasters, who in turn assign to each brigade its foraging ground.

All forage should be collected and issued by the brigade and regimental quartermasters proportionally and justly. This is a very difficult matter to enforce if the men carry forage on horses. They will manage to cheat their comrades out of a fair share when they rejoin the regiment. A far better way is to impress the wheeled vehicles of the country into the service

and forbid the carriage of grain on horses. The quartermasters can then keep the grain much more easily under their own control, and six or seven times as much can be brought in for distribution, without any distress to the horses. For this purpose it is only necessary to supply every cavalryman in future with a stout lasso rope, to fasten to the surcingle we have urged instead of a girth. This surcingle should be made of heavy oxhide leather, with a ring and strap fastening. To the ring should be knotted the rope.

This lasso harness is in universal use on the pampas of South America, and is wonderfully adaptable. Its adoption has been urged for many years in the English service by Sir Francis Head, in different books and pamphlets, and the Russian cavalry have put it to practical use since 1814. After the battle of Montmirail in that year, General Osten Sacken succeeded in carrying off all the heavy guns in his retreat by harnessing fifty horsemen with long ropes to each piece. Although the ground was of the heaviest nature, the guns were brought off without difficulty. At the camps of instruction in the Russian service the use of lasso harness is constantly practiced.

In our own cavalry sets, at the commencement of the war, lariat ropes were issued, with iron picket pins. These were soon disused. Their intention was to confine the horse at night, and permit him to graze while so tethered. In practice it was found that the horses were certain to get tangled in the ropes, and cut their hind pasterns very dangerously. The picket pin was far too short to be of any use, and the rope too weak. But a modification of the system might be made very useful. A lariat rope of sufficient strength, of leather if practicable, to be used to drag off guns, wagons, etc., would prove a most valuable addition to our cavalry equipment.

In the matter of foraging this is more especially the case. Grain is always collected from farmyards, and there is not a farm anywhere in which one or more carts or wagons are not to be found. If the foraging party numbered, say fifty men, eight or ten of them would be amply sufficient to drag a loaded wagon back to the regiment. A wagon can easily be loaded with five or six thousand pounds of grain, which would take, in the horseback system of transportation, from one hundred to one

hundred and twenty horses to carry, at fifty pounds a horse. The rest of the party would be disposable as vedettes, scouts, and escort, if foraging in presence of the enemy. If bad mudholes intervened, any force up to fifty horses is instantly available to extricate the load of forage. No time is requisite to harness up. Each man puts the noose of his lasso around the wagon at some or any projection, and fifty horses can pull as well as one.

This system of foraging will be found particularly good in case of an attack by the enemy. A foraging party as at present constituted is almost defenseless. Every horse is so heavily loaded that he cannot gallop fast or far. The forage has to be thrown off if fighting begins, and if the attack is repelled much time is lost in picking it up again.

By impressing carts and wagons, and using lasso or lariat ropes, this trouble is entirely avoided. Four horsemen are sufficient to drag the wagon and the rest of the men are available to protect it. The lasso can be detached instantly, or the wagons may be abandoned by all hands till the enemy is repulsed. It will not run away, and the enemy cannot carry it off unless he too carries lassos. But, if foraging parties are attacked at all, it will almost always be by guerrillas, partisan troops raised in the surrounding country, and quite unprovided with regular equipments. Once beaten off, the journey can be resumed. If the worst comes to the worst, it is but an ordinary fight.

By using lassos, impressing carts, and putting all foraging parties under charge of officers of the Quartermaster's Department many abuses and dangers will be avoided. Nine foraging parties out of ten are attacked while scattered and plundering. Under the carrying system the scattering is almost unavoidable. Every man has to be at work, and vigilance is relaxed.

Under the system advocated all this is changed. Foraging will be done by brigades, not regiments. A party strong enough to protect itself from any partisan attack, say a troop from each regiment, the whole about a hundred strong, is detailed to accompany the brigade quartermaster. The officer of the day should command this escort, which should be prepared for just one thing, to fight if necessary. The quartermaster should have his clerks, orderlies, etc., detailed to act as scouts while on the march, to range ahead and ascertain the location of stores of

grain, barns, farms, etc. These men should be as lightly equipped as possible to enable them to be good scouts. The present practice is that they become genteel idlers on a march.

The searest farm being found, it should be quickly occupied, the party moving on the trot. A cordon of pickets should be thrown around at once, and the escort halted, while the officers and one or two men enter the farm-yard. All negotiations should be conducted by the officers alone. The owner of the house should be civilly treated, and told that food and grain are all that is to be taken. He is certain to be civil. In those parts of the South in which the most intense acrimony existed during the late war, I never remember an instance where civility on our part did not bring corresponding civility from the enemy. The men should on no account be allowed to forage for themselves. They are perfectly certain to plunder, and in that case to rouse enough acrimony of feeling to render guerrilla warfare a certainty.

A working party should be detailed to dismount, unarmed, to load up the wagons with whatever is available. If their arms are left them, they are sure to bully some one on the premises when out of sight of their officers. The wagons being loaded with grain (it must be remembered that ten thousand pounds will be a full day's ration for a thousand men), the question of food should always be decided in a manner as merciful to the non-combatant as possible. An ox furnishes more meat if he is driven away, and causes less exasperation of feeling, than the slaughter of a yard full of chickens. An officer should always take as little as he possibly can, consistent with feeding the command.

The advantages of foraging by brigade, and of using drag ropes to haul forage, are manifold.

First. You can carry away more forage, and distribute it with less waste, besides incurring no more danger than on picket duty.

Second. Your own discipline remains perfect, without that inevitable relaxation that comes of marauding and even of individual foraging.

Third. The country people are less exasperated.

This last advantage is very appreciable. Under irresponsible individual foraging, the poor farmer is no sooner quit of one party of the enemy than others come galloping up yelling like fiends. The poor man is kept in a continual state of anxiety and alarm, and his helpless family of women are liable to constant insult. It is these insults of marauders more than the losses that raise the spirit of guerrilla warfare in a country-a spirit of all others the most annoying in its results to a regular army. A corns of cavalry of three divisions, each of three brigades, under the brigade system of foraging, will only have to find nine wellto-do farmers within a radius of five miles or a circuit of thirty. Each farmer will only receive one visit, and if he has not enough he will be very glad to tell you the name of his next neighbor, so as to equalize the burden and save himself. Very few farmers cannot furnish fifty sacks of some sort of grain or its equivalent in hay, and a hundred sacks will feed a brigade for a whole day. It is true that you borrow the man's wagon; but as it will be left in camp, he can easily get it next day, when the column moves on. Nine farmers out of ten will be glad to purchase exemption from maranders at such a price.

War is a cruel thing at its best, and in a cavalry raid, living off the country, the barbarities committed are often inconceivable. The exasperation of feeling caused by them is sure to produce the guerrilla spirit, or bushwhackers. The excesses committed by our own forces in the Shenandoah valley and other places brought on this phase of war in Virginia. The consequences were so grave, that to save his army from constant raids General Sheridan was compelled to lay waste the whole valley, burning every house and barn that would afford cover to guerrillas. The measure, founded on grim necessity, was worthy of Attila. A different system at the commencement of the war, severer discipline and less robbing, would have saved us from guerrillas altogether. The advantages of severe discipline are manifold. The country people dread a well-disciplined army less, the enemy dread it more. An army of marauders is lax in discipline, and must go down before equal bravery and better discipline in its enemy's troops.

Brigade foraging with drag ropes, as I have recommended, removes all excuse for straggling on the march, keeps the com-

mand uniformly supplied, and excites the minimum of ill-feeling in the country. On a raid it will be found the best way in any country whatever, whether poor or rich. If the party has to visit several places in a poor country, each wagon should be sent back, as loaded, with five or six men to guard and drag it. Care must be taken not to weaken the party too much in this way, however. In a rich country a single large farm will often supply a brigade.

Safeguards should in all cases be left at houses that have supplied the troops, to protect them from future pillage. In a friendly country, where foraging becomes necessary, receipts should be given by the quartermasters for feed and provisions. If the Commissary Department is separated from the Quartermaster's Department (which it certainly ought not to be), the brigade and regimental commissaries must attend to the provision part of the foraging, remembering always the economy of flour or meal, as mixed with meat in the invaluable sausage ration.

But as soon as a raid is over, and the cavalry has rejoined the Army, supplies should be regularly issued. No system of foraging, however good, can supply an army for any length of time. The system of making war support war is well enough with an active general who can end a campaign in six weeks. If long sieges and tedious operations are indulged in, a base and supplies are absolutely necessary. Cavalry is the only arm of the service that can be said to be comparatively independent in this respect. As far as food is concerned, a well-equipped and wellmounted body of cavalry thirty thousand strong, commanded by a general like Sheridan, could march from one end of the United States to the other, and if placed in Europe could do as they pleased, in summer, from Paris to Moscow. But even they are forced to have a depot somewhere to supply them with ammunition. And the rest of the army is still more dependent on bases and communications.

BAGGAGE AND TRAINS.

In the matter of baggage and trains there is much room for improvement in our cavalry service. At present there is no distinction between a cavalry and an infantry train. One moves as slowly as the other. There are just three things which are louded in cavalry trains, viz., food, ammunition, and baggage. The provision and forage part of the train should not be taken on raids. Great bulk and weight are necessary, and such cannot be moved rapidly.

Ammunition must be carried. So must a small quantity of baggage, but the less of this the better.

The problem becomes, then, to carry the ammunition and baggage in the smallest space and safest and most expeditious snanner. Ammunition has very frequently been carried on pack mules. The plan has the advantage of requiring no wheeled vehicles, and so of being independent of bad roads. But the disadvantages of the plan outweigh its conveniences. It takes an immense number of animals, which have to be fed, and makes a long and tedious train. Since cavalry must always be accompanied by artillery, wherever a gun can go a wagon should follow. One ammunition wagon, with six mules, will carry as much as twenty-four pack mules, besides distressing the animals less. At all halts, a mule in harness rests; a pack mule has no rest till going into camp.

Wagons, then, even for raids, if of any length, being settled on, the question arises, how small can a train be made, to carry enough ammunition for a cavalry corps?

Taking a corps of cavalry at its full strength, viz., three divisions, each of three brigades of four regiments, of which the average regimental strength is about four hundred present for duty, the total service strength of such a corps is about fourteen thousand men. In a severe battle, the men being under proper control of their officers, and the latter not ammunition wasters, the consumption ought never to reach over forty rounds per man. This ratio can be adhered to with advantage, and leave the force more formidable in reality than the prodigals. Three full battles ought to be allowed for on a raid, the ammunition to be carried in wagons, the men retaining eighty rounds besides. You can thus fight five pitched battles, if necessary, before returning to the army. At 120 rounds per man, it will thus be necessary to carry about 1,700,000 rounds of ammunition in the wagons, or about seventeen wagon loads, the full corps ammunition train for a raid. The artillery should have

a single ammunition wagon for each battery, at the rate of a battery to a brigade, making nine more, or twenty-six in all.

Ammunition being provided for, the baggage remains to be considered. It is a very difficult matter to deal with this, unless corps and division headquarters set the example of economy. In several raids and expeditions I have seen attempts made to cut down the baggage, beginning with regiments. Staff officers from division headquarters would come down the line of march, and pitch on to the pack mules of company officers, turning them loose, throwing off the packs, and in some instances confiscating the mules for division headquarters. Now, as long as corps and division headquarters are incumbered with a host of useless hangers-on, as at present, so long will the regimental baggage be bulky.

In army administration, as in civil life, law is not always nor often justice. In too many instances it is rank injustice. If a general wishes his baggage train reduced, he must set the example himself. If he carries a dozen tents, and office furniture for a host of useless aides-de-camp, which takes six wagons for corps headquarters, four apiece for division and two for each brigade, he will have a total of thirty-six wagons of lumber, which will not do the force he commands any good whatever. The evil will be sure to spread down, and the baggage train becomes a terrible nuisance, every regiment having its own tail, till the whole of the pack train extends for a mile and a half.

To check this state of things, the most stringent orders are issued. Staff officers are sent to enforce the orders, and to reduce the regimental trains to the minimum. Hearthurnings and animosities enough arise out of this baggage business to breed a mutiny, almost. If all staff officers were gentlemen, such a duty, even in that case, would be very disagreeable to perform to both parties. But since a very small proportion of our staff officers during the late war could be said to belong to that category, it generally happened that they made their orders a pretext for making themselves as oppressive and insolent as possible to regimental officers.

The whole secret of the cumbrous baggage trains of modern armies lies in one word, luxury. The private soldier in the ranks during the war, I can testify from experience, lived in perfect comfort. Without pliing a load on his horse, he managed to find a good bed, a good fire, a good supper, and a feed for his animal. An officer, if allowed by custom, might do the same. But officers are not allowed by custom to do anything for themselves. They must wait for the pack train, when their servants come up to make them comfortable. To men who have risen from the ranks the contrast is unpleasant. The higher the grade of the officer, the greater his luxury and imagined wants. A general thinks it absolutely necessary to his comforts to have two walled tents, an iron bedstead, mattresses, sheets, blankets, a silver diamer service, and an army of retainers. Every little staff officer likewise finds it necessary to have a tent and at least two servants, one for his horses, one for himself.

The adjutant, inspector, quartermaster, commissary, surgeon, and ordnance officer are all too proud to work. They have clerks detailed to do their work, while they strut about in useless idleness, imagining that they are conferring a great benefit on the service by sometimes signing their names. Some of these gentlemen may resent the description, but I have seen the inside of too many headquarters not to be confident of its general truth. A good staff officer in the field is invaluable, and principally because the article is so scarce.

Now all the excesses of a baggage train may be avoided if the general begins the reform. If he will confine himself to a single A tent during campaigns, and compel the different staff departments to do their necessary desk work all together in a single hospital tent, the same officers may well sleep in the office at nights. There are just six necessary officers on a staff, the adjutant, quartermaster, commissary, surgeon, ordnance officer, and inspector. In most cases the aides-de-camp are mere honorary gentlemen, appointed from favoritism of some kind, and most profoundly in their own way and every one else's, as low as brigade headquarters at all events. Two hospital tents ought to contain without difficulty the whole of a corps staff, with the general's A tent opening into them. The headquarters would not be near as imposing as they are at present, but the staff would be more under the general's eye, and work harder. If the detailing of clerks was abolished, the work would be better done. A staff position might not be a remarkably snug berth, as at present,

but men who went on the staff would do their duty twice as well and be twice as efficient. If a single wagon contained the corps headquarters baggage, which it might easily do, matters would be much simplified. The staff and general should mess together. In the clubbing principle lies the solution of the question of the greatest comfort to all, with the smallest weight.

THE MESSING SYSTEM.

Two hospital tents and an A tent, a single mess chest and a single cook, would reduce headquarters baggage marvelously. Division are almost as heavy as corps staffs, but the personal and material of brigade headquarters may be much diminished. The adjutant, quartermaster, and commissary are about the only necessities here. Inspector-general and medical director of a division are at present nearly sinecure officers. Give them brigade work to do, and they will accomplish more and become really useful; at present they only consolidate reports and add up columns of figures. Too many papers are the grand cause of our bulky baggage train. They serve as the excuse for a vast deal of other lumber. But even having reports as they are, by adopting the clubbing system at all headquarters the baggage will be lessened to one-fifth of its present amount.

Four wagons, under the system advocated, will carry the headquarters baggage of corps and three division headquarters. Nine two-wheeled carts under the same system will be ample for brigade headquarters. The train will be reduced, and comfort, not luxury, will be augmented. At present it frequently takes an hour after the men are all comfortable in camp before the headquarters train comes up. During this time the general and staff are often occupied in cursing the teamsters as they stand about in the rain and mud, unable to obtain any sort of comfort. In the regiments the delay of officers to get their baggage is often still longer. Some of them find that the pack train has been invaded by staff officers during the day and all their store of grain and provisions gone. Now, under the messing system, the baggage may be much reduced. Two hospital tents and an A tent would hold the colonel and all the officers of a regiment. The adjutant's and quartermaster's desks can be left with the forage train.

A single two-wheeled cart could thus carry all the baggage of a regiment, including a proper mess kit. As every officer has a second horse, he should be furnished with a packsaddle to carry grain for both. At present every regiment on service has a train of forty or fifty mules, besides led horses, and the total train of a cavalry corps is nearly as numerous as the fighting horses. By the mess system a single cart supersedes the pack mules, and every officer should carry his food and clothing on his own horse. The only relief an officer's horse requires is the removal of the thirty pounds of grain. This off, the horse will be quite light enough to do all his extra work over that of the men's animals.

An officer's horse should not be loaded down like a private's; far from it. Its rider has more running about to do the higher in rank he goes. But three days' grain for two horses, although a great addition to a man's weight, is a trifle by itself. If arranged in two bags of the kind before described, it can be unloaded and loaded at all halts, to save the horses. Spare horses in this way become the least possible incumbrance and accomplish the maximum of good.

Under the messing system the retinue of servants is greatly diminished along with the train. A cook and two waiters are ample for a regimental mess. All the enlisted men detailed from the ranks in such a case are the grooms, one for each officer. Less than this cannot be allowed. An officer cannot groom two horses and attend to company duty besides; and it is better to allow the grooms to volunteer from the ranks, as they are more amenable to discipline than civilians.

In the matter of eating and drinking, the mess system affords far more comfort than the individual system. A good cook can be hired at very small expense to each officer, when all club together; provisions will cost much less; last and best, the mess system encourages esprit de corps and cordiality of feeling among officers, and a regiment is apt to work better under it.

In time of peace, and in garrison, the mess system is far from desirable. In the British army, where it prevails exclusively, it gives rise to much extravagance, and ruins many a poor man by the emulation to excel his richer comrades. But in war time, and with the mess baggage restricted to a single cart,

extravagance is easily checked. The caterer should in all cases be the regimental commissary. His duties are a mere sinecure at most times, and this service would make him a useful man. Rotation of special duties is always unadvisable. The business of caterer requires experience, and who is better fitted for it than the commissary?

Now let us see the difference between a corps train on a long raid under the two plans:

TRAIN ON MESS SYSTEM.

Ammunition train. Corps and division headquarters		
Brigade headquarters (nine brigades)	. 9	
Regimental nesoquarters (thirty-six regiments)	_	carts.

TRAIN ON OLD SYSTEM.

Ammaition	17	wagons.
Corps headquarters	. 4	-
Three division headquarters, at two wagons	6	•
Nine brigade headquarters, at one wagon	. 9	•
· · · · · · · · · · · · · · · · · · ·	_	wagons.
Pariments shout forty nach mules each all told thirty-six		

The difference in length is something remarkable when the two trains are compared. A six-mule wagon occupies about sixty feet in column, allowing for intervals. A train on the mess system, allowing twenty-five feet each for the carts, a liberal allowance, would measure in single file seven hundred and ninety-five yards, not quite half a mile. On the present system the wagons alone measure seven hundred and twenty yards, the mules in column of fours, at five yards apiece, nineteen hundred yards more; a total of two thousand six hundred and twenty yards, or about a mile and a half.

In moving single brigades the difference is still more striking, five carts being all the baggage train, instead of the present string of sore backed mules. In comfort of lodging the difference is equally marked. Two hospital tents will hold all the officers of a regiment with perfect ease, as they already hold in hospital twice as many wounded men in comfort and coolness. The ample hospital tent, perfectly water-proof, is far better to sleep in them a shelter tent, which is all that our officers carried on active service. Thus it will be seen that by a wise use of the clubbing principle, for officers, the baggage train of an army can be reduced to less than one-third its present length, with an increase in solid comfort in three important points, viz.: 1st. Quickness of camping; 2d. A dry tent; 3d. Good food. The loss is in individual freedom, a restraint that will be found very useful among young officers, as tending to the suppression of ungentlemanly and boyish tricks, by the tacit veto of polite society.

The colonel's tent should be alone, however. He must not mix too freely with his officers, except at mess. Familiarity breeds contempt. The other field officers I have not provided for, simply because, in any common-sense improvement of the cavalry, it will be expedient to abolish the lieutenant-colonel and two of the majors. In the three-battalion system adopted during the war, the three majors were very good theoretically; practically, they were dummies in most cases.

OFFICERS AND BREVETS-HORSE ARTILLERY-MITRAILLEUSES.

A colonel, a major, a staff of adjutant, quartermaster, commissary, ordnance officer, surgeon, and veterinary surgeon, with a captain for each company, is the best complement of officers a volunteer cavalry regiment can have. In such a regiment the non-commissioned officers would be trusted with many responsibilities. I venture to say that they would prove worthy of them. Good sergeants and corporals are the life-blood of an army. Their promotions for merit should be by brevet, so that they could enjoy the opportunity of association with their superior officers before exercising actual command. By the system of brevets you place a man on probation in each new rank, and are not saddled with a drunken officer, who may have been an excellent sergeant, but turns out to be unfit for elevation. I have seen too many instances of this not to feel anxious for a check on the practice in future. By the brevet system, a colonel can always remit a man to sergeant's duty. He draws the pay of his brevet rank only while doing the duty of that rank. Still, in such cases, the option of resignation should be given. A degraded officer will never make a good sergeant again, unless he does his duty willingly.

But one branch of the strength of a cavalry corps remains to be noticed on the march, after which the questions of outpost and advance duty and the purely strategic part of cavalry service will terminate the disquisition. This branch is horse artillery; and its proper management ought to be part of every cavalry officer's education.

During the war of the Rebellion nearly all the batteries of horse artillery serving with our volunteer cavalry belonged to the regular service. They were splendid batteries, well horsed and equipped, and officered mostly with West Pointers. The guns were either three-inch rifles or "light twelve-pounders" of brass (a cross between the howitzer and long twelve or Napoleon gun). But in the matter of horse artillery, a great economy of men and horses might be practiced, and that with advantage to the whole corps, if the system of lasso draught, before mentioned, were more generally applied.

Contrary to the general opinion, the use of artillery in the field is by no means the mystery that many artillery officers love to call it, to enhance their own importance. That there is much abstruse science required for the full making up of an accomplished artillery officer, we do not pretend to deny. But a great deal of this abstruse science is thrown away in the field. A table of ranges at different degrees of elevation, to be committed to memory, and a faculty of judging distance correctly, are the great essentials for a chief of piece. I have often and often seen old artillery sergeants beat their elegantly educated West Point officers all to nothing at a difficult shot.

The theoretical knowledge necessary to posting a battery properly, and the management of the guns in action, do not require, after all said, the expensive array of officers and the amount of luxury now accorded to a battery of horse artillery. A single captain and a dozen sergeants from the old Regular Army, with the guns and caissons, ought to be enough for a cavalry battery. The men of the regiments can be taught to work a gun in three days. The service is perfectly simple. Artillery officers drill at it for a long time in order to get the men to do certain things in a certain way, but the root of all this is found in the little phrase "fuss and feathers." Our cavalry of the future ought to be drilled for work, not for show. A bat-

tery of six guns, four being rifles, two "light twelves," ought to accompany every brigade. The regiments should take turns to drag it with their lassos, the advance regiment of the day having that honor. Any force of horses necessary could be put on at once, in muddy roads and over soft fields, and the guns would never be an incumbrance.

The advantages of horsing a battery from the regiments, and of drilling all the men of every regiment to the "school of the piece," are manifold. The men soon get very proud of their pieces, and will stick to them through thick and thin. The artillery sergeants would command the pieces and caissons, and the artillery captain the battery. Equal precision of fire would be attained, with greater economy of men and horses. One hundred and twenty of the latter will be saved in each brigade, with the pay of gunners and drivers. Under the lasso draught system, gunners, drivers, and supports are all one. The covering squadron of cavalry furnishes all three. The saving in baggage is also immense. As for the traveling forge and repairs, etc., this is easily provided for. The sergeants of caissons should be artificers as well as gunners.

It may be objected that there is no provision in this plan for the replacement of the chiefs of pieces who act as pointers, if killed. I have only to say that the casualties in a battery of flying artillery are so rare, that long before a chief of piece gets disabled he will have had time to train a dozen successors in every regiment, among the sergeants. In the course of three years' active campaigning in Virginia, I cannot recall an instance of a man being killed in our brigade battery under fire, and I only remember one instance in which a limber was smashed by a round shot. Batteries serving with infantry have hard times in action. Their service is very frequently the most dangerous on a field of battle, and their losses are out of all proportion to that of the other arms. But flying artillery batteries have the easiest time of any body of men in the army, apart from the quartermaster's department people.

Under the lasso draught system, not only do the men become foud and proud of their pieces, but in case of capturing an adverse battery their practice becomes excessively valuable. Dropping the nooses of their lassos over the pintle-bolts of the

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trails, they can whisk off with captured guns in a moment, before the supports have time to retake them, even if the limbers have been galloped off by the enemy.

The use of the lasso is easily learned by men who know how to ride. The perfection of skill attained by ganchos and Mexican vaqueros need not be hoped for. But any man can learn how to throw a lasso if he is properly taught, and the art may often prove very valuable, especially in capturing prisoners, stopping escaping artillery teams, forming bridges, etc. (In the brief system of tactics annexed to this treatise will be found instructions for lasso casting.)

The use of the lasso, in conjunction with the ox-hide surcingle as a harness, if introduced in full in our cavalry, will add vastly to its future value. Even green cavalry can learn its use, and very soon become exceedingly expert. It is a peculiarly American invention, and as such is well suited to our cavalry of the future. In performing the service of artillery drivers and gunners, it will enable cavalry to act as well as artillerymen, It will prove an immense economy in expense, saving the cost of all the horses and four-fifths of the men of all the flying batteries in the service, without reducing their precision of fire one iota. If it is a waste of labor to use men to do horses' work, it is equally waste to maintain a corps of men to do nothing but sponge and ram and carry cartridges. Cavalrymen can learn the duties with ease, and leave the artillery sergeants to their true duties, as pointers and marksmen; the captain to his, the theoretical direction of the whole battery.

Cavalry officers, under this system, from emulation and curiosity, would be inspired to study up artillery subjects, and by so doing the tone of the volunteer service would very probably be much improved, for, as before noticed, "learning softens the manners." Besides which, the study of artillery leads to fortification and strategy, studies of all others valuable to cavalry officers, especially the latter. In fact a cavalry raid is a masterpiece of strategy, and when a whole army executes the same movement, it is so recognized.

Before leaving the subject of flying artillery, it seems that some notice ought to be taken of the great artillery improvement of the decade, the mitrailleuse or battery gun. A modifica-

tion of this instrument was tested, or rather tried superficially, in our own war, in McClellan's peninsular campaign. It was then pronounced a failure. But during the Franco-Prussian war of 1870, the mitrailleuse has done terrible work, when properly used. Tried at long ranges, it has proved to be inaccurate, and not to be relied on to the extent of rifled shell guns. But at close quarters, against columns of troops, for the same purpose as grape and canister, it is far superior to a brass gun. If the composition of our future flying batteries were ordered at five rifled guns and one mitrailleuse to every brigade of cavalry, I am inclined to think that the improvement over the old batteries would be marked. The Gatling gun or American mitrailleuse is a magnificent weapon of this kind, for simplicity and accuracy. A section of these to each brigade, with a single battery of eight thirty-pound Parrot guns, would be a great improvement on the present system. The heavy guns are able to demolish any field fortifications; the mitrailleuses will finish up any troops opposed to them far better than brass guns with canister. But in such case the mitrailleuse should only be used for its true purpose, the repulsion of attacks at close quarters. In the frequent instances wherein the Prussians captured these guns in 1870, it was invariably from the same fault—waste of ammunition at long shots. leaving the gun dumb and powerless at the decisive moment. Properly used as a reserve, the mitrailleuse will be an invaluable weapon. Out of ammunition, men are not fit to use it any morethan its grandfather and original, the Colt's revolver.

STRATEGY-SCOUTS.

We have now passed in review the purely tactical and logistic elements of cavalry in campaign, its arms, horses, food, forage, clothing, marches, baggage, and artillery. It remains to treat of the strategical part of cavalry duty, the system of pickets and scouts, whereby it finds out the enemy's movements while hiding its own. We will commence with scouts.

Perhaps there is no part of warfare so difficult to master, so important in results if mastered, so fruitful of disasters if uncomprehended, as the science of scouting. Able, faithful and trustworthy scouts are very rare. The combination of qualities that go to make a good scout is not often met with. Nine out

of ten of the headquarter scouts in our service during the war were simply reckless scoundrels, who brought in but little valuable information, and stole horses from the farmers to sell for a consideration. There were exceptions, but this was the rule. A more useless body of men, take them all in all, was seldom met with. The rebel scouts, on the other hand, especially at the commencement of the war, furnished the fullest information to their chiefs. One great cause of this was that the rebel cavalry scouts were very often officers of intelligence and address, who could take hints quickly, adapt themselves to circumstances with readiness, and who had their hearts in the business. In the last words lies the whole secret of the scouting system. Some men are natural detectives. Such men are fitted for the position of scout because they love the excitement of finding out. Other men have suffered deadly injury from the enemy, and long to avenge themselves. If such men have lived in the country to be scouted in and know it well, they are the men to employ, if intelligent. But one quick-witted, well-educated officer, well mounted and lavishly supplied with fresh horses, if needed, will bring in more reliable intelligence than a whole swarm of detailed horse-thieves out of the ranks. It is far from good policy to think every rascal a smart man. An honest man whose word can be relied on will not furnish false information.

Scouts will do well to go in pairs. Two pairs of eyes are bettes than one, and two heads are proverbially better than a single brain. One can often take back intelligence while the other goes further at greater risk; so that even if the latter is captured, the general gets the news.

Scouts should be mounted in the best possible manner. They should be first-class pistol-shots, and carry from two to four revolvers in belt and saddle holsters. They should carry no sabre on any account, as its jingle would betray them, and they ought to be light men themselves. Many a time they'll have to ride for their lives, and an extra pound or two may cause their loss. They should have all their grain and clothing carried in headquarter wagons to lighten them. Generally, they manage to live off the country without any difficulty, and supply themselves with horses in the same way, as before mentioned.

The system is an excellent one if none but reliable officers are appointed. The mistake lies in supposing every smart horse-thief to be a good scout. A perfectly brave man he must be, not afraid to hover round the enemy's flanks, and find out his position in full. Such a man is valuable. A dozen such are invaluable, and worth a horse every day if they need it, which they oftentimes will.

With the spy system a cavalry treatise has nothing to do. Spies are expensive luxuries, and belong more to the province of the chief of the whole army than to that of the cavalry corps general. But the system of headquarter scouts, under proper discipline, furnishes one of the best lessons of the decade for the future. Headquarter scouts form an extreme advance of bold, wary men, on swift horses, who should not fear to venture miles away in front of their own advance guard, to gain any information of the enemy's movements. Men detailed in rotation for this duty fail in skill and experience. They must be kept on the same duty constantly, to acquire the skill. Every day that passes, every lucky escape, adds to their boldness in finding out the numbers and position of the enemy, and boldness and swift riding are two valuable qualities in a scout. If they are reliable in their information, it will be found much more serviceable than that of spies, on account of its frequency, and the short time elapsing between seeing and reporting.

Scouts should not be dressed in the enemy's uniform. It tends to render the business treacherous and to degrade its character in the eyes of the men in the column, besides deterring many men from volunteering as scouts who would make the best. Our own headquarter scouts, when Sheridan commanded the cavalry corps, were very much disliked by the men on account of their assuming the rebel uniform. I have known them even to be fired at deliberately by our own men, under pretense of mistaking them for enemies. Dressed in our own uniform, or something easily recognizable as such, they lose the sneaking spy character, and become twice as useful in reality. Their uniform should be something that resembles that of the enemy only at a little distance, and prevents the wearer being shot at by your own men.

Under the "enemy's uniform" system, the men in the column frequently fail to distinguish friend from foe, and I have known more than one instance of rebel officers coming inside of our lines and making due inspection without danger in full uniform. They were taken for headquarter scouts.

But, under proper discipline, as before noticed, a body of bold quick-witted men, with sharp eyes, accustomed to judge of the strength of bodies of men at a glance, are very valuable. They should be prepared to shoot at an instant's notice; to pick up the enemy's stragglers and question them; to ride all round his columns and wagon train; to make off across country at a speed that defies pursuit, if detected; to turn and fight if not followed by more than four men. Quick decisive work can be made with revolvers, if a man is cool, determined, and a sure shot. Such a man has more than even chances with four ordinary cavalry soldiers pursuing him. If he should be a first-class swordsman, it may even be advisable for him to wear a sabre. But in that case the scabbard must be of simple leather, or the jingling will betray him. For night work, and often for day work, scouts should be provided with some sort of pads to deaden the sound of their horses' feet, if necessity requires it. Such pads are easily made, and can be adjusted on occasion. They must be frequently renewed, as they will quickly wear out, and to be of any good they must be very thick and soft. A scout should also be provided with a pair of hobbles, to enable him to leave his horse motionless if necessary, while he reconnoiters on foot. A single strap, with two loops near the end, is the best thing for this purpose. The loops, which slip up and down, are passed around the two front pasterns, the long end of the strap is tied over the hock of one hind leg. A horse thus secured will stand like a statue for hours, and is released in twenty seconds. The strap can be used as an ordinary halter strap, if hitching places are near; but the hobbling plan makes a scout independent in a meadow behind a hill, whence he might often make valuable observations. Scouts should be furnished with powerful telescopes, to enable them to count distant forces with accuracy and in safety. A wary scout, at a prudent distance, with a good glass, can often gather more valuable information than a more reckless one who ventures in closer. The former sees, himself unseen.

If men can be found well acquainted with the country to be operated in, so much the better scouts. But if this is impossible, every scout should carry a map, on a large scale, to be filled in with details from his observations. Under this system, it will be seen, a scout becomes an important adjunct of the topographical engineers, and may often be of great service. The scale maps furnished them should be drawn by the engineer officers of the corps, and the scouts will very soon learn their use, and become emulous of supplying the best details for their skeleton maps. True, an engineer officer would be needed on the corps staff, but this is only as it should be; and if topographical skill were more generally utilized by cavalry officers, the gain would be immense to the whole Army. A very little experience, under the guidance of a good practical topographical engineer, would render the majority of men of intelligence and fair education capable of filling in the details of a map enlarged to say two inches to the mile, with a fair degree of accuracy, increasing every day. Distances from place to place should be timed by the watch and pace very carefully noted at every change thereof on a note book. Courses by the pocket compass, carefully laid down, will help the engineer officer and his assistants amazingly. If every scout carried a note book in which he was taught to record his route, in the form of an itinerary, maps might be made with but little difficulty that would prove of great service in operations over the same ground. The general and engineer officer, by taking a little trouble to train scouts in this matter during winter quarters and in long rests over wellknown ground, can very soon judge of their capacity and correct their inaccuracies, besides teaching them how to do the greatest amount of work in the shortest time. No scout need then come in empty-handed. Even if he has not seen the enemy, he has mapped the country, and topographical information is always valuable.

Scouts should be paid highly and kept on probation. If they are detailed from the ranks, they must be very sharply watched, to prevent their becoming maranders. Scouts have such fine opportunities for this practice that the only real safeguard against it is the selection of bonest men for the duty.

ADVANCED PARTIES-ORDERS OF MARCH.

Scouts should travel several miles ahead of their commands, and in some cases a full day's march. But inside of their line of march a second species of guard is necessary, styled advanced parties, in front of the advanced guard proper. The essentials of a good advance are celerity of transmitting intelligence and the covering of as long a stretch of ground ahead as may be. As in the case of scouts, so with the advance. Its duties are special and require special training to insure perfection. It is thus better on every account to have a permanent detail for the duty, taken equally from the regiments of a brigade, instead of the constant rotation now practiced.

But brigades should take their turns at the duty by all means. They are very frequently detached from the corps, and should always be able to act offensively, independent of the rest of the corps. Every regiment should have its share in the formation of the advance, and its operations should resemble those of a moving picket guard, only far more sweeping and extended in reach.

The advance of a corps need not be more numerous than that of a brigade. Its essentials are the same. In front of everything an officer, or brevet on probation, with a sergeant and two men, all carrying their firearms ready for instant use. A chain of vedettes, a hundred yards apart for a mile back, making eighteen men. The main body of the advance then follows, about thirty strong, with a second chain of vedettes for a second mile, to the advanced guard proper, composed of the leading brigade with its battery.

By passing back signals the approach of the enemy can be transmitted along this line for two miles in less than two minutes, giving the main body time to prepare.

When anything suspicious appears, the officer in front should examine it with his glass. If it is only some scout of the enemy, he ought to be able with his three men to shoot or capture him. If a small party of the enemy is suddenly met, a bold front and vigorous charge will often impose on them and make them believe a heavy force is coming. A loud yell caught up by the vedettes will very often intimidate and deceive the enemy, even if in some force. The object of an advance is to find out the enemy and keep him from finding out anything about your own force; and therefore men of boldness, dash, and plenty of brass are the best for the permanent advance. The same spirits that are turbulent and troublesome in a column are the very ones to be useful in an advance.

The road being protected by the extreme advance, side roads must be supplied with their guards from the chain of vedettes. At every side road encountered a man should leave the chain, the first vedette taking a trot and riding out for about a quarter of a mile, or nearer if a sufficient view is commanded from such point to prevent surprise. The next man in the chain moves up, and the gap is filled by each successively, a man from the main advance supplying one more vedette. When the whole of the advance has passed, this man is relieved from the advance guard proper and then takes the post of the last vedette in the train.

Under this system, first introduced by General Morgan, C. S. A., a great deal of country is covered with very little labor, two miles ahead of the advanced guard. The employment of flankers and skirmishers, unless the enemy is known to be near, hardly pays for the consumption of horseflesh occasioned by constant riding over broken ground.

Forces likely to be dangerous to a cavalry corps must move on roads, and if two miles of road are occupied by a chain of vigilant vedettes, whose whole business is to look sharp, an enemy will find it impossible to approach very near the column without being seen. Under the chain system the least amount of galloping has to be done by each member of the advance. A hundred yards by each vedette at every cross-road completes the amount. The scouts, who ride in light saddles, are better able to act as flankers.

When the enemy makes his appearance in force not to be denied, the advance must halt and form up in skirmish 1 ne to detain him as long as possible. In such case the whole of the main advance, vedettes and all, must gallop to the front and spread out into the fields to check the enemy, yelling like devils,

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to make him believe them three times as numerous. This is the only time when rapid firing is advisable, as a great show with slender materials has to be made. Inside of twenty minutes relief is sure to come, and then the forward movement must be made in skirmish line with supports, in the regular style.

In countries infested with guerrillas or bushwhackers flankers will have to be used, as the annoyance caused by such men to a column is often serious. In such a country a chain of vedettes, at right angles to the line of march, about two hundred feet apart, to the distance of a mile on either flank, will scour the country pretty effectually. In woody country these flankers must be much nearer, and at such times a competent staff officer should take charge of each flank, with two or three orderlies to attend him.

In the case of men detailed for flanking duty, permission should be given them to deposit their grain-sacks and food-wallets with the caissons of the brigade battery as they go to the front. The work is so severe on the horses that they should be favored in every possible manner, and the men execute the duty infinitely better on horses not fagged out with heavy loads. When once a battle begins, and the general line is formed, no such favor can be shown, from the number of combatants involved; but in flanking duty, which often lasts a whole day, and does not occupy more than fifty men at the most liberal computation, the relief can be afforded with much advantage.

Under the system of advanced parties proposed, the rest of a cavalry column can move on independently, and without any formal advanced guard. The only precaution necessary will be that the first regiment of each brigade should be followed by the brigade battery. If the ground is firm as in summer time, the guns and train should march in the road by sections, while a column of fours of the regiments moves along the fields on each side. This plan, when practical, reduces the length of a column of fourteen thousand cavalry with all their baggage to about five miles, allowing every horse a space of five yards in column. This length even will appall a civilian; but to those who have seen the column of a single brigade stretch for over a mile, with its pack train, the reduction will be apparent. In ordinary column of fours, a brigade with a battery and pack train, will oc-

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cupy a length of twenty-two hundred yards; and a corps of nine such brigades, with ammunition and beadquarter trains, over thirteen miles. If the fields are not so soft as to be trodden into mud-holes, the march of a cavalry column on a raid should always be arranged in this manner. A general has his forces well in hand, every part of the column is instantly defensible. the men dismounting in fours if attacked suddenly, and the guns and train being quite safe behind a curtain of troops. But in winter campaigns or in early spring, when the fields are soft, such movements are impossible; and unless necessity is absolute. campaigning is much better left alone at such times. At least I cannot recall an instance during the war in which a "mud raid" proved itself worthy in its results of the terrible expenditure of horses occasioned by it. Only in the last death-throes of the Confederacy, when the overwhelming pressure of circumstances paralyzed their army, was a "mud raid" successful and even then the same objects would have been accomplished with less sacrifice had the move been deferred till the ground was dryer.

The advantages of shortening columns to the greatest extent are best realized when coming into action. A general with a column only five miles in length has the advantage of over one hour over him with a column of thirteen miles. The other cannot bring up half his men to the front, when the "short column general" has put his whole force into line of battle. The preponderance of force will be sufficient at the decisive moment to insure a success by defeating the enemy in detail. But in such cases the general of the corps must keep well to the front, and have first-class scouts, to be able to take the due advantage of time by knowing exactly where the enemy are.

REAR GUARD-RAIDS-PIONEERS.

In retreats, when forced back, the order of battle with covering skirmish lines, dismounted and mounted, alternating to check the pursuit, has been described in the first chapter. It is simply a retrograde battle, with every point stubbornly disputed.

In a retreat in face of the enemy, who merely follows in a corps of observation, the regular advanced party is transferred to

the rear and exercises the same duties on inverse principles. They retire slowly, halting to fight dismounted if pressed, taking every advantage of ground, and ought to be supported by the mounted skirmish line and a battery. By holding on in this manner they can often detain the enemy half a day, while the rest of the corps goes on at its leisure. A single brigade in this manner can easily cover a whole corps; but its commander must keep his eyes well open, and the division general ought to be with him with plenty of scouts. In returning from a successful raid this is particularly necessary, and on such occasions it will very often be found requisite to guard both front and rear with the brigade advanced parties, as that is the time usually selected by the enemy to intercept the raiders with heavy forces of infantry.

As raiding is the operation by which cavalry can be made most strategically important during a campaign, so it is also the most difficult operation to conduct with undeviating success, and by which to effect results commensurate in importance with the losses in horseflesh from forced marches, and in men and animals in the attempt to rejoin the army.

The close of a raid is its point of greatest danger. By celerity and secrecy the general may manage to escape the enemy and make his march outwardly. He may even cut his railroad, burn the depot he is after, and play the devil with the enemy's communications and supplies, but if he cannot rejoin the army in safety, all his work may be thrown away. If he has to cut his way through, the losses in men and horses will more than counterbalance the gains of the raid.

On his return then, it behooves a cavalry general to be even more wary and watchful than when he set out on his raid. His scouts must be on the alert, night and day, to find out where the enemy is and what forces are on the road to intercept him. He must keep his command well in hand, his columns as short and broad as the ground will admit, feeling his way with the far-reaching advance scouts and flankers. He should endeavor to accumulate three days' grain from his foraging parties to last his men through the final three days, when foraging will be no longer prudent or even possible. When the position of the enemy is ascertained, if his force is too heavy to be cut to pieces,

he must be deceived as to the direction of the march; and during the night the other flank must be passed.

It is impossible to give wooden rules for the guidance of a raiding general. Briefly, he must be ever vigilant and fertile in stratageaus, always ready to back out of a scrape without loss and as ready to fight his way in if he sees a good chance. General Sheridan was, of all others, the most entirely successful raider of the civil war. He did immense damage to the enemy on every occasion, and always managed to get back in perfect safety. His losses in horseflesh from hard marching were exceedingly heavy, but the desolate nature of the country through which he raided was principally to blame for this. Skinned and scraped by the passage of two armies, hither and thither, for three long years, the land could not furnish a single ear of corn in many places. In those parts of Virginia hitherto untouched we fared sumptuously.

- As a contrast in results to this model general's raids, the expeditions of Stoneman in 1863 and 1864, of Kilpatrick in December, 1863, of Wilson and Kautz on the left flank of Grant's army in 1864, are fruitful of lessons. Stoneman's first raid before Chancellorsville killed several hundred horses, cost an immense sum in lost equipment, and accomplished almost nothing. Transferred to the Southwest with Sherman, he was compelled to surrender with his whole force while on another raid. Kilpatrick's Richmond raid cost us the loss of Colonel Dahlgren and the annihilation of his column, and accomplished as little as Stoneman's. Wilson and Kautz were so roughly bandled on their return to the army, after a raid otherwise successful, that they lost all their guns, and their commands only escaped by scattering and coming in individually, as luck brought them, while more than half were captured. The difference between the commanders in question and Sheridan lay in one word, vigilance. Sheridan was never surprised when present with his army. He always knew where the enemy was, and preferred to surprise him. The other generals suffered all their losses from want of vigilance.

A cavalry general on a raid must be always awake, or at least he must take as little sleep as nature will permit. He must surround himself with pickets that stretch for miles, and keep his corps encamped in as small a space as possible. Woods are best for this purpose, on many accounts. They hide the number of troops, furnish fuel for fires, and hitching posts for horses. They are easily defensible in case of a surprise or attack, and by pushing out the pickets to the edge of the open ground the grand requirements of a perfect camp ground are fulfilled, viz., wood, water, and security. Water is almost invariably to be found in or near the woods, from their very nature. Security against attack is gained by felling a few trees on the flanks of the camp to entangle an enemy. Breastworks can be improvised in half an hour among woods. In the summer, by taking the precantion to encamp early, and put out fires after dark, a whole corps of cavalry may be buried in the woods without giving a sign of its presence.

On raids, as at all other times, a pioneer corps will be found very essential to the proper protection of a cavalry corps. Whether for taking down fences, throwing up breastworks, or making bridges, their services are invaluable. The practice during the war was to detail two men from each company in a regiment, each carrying an axe or spade, making twenty-four pioneers to each regiment, with a sergeant to command them. The cavalry corps would thus have a total of four hundred and sixty-eight pioneers, an ample force if used together to do anything requisite in mending roads, removing obstacles, or making bridges. If these pioneers follow brigade headquarters habitually, they will be found much more available than if left with their regiments. At night their only duties should be to pitch the headquarter and regimental mess-tents, and they should be excused from picket duty.

With regard to axes for the men to use in camping, etc., I am convinced that their issue and carriage would pay in the end. "
If the squad system is adopted, of sections of four to eat and sleep together, the system being enforced, number four of each set can carry an axe in a sling. It ought to be clearly understood that such axe belongs to the squad, and is to be carried in turn by each member. This allowance will be found to be ample, and will save much distress when circumstances compel the encampment in the open fields. One axe is worth a dozen hatchets to cut picket pins and firewood, and it is also enough for a squad

of four comrades accustomed to mess together. Its weight in a sling is not much, and is dismounted fighting the horse-holder carries it. In the late war axes were looked upon as personal property in many cases, and much selfishness was displayed in their use. In the squad system this is unknown. One man will hold the horses, one cut the pins and firewood, another carry them down to the horses, while the fourth makes the fire. The advantages of co-operation and division of labor are as apparent in the case of men as of officers. The disadvantages of solitary churlishness are as evident.

OUTPOSTS AND PICKET DUTY.

After the march comes the camp, after the camp the picket. So many volumes, good, bad, and indifferent, have been written on the subject of picket duty, that the man who attempts more on the subject runs the risk of repetition. Every modern cavalry book contains the same stereotyped directions for "grand guards pickets, and vedettes," with the same plate, representing a village, a wood, and a stream, with a chain of pickets around it. I do not propose to enter into any description which will require an elaborate map to display the author's (or his draughtsman's) skill. A description which is not clear without constant turning to a map is faulty, besides being useless to the majority of officers.

The most difficult circumstances under which a picket can be posted are those of a raid, especially towards the end of a successful one when exasperated enemies are nearing you hourly. The same pickets that, when with the main army, are only necessary in front of the corps, whose flanks are protected by other troops, must now be thrust out on all sides.

A corps of three divisions, under these circumstances, should be encamped in an equilateral triangle, and the reserve of the pickets stationed to cover the salient. Each brigade in turn should picket the front of its own division, and in the brigade alternate regiments should be sent on picket bodily. This plan works better than making small details from every regiment nightly. A regiment sent on picket bodily, works together better than a number of independent details. Three full regiments ought to picket the whole three fronts of a corps without any

diculty in a radius of a mile from the camp, a distance ample for safety.

At a distance of a hundred feet apart, a fair average distance, fifty men will picket a mile, and three hundred the whole circle of six miles. Three reliefs are necessary for the pickets, and a reserve of three hundred men will be left. I am counting a regiment at four hundred men, a very fair average campaign-

ing strength.

During the civil war there was much slackness on both sides in the matter of picket duty. As a general rule, especially when the army lay for any length of time in the same place, the pickets were too weak and too close in. I have known several disasters caused by the latter fault, notably so the surprise at Cedar Creek. If the pickets of the army had been twice as strong, and a mile out instead of a hundred yards, that surprise need never have taken place.

On another occasion, I remember the pickets of the Sixth New York Cavalry being driven in by a handful of guerrillas, and the camp ridden into, before any defense could be organized. The men were luckily old soldiers, and turned out of their huts (it was winter) in their shirts, driving off the enemy with their carbines, but the disaster need never have happened with proper pickets.

The directions in the outpost duty manuals, and other books of the same sort, recommend the placing of vedettes in pairs, and frequent patrols. I do not believe that during the whole civil war the vedettes were ever so posted, and the patrolling was by no means what it should have been. Weakness of numbers was the chief cause of the first neglect, condition of horses of the second. On both sides of the contest there was too much negligence, and the infantry pickets were notoriously slack.

After the surprise of Cedar Creek the pickets of Sheridan's army were pushed out much further, and with advantage, but the duty was still very carelessly performed. I remember once myself getting outside the line without knowing it, and being stopped by an officer on the road in charge of the picket post, who refused to let me through, as my pass had not been countersigned at division headquarters. Now it was in looking for these very division headquarters that I had lost my way in the

show and got outside the line. The sapient officer simply turned me back. If he had suspected me to be a spy, he should have detained me. Instead of this, he simply told me I must go back. I did no, walked round a wood, and flanked the post about a quarter of a mile further up. The enemy's scouts had just as little difficulty in penetrating and going back and forth, I make no doubt.

Two grand principles should be kept in sight to regulate the due performance of picket duty:

I. An enemy in force must follow the roads.

II. Scouts and spies go across country.

These two dangers have to be met properly by a good picket system.

In the first place, all the roads within a radius of a mile, leading to the camp, must be occupied by the full force of the picket reserves or regiments. The outside vedettes should be placed a good mile from the camp, and barricades erected, as an invariable rule, across all the roads a quarter of a mile back; and about midway between every two roads is the proper place for the picket posts. A barricade should also invariably be put up to shelter their front, the vedettes being warned of the proper path to take if driven to its shelter. A quarter of a mile further back again, and midway between its picket posts, lies the regiment or picket reserve, also fortified. The camp itself should be surrounded with a cordon of sentries, a hundred yards out, disamounted. With such a system of picket posts and reserves a corps may aleep in peace in any country, secure of plenty of time to form. A full mile of increasing resistance has to be passed over by an enemy before the camp can be reached. The strength of the reserve is a half mile from camp.

Between the roads the cordon of vedettes is drawn, a hundred feet apart, and the outposts are established, as economically as possible consistent with safety.

Now let us examine the way in which the duty should be done. In the ordinary picket systems we find too much adherence to red tape and routine. As our fathers did so do we, without applying common sense and experience to improve on the model according to ground. For instance, we find it laid down as a rule, in most books on the subject, that cavalry picket posts

should mount and remain mounted during the whole time that each relief is being put on. The amount of standing still under heavy loads, inflicted on the poor horses under this rule, is frightful to think of. No wonder that picket duty soon wears out cavalry horses. The practice of keeping all vedettes mounted, without exception, is also a matter of red tape and tradition. Officers are afraid to allow any other plan in the face of precedent.

Now the real fact is, that at night a man on foot is much more likely to be vigilant and quick of hearing than the same man mounted. If every cavalry vedette at night would hobble his horse, as we have recommended for scouts, and patrol his own beat in a fashion similar to a sentry, the picket line would be much harder to pass at night. The duties of a chain of vedettes at night are to stop scouts, spies, and guerrillas, and shoot them if possible. A man stealing about in the dark cannot be picked off so readily as a statuesque mounted vedette, sitting still for a target. The horse will take his rest well enough if the man is off his back; and his grain-bag had better be left at the post, if it is full and heavy, as also the ration wallet, till the last relief goes on in the morning.

As for keeping the picket post mounted and standing still, they are ten times as useful on foot in most cases. Standing to horse is infinitely preferable to mounting, on occasion of relieving vedettes. A horse is too valuable an animal to be used as a bench to put weights on. Every moment he is not in motion he should be rested, and standing still with a man on his back is as had as marching for a horse.

The vedette in the fields, etc., should have his horse near him, hobbled or hitched as the ground warrants, but capable in either case of being mounted instantly. He should patrol slowly and cautiously to his next neighbor, avoiding noise. The dull monotonous tread of an infantry sentinel is as far from the step of a dismounted cavalry vedette as can be. He should rather imitate the Indian, wary and noiseless, seeing and unseen.

The vedettes in the roads, behind their barriers, should be perfectly still. They can see a long distance ahead, and the instant anything comes in sight they should mount. Forces coming on roads are apt to be strong, and our vedettes must be prepured to fight or fly. The doubling of road vedettes, but of no others, is very advisable. Two men behind a good barricade can keep a number at bay in the dark. In case anything doubtful appears, one of them can either steal forward on foot to examine, or go back for a patrol.

In the case of field and wood vedettes, patrolling on foot answers most of the purposes of doubled vedettes, with half the number of men.

In the choice of vedette posts a wooden routine is not advisable. Straight lines, ignoring the conformation of the country, when woods and fences dictate a wavy line, are very poor policy. If the country is diversified with open fields and little patches of wood, vedettes should always leave their horses on the inside of the wood patches, while they themselves push through to the outer edge whence they command a view of the fields. If a fence occurs, or a stone wall, vedettes should steal along behind it, keeping a barrier between them and the enemy. Impassable obstacles, such as deep rivers, must be watched. If carelessly picketed, they are liable to be crossed in boats.

The picket posts should never unsaddle. One relief should also keep on the grain bags and ration wallets. The one that has last come off may remove these, except during the morning watch.

Surprises in force are always made in the morning watch: all pickets at that time should be fully saddled and packed and ready for duty. In the first watches, and up to three in the morning, the relief on duty and the one just come off can take off their grain and rations, which can be replaced in fifty seconds if they are laid in order behind the horses. In case of a night attack, the relief next on duty should mount at once, and be ready to succor the vedettes, to enable them to get their forage and rations; but as night attacks on cavalry pickets properly posted are impossibilities in point of success, the vedettes need not hurry back too soon. Night alarms generally arise from guerrilla incursions, or excitable imaginations of vedettes. If the latter are posted so as to have a good view, their imaginations will not mislead them; but if you put a cavalry vedette out in the middle of a field with a wood in his front, as I have seen

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scores of times, you offer a premium to such a man's imagination to play him tricks and excite false alarms.

The officer in charge of a picket post must be a man of experience. To put a young one in charge is to invite a surprise. Young officers should be put on as supernumeraries for some time before trusting them with a picket post under their orders.

All patrols should be sent from the picket reserve. The sergeant or corporal of the relief will do the patrolling from the picket posts, without needing a man with him. But strong patrols, consisting of an officer, a sergeant, and four or six men, will be sent out every hour from the picket reserve down the roads. These patrols should go out at least a quarter of a mile beyond the vedettes, unless they run into the enemy. After three o'clock they should be particularly watchful; and at that time the whole picket reserve should pack their saddles. The early part of the night they only keep saddled, patrols and all leaving grain and rations in the bivouac.

The picket reserves should be strongly posted, and command the probable avenue of approach for the enemy. A barricade or hasty breastwork should be thrown up in its front, by which a stubborn defense can be maintained.

In the matter of driving in pickets, these rules may with advantage be repeated. Small forces come by the fields, large ones by the roads. Night attacks are mere annoyances. Severe attacks come on about daybreak. These rules will hold good in almost every case, and especially in that of well-extended pickets. Rapid dashes can only be made down roads. Advances of large forces over broken ground are necessarily slow. To drive in a picket, rapidity is absolutely necessary. By barricading the roads much time will be gained, and a second line of defense on the level of the picket posts can be fallen back on.

At the first sign of a morning attack, the whole of the picket posts should mount, and gallop up to the line of vedettes, deploying as skirmishers. The picket reserves should also mount, and gallop up to thicken the line further. If the ground is thickly wooded in patches, a better defense can be made by dismounting, and pushing through to the other skirt of the woods, on foot. If forced to retire, the next line of defense must be held as obstin-

stely as possible; and as the successive reinforcements arrive and the distance to the main body decreases, the resistance will be more and more stubborn.

I do not believe it possible for pickets with a mile between them and the camp to be driven in with enough rapidity to cause a surprise. Under proper management, with dismounted vedettes patrolling to each other in wary silence, patrols striking out on all the roads, and barricades erected with the same invariable prudence that made the Romans fortify their camps every night, a cordon of pickets would be practically unassailable except by heavy force. That the horses would be less broken down needs no demonstration. The weariness suffered by cavalry horses standing mounted for two hours at a stretch, still further aggravated by the practice of mounting the whole picket post every time a relief goes on, brings many of them to the condemned corral. Picket duty is known as "very severe on horses," especially in winter. It need not be so if the vedettes dismount whenever they are at rest.

The system of camp guards, dismounted, inside the line of picket reserves, is very important. The length of the line is so small, that one-fifth of the number of men on picket suffice to guard it; and if a scout of the enemy should succeed in running the picket line, he will fail to run the closer line of sentries. It was this inside line of guards that saved the Sixth New York Cavalry from a much worse surprise on the occasion before mentioned. The inside sentry gave the alarm and afforded the camp nearly three minutes to turn out from the time the first dash was made.

Patrols on the roads and frequent visits of the corporal of the relief are also very necessary, and to be insisted upon. They keep the vedettes up to their work, prevent them from being lonely, and encourage them generally. A vedette on post has much to discourage him, especially in bad weather, and needs all the support that can be given to him. The frequent visits induce a feeling of companionship in the minds of men very sensitive to moral influence. Sleepy heads are kept awake better, also, by frequent patrols.

The patrols which go outside the lines must have some signal arranged with the road vedettes to indicate their return, to avoid

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useless delay. Watchwords and countersigns are good in their way, but they are no real safeguard; a countersign has many a time been overheard by concealed enemies, who have availed themselves of its agis to enter the lines.

In this matter, as in others, common sense must rule instead of precedent. The problem is, to enable a vedette to know friends from enemies. When a patrol passes out he should count it carefully, and notice the color of its horses. The officer of the patrol should speak to him to let him know his voice. Some inaudible signal, such as making peculiar signs with one or both arms, or sabre, or hat, is preferable to countersigns if the night is not too dark. As petrols should never return except by the roads, and as road vedettes are doubled, one of them can go forward to examine any party approaching if it claims to be a patrol. But if a vedette knows perfectly well who is coming, he should not be encouraged to a stolid rule of action, which embarrasses friends and does not keep out enemies. Such a thing as the commanding general getting outside the lines, and not permitted to pass in by a stupid sentry who knew him perfectly well all the time, ought not to happen under the reign of common sense. Such instances have happened, and they savor of the martinet days of Frederick the Great, which ought now to be forgotten. If a vedette is really in doubt, he should fire off one barrel of his revolver, which will bring up the corporal. In these days of repeating arms the thing is easy enough. If he really suspects the stranger, he should detain him at all hazards, covering him with his carbine. The system of turning a man back has nothing to recommend it. Suspicious persons should be detained. Your own people, if you know them, ought to go through, countersign or no countersign.

A shot should always call out the corporal or sergeant of the relief. There is no necessity to turn out the whole post mounted. If the enemy is coming in force, he is sure to make the other vedettes fire, and as the corporal gallops off you will soon hear more noise. But if two or more shots are heard, the whole post should go to the front at once to support the line, for even a small squad of guerrillas may do much damage. In the matter of rousing a picket post everything must be left to an

officer's discretion, but he must be careful not to hesitate beyond two shots coming together.

Wanton vedettes, from a pure spirit of mischief, will sometimes fire to alarm a camp when they have seen nothing. Such men must be watched by the corporals, and if the offense can be proved on them, which is a very difficult matter, they ought to be made to run the gauntlet of the whole regiment with switches, as in the Russian service. The offense deserves a penalty as severe as sleeping on picket, only short of death.

FOREST PICKETING-CROSSING RIVERS.

I have thus far treated of pickets on ordinary ground interspersed with small patches of woods and open fields. This is the general character of the more thickly settled States. In Canada, however, as in the Southern States, there exist very extensive woods full of tangled underbrush, in which oftentimes pickets have to be thrown out.

In this species of country, more than any other, surprises must be guarded against. Mounted vedettes are almost useless in such places. An enemy can approach perfectly unseen to within a hundred yards of the picket line, and the sense of hearing is all that can be relied on. A wooden-headed martinet putting out mounted vedettes in such a place invites their capture and his own surprise. Dismounted men are the only means of successfully picketing such a place. A regiment sent on picket in a dense forest must be treated as a dismounted skirmish line. Its horses must be all left with the picket reserve, who will see them fed by the stable guard. Around this picket reserve a strong breastwork must be thrown, a thing easily done in our dense pine woods.

Every picket post must be fortified in the same way, and its front obstructed by fallen trees, etc. The line of vedettes must be also thoroughly protected. A very few trees felled in a line, the underbrush cut down behind them and thrown in front, will delay an approaching enemy. A path should be cut behind each vedette by which he can retreat on the picket post if attacked; and a second path should run along the picket line behind the obstacles, to be patrolled on.

Treated in this way, a camp in a forest can be made perfectly impregnable in a very short time. The approaches are very easily obstructed, and that done, a quarter of a mile is a sufficient distance for the line of vedettes in woods. An enemy can be detained in forests for at least six times as long as in open ground. But the approaches must be obstructed in order to make such a line safe.

To throw out a perfect picket line in a dense forest requires daylight. The whole regiment must be dismounted in the place chosen for the picket reserve. Pioneers and all must be sent forward to the vedette line and put to felling trees. As a hundred and twelve axes are available, this line ought to be cleared in short order, the trees felled in a straight line about fifty feet apart or less if necessary, the underbrush behind thrown over, and the paths cut. Between the paths the underbrush should be left and further entangled by the cuttings from those paths.

The vedette line once established, the individual posts are left to fortify themselves, while the rest go back to the reserve.

The principles of forest picketing are modifications of ordinary picketing. The roads must be patrolled as far as possible. As so many men are not needed for vedettes, more are left for patrols. Forest patrols should go out a mile at least. To prevent surprise and capture by lurking parties of the enemy, they should be about twenty strong and mounted. At every hundred yards a man should be left to watch the woods. By this means a chain is formed sufficient to warn the patrol of any parties threatening its rear or flank. No one can stir in a wood without being heard. If the road vedette hears a movement, he should ride into the bushes to examine into the cause, finger on trigger. A shot will be the signal for the patrol to gallop back, strengthening as it goes.

Patrols adopting this precaution are safe from surprise. The long line of vedettes becomes a living telegraph, as in the case of the "advance." Silent signals can be arranged, in case the night is not too dark, and intelligence communicated from front to rear with marvelous rapidity.

An enemy in a forest must come by the roads. To advance and attack, he will spread out on either flank, but will not deploy

outside of a mile off. The morning patrols are certain to run into him if he is coming.

Reserves and posts ought to be midway between roads, and their form of breastwork ought to be a redan or lunette-in other words, wedge-shaped, the sides fronting the roads diagonally. This will be perpendicular to the direction of the probable attack from a skirmish line enfilading the road.

Paths from the picket posts to the reserves must be cut, to enable the former to fall back. They should be zigzag, to perplex the enemy and detain him under fire.

Thus we have noticed the most important modification of American outpost duty, forest picketing; and the only thing left to notice in raiding is the way to cross rivers.

Any cavalry general worthy of the name ought to be able to cross without pontoons any river in America not navigable for ships. A river like the Hudson or James, the Ohio or Mississippi, may be allowed to stop him, if he cannot seize boats enough; but ordinary rivers not over a hundred yards broad ought to be crossed without difficulty, without poutoons. A pontoon train is a luxury, very pleasant to have, but a fearful nuisance to guard.

All horses can swim. They ought to be sent across in that way. The men who can swim should go with them. The only difficulty is to keep ammunition dry. This can be arranged very easily in this manner: All army wagons and carts ought to be capable of being turned into boats at a moment's notice. The common Conestoga wagon looks just like a pontoon. Make it water-tight and high-sided, and the whole difficulty is solved. On arriving at a river, the wagons are unloaded, lifted off the axles, and there is a large boat in each. Baggage wagons, if large and capacious, and lightly loaded, as they should be, will float without unloading. Ammunition boxes can be unloaded in three minutes by a string of men from the ammunition train.

Soldiers fasten enough lassos together to make a line across the stream. A volunteer swims across with his horse, unarmed, or with a sabre only, and covered by the rest if the enemy are on the other bank. A flying bridge is instantly formed with an empty wagon, in which five or six men cross, armed, and leading their horses, pulled by the first man who crossed. The instant

they are across they mount and attack the enemy. A second line should be sent across in the boat by which they came, and a second flying bridge crosses while the first is coming back. In this way enough men can be supplied, covered by artillery and sharpshooters, to force a river, in presence of any enemy not too formidable in numbers.

If the crossing is unopposed, it can be made much faster. Fifty or a hundred men can cross at a time by throwing arms and ammunition into the boat while they are towed alongside. The ammunition chests go over a quarter of a load at a time. The artillery caissons are unloaded and their contents ferried over in like manner. The guns and caissons are dragged across the bottom of the river. Their prolonges are fastened together and made into a long line to reach to the other side of the river. This is manned by a sufficient number of men, and the whole, gun, limber, and all, whisked over the bottom in a minute. The prolonges of a battery are ample to cross any ordinary river in this manner, and cavalry guns, caissons, and baggage may be all crossing together. By means of a little practice, a whole corps of cavalry could be taken across any ordinary stream, not fordable, in this manner in one hour.

The wagons and carts could be unloaded in ten minutes by men used to the operation. In ten minutes more, or twenty at most, twenty-one wagon boats would be disposable for flying bridges. Towed by these, a thousand men could cross at a time, and take only three minutes to cross. Thus in sixty minutes from reaching the stream, ten thousand men would be across. The loaded carts light enough to float are to be towed across at the same time, and the artillery can be dragged over without waiting. As the men do not get into the boats, but tow outside, the small weight of their arms will not prevent a load of ammunition from going over every trip. All working together, and the wagons made fit for boats, the whole corps can cross in a dozen trips.

I have not mentioned the carts. They might be used, but are almost too small to carry much. They, as well as the wagons, might be made capable of floating an immense weight without unloading, if they were furnished with large bags of vulcanized india-rubber, to be fastened around their bodies, and inflated on occasion. Emigrant wagons crossing rivers are often floated over by lashing empty barrels round them in the same manner. But such bags would require greater care than most teamsters would afford them, to keep them from holes, and wagon boats are indestructible. The inconveniences of the plan are only found in loading wagons. The absence of a movable tailboard compels some considerable lifting in loading them; otherwise the plan is a good one.

In very broad rivers the wagon and cart bodies may be used as pontoons. Twenty-one wagons and forty-five carts will make a pontoon bridge five hundred and twenty-eight feet long. But the delay would be greater than under the flying bridge plan, from the necessity of unloading everything. After guns and caissons have been dragged through, the guns must of course be sponged and dried, as also the caiseon chests.

To cross small deep rivers, trees should be cut down and made into bridges. A whole corps of cavalry with plenty of axes and lasso harness can bring down enough trees to make a good-sized bridge in half an hour; and if wood is plentiful enough, this is the quickest and safest manner in which a heavy column can cross a river. But there must be an axe in every squad for this; and there ought to be.

I have now run rapidly over the principal lessons of the decade in regard to the proper employment of cavalry. In Europe, the military writers appear to be totally ignorant of all but the past. If we had been as much fettered by tradition as they, our cavalry would be as useless as theirs. In all the European wars since 1855 the cavalry has done absolutely nothing. In the Crimea it was sacrificed; in 1859 it stood a silent spectator of Solferino and Magneta; in 1866 it accomplished almost nothing. except in a few sabre and lance charges in small numbers. On our side of the Atlantic it speedily became the right hand of victory.

I have traced some of the causes and systems by which it became so valuable, avoiding book-learning, and quoting from experience in the field wherever available. I have given reasons and suggestions only.

NOTES ON CAVALRY RAIDS AND PATROLS DURING THE RUSSO-JAPANESE WAR.

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In venturing to present to the readers of the Cavalry Journal the following notes dealing with cavalry operations during the late conflict in Manchuria, the writer is reminded of the good old German proverb, "Schuster, bleib bei deinem Leister," which, being freely interpreted, means, "mind your own business." An engineer officer discussing cavalry questions is certainly far afield, but the thought that certain scraps of information which came under the writer's observation while in the field might interest cavalry officers, more especially the younger generation, has emboldened him to "speak out in meeting," even at the risk of being considered officious.

As is well known, the results of cavalry operations on both sides in the Russo-Japanese war were distinctly disappointing, notwithstanding the favorable terrain and abundant opportunities. On the part of the Japanese the reason for this condition of affairs is not difficult to find and was unquestionably due to the painful deficiency in numbers of their cavalry arm.

An army whose cavalry contingent scarcely amounted to 2 per cent of its combatant strength could hardly expect to make much of a showing in cavalry operations.

On the part of the Russians, deficiency in numbers can not be the plea in extenuation of the indifferent success of their cavalry.

To defective training and the failure to appreciate the true functions of cavalry more than to any other reasons must be ascribed the failure of the Russian cavalry to reap the advantage offered by its own numerical strength and the weakness of the Japanese cavalry.

Due to the miserable roads of Manchuria, the single line of

railroad from Port Arthur to Harbin became of vital importance to both combatants and influenced their operations to a pronounced degree, both armies being, almost of a necessity, tied to the railway line for purposes of supply. In such a situation a well trained and well handled cavalry should have and would have found its opportunities for inflicting serious damages upon an enemy. That both Russian and Japanese appreciated the situation is shown by their attempts to reach and damage the railway in the rear of their adversary's line, but these attempts were, in all cases, rewarded with but little success.

Cavalry raids, in the sense understood by American officers, were out of the question for the Japanese owing to their weakness in cavalry.

The Russians, however, undertook several extensive raids during the war, and some of the more important of these will

now be briefly described.

Amongst the earliest of the Russian raids is that of Madrilow with a regiment of Cossacks against the line of communications of the first Japanese army in Korea. Starting from Liaoyang and crossing the headwaters of the Yalu, Madrilow proceeded against Anju via Chosan and Kai-chon. Anju was an important etape station on the Japanese line of communications and was undefended when Madrilow made his appearance on May 10, 1904.

Instead of proceeding to attack with decision and promptness, Madrilow commenced to reconnoiter, thus giving the etape commandant time to dispose of his small station force and some Korean coolies, impressed for the purpose, on the walls of the town, with orders to fire their guns and to make as much noise as possible. The ruse appears to have been successful in delaying Madrilow still longer until the arrival of a detachment of Japanese infantry, which effectually put an end to all hostile operations on the part of the Russian cavalry, which was driven off with some loss without having accomplished a single useful object and having its long, hard ride for nothing.

Probably the most important raid of the Russians during the entire war was that of Mitschenko, in January, 1905, having for its object the interruption of the Japanese rail communications and the delay of General Nogi's army in its movement north from Port Arthur.

General Mitschenko's cavalry division consisted of six regiments of Cossacks with two H. A. batteries and was formed up to the west of Mukden. The news of the fall of Port Arthur reached the Russian army January 5, 1905, and on January 8 General Mitschenko received orders to cut the railway for the purpose of hindering the arrival of General Nogi's army. Starting south the same day with a front of eight kilometers in three columns of two regiments each, the left column directed its march on the Chinese town of Neuchang, while the two other columns, with the same objective in view, moved further to the west and crossed the Liao river on the ice below the junction of the Taitzu and Hun rivers.

The raid had been preceded by a strong officers' patrol, which reached and cut the railway about ten kilometers north of Haicheng on January 1, bringing back reports of the Japanese dispositions, but at the same time causing the latter to adopt defensive measures, which took the form of flying columns of about one company of infantry, which patrolled both sides of the railway.

On January 9 Mitschenko gobbled up a Japanese transport column, and on the 10th the left column collided with one of the Japanese patrols. By this time the alarm had been spread and the Japanese were on the alert and hurrying up reinforcements to the threatened points.

Instead of pushing boldly on to his objective, Mitschenko's columns permitted themselves to be delayed by engaging in village fights with small Japanese detachments, notwithstanding which the Russians eventually succeeded, on January 12, in blowing up a small bridge at Ta-shi-chiao and in cutting the rails south of Haicheng. By this time the country was filling up with strong Japanese detachments, which were being dispatched by train south from Liaoyang. Realizing that his situation was growing precarious, Mitschenko started to withdraw the night of January 12-13, and on the 14th succeeded in reassembling his command on the right bank of the Liaho. On the 17th he reached the Russian lines, having lost 39 officers and 303 men killed and wounded. His operations undoubtedly caused the

Japanese some anxiety, but the material results of the raid were small.

The failure of the Russians to stick to their main objective and allowing themselves to be distracted by petty affairs on the advance are sufficient explanations for the poor results of the raid.

An excellent account of this raid may be obtained in the Militar Wochenblatt, Berlin, for July 1, 1905, authorship not given, but bearing the earmarks of having been written by a man who knows his business.

During February, 1905, the Russians undertook another raid with a large cavalry force, one regiment of which succeeded in reaching and cutting the railway line at about five kilometers south of Haicheng on February 18. The damage accomplished was insignificant.

During May, 1905, General Mitschenko undertook another raid with a large force, estimated by the Japanese at 7,000, around the left flank of the Japanese position. Starting from Liaoyang-wo-peng, Mitschenko proceeded south as far as Sinmintun and Shih-fo su on the Liao river. As in the raid of January preceding, the cavalry advanced in three columns, sending out strong patrols from the left flank column to feel the Japanese positions. The raid was met on the part of the Japanese by the Etappen troops on the line of communications and by one of the cavalry brigades. Several skirmishes took place, but no serious fighting, the Russians apparently seeking to avoid conclusions and generally keeping away from villages. The raid lasted seven days, during which the Russian cavalry covered about 130 miles. The net results of this raid were the destruction of two Japanese field hospitals in rear o their left flank and the raiding of two Chinese cart columns carrying supplies for the Japanese. One of the latter contained stores for the French mission priest in Fakumen, who was the chief sufferer of the Russian movement.

During 1905 General Mitschenko again made preparations for a raid and commenced assembling his forces at Liao-yang-wo-peng for this purpose. Hearing of this, the Japanese made preparations to anticipate Mitschenko and by a carefully planned night march with a brigade of the VII Division in two columns

made a determined attack on both flanks of Liao-yang-wo-peng just at dawn and most effectually broke up the Russian preparations, besides inflicting no inconsiderable loss. This night attack was an exceedingly well managed and brilliant affair, and, as put by a staff officer, was designed to discourage Mitschenko and also give some of the newer Japanese levies a chance to smell powder.

As already stated, the weakness of the Japanese in cavalry precluded anything in the nature of a large raid. It should not be understood, however, that the Japanese cavalry was idle or even a negligible quantity during the war.

While a more or less Fabian policy was imposed on the Japanese cavalry by the condition of things, the latter nevertheless displayed great ability and considerable activity in keeping the Russians stirred up. With the especial object of harassing the Russian communications, there were organized two independent reconnoitering patrols, composed of selected riders and horses, which were employed in making long rides around the Russian flanks and attacking the railroad well to the rear. The strength of these detachments was two squadrons each, amounting, in effect, to strong officers' patrols.

The writer was fortunate enough to secure several accounts of Japanese cavalry patrols by participating officers and the following will serve to reveal their general character. The accounts are given substantially in the words of the relators:

STORY OF PATROL No. 1.

This story was told by Lieut. _____, of the _______ Regiment, who commanded the patrol and who furnished the map, which he made himself. This young officer had but four and one-half years' service.

On January 15 he left Sandepu with Tour non-commissioned officers and 45 privates, including three shoeing smiths, with orders to reconnoiter the enemy's rear, destroy the railroad in the direction of the Sungari and to carry out any other undertaking for which opportunity offered. The patrol carried 500 rounds of ammunition, six days' reserve rations, four slabs of explosive, a set of spare horseshoes and 36 frost nails per man. Two blankets, one for horse and one for man, were also carried. The load was a heavy one, but the horses stood it well. As they were

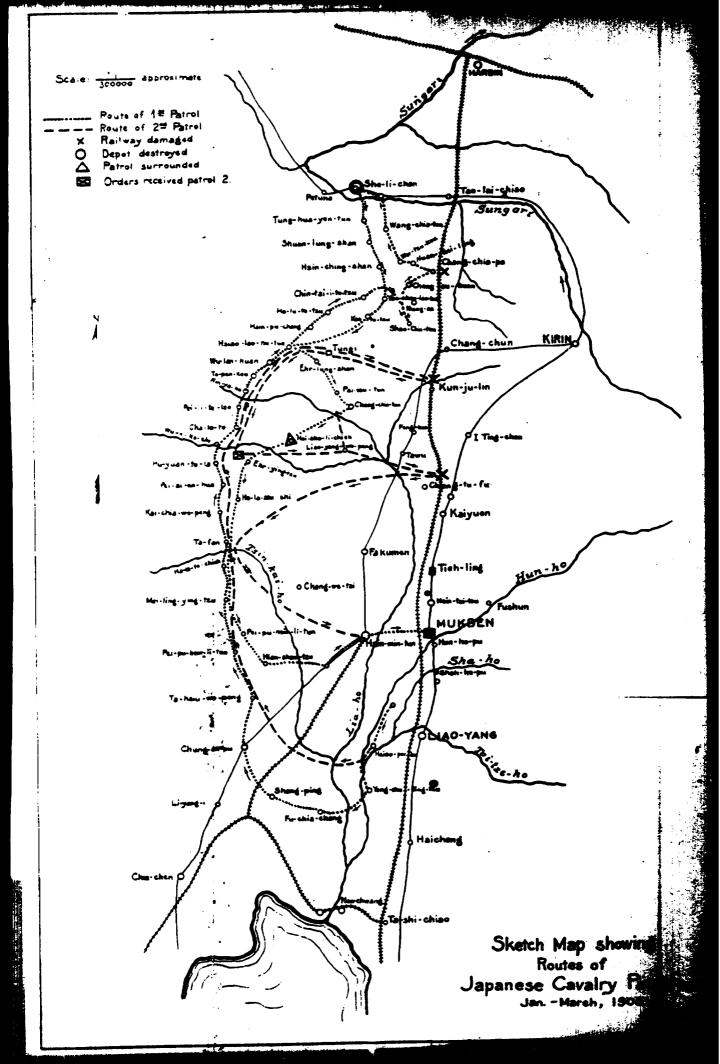
going through Mongolia, where horses were plentiful, they took no spare horses.

Proceeding westward, they reached Hsiao-pei-ho and struck the tail of Mitschenko's column returning from its raid and were compelled to make a considerable detour to the south. The route through Mongolia is shown on the accompanying map. Finding all the bridges between Chang-chun-fu and the Sungari too well guarded, he selected a point on the line about midway and, posting two groups of three men each at the ends of a section onehalf mile long, he divided the remainder of his men into four groups, three to prepare mines and the fourth to cut the telegraph lines. Two of the mines were successfully exploded. Just as the work was completed a patrol of 50 Russians appeared and he hastily escaped, taking a northerly direction. Learning through Chinese spies of the existence of a Russian supply depot at Sheli-chan, near Petuna, he shaped his course for this place. Approaching under cover of darkness with ten men, they surprised the sentry before he could give the alarm and then surrounding the huts in which the guard were quartered they threw fuzed slabs of explosive through the windows, killing and wounding seventeen and capturing two. They then set fire to the stacks and buildings and got away in safety just as two squadrons of Russians were coming up.

At Hsiao-lao-hu-t'un, finding there were no pursuers and having apparently shaken off all Russians, they turned in towards Cheng-chia-tun, with the intention of again attempting to cut the railway, but found everything too well guarded and were compelled to retreat.

At Hei-sha-li-chieh 300 Russian cavalry came up and surrounded them. They thought it was all up with them, but after one-half hour's fighting the Russians drew off. Mounting quickly he fell back five miles, the Russians pursuing. Coming to a favorable hill, he made a stand, but the Russians declined to close. Mounting again quickly, he escaped and without further serious incident rejoined the army via Sinmintun and Mukden on March 17, having been absent 62 days and having ridden 1,160 miles.

The patrol lost one non-commissioned officer killed and seven men killed and wounded. Two privates had been dispatched back with reports on the way out, so that the patrol returned with



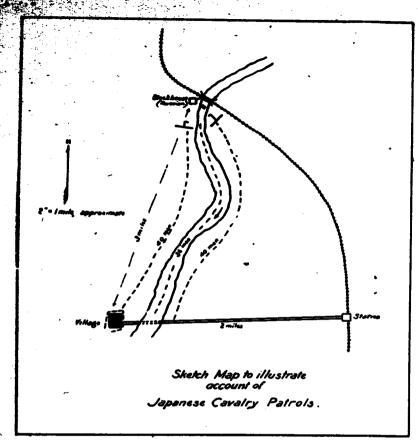
its commanding officer, three non-commissioned officers and 36 privates. Of the original horses 41 were brought back. Two animals were slightly lame and three sore backs developed, but all were cured en route. The two prisoners were brought back on Mongolian ponies. The cold was intense, falling to 22 below zero.

The practice of the patrols was to ride at night whenever there was the least danger and to quarter in villages during the day. Food for men and horses was found in abundance in the country. The men wore their winter coats, sheepskin vests, felt boots and fur ear covers.

STORY OF PATROL No. 2.

The story of this patrol was told by Lieut. ———, an officer of three years' service and a participant.

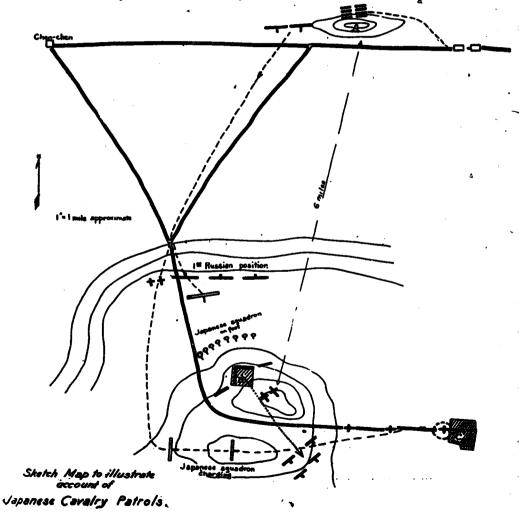
On February 8 they reached village "A" at midnight (see sketch) and prepared to attack the railroad bridge. Leaving their horses in the village with thirty men as guard with orders to hold it to the last extremity, the remainder of the force was divided into three groups, as follows: Forty men to proceed up the left bank, forty men up the right bank and an explosive party of thirty-six men in two sections along the stream bed. The night was dark and snow falling and the exact location of the bridge and station not known. Fortunately a train coming along and halting at the station made clear the lay of the land. The



left bank party reached the bridge and met four Cossacks, one of whom had a bell to his horse. These were all killed. The block house then opened fire, but was attacked simultaneously by the right bank party. While the fight with the block house was going on, the explosive party reached the bluff "B," where they were out of fire and prepared their mines. Six charges, three on each side of a pier, were laid and fired, with successful results. The bridge consisted of two spans of twenty meters each. The fight at the block house was quite severe, the Japanese even grasping the muzzles of the Russian rifles as they were put through the loopholes. One Japanese officer and several men were killed.

The village was not disturbed during the operations, and, after an absence of three hours, the attacking party returned and made off for Tungi, which was reached February 11.

On February 14 the patrol started back for home. Fifteen miles west of Tungi the patrol encountered a Russian force of three squadrons and two guns. The Russians opened fire at 4,500 yards and the Japanese retired behind hill "A" (see sketch), where they observed the enemy.



As the Russians made no move, the Japanese finally moved out and advanced against them, whereupon the Russians withdrew towards village "B," being followed by the Japanese. The Russians occupied village "B" and hill east therefrom, posting their two guns as shown in sketch. The Japanese engaged the Russians in the village with one squadron dismounted and moved their other squadron around by the Russians left flank for the purpose of threatening the guns. The Russians thereupon commenced to fall back and were charged in flank by the mounted squadron, which dispersed them and pursued along road to village "C," capturing one gun and wagon at entrance of village.

The Russians lost fifty killed and wounded. The Japanese loss was also considerable.

The Japanese halted for the night at Chenchen (near Wulan-huan) and started for home next day. On March 5 at a point not far from Ehr-ying-tzu a message, dated February 18, was received, informing the patrol that the battle of Mukden had commenced and for the patrol to endeavor to cut the railroad. Lieut.——'s squadron, with seventy men, was accordingly directed on Liao-yang-wo-peng, where it was divided, Lieut.—— with a detachment making for Chang-tu-fu. At Liao-yang-wo-peng a Russian intendance officer engaged in making requisitions was captured. Crossing the Liao, a Russian convoy of sixty wagons was struck and destroyed. All bridges were found to be strongly guarded and the attempt on the line at Chang-tu-fu resulted in only slight damage, with considerable loss to the Japanese. The patrols returned to Sinmintun March 29.

STORY OF PATROL No. 3.

On February 4 he was ordered to reconnoiter the Russian rear in front of Mukden and to ascertain how far the railway extended in the direction of Fushun and what was going on there. With one non-commissioned officer and two privates be left Hsiao-pei-ho and crossed the Liao, avoiding Sinmintun. He crossed the railroad south of Sinmintun at night and turning north reached San-mien-cheng February 15. Here he sent back

one man with result of his observation to this point. Recrossing the Liao at Shih-fo-su, he encountered many difficulties, as the country was swarming with Russians. He succeeded, however, in reconnoitering the river by Chu-chu-shan as far as Nantaitzu.

His intention to reach Tiek-ling was frustrated so he decided to cross over by Ku-chia-tzu (later 9th Division Headquarters) and to cross the railroad at Hein-tai-tzu, fifteen miles south of Tieh-ling. On the night of February 16 he crossed the railroad and on February 17 reached Lieu-tai-wan, about five miles northwest of Fushun. He reconnoitered for twenty-four hours and having gained his information, withdrew by different route to Hsin tai-tzu, crossing the railroad on the night of February 19 and reaching the Liao near Tao-wo-tsui, whence he proceeded to Hsiao-pei-ho, where he arrived February 28.

He had many narrow escapes from capture, really death, for he remarked that he would never be taken alive. The Chinese proved friendy and rendered every possible assistance and it may safely be inferred that without such assistance his feat would have been impossible.

Small cavalry affairs of the character described obviously could not bring about any serious material harm to the Russian line of communications. They were, however, not without important consequences, for, occurring at the time they did, just prior to the battle of Mukden, they influenced General Kuropatkin sufficiently to draw heavily on his right wing cavalry for protection of his rear. The absence of this cavalry was not without its influence on the battle of Mukden as it is reasonable to suppose that General Nogi's turning movement would not, otherwise, have gone so smoothly.

THE FRENCH SOCIETY FOR ADVANCING THE BREEDING OF ARMY HORSES.

THE third annual meeting of the Society was held this year at Saumur and seems to have been a success. One hundred and seventy horses were entered and III appeared. Most of them showed considerable quality, a fair per cent. were high class horses such as we are entirely unaccustomed to see in our army, but which we associate rather with the hunting field and men who ride to hounds. This is the class of horses which the French remount officer has in his mind mind when he buys for the government. He does not always get him. Sometimes, when found, the price is too high and generally he is not to be had except in a very small proportion. But it is always something that the standard of these buyers is not only high, but accurate in its response to the true type of useful mount.

These military horse shows are a benefit not only to the horse raisers, but likewise to the judges—so often remount officers—and to all the men of the mounted arms who can attend them. It is not sufficient for these officers to know that the ideal cavalry horse should have strong quarters and back, courage, bottom and handiness; he must constantly see and frequently ride such animals, if his standard is to be of any use to the service at large.

The Society to encourage the raising of army horses is only three years old. It is a voluntary organization composed of horse lovers, horse raisers, army officers and patriotic men who wish to help their country. Each member generally pays four dollars a year, some much more. From the sum thus accumulated prizes are given for horses raised in France and answering most closely to military requirements. Shows are held annually in six different towns in France, in the horse-raising districts. The judges are the most eminent horsemen, civil and military

in the country, and a horse awarded a prize by one of these juries finds his market value greatly increased thereby.

When a horse is adjudged a prize, part of the money goes to the owner (75 to 80 per cent) and the rest to the owner of the horse's dam. The prizes range from \$300 to \$30 and they are very numerous in each class. For example, in the class of 15½ hands and above, thirty-seven horses were entered; fifteen received prizes and two honorable mentions. The first prize was \$200, of which \$160 to the owner and \$40 to the man who owned the colt when born. In the medium and heavy weight class there were thirty entries and eighteen prizes from \$300 down, and four mentions.

The money is distributed in small prizes to encourage as many owners as possible to exhibit. The names and addresses of the owners and raisers and the names of the sires are all widely published, and this serves as a valuable advertisement to those concerned, besides being an immense personal satisfaction.

The total money value of the prizes at Saumur was \$7,500. There were one hundred and eleven horses brought to the show; eighty received prizes, the largest prize being \$300, the smallest \$30.

The horses presented competed in 6 classes:

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•	Entries.
1st. Three year olds, between 15 hands 1 inch and 2½ inches.	80
2nd. Three year olds, 15 hands 3 inches or over-	
3rd. Anglo-Arabs, three years old.	28
4th. Horses from 4 to 6 years old, medium weights (fit for dragoons)	31
5th. The same, heavy weights (fit for cuirassiers).	
6th. Anglo-Arabs, from 4 to 6 years old.	17
The judges went over each animal with infinite	care and
judging was for that reason uninteresting to the s	pectators,
ough satisfactory to the owners. After watching the	
ee gaits, each judge rode the horses selected as prob	
m. This most took two and one half full days. On the	a leet dev

after the other prizes had been awarded, there were tests to decide aptitude for the gallop, to a certain extent races over a short course. Eight prizes, amounting to \$300, were given for this test. Then, tests over obstacles were begun, with \$600 in prizes. In all these tests the Anglo-Arabs competed in a class by themselves.

No horse was obliged to compete in the galloping and obstacle tests, and his not doing so did not prejudice his chance of getting a purse for conformation and gaits in the ring.

Proprietors had to pay the freight on their animals going to Saumur, but the return journey was paid by the Society. Horses were boarded by the Society at eighty cents a day for ordinary stalls and \$1.00 a day for box stalls.

It can be understood that the prizes do not offer the sole inducement to owners to send horses to these shows. A prize winner—especially amongst the first—stands a good chance of selling his stock at a bigger price than if the horse had not been shown. In the first place, he has been examined and pronounced upon by an impartial military veterinary, and he has been judged and ridden by officers having the highest reputation in the matter of horseflesh; so that a buyer knows what he is getting and is willing to pay for this assurance. After the show was over, five of the horses, for example, were sold to officers for prices from \$360 to \$600. Several owners were offered \$1,000 and over for their horses. Others of these horses will undoubtedly be bought by the remount, when the next buying season comes around and the allotments have been made.

As is already known, the War Department decides each year on a certain average price to be paid for horses destined for the various army services; Congress is informed of the number needed and the price to be paid, and the appropriation bill carries the requisite figure.

Officers who go out to buy for the government know that they can pay, say an average of \$200 for cuirassier horses, \$175 for dragoon horses and \$150 for light cavalry horses. But they manage to buy many suitable mounts for less than the average price, and the money thus gained is used to buy superior horses at \$300, \$400 and \$500. Then, again, a lump sum is appropriated each year to encourage French breeders to raise a

type of horses suitable for cavalry. This sum constitutes really premium money and is allotted to remount officers to award to the best horses offered by raisers to army buyers. It enables them to purchase really superior animals, the get of French stallions, at prices above the average government price, and it stimulates small farmers to breed their mares to first class saddle stallions.

A list of twenty-five horses adjudged these prizes at Caen (Normandy) last year shows that these horses were bought for the government at prices varying from \$500 to \$270, the "premium" part of this price running from \$160 to \$20.

Now, horses which were judged at Saumur and got a prize from the Society for Encouragement may also be adjudged one of the remount prizes and be bought for the army, so that the owner estimates his profit at a pretty high figure, all told.

These arrangements all serve to advertise the advantage which accrues to the farmer who raises the type of horse sought for the cavalry service. It increases the number of horses raised for this purpose and improves the saddle stock of the country.

Our service seems already fully alive to the fact that both its officers and men are worse mounted than is the case in other great nations, and efforts are being made in every direction to correct this condition. It, therefore, would seem of most interest to give here the reasons which led to the formation of this "Society to Encourage the Raising of Cavalry Horses" and the ideas which it stands for and seeks to propagate.

When we realize (and every American traveler who is a judge of a horse does realize) how much better are the troop horses in the English, French, German or Italian armies than in our own, and when we think how infinitely better mounted their officers are than our own, though their incomes from all sources are unquestionably much smaller, we are naturally surprised that a society such as the one now described should be necessary or could thrive. That it was considered necessary, is greatly to the honor and patriotic foresight of the gentlemen who organized it.

The horses which the most casual eye observes in a French cavalry regiment are so superior in saddle conformation and in quality to those to be seen in one of our regiments, that it seems surprising to find any dissatisfaction with what we would con-

causes contribute to this dissatisfaction, or rather to this determination to agitate and work for something better. In the first place, the French cavalry and the French general officer have a much higher standard of excellence in horse flesh than we have. Then, each year more and more demands are made upon the cavalry in the matter of long and fast journeys, raids, and reconnaissances. To meet these requirements, modern cavalry has got to have galloping blood in it—thoroughbred blood—and to get such blood combined with conformation at a price the army can pay, means the vulgarization of the half-bred—his production in great quantity at low prices. Finally, they wish to make the future secure.

The electric street car, the private automobile, and the automobile city cab have already lessened the demand for horses which, in a pinch—say a prolonged war—could serve, though indifferently, for military purposes,—and this decrease is likely to become more marked each year. Moreover, thoughtful and wellinformed officers know that the present comparatively satisfactory condition of the remount is due to unceasing efforts and stimulation on the part of officers, horsemen and sporting societles in France during the last twenty years. Most French horse breeders, race horse owners and sporting men have served in the army, usually in the cavalry, and their love of doing something for the profession gives a definite direction to their general patriotism. These men, separately and in combination. have done much, and they have pushed the government to do a great deal more, toward improving saddle stock in general and the quality of mounts bought for the service in particular.

For example, many owners of fine stallions pre-eminently suited to reproduce the saddle horse, allow a certain number of free services per year to small farmers with suitable mares. The two great racing societies in France annually contribute sums to the encouragement of saddle horse breeding. In 1909 one of them gave \$11,500 to this cause—\$7,700 to proprietors, \$3,800 to the mares' owners. Another contributed \$27,000 to the same ends. The Society for Encouraging Military Horse Raising gave \$11,500. The government gives \$25,000 each year.

Nearly all of this money goes as premiums or encourage-

ment in the raising of really excellent saddle types, and most of it to the small breeders; some of the purses are limited to horses raised in certain regions needing encouragement; others are "premiums," inducing the owner to contract in one form or another to sell his horse to the army. Above all, these premiums are an inducement to owners of mares to put them to English thoroughbreds rather than to other stallions, for in most all cases—except the government allotments—no horse can compete for those prizes which is not sired by a thoroughbred, and in many cases with the additional proviso that the dam be a half-bred or the product of two half-breds.

As an illustration of how these prizes operate, forty-three horses were bought last year for the various regiments of cavalry and artillery at prices above \$400 each. The prices paid range from \$500 to \$320, but counting the premiums that went with this prices, the owner received through his horse from \$1,000 to \$400. All of these forty-three horses were by thoroughbred stallions and most of them were out of mares sired by a thoroughbred. All of them were three years old.

This marked predilection for thoroughbred blood is nothing new, though it has grown steadily in strength, based upon a long study and practical experiment. Some seven years ago General Faverot de Kerbrech, since dead, a renowned judge of horse flesh, an old friend of General Sheridan's, knowing our Western plains in the seventies, and a cavalry officer of forty vears' experience in remount matters, advanced this idea, and I find him quoted again in very recent publications. In his day, General Faverot de Kerbrech represented a minority, but his ideas are now put in practical operation. Officers of this school point to the increasing speed and distances required of cavalry: they urge that if an infantry which can do four or five miles a day more than its opponent has a tremendous and freely acknowledged superiority, a cavalry that can march five or ten miles a day more than its enemy and keep in good condition has a no less greater advantage. This marching capacity and readiness to fight after doing great distances is wholly dependent on the horse and his gaits, having given men who know how to ride. .

Now, all experience in France goes to show that horses which fulfill best these military conditions are stock which have

been freely crossed with the generous blood of the English thoroughbred. The ideal representative of this military mount is the Irish hunter, and in all their preaching and in as much of their practice as may be, French horsemen have exactly this type in mind. To be definite, they ask that the model be close coupled, big barreled, close to the ground, well under 16 hands, with a weight carrying back, particularly powerful hind quarters, and that courage and stamina which practice shows the Irish horse to have in pre-eminent degree.

These horsemen are too practical to think of suggesting that their cavalry be all mounted on Irish hunters, but they point out tuat this particular type, race or model, as you choose to describe it, has all the qualities which the ideal cavalry horse should approximate to: he is standard. Therefore, in buying for the service, in furnishing stallions (as the government does) for reproduction, in advising horse raisers, in talk, practice, advertisement, horse shows, prizes and by all possible means, this type of horse should be exploited, vulgarized, produced in quantity, as a means to military efficiency. In order to realize these ends, a profound study has been made of how this particular type, known in Europe for want of better term as the Irish hunter, was produced. Without going into the documents, it may be stated that the result of this investigation shows that the great majority of the best types of Irish horses are the get of thoroughbred stallions out of mares themselves the get of thoroughbreds. This may be considered the base of the argument. There are plenty of good horses not having this line of ancestry, but in seeking general causes these can be omitted, especially as they are in a great minority.

What, then, must the dam be to produce this stock? The answer is to seek in the dam that conformation which will cross with pure blood so as to give the result always aimed at—good blood in a strong frame.

The work being done by the Society to Encourage the Raising of Army Horses is not seeking to create a race, but is seeking above all to establish a *model* of the weight carrying saddle horse. The ideal of this model is to be seen more commonly diffused in Ireland than anywhere else, but in addition to madel, the Irish hunter presents other qualities of the highest

importance in military horses: activity, immense stamina and pleasant gaits. They will go at the most harmonious gallop literally for hours and then be fresh and keen for a burst of speed across the green; and after a whole day of the hardest riding, they carry one home with the courage and elasticity of a horse just from the stable.

To anyone who has had the privilege of riding to hounds on these Irish horses, these arguments seem so trite as to be hardly worth repeating. But in France, as in most parts of America—for we must except parts of Virginia and Kentucky the Irish type of horse is only known as a rich man's luxury. The advocates of this animal for military purposes point out that his production in quantity ought to be as easy in France as in Ireland, if intelligence and persistency are shown in breeding. The compact Norman mare offers a fruitful cross with the thoroughbred. Their get in mares, if bred to a thoroughbred, should give animals having the qualities of heart and build required in the military service. The climate and soil of the horse raising districts of France seem not less favorable to the foal than Ireland: and if breeders can be shown that it is to their interest to produce the model of horse recommended by the Society for Encouragement, the time will eventually come when the French cavalry can be mounted at acceptable cost on horses for the most part entirely adapted to military ends. This is what this society aims at, this is the object of its propaganda.

It will be well, in closing, to refer to a fact of considerable interest to ourselves concerning the present direction of French practice and theory in the matter of gaits for long and fast marching.

The French cavalry, more perhaps than in other armies, has long practiced the trot and has taught its value for military marching. A large part of their remounts, those especially coming from Normandy, have a strong infusion of trotting blood; the roads in France are everywhere metaled and the trot was long considered for theoretical and practical reasons the gait for making distance in quick time. This idea is now undergoing a change in the highest equine circles, and one hears loudly proclaimed that the military gait, the gait to save fatigue to both man and beast, must be the gallop, alternating with the walk.

These-one the gaits which have been used by French officers in the leng-distance rides which eight or ten years ago were so popular and which resulted so generally to the credit of French harsimanship. Lieut. Madamet, in his famous ride from Brussels to Ostende, in intense summer heat on hard paved roads, eighty-three miles in seven hours, rode Courageux strictly at the walk and gallop. The old horse was still fit and doing hard service last summer.

It is not merely these tests to a finish that have swayed military opinion toward the gallop instead of the trot, but many other trials, individual and collective, under more normal military conditions, have pointed in the same direction. It is not intended here to convey the idea that French cavalry no longer uses the trot, but the tendency is to use it less and to raise and buy horses which, by breed and conformation, go most easily and without fatigue at the gallop. The horses now on hand and now available to be bought for the cavalry are not of this kind in great numbers; hence the trot is and must be long retained as the habitual increased gait. But many French officers believe that good cavalry of the future will be cavalry that covers far greater distances than at present and arrives with men and horses ready to stand the further fatigue of a hard fight. They believe that this result can only be obtained both as regards speed and fatigue, by using the gallop and walk as habitual gaits. The Society for Encouragement is looking far ahead and doing good work in this field of preparation.

It seems that this tendency in a service counting so large a number of most intelligent and experienced horsemen is particularly worth our thinking about. The famous long distance riders of our country have nearly all used the gallop to the exclusion of the trot; a race, or at least a type, of horse to which this gait seemed extremely easy and unfatiguing was produced, and produced certainly more by the exactions, through generations, of their riders than by any selective breeding. What, then, might not be done if to these exactions and to this type we added selective breeding to produce gallopers rather than trotters?

Most horsemen will agree that the average rider, especially the inexperienced rider, that is, our cavalry soldier after one year of service, is more likely to be fatigued by the trot (even if he rise to it) than by the gallop. Of course, I mean the gallop of the galloping breeds, not the lumbering gait of the long-coupled trotting breeds, who will gallop only when pushed beyond the limit of their trot, quite as the steer does.

The time when we can count for war upon a population of natural riders is past or passing. Riding is becoming in America a sport rather than a necessity, just as it has long been in Germany and France. We should, then, look to the means of making, in time of peace as well as in the hurry of war, fairly efficient cavalry with as little expenditure of time as possible. If the gallop is preferable or even possible, as a marching gait in a country like France, it would appear to be far more so in one like the United States or any other American country.

These reflections may be somewhat beyond the limits of this article, but, after a great many years of careful thought and experiment, I have become convinced that for the average American man mounted on the average American horse, the close seat at the trot is far more fatiguing on both rider and beast than is the rising seat. I do not refer to good riders on selected animals; I mean the average. I am not equally sure, but it seems quite probable, that the gallop has a similar advantage over the rising trot (to the man of short experience) that this seat has over the close seat. If such be the case, it would seem that no people, except the Russians, are in a position to so readily breed, buy and use the galloping horse than we probably still are, and a careful examination of this subject and much open-minded experiment would be fully justified on account of being so easy to make, and the results might be of great importance to the service.

No one who examines any phase of this subject of providing suitable horses for the French army can escape an impression of the immense amount of care, intelligence and industry that are brought to bear upon the whole matter. The question is a difficult one in every country, but far more difficult in Europe than in America. In discussing it with competent Frenchmen, they always assume that naturally we Americans have less trouble than other nations. They say: "You have an immense horse population, improved without regard to price by the best blood Europe can furnish; the horses you send over here excite our ardent ad-

miration; your army is small and you annually buy for it just one-tenth the number of horses that we have to do for ours; we are cramped for money all the time, while you spend with a free hand all that is deemed necessary for the maintenance of your troops; you doubtless have the best mounted cavalry and artillery in the world."

It is very hard to answer these statements, which are literally true, except, alas, the concluding one. It is a most unpleasant thing to think, but I sincerely believe that if a French regiment should be dismounted and ordered to take over the horses of one of our regiments as their mounts, the officers of that regiment at the end of two months would make such an outcry that there would result a parliamentary inquiry into the condition of that regiment's horses, followed by condemnation and replacing of more than half of them as unfit for the military service.

Our system is of course to blame, but our mounted officers cannot escape their share. It must be admitted that, through force of circumstances, they have as members of horse boards, accepted animals that no French officer would have in his troop.

But even this does not go to the root of the matter. The majority of our mounted officers do not seem to know what quality in a horse means, and how necessary it and the blood which produces it are to a horse in a hard campaign. If they did, the coarse, cold-blooded horses so constantly seen, not only in the ranks, but mounted by officers, would, by the very force of example and protest, tend to diminish and disappear.

Whether a "Society for the Improvement of American Army Horses" would bring any good results is a question hard to answer; but in his efforts to improve our mounts, backed as he is by a wonderful knowledge and experience, the Quartermaster General should, it is submitted, be supported and stimulated, on the part of the mounted arms, by something more vigorous than a mere willingness to accept good animals if they are provided.

SADDLE AND HARNESS GALLS.

By VETERINARIAN GERALD E. GRIFFIN, THIRD FIELD ARTILLERY.

NE of the problems confronting a mounted column in the field is the prevention of saddle and harness galls.

It is well understood that the comparative absence of galls and a minimum number of ineffective animals at the end of a long march, seven or eight hundred miles, is very complimentary to the commanding officer and to the regiment to which the animals pertain. It shows plainer than any other method of demonstration that the officers and non-commissioned officers are familiar with and attend to their duties as horsemen and that they understand the care and management of their motive power.

During the Indian campaigns, when forage was scarce and animals in the field were low in fat and muscle, it was considered a disgrace for a command to have more than 5 per cent of "sore backs" in an organization. It was considered even more than a disgrace, for the effectiveness of a command as a whole, and even its safety, often depended on their absence. These facts were so well recognized, even by recruits, that each man was constantly on the qui vive for the first indication of galls. When they appeared they were immediately and untiringly attended to.

In those days very little complaint was heard of the Mc-Clellan saddle except that the bars were too short and the stirrups set too far back. The kit and carbine were never considered in accounting for galls. It must be admitted, however, that kits were usually reduced to a minimum and that the carbine was somewhat shorter and lighter than the present Springfield rifle.

The horses of those days were not superior in conformation to the present day mounts—in fact, not so good—nevertheless, saddle galls were few and far between, even under great hardships, as I have the best of reasons for knowing.

Do we have more saddle galls in the cavalry nowadays than formerly? I unhesitatingly answer, "Yes." Why is this so?

It is not an easy task to answer this latter question in a few words, but it is believed that if the subject be given some thought an intelligent reply will be forthcoming.

In the cavalry arm many of the troop commanders of today are comparatively young men who have seen but little hard and prolonged service on short forage, and do not really know what attention a horse reduced in flesh from hard work and scanty forage needs to keep him in serviceable condition so far as his back is concerned. Consequently they have not become acquainted with the many devices, apparently unnecessary precautions and minute picket-line inspection that make for sound backs and feet.

In the artillery arm conditions are no better, for here we find many officers, battery commanders as well as chiefs of platoons, whose knowledge of driving, collar and harness fitting and their practical supervision is only theoretical.

It is safe to say that not more than two or three officers of this branch of the service have thought it necessary to act as lead, swing or wheel driver for a day's march with the object of familiarizing themselves with the conditions which produce the unresponsive to treatment collar galls so frequently encountered.

It follows from the foregoing that the men will be more or less careless, and, too, of recent years many of these men have become possessed of the idea that the whole art of horsemanship and riding consists of the acrobatic exhibitions of the riding hall, and that the ability to stand erect on the back of one or two horses while galloping in a circle, or to jump over an animal, or face to the rear while riding bareback at a fast gait, is a giltedged recommendation as to horsemanship. Is it?

I have watched with interest the development of the men of the mounted service at the expense of their horses until I am led to conclude that the efforts of each young soldier are solely directed toward acquiring the dexterity of a trapeze performer.

I have seldom observed a man, alone in the riding hall, trying to train his mount. When I have, I have made it a point to investigate his system, and in all cases, but two, discovered he was "going it blind" and trusting to chance. In many cases I have questioned both cavalry and artillery soldiers as to the allowance of forage, bedding, salt, etc., fitting and adjustment of bits, care of the blanket in the field, oats capacity of tin cup, nose bag and galvanized bucket, and the amount of hay contained in an armful or in an ordinary bale. As a rule, they knew nothing of these subjects.

Watch these men as they pass in column and notice their loose, shifting seats, one stirrup often shorter than the other. humping of shoulders, tight cinches, swinging legs, tight breeching, flapping collars, unadjusted curbs and their iron, unyielding grip of the reins. View them again after they have ridden twenty or twenty-five miles and notice the shifting of each posterior elevation, with a view to its easement, from one bar of the saddle to the other, while their fellows with the wagon train may even go so far as to rest the right leg over the pommel of the saddle in preference to dismounting. Many chiefs of platoons, squads and sections seem to be blind to all this and frequently shift their seats themselves, because it has not been forced upon them by bitter experience that they must sit close, well balanced and steady to save the back of the horse which they ride and which they are beginning to consider solely as a means of transportation for their bodies.

This same horse, in the majority of cases, is out of equilibrium and hand due to lack of systematic training.

I have noticed but few organization commanders in recent years reviewing their men on the march, and fewer riding behind them for a mile or so. They usually ride serenely at the front, and when in camp of a night often wonder how it is so many galls are "showing up on this trip."

It must be admitted that nearly all our men are recruits nowadays and that it takes about two years to make a mounted soldier, as the term is understood, for when the recruit is at length kneaded into a soldier he serves usually but one year as such and then takes his discharge. His place is soon filled by another as ungainly, thoughtless and irresponsible as he himself was originally.

The McClellan saddle cannot be held responsible for more than 10 per cent of the saddle galls except where it is too tightly cinched. This too tight cinching is a habit with all young soldiers. The blame cannot be placed on the blanket if it is properly looked after, switched out at intervals, freed from caked sweat and matted hair and made soft and pliable. The pack itself is not the offender if properly adjusted and strapped, although it is admitted on all sides that it is entirely too cumbersome.

The substitution of the rifle for the carbine has been blamed on account of the difficulty experienced in stowing. If the rifle is to be held responsible for the increase in the number of galls there is but one of two things to do—carry it parallel with the horse on a line with the upper part of forearm, stock to the front, or strap it to the trooper's back. In the latter position it may produce galls at the fast gaits, but the man will be constantly on the watch for these on account of it being a purely personal matter.

I feel satisfied that the attachment of the stock of the rifle to the pommel, in which position it strikes many blows in the course of a day's march, has a tendency to cause the saddle to drift. Tight cinching will not obviate this. It rather hastens the appearance of gall by the unyielding pressure caused thereby.

In the Light Artillery harness galls are mainly due to the following causes: Ill-fitting collars, unequal lengths of traces, wrong size or zinc pad or warping of same, matted mane, pinching of top of neck when placing collar in position, traction point too high causing downward pull, traction point too low causing the collar to "ride," jibbing of the pole, unsteadiness of lead and swing pairs, careless driving, use of pole as a foot rest by driver, inattention to proper use of brakes, dirty collars, heating of neck pads by sun's rays on hot days, failure to have horses interchangeable, and the pernicious custom of scouring the bearing surface of the collar with sand which soon wears off the zinc and exposes the steel beneath with its tendency to rust and pit from the more or less acid sweat. The most fruitful source of gall in the wheel pair is the devilish ingenuity exhibited by the lead and swing drivers in so managing it that they barely keep the traces stiff, with the object of saving their own teams at the expense of the wheel pair who consequently must do all the work. The apathy shown by everybody in some batteries to these and many other things having an influence for bad on the backs and shoulders of the horses is surprising.

In mountain batteries the aparejo is undoubtedly respons-

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ible for ninety-five per cent of the galls. This same aparejo is a lineal descendant and not very far removed from the old straw mats and peg saddle of countries where donkeys are extensively used. It is a relic of ancient equipment that will some day astonish the visitor to a museum. The aparejo is exceedingly difficult to keep in adjustment for the reason that it transfers the weight of the load to the thin muscles of the ribs instead of to the large, strong well-developed muscles of the back, and with it must travel a civilian "cargador" even in a military organization, because we have been forced to admit that a soldier cannot adjust it properly.

It looks as though a simple and easily handled pack saddle could be invented, if one is not already in existence, that would, with advantage and satisfaction, take the place of the aparejo with its rib pressure, sticks, hay stuffing, diamond hitch, irritating crupper and attendant cargador.

On the march, in a mountain battery, it may be noticed as the day wears on that men become leg weary and attach themselves to the near rear end of the packs, and while the pressure of the loads bites into the ribs of the mules, the dragging on the near rear corners causes the packs to press upon the off side of withers, producing galls that are frequently the forerunners of fistula. Nothing has been said about the riding of the gun and its trail because we know of no way to rectify it. The gun itself rides fairly well and is not a source of much anxiety, but the trail is worthy of attention. If it were possible to so construct it that it would "break" in the center without interfering with its serviceableness, it would be an advantage in transportation.

From expressions I have heard concerning the mountain artillery pack I have formed the opinion that it will be a more difficult equipment to handle with militia troops than that of the light artillery.

Under the usual method of going into camp, where all animals are immediately divested of their equipment without regard to the conditions under which they arrive, galls are more readily discovered in about half an hour from such arrival. Even if they are not then visible to the eye they may be felt if existing by running the hand over the skin of the saddle or collar bed.

It might not be amiss, at this point, to define a gall.

Roughly a gall is any irritation to the skin or deeper tissues caused by the saddle, aparejo, collar or other part of the equipment. It is not necessary that the seat of the irritation should be demaded of its hair by friction or other cause to be called a gall. There is no distinction between saddle and collar galls, and saddle and collar sores. They are identical.

Extreme pressure exerted for a variable period on a given spot retards the local circulation to such an extent that the part becomes practically bloodless and loses its tone. Now if the pressure be suddenly released, blood is forced into the more or less paralyzed vessels and soon over-distends them. At this point certain constituents of the blood and frequently the blood itself filters into the surrounding tissues and a true inflammation may be established with its heat, pain, swelling, impairment of function and redness of the skin, with or without loss of hair.

It will be noticed in galls, especially of the saddle bed, that while the swelling may, in some cases, look insignificant, the sensitiveness is very great, a touch often causing the animal to flinch, agitate his "fly shaker" and even to kick or strike. These irritations are probably itchy in the early stage and we may observe the afflicted animals indulging in rolling more frequently than the others, and often they will endeavor to reach the offending spot with their teeth.

Where galls are slight and confined to the superficial layer of the skin they disappear promptly under simple treatment. If the irritation extends below the skin the effusion of blood or its elements do not become absorbed so rapidly, and are not readily responsive to treatment. The deeper the irritation the more serious the gall.

In many cases of gall, especially where an old sitfast has been removed we may have complete loss of the surrounding skin owing to defective nutrition of that particular spot due to the cicatrix. Again where, while still inflamed, a gall is subjected to the original pressure a circumscribed patch of skin may die. Of course a scar through the skin at any point on the saddle or collar bed is always a weak spot.

Where the inflammation extends to the covering of the muscles or the muscles themselves, we are generally confronted

with extensive suppuration or a mummification of a small amount of tissue designated in stable parlance as a "sitfast." If the inflammation is deeply seated in the region of the withers we are not surprised to see developed later a fistula which may persist indefinitely.

There is a condition often met in young horses on the march that cannot be classified as a gall. I refer to the crop of pimples that sometimes appear in these cases and are attributed to overheating of the saddle bed. These pimples often persist for years. I believe they are due to infection by old blankets, the saddle bed skin in young horses being comparatively thin and soft, for this reason it would be wise to use new blankets on recruit horses.

From what has already been written there is little to say in reference to prevention; however, it may be well to state that the keeping of the saddle or aparejo after removal of cargo in place for at least half an hour after making camp will be found an effective preventive measure. At this time the cinch may be eased a little if necessary and the saddle blanket may even be turned over with advantage, but the removal of the saddle or aparejo and the binding of the blanket to the back of a surcingle will not be effective. The weight of the saddle and pack equally distributed, as it should be, over the saddle bed, accustoms the blood vessels to the increased flow of blood through them on removal of the weight of rider and as a consequence they are more likely to regain their tone and overcome exudation.

The same procedure applies to artillery collars which should be held in place by means of the traces.

I have attributed the absence of galls in my own mounts to the adoption of the above plan combined with careful riding and the using of a piece of canvas between the horse's back and the blanket. The canvas saves the blanket also.

Causing a man to walk at the head of the troop in which his negligence has caused a gall has a wonderful effect in saving the backs of the other horses.

Treatment of superficial galls is a matter simple enough but must be carried out conscientiously to obtain good results. It consists of cold packs, cold douching, light massage in the direction of the hair and the religious attention to the constant supply of water for the pack, which may be made from a gunny sack, saddle bianket or even a truss of hay, which should be held in place by a surcingle or other convenient means. In collar galls a sack may have a hole cut therein sufficiently large to admit the horse's head, this hole should be stitched around the edge, the sack then stuffed with hay, the whole thoroughly soaked in water and then drawn over the head, placed against the saddle bed and held there by means of strings attaching it to a surcingle. These packs should be kept wet and the swelling should be massaged at intervals of one hour until "taps." If galls do not regain their tone by the following morning the animal should not be ridden, but marched to the next camp with the water pack attached to the part and kept wet.

"White lotion" is of little value in cases of galls, or any place else, for that matter. Its application is simply an excuse for the neglect of a case.

Finally in all cases where a gall is discovered the surrounding parts should be well washed with soap and hot water, dried and immediately disinfected with any of the usual solutions of creolin, carbolic acid or bi-chloride of mercury.

The deep seated galls of back, shoulders and withers are too serious to consider here. They should be attended to by the veterinarian. Equal training of horse and man and constant supervision of the saddling, harnessing, riding and driving are some of the prices that must be paid for freedom from galls. The value received will be satisfactory.

TACTICAL INSTRUCTION OF OFFICERS.*

BY CAPTAIN LE ROY ELTINGE, FIFTEENTH CAVALRY.

A GREEING that our officers need_tactical instruction, and I think we must all agree on that point, let us see what method of instruction promises the best results.

A little consideration will make us realize that men may be broadly divided into three classes—the "doers," the "thinkers" and the "talkers." Seldom do we find a man who combines both the qualities of the "doer" and "thinker." When we do find him we find him at the top.

The thinker may be capable of devising the best plans, of thinking out the best methods and of writing works that will accurately and concisely convey his ideas to others. Such a man does work that the mere "doer" is not capable of accomplishing, but seldom will he himself be capable of successfully carrying these very ideas into execution to the best advantage. The great thinker is not ordinarily physically hardy and active. The army being a vocation in which activity and practical works come most into play, we find the majority of army men to have a practical turn of mind, while theorists are not naturally inclined to take up the army as a profession. This is true of officers and men alike. Moreover, we, as a people, are mostly practical men, who, while we can recognize a good idea, are prone to look at everything from a practical rather than a theoretical standpoint. We more or less despise mere theory. On hearing a theory advanced we at once say, "it sounds well, but I would like to see how it would work out in practice."

Then men we find in our army, while they can learn from books, will learn more readily from practical illustration, and having learned from practice will never forget, while what they learn from books alone is soon forgotten.

^{*}Thesis prepared as a part of the course in Military Art at the Army Staff College, 1908-9.

Hence, the instruction of officers will be most effective if the system is practical, having to do with theory only to such an extent as must be necessary in order to grasp the best ideas.

However, before we can make practical application of an idea we must understand the idea. This can only be done by study. Modern war, with its complex and deadly war material and the rapidity with which it will be fought to a conclusion can not be learned from one's own experience. A mistake made in war will not teach the maker anything that he can use in that war, for the war will be over by the time he knows it was a mistake. In the Civil War the political general was prominent at first, but we see the trained soldier coming to the fore before the war was over. In our time the enemy is not given to let us have 2 or 3 years in which to learn that it takes a trained soldier to make war. Unless our armies are led by trained men from the start, they will be led to certain defeat. The trained officer may fail to make good in war, but he has a fair chance of success. The untrained man in command of troops has absolutely no chance at all.

In the Annual Report of Mr. Root for 1901 will be found the following paragraph:

"It is a common observation, and a true one, that practical qualities in a soldier are more important than a knowledge of theory. But this truth has often been made the excuse for indolence and indifference, which, except in rare and gifted individuals, destroys practical efficiency. It is also true that, other things being equal, the officer who keeps his mind alert by intellectual exercises, and who systematically studies the reasons of action and the materials and conditions and difficulties with which he may have to deal, will be the stronger practical man and the better soldier."

After an idea gained by study is grasped it must be illustrated in such a manner as to convince an officer that the idea is practical in its application. When instruction is being given about combat the actual presence of hostile troops shooting real bullets can not be presented so as to give the practical lesson, but only a very small part of war consists in actual fighting. Marching, camping, sanitary arrangements, provision of supplies and equipment, the issue and transmission of orders, a knowledge

of the principles of strategy and of the principles of modern field fortifications are all subjects that may be studied in time of peace and demonstrated either in practice or by presenting the historical illustrations on which they are founded.

"Strategy is an art that none may master by the light of nature, but to which a man must serve a long apprenticeship. Some men grasp principles with greater facility than others, but nost men can learn the main principles of strategy in a comparatively short time. But a mere acquaintance with these principles is of little value without the long apprenticeship by which alone a man obtains the knowledge how and when to apply them. As a state of war is the exception and not the rule, it follows that this apprenticeship must be served by most men in the wars of the Past." (Mil. History Applied to Modern Warfare.)

That is, these principles cannot be mastered except by study.

Marching is by far the commonest incident in the field. The march must be in conformity with orders. The principles governing marches and the ability to draw up suitable march orders can be learned in time of peace as well as in time of war.

Even combat can be simulated in maneuvers and the situations that most often occur in combat can be so presented in map problems, terrain exercises, and tactical rides as to have the effect of a practical demonstration on the mind. More realistic still is the war games. By these we may cultivate the power to quickly arrive at a correct decision. After all the business of an officer consists in deciding how he shall use his subordinates.

If an officer first has his mind directed to a certain subject of tactics, has the best thought on the subject presented for his study and then has a map problem, war game, maneuver or other exercise illustrating it, he will have that particular subject indelibly impressed on his mind.

Any system of instruction to be of benefit to the whole army must be a system that *enforces* both study and practice. On account of the great demands made upon them by routine duties our officers nowadays have very few leisure moments and consequently are not at all enthusiastic when they are expected to devote a great deal of time to study. Unless the system of instruction has some "sanction" it will be only perfunctorily fol-

lowed. Such "sanction" may consist of either reward for doing or punishment for not doing. Pushed to the limit, this means selection or elimination. We are most of us justly afraid of either. No man will say that either system, if impartially enforced by these capable of judging might not be a benefit to the army. Our apprehension comes, not from a fear of putting our merits and abilities in competition with others, but from a knowledge that no just system of measurement can be devised, which will, in a practical way, measure the relative ability of officers. It is easy to say "Measure a man by what he has done" but if such a test be made it is easy to see who will be given the opportunity to do and who will never have the slightest chance to show whether he can do anything or not. It is not only a fear of partiality, but a knowledge that in any case the one or ones who must judge of relative ability necessarily know well only a small proportion of officers. These judges will be men. They will reason as other men would. They will have a certain number of efficiency reports and other records referred to them. In looking these over they will say "Well, here is Blank. I know him. I know he could fill this position fairly well. I don't know the rest, so I will recommend Blank." If you knew a man fairly capable you would select him in place of a man you did not know-so would any board.

. Some men have particular magnetic qualities that keep them always in view. Others have particular influence or advertising ability that accomplishes the same result. Neither is necessarily a particular good officer, though he may be. At any rate these comprise the ones that are well known. On the other hand, every regiment has one or more officers, known in the regiment to be exceptionally capable in every way, but utterly unknown outside the regiment.

One officer recently expressed this idea as follows: "I will subscribe to any elimination bill that will eliminate Blank and promote officers more capable than he, but every scheme that has ever been proposed will eliminate officers more capable than Blank in order that he may be promoted."

The theory of selection is that a favored few are by God endowed with the qualities of great soldiers and that they should be as readily recognized as though they evidenced the fact

by a brand on the forehead. This is a popular idea with our people. Every citizen likes to feel that if war should come he may volunteer and, instantly having his natural merit recognized, be soon promoted to be the great leader that shall receive the applause and material rewards due the savior of the country. Popular histories by their tone would seem to indicate that such a state of things exists. However, a careful reading of history shows that such an easy way has not been the one in which great soldiers were made. Even in the days when personal force and personal courage made a far greater part of the requirements for an officer than they do today, we see that the trained soldier always came to the fore in wars of any magnitude and duration. That for a time of peace any fair system of selection can be devised I do not believe. War makes its own selections.

In an imperfect way we now have two systems of elimination-physical tests and examinations for promotion. If the latter were a little more strictly enforced we would not need any

All schemes of elimination seem to have been drawn up with the idea of causing a flow of promotion and of enabling officers to reach the higher grades while young. This puts youth and vigor above experience. If our senior officers are on the average too old for active duty a simpler, cheaper and more efficient way of putting younger men at the top would be to lower the age of compulsory retirement, say to 60 years. The trouble is that elimination schemes look at the matter from the standpoint of obtaining the best material available but overlook the possibility of training mediocre men to be more than the equals of untrained geniuses. The army as a whole will be more benefited by training the whole body of officers up to a good general average than by developing a proportion of brilliant officers while the rest remain as food for the elimination boards. With the whole body of officers uniformly well trained and instructed, age and experience will count for much. That is, age will be an advantage so long as it has not developed physical weakness. Physical examinations provide for the elimination of those who have become too infirm to longer perform field duty with the necessary vigor. The fear of elimination for failure to come up to the required professional standards must be strong

enough to form the "sanction" for the courses of instruction. Any further elimination will prove a detriment, not an advantage. This "sanction" will fail unless failure to pass an examination for promotion acts automatically, like the 1907 law for the Medical Department, to eliminate one who fails. In no other way can the politically strong be forced to become professionally fit for promotion. Some of these would of themselves become proficient—some would not.

The "sanction" for study of tactics should be a thorough and searching examination, both theoretical and practical, on the examination for promotion and it should apply to all line and detailed staff officers. So far as the board was concerned, the practical part of the examination should consist in a review of the reports made on the officer by the chief umpire of the maneuvers he had attended. If no maneuvers had been attended, promotion should be in abeyance till one had been, the same as now occurs when an officer can not take his examination. With this provision made, the officer himself could be relied upon to make arrangements for attendance at some maneuver before he came up for promotion.

There should be at each maneuver a capable officer charged with the duty of reporting on the tactical qualifications of officers. It would not be either necessary or advisable to mark officers on a percentage basis, but they might, for example, be subject to the following remarks: (1) Showed exceptional ability; (2) Satisfactory; (3) Showed ability, but lack of training—recommended that he be required to pursue a special course of instruction under direction of his post or regimental commander, who will have the fact of first failure of the officer and the results obtained by the special course noted on his own efficiency report; the possibility of receiving this notation would have considerable "sanction." (4) Unsatisfactory—also to be noted on the efficiency report of the commanding officer under whom he served during the preceding school season.

One particular in which most of our maneuvers are lacking is that they fail to give instruction. An officer may make grave tactical errors and not learn that they are errors. Such errors should be pointed out to an officer, through military channels within 48 hours from the time they occurred. I have seen a

capable and energetic young officer make the same tactical error 4 times in the same maneuver period. Having made this error once, without having his attention called to the fact that it was an error, he was in a fair way to have that particular point so impressed on his mind as a tactical possibility that only real bullets would ever have convinced him that it was utterly impossible in war. Had this error been pointed out to him the first time committed he would never have repeated it either in maneuver or in war. All the maneuvers that I have attended have failed to impart any instruction, for this very reason. The "hot-air" tent was never of any use, but a prompt and authoritative notification of errors committed, as well as equally prompt and authoritative recognition of unusual tactical excellence would be of the greatest value.

To do well at maneuvers officers must have a chance to practice with their organizations at their posts. If officers are to be held to account for the actions of the unit they command they must have an opportunity to instruct that unit. Some posts have small, level drill grounds and no other available ground for evercise. When the post commander prescribes a certain drill for each day of the year and requires all this drill to take place on the drill ground so he can sit in his house and observe it, very little latitude is allowed a subordinate. In these cases the post commander can alone be held responsible for the results obtained. Formerly company commanders had an opportunity to give some instruction during the weekly and monthly practice marches, but the present strict requirement that field officers attend these formations will tend to keep the whole command united so that it will no longer be possible to make up small problems that could be smuggled in on the roads without disturbing private property. It is desirable to have each commander responsible for the tactical instruction (not drill book instruction alone) of his immediate subordinate. He can be held responsible only if he is provided with an opportunity to give this instruction and to give it on varied ground. Post and regimental commanders must therefore allow majors and captains some measure of discretion in and some time for giving instructions. If they do not do so, the higher commanders must assume the whole responsibility for any lack of instruction in

the smaller units. Captains should afford like opportunities to their lieutenants, should they ever be lucky enough to have one on duty with their organization.

As the time for an examination for promotion approaches most officers study, and study hard, that is, they cram for the examination.' Such study of tactics is of little value. So if tactics he a subject for examination for promotion, still the fact does not materially aid in inducing officers to systematically study the subject. An examination once passed, the subject is entirely dismissed from the mind. What is wanted is not a cramming of the subject, but a development of a spirit that makes men frequently think about tactical subjects. It is not the understanding of some points but the development of a habit of reasoning on the subject; i. e., the development of a state of mind. What we wish to attain is such a desire to study the subject as will lead to continuous study during the officer's active life. Large numbers of our officers in a way try to keep themselves abreast of the times in matters relating to their profession. Their trouble is that they do not know how to study, or that they can't find out what to study or where to find it. Hence a course of training in tactics should be so arranged as to lead the offices progressively into the right way of study and it should have some "sanction" that will force the lazy ones to conscientiously go through the course.

The desirable qualities of a course of instruction in tactics may be outlined as follows:

- (a) A presentation of the best theoretical ideas—best obtained by having the course laid out by the most capable and well instructed officers.
- (b) A practical illustration of the ideas presented—obtained by a map problem, terrain exercise, war game, tactical ride, or maneuver.
- (c) Some way of awakening a universal desire to faithfully follow the course-"sanction."
- (d) Selection of the best instructors—if the position is such as to call for hard and continuous work that can not be transferred to subordinates and is rewarded only by a sense of

good done the service but by no special pay or privileges, undesirables will not force themselves into the detail.

- (e) A scheme of instruction that will be continuous and progressive-apply to all line officers, detached service, special details and leave of absence not to excuse from following the course. Detailed officers have as much spare time to devote to study as the regimental officers.
- (f) A scheme that can easily be placed in operation one that does not necessitate a large plant, great expense, or the detaching of a large number of officers away from their com-

In a general way the correspondence school idea seems best adapted to fulfill all the requirements. Especially is this true because men of mature years do not like to appear as mere school boys answering school call with their little book under their arm. With the correspondence school system an officer can study like a man in his own library. The feeling of sensitiveness about this school-boy appearance may be entirely foolish, but many of us can testify from experience it exists and is really the largest element in producing opposition to our present garrison school system.

The following is tentatively suggested:

- 1. The establishment at each army post of a military library, containing standard military works for reference and private study, to be augmented from time to time by works recommended by a board of three members and composed of the best tacticians in our army, no matter what their rank or corps. However, the higher the rank of the members, the greater will be the weight the service will give to the board's opinion.
- 2. This post library also to contain good military atlases and military maps, suitable for war games and map problems. All selected by the same board.
- 3. This same board to prepare short tactical studies, in each of which a particular situation is presented and then carried along in narrative form so as to illustrate points of tactics. The tactical studies given the Army School of the Line are good models. These studies to be distributed by mail to all officers.

4. A short time after a tactical study has been given out, a map problem on the same subject to be sent out for solution, in the same manner that Garrison School examinations are now sent out, and mailed direct to officers away from their regiments. This will keep studies from being put away for a more convenient season and then forgotten.

These problems to be divided into three classes—those for lieutenants-those for captains-those for field officers. Solutions to be sent to the Secretary of the Board, who will select a certain percentage, tear off the signatures and replace them by numbers and send them to the Board to mark. In this way all officers would get all the studies. Each officer would solve about 1-3 of the problems illustrating the studies and the Board would mark, say 10 per cent of the solutions. Yet an officer would never be sure that a study was not to be followed by a problem on which he would be marked, while the Board would actually be required to mark only 3 per cent. As many problems as would be the case if each officer was marked on a solution of a problem illustrating each study. Marking to be excellent, good, fair, unsatisfactory, and reported by the secretary to the officer through channels for note on his efficiency report and on that of the commander under whom he had served the greater part of the preceding year.

In order that post and regimental commanders may feel an intense interest in forwarding the instruction of their subordinates, these provisions for holding these commanders accountable for the instruction of their subordinates are necessary. Such a command, whose officers were uniformly found to be poorly instructed, might reasonably be expected to face a retiring board. The only excuse that they should be allowed to make with success, would be the one that the particular officers found deficient had in all cases been in their command only a very short time.

In making selections of papers for the Board to mark, the secretary should use a system that would insure rotation, but by no means a uniform rotation that could be studied out and counted upon. This rotation system has three advantages: (a) It would admit of all papers being marked by the same men, thus giving uniformity; (b) It would decrease the size

of plant necessary, thus reducing expense and number of officers required on the Board; a larger board would also of necessity be composed mostly of mediocre men. (c) Experience at this school has shown that one capable instructor can mark 40 map problems or similar exercises in 2 weeks. Three officers could therefore mark-1,560 papers in 26 weeks. Allowing onehalf the Board's time for study and preparation of problems and studies, then we could expect them to mark 1,560 papers per year. There are about 3,500 line officers. The Board could then be expected to mark a paper for every officer about once in two years. This would give the Board enough to do to keep a detail on it from being considered as a soft snap to be sought by those who are accustomed to such places, always provided no extra compensation went with the detail.

This scheme provides enough "sanction" to produce study (which is all that is desired) and at the same time reduces the manual labor to a minimum. These studies and the following practical problems could easily be so numerous, as to produce disgust in the minds of officers already badgered by the numerous requirements of their routine duties. I would not have more than five such studies and problems per year. An approved solution should promptly follow each problem.

- 5. The requirement that each officer submit yearly a paper on some designated military subject, the material for which could be obtained in the library proposed in (1). Papers to be marked in the same way as in (4).
- 6. Post commanders required to hold a small number of terrain exercises, terrain rides, and war games yearly, which all their officers attended.
- 7. The examination in tactics on promotion to consist of review of efficiency reports, on which results of solutions and map problems and maneuvers had been entered, together with (1) A map problem or terrain execise, solved before the examining board, and (2) A tactical ride or war game, given by the examining board; the board to elect which in each class a particular officer should be given.
- 8. The present garrison school to be retained for the instruction of officers who have just entered the service.

9. The tactical courses at the Service Schools to become gradually more advanced as the operation of the above scheme relieved them from much of the preliminary instruction.

This scheme proposes a centralization that at first glance may seem objectionable. Nevertheless the terrain exercises, terrain rides, and war games must of necessity be given by post commanders or senior officers detailed by them. This part of the instruction therefore is not at all centralized. These exercises would be of as great or greater benefit to those who had to originate them as to those instructed. The other part is intentionally centralized, because tactical instruction to be of value to the whole army must, to a great extent, be uniform and uniformly good. The instructors should be of the very best. We have not enough of the "very best" to go around if we try to detail them from every post or even from every department. In fact, we might experience some difficulty in finding enough for a board of three members, which must from time to time be changed so as to keep the board from itself degenerating into a set of theorists, who gave out impracticable theories in place of practical working ideas. Previous long service with troops is one of the prime requisites for an instructor in tactics.

NATIONAL GUARD.

That the National Guard must be prepared to serve with the Regular Army in a great war is an axiom. It can only do so efficiently if previously instructed on the same lines as the Regular Army.

The best way of instructing our National Guard in tactics was well outlined in President Roosevelt's last message to Congress, as follows:

"Now that the organized militia, the National Guard, has been incorporated with the army as a part of the national forces,

it behooves the government to do
THE NATIONAL GUARD every reasonable thing in its power to
should be improved. perfect its efficiency. It should be assisted in its instruction and other-

wise aided more liberally than heretofore. The continuous services of many well-trained regular officers will be essential in this connection. Such officers must be especially trained at

service schools best to qualify them as instructors of the National Guard."

OFFICERS FOR THE SECOND LINE.

As long as the United States pursues its past policy of obtaining second line regiments by mustering in volunteers, officered by whosoever happens to have the influence to gain the commissions, so long will it be impossible to impart even rudimentary military knowledge to those who will become the officers of the second line. A militia officer, Major McMurray, Ohio N. G., recently made a suggestion in an article in the National Guard Magazine, that may contain the germs of a suitable idea for educating such officers. His suggestion was for the formation of clubs of 5 or 10 members, composed of men of ability and sufficient leisure, who would volunteer to spend a few hours a week in the study of tactics in consideration of a declaration by the government that it would make use of their services in case of war of sufficient magnitude to call for troops beyond the regular army and the militia. I personally know two suitable civilians who would gladly pursue such a course. If each regular officer on duty with the militia were, under the supervision of the War Department, to form such a class and instruct the class partly in person and partly by correspondence, it seems possible that a considerable number of first-class second line officers could be partially instructed and certainly such men would be far superior to the ones we would get under former conditions. If, in addition, these provisional officers could be attached to regular organizations for short periods, each active season, they would become valuable assets to the nation. The men who would form these classes are mostly men who would take pleasure in such yearly service and regard it as a vacation.

BROADMINDEDNESS.

By SECOND LIEUTENANT HENRY J. REILLY, THIRTEENTH CAVALRY.

THE appearance in the November number of the Infantry Journal of the "Separatist Movement in the Coast Artillery" by Celee Selarim is notable for several reasons. First, to see the journal of one branch of the service publishing, and that in the most prominent place, an article which by many would unfortunately be considered as of interest to another branch alone, and, secondly, because this article indicates an effort is being made to overcome the indifference of the rest of the army to the attempted divorce of the Coast Artillery from them and to prevent that divorce.

One of the gravest dangers in our Army is the habit of viewing every question, not from the standpoint of the best use of all our defenses in time of war, but from the narrow viewpoint, generally a peace one, of the branch immediately concerned.

That this is natural, anyone who cares to examine our system, or rather lack of system, can easily see. At West Point the future officer receives a good start with a general education and the aginning of a good working knowledge of all branches of the service. After graduation the narrowing process commences. Through lack of promotion, lack of contact with other arms and lack of encouragement to study them, the average officer, seeing himself for many years, probably most of his service, concerned with one branch alone, becomes more and more engrossed with the details of that branch. That these details are important and must be carefully looked to, everyone will admit, but that it is wrong to look to them to the exclusion of everything else, it is thought, will be as readily admitted.

Celee Selarim clearly shows that the desire of the Coast Artillery to form a separate branch of the national defense is

due not to a careful examination of the question of the best provision for the use of all our armed forces in either a defensive or offensive war, or even the smaller question of the best defense of our coast line from invasion, but merely from the viewpoint of the best defense by land batteries, of the sea entrances of individual harbors against purely naval attack.

The Coast Artillery is not the only one to blame; the other branches are equally culpable in permitting the country to believe itself safe in putting its trust in sea coast batteries without an army of Infantry, Cavalry and Field Artillery of sufficient size to defeat any force that can be landed. How an army of 85,000, scattered all over the United States and its various possessions, is to do this has yet to be explained.

If the Coast Artillery succeeds in breaking away, who is going to man the large caliber guns and the searchlights who now accompany all armies? Who is going to man the siege guns and heavy coast guns used in our next siege? Are we to take for this purpose some of our already too small Field Artillery, or use up some of their much needed increase, should they ever get it? Are we to do this while 20,000 or more disciplined soldiers repose peacefully along our sea coast with nothing to do, the first stage of the war in which there was danger of the coast being attacked having passed? Or are we to follow the policy of Japan, inaugurated as the result of her late war, and issue to the Coast Artillery siege equipment and make them learn to use it, teaching them that they also are a part of the mobile army?

There is another point to be considered. A young man about to be commissioned naturally looks ahead to see what chances he has of making of himself what the world calls a success. Is he going to be tempted by a service in which his one chance for action is the possibility of an attack on the sea front of a coast fortification the very presence of which will probably prevent the attack being made? Is he going to be tempted by a service in which, if he does succeed in becoming one of its few general officers, he will never lead troops in battle, or enjoy any of the rewards which such leadership, when successful, always brings? If you force him into this service because officers are needed, is he going to be a contented, hard-working officer

during war when he sees his classmates taking part in great events, while he sits in a coast fort? It is thought not. Up to the present the fighting record of the Foot Artillery is second to none. It has always fought somehow; when not mounted as Field or Siege Artillery, it has fought as Infantry. Is it going to consent to being, by its own efforts, ruled off the battlefield?

It will be answered that the Artillery has learned through sad experience that when an integral part of the Army it has never gotten its share of general officers; others will say an officer brought up in the Coast Artillery has not received the training which would enable him successfully to command a division or a corps.

The first part of this answer is true, but is it not rather due to the fact that, while on paper an integral part of the Army in fact, the Artillery has, at least since the Civil War, always been considered something apart, something separate from the line? If the Artillery had been as much a part of the line as the Infantry or Cavalry, would a man of General Hunt's perception, character and record have been left to retire as a colonel of Artillery? Would the artillery have been left from the Civil War until 1896 without a single officer being made a brigadier?

To the second objection, that an officer brought up in the Coast Artillery has not received the training which would enable him to successfully command a division or corps, the answer is "Yes;" but is the same not more or less true of the average officer in other branches of the service, and can it not and should it not be changed?

It is true that owing to the great mass of detail entering into any subject, a man cannot hope to know all the intricacies of more than one branch of a profession, but he can, and should, unless he is to become narrow, have a knowledge of the general taws governing his profession as a whole. In civil life and in continental armies the man who is capable of grasping the details of one branch of his profession alone stops when he reaches the highest point at which only a knowledge of details is essential. The man who, along with a thorough grasp of the details of one particular branch, learns to know and to use the general principles governing the whole of his profession goes to the top. This is as it should be,

• General principles are what count for a higher commander. The proper showing of a Cavalry horse, the best adjustment of an Infantryman's pack, the proper setting of a fuse or the correct lubrication of a disappearing gun are mere variations of one of the underlying principles which is the same for all arms, i. e., for an army to be efficient the details must be carefully attended to. If an officer thoroughly masters the principle, what matter the arm in which he learned it.

Napoleon was not only an Artillery officer, but a master of coast defense*, and, while much of his success was due to his thorough understanding of artillery, even as a young man he spent many hours studying the other arms, and his success, if due to any one thing, was due not to a narrow knowledge of one branch to the exclusion of every other, but to a just appreciation of the relative values of all arms and a thorough knowledge of the underlying principles governing all of them.

The most valuable part of an officer's training is what he learns about handling men; the necessity for careful preparation, training, disciple and self-control; the willingness to take and stand up under responsibility; confidence in himself and the men under him; the habit of command. With these qualities and a thorough knowledge of the powers and limitations of the different arms he is sure to make a good general officer. These qualities he acquires by coming into intimate contact with troops by having to care for, rule and handle them as subaltern, captain and field officer.

The knowledge of the powers and limitations of the various branches can be acquired by serving in mixed commands, taking part in maneuvers and attending the service schools. Greatly increase the number of officers at the service schools and at the War College. Throw open Leavenworth to large numbers of officers of all branches. Open Riley to Infantrymen and Coast Artillery officers. All Infantry regiments have mounted orderlies and machine gun platoons, and frequently in our history have made use of mounted detachments. The Coast Artillery has

^{*}See Napoléon et la Défense des Cotes, by Maj. Delauney, Marine Artillery, Translated by Eva Ammen.

often served as Field Artillery, and should serve as Siege Artillery. Detail officers to serve during maneuvers with branches of the service other than their own. Along with a broader knowledge of their profession will come an increased respect and liking for the other arms which cannot but be beneficial, while the next war will find the Army working as a harmonious whole under general officers who understand it.



ON CONSTRUCTING WAR GAME PROBLEMS.

BY CAPTAIN ARTHUR L. CONGER, TWENTY-NINTH INFANTRY.

I is natural for one who has never tried to construct a tactical problem to conceive that it is far easier to write a good problem than a good solution to it. Yet a few attempts in this direction, viewed in the light of cold criticism, soon convince one that the really good problem is more elusive than the Golden Fleece, while the solving of the same problem is a matter merely of map reading, reckoning correctly as regards road spaces and the time required for moving and deploying troops, a knowledge of tactics and—a certain amount of common sense. Nevertheless problem setting, like every other industry, yields up its secrets to the patient and persevering. It is not a mysterious art, success in which is reserved for the gifted, but has rules and principles which may be mastered by anyone.

It is not the purpose here to deal with the composing of the tactical map-problem, but, in order to understand the difference between the map-problem and the wargame-problem, it is necessary to inquire first of all how the two differ in their functions.

The German Field Service Regulations recommend in the same paragraph* the employment of tactical problems and war games as an incentive to the study of the Regulations and of tactics. General Litzmann in commenting on this paragraph remarks that this grouping of tactical problems and war games is intended to emphasize the fact that these two means of tactical instruction should go hand in hand in order to give officers an all-round development.†

^{*}Introduction, Sec. 11.

[†]Aids to the Tactical Development of Our Officers, Introduction to Part IV. General Litzmann complains in the same Introduction that the use of map problems is too much neglected in the German army, while the war

The reason for this becomes clear when we consider that, roughly speaking, the map problem trains the officer to think correctly, the war game to think quickly. By solving map problems under proper supervision the officer learns to take into consideration every feature of terrain which has a bearing on his problem, the relative value of his own and the enemy's forces not only as regards numbers but considering their component parts of the several arms and the question of morale, the elements of space and time, the orders received, and, finally, to determine his mission to accomplish which he must reach a forceful decision.

Now while this training is invaluable, and while without it. or its equivalent, war game practice can prove of but little benefit* it is nevertheless apparent upon reflection that the solving of map problems alone would produce a one-sided development. In war, decisions, to be effective, must as a rule be made quickly. The personality of the commander and of his subordinates plays a leading role. The giving of orders and troopleading to carry out a decision is equally important with the ability to reach a decision. Finally the appraising of a constantly shifting situation and learning to carry out a decision with an iron will in spite of unforeseen developments and difficulties; the solving, not of a single problem, but as they come in war, of a succession of problems, and learning just when and just how a modification of the plan is necessary to meet an altered situation and when a complete change of plan is demanded; this is quite a different matter from cracking the hardest of tactical nuts in the form of isolated map problems. To give training along these

game is an established institution in every German garrison. In our army the reverse is the case; we have winter courses of map problems in nearly all our posts, while the systematic employment of the war game is exceptional.

*This statement may appear discouraging to some who wish to begin playing the war game without any preparation in the solving of map problems or other theoretical study. It is, however, the common experience of those who have had much practice in umpiring that the two-sided war game is of little profit to the participants when they are lacking in tactical knowledge such as is gained by the solving of a well laid out course of map problems in conjunction with the study of tactical works of merit. The war game in its highest form, the two-sided game, becomes increasingly valuable to the players as they improve in tactical knowledge and skill.

lines is precisely the function of the war game, and especially (except in the matter of troop-leading) of the two-sided war game. This must be borne in mind in preparing the initial situations or problems for war games.

Considering the difference in function of the map problem and war game it becomes evident that the good map problem situation will not necessarily make a good war game situation.* The map problem usually presents a situation where the decision called for is of far-reaching importance, where the solver cannot well avoid determining his course of action well into the future. In playing out a situation of this type the game is likely to lack the surprises and sudden turns in the situation, calling for new and quick decisions which constitute its most valuable element to the advanced student.†

Another objection to the adoption of the ordinary map problem situation as a basis for a war game is that it will frequently be found that the side of the enemy in the map problem presents no problem at all. This, of course, does not matter in a map problem, but it matters vitally in the war game when we come to play the side of the enemy and find that we are allowed no initiative at all and that all our thinking is done for us by the probiem.;

†That such sudden changes in the situation occur in war is evident to every reader of military history. Yet the importance of training of this kind is little appreciated. The writer has seen officers of wide knowledge and long training in the solving of map problems completely break under a test of this sort. The first situation is perfectly solved, the second likewise; when a third phase presents itself, the officer's power of decision begins to waver; in the fourth and fifth phases, where the game is constantly changing in character, the officer breaks down under the continuous strain and gives orders and directions which he is unable to explain or justify and which he is even the first to condemn after the game is over. The pyschological element which produces this "strain" is only present in the two-sided game.

It may be desirable to so arrange a course of war games that the situations will first be solved as map problems by the prospective players on the opposing sides, as is done for example in the Post-Graduate School course at Fort Leavenworth. It is quite possible to construct a two-sided problem which will make a good map problem as well as war game problem.

^{*}It may of course be desirable to try out various solutions to a map problem by war game methods, or to play out a map problem as a war game in order to convince an inexperienced solver that his solution of the map problem is faulty, when he cannot be convinced thereof by less forceful means.

The special characteristic of a good war game problem, and wherein it differs essentially from the ordinary map problem, is therefore that the situation is only partially unfolded at the start and that the players are confronted with a constantly changing set of conditions, to meet which there will be demanded new decisions and fresh orders. The means of producing a constantly shifting situation are various. The simplest is to give the player a false start, for instance, lead him to suppose that the enemy is in one direction, say in front, while actually he is in another, approaching the player's flank or rear. One of the shifts most trying to a player is to expect to meet the enemy in a certain place and not find him there, or to be compelled to change suddenly from an offensive to a defensive role or vice versa. A very satisfactory means of lending to a war game the elements of change and surprise is to so constitute the missions of the opposing sides that neither will readily gain an insight into the intentions and therefore into the measures of the opposing side.*

But whatever other means may be adopted toward this end, the problem builder should avoid seeking to produce surprises by framing an indefinite or obscure initial situation. There are two schools of builders of map problems, one believing that the map problem situation should be clearly and completely characterized in a few words, the other holding that a map problem (or at least one intended for advanced students) should present the same haze and mystery which so frequently surrounds the actual war situation, and that somewhat confused and contradictory data should be given in order to accustom the student to handling such material.† Whether one or the other class of problems is the more desirable for map problem situations may be debatable, but only problems of the first class, short and direct, are suitable for employment as initial situations for war games. Give the player a fair start. The unfolding situation will bring in plenty of obscurity, and if he then fails he will have only himself to blame; while

if he is presented with a tangle of contradictory reports and left to guess as to which is false and which is true, he will justly cast the blame for false measures on the problem itself and lose interest in the exercise.

The general situation especially should be thoroughly understood by everyone. In a series of games on the same map it is desirable, where it can be conveniently done, to have a common general situation so that a misunderstanding by the players of the general features of the problem, the line of communications, the location of friendly or hostile troops, and whether the inhabitants are friendly to one or the other side, will be impossible.

There are a few maxims in regard to problem construction which are so fundamental that it seems scarcely necessary to mention them, yet they are not infrequently violated.*

I. The situation must be reasonable and logical and not strain the imagination of the players. The best safeguard on this score is a reference to military history.† Our Civil War history is a veritable gold mine of situations for forces of every size, from a patrol upwards, and reference to the fact that the situation to be worked out as a war game occurred at such a time and place will not only lend additional interest to the problem, but will serve as a stimulus to the study of military history.‡ Incidents from the Insurrection in the Philippines might also well be made the subjects of war games ad should prove highly instructive. Where large scale maps of Luzon are available these situations could be worked out on the same ground on which they occurred.

II. Problems in which the commander of one side is assumed through mismanagement to have gotten himself into an unfavorable situation are to be avoided. It might seem reasonable to suppose that the commander, in this case, would esteem it an especial honor to be assigned a difficult task, but in practice

^{*}The construction of a problem for a one-sided war game in which the main object is to teach troop-leading or illustrate tactical principles presents far fewer difficulties than that for a two-sided game. When the umpire conducts the other side he has the means of introducing at any time desired changes in the situation.

[†] See Gizycki, Selected Division Problems, p. 91.

^{*}See Sayre's Map Maneuvers, pp. 59-65 (Revised Edition of 1908.) These pages contain valuable suggestions on the construction of problems.

This is especially true of problems for small forces operating independently, which are much more difficult to construct than are problems for reinforced brigades and divisions.

[‡]See problems solved in the Post-Graduate Course, Fort Leavenworth, 1909-10, in which the general situation was taken directly from Civil War history.

he will usually consider it a grievance and feel a consequent lack of responsibility. If, on the contrary, he is led into a trap through his own error, or failure to order recommaissance, the course of the exercise will prove doubly interesting and instructive.

III. The problem must teach one or more distinct lessons and be suited to the intelligence and degree of advancement of the participants in the game. In view of the fact that it is not easy for anyone to sit down and write a good war game problem off-hand, it has been proposed that some central office be established to turn out problems for use throughout the army. However desirable uniformity of tactical instruction may be, the adoption of such a plan would result in seriously curtailing the development of the war game as a useful means of instruction. The captain of fifteen years' service and the lieutenant of three, manifestly do not need the same lessons; nor do the officers of different regiments or battalions at separate posts under different conditions. In each case the local instructor or board is the best judge of the problems which should be made use of as war game situations and should be free to construct the problems best adapted to the work in hand.

It goes without saying that every problem should afford as wide a field of initiative, and present to the player a choice between as many various courses of action, as possible. In problems for beginners this is possible only to a limited extent, for the beginner in tactics shuns contact just as did so many of our generals in the first years of the Civil War. It is necessary, therefore, either to begin the engagement in some way, by compromising the advance guard or a flank guard so that he will be compelled to go to its relief, or else to put his command in such a situation that it is compelled to fight—for instance to save a valuable convoy or to avoid what would otherwise be inevitable capture. As the players progress it becomes possible to start them farther to the rear and to allow them to engage the opponent on their own terms.

After the lesson, that staying to fight or advancing to fight is after all more economical in the end than running away without fighting, has been thoroughly digested, some problems are advis-

able which introduce the idea of not always rushing headlong into a fight, but biding a propitious moment. Placing a command in ambush to attack a convoy or a column about to pass, and allowing the commander to choose the proper moment to move, introduces this idea. It is further developed by problems in which one side has stood on the defensive, but discovers that it is after all superior to the attacker; such problems teach the commander that his superiority of forces will be employed with much more decisive results if he waits until the attacker has employed his last reserve in the attack than if he puts in his reserve at once while the enemy still has fresh forces left with which to cover a retreat.

Among the most instructive classes of war game problems are those involving contact between hostile outposts. These more than any other teach moderation and husbanding the strength of the troops. The commander who finds that he has kept his reserve under arms or has marched it here and there unnecessarily during the night, or that he has brought about purposeless fighting needlessly, has learned a valuable lesson. An outpost problem can of course be turned into an advance by both sides to attack, an attack and defense, or a retreat and pursuit, by a brief additional situation.

The chief lesson to be impressed, however, is that of keeping the real mission uppermost in the commander's mind so that every thought and order will be in harmony with the main purpose. As an example of a problem to teach this might be mentioned a problem in which a command sent on a particular mission, for instance to attack a hostile battery on the flank of our main line of battle, is itself attacked en route by an inferior force. If now the commander fails to act aggressively, or if he becomes absorbed in the fight and, forgetting his real mission, allows himself to be drawn into a pursuit of the beaten force in a direction counter to that which his mission requires him to take, he will have gained a valuable experience—that is, if the umpire performs his function in the final discussion.

By a well conceived course of this sort young officers may be taught a few of the duties and responsibilities of command in war, but to be effective the course must be adjusted to the needs of the particular group. If the lesson which the particular war

game is designed to teach is not mastered, let it be repeated in another form; once it is comprehended let a new subject be introduced into the next war game.

Above all it must always be remembered that however high a value the war game may have as a means of tactical instruction it is not the only means, and that it attains its highest value when war game practice is combined in proper proportion not only with the solving of map problems but with the manifold forms of tactical exercise and instruction on actual ground.



THE TRAINING SCHOOL FOR BAKERS AND COOKS, AT FORT RILEY, KANSAS.

· BY LIBUTEMANT SHERRARD COLEMAN, EIGHTH CAVALRY.

During the past two months I have been on duty as assistant to the officer in charge of the Training School for Bakers and Cooks, at Fort Riley.

For the preceding two years or more, I had been in charge of a mess at Fort Leavenworth, Kansas, which had gained sufficient local reputation to induce an Army writer to publish a description of its methods,* and I feel, therefore, that my impressions of the Fort Riley School may be of interest, for the reasons that they are, (a) not those of a novice, (b) not the superficial notions of a mere visitor, and (c) not the possibly prejudiced ideas of a graduate of the School.

The most striking feature of the School is the amount of practical work accomplished, and the actual experience gained in the short space of four months.

The provisions of General Orders 180, War Department, Series 1909, require that: "The classes under instruction will be composed of specially selected men from organizations of the Army, of common school education, who have not less than two years and six months to serve, who have manifested a desire to learn the trade of baker or cook, and who show an aptitude for the work."

At first glance, the organization commander may gain the erroneous idea that his man is to enter upon a course of study and theory, but nothing could be further from the facts. However, a knowledge of the three R's is necessary, because no man can be sure of economy who is not able to keep his own accounts, and economy is the basis of all instruction at this School.

^{*}The Story of a Troop Mess, by Captain James A. Moss, 24th U. S. Infantry.

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Right here it may not be amiss to state that, month after month, men are sent to the School who are scarcely able to read and write, and who have no knowledge of figures at all. This is not only a violation of War Department orders and a criminal waste of time and money that should be prevented, but an astonishing piece of short-sightedness.

The School can work no miracles; it cannot make a silk purse from a sow's ear.

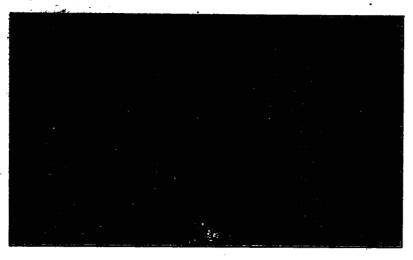


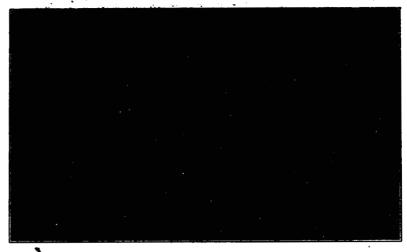
Fig. 1.

Interior ovens of the type usually found in post bakeries.

The Mess Sergean, and the Cook are fully as important to the welfare of an organization as the Quartermaster Sergeant and the Company Clerk. The Company Commander never fails to select the best men available for these latter positions (possibly because he must train them himself), but it often happens that a man is sent to the kitchen because he "isn't good for anything else," and the same idea apparently prevails when many of the details of this School are made.

It seems to me that, if a plain statement of the work the soldier is expected to accomplish within the four months' course be given out to the Army at large through the medium of our service journals, better material will be sent and a much larger number of students will graduate as Chief Bakers, First Cooks and Mess Sergeants, than has been the case heretofore. (Usually less than one-third of the class of cooks graduate as First Cooks.)

Some organization commanders seem to think that the man detailed is to take a course in both baking and cooking. The School is divided into two distinct departments—the de-



F16. 2

THE HOLBROOK-DUNNE KNOCK-DOWN FIELD OVEN.

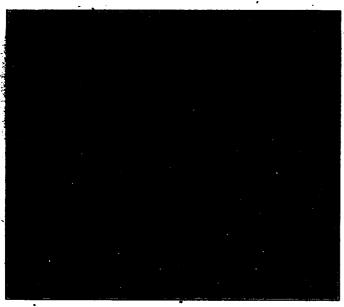
This oven is fired from the trench undernenth. It will bake 270 rations of bread per hour and has the great advantage over other ovens of baking uniform by in each of the three chambers so that the bread when put in the chambers does not have to be shifted or moved until done. The oven can be knocked down and packed immediately after baking. It can be set up within fifteen minutes after the trench has been dug, and may be assembled by any one on account of the simplicity. There are only nine parts.

partment of baking and the department of cooking—and the student is entered in one or the other in accordance with the order detailing him for duty at this School.

In selecting men for detail to the School, company commanders should bear in mind the nature of the work required in the bakery and the kitchen. Pick out a clean man of steady habits, one who is intelligent, industrious and sober. Do not send a man against his will or one who is physically unable to stand the heat of the bakery or kitchen. If the company commander will do his part conscientiously, there will be little to complain of when his man returns to duty.

DEPARTMENT OF BAKING.

The soldier, before being detailed, should be given to un-



Tro 9

This photograph shows the HOLBROOK-DUNNE field oven and its necessary field equipment for baking bread. All of which is of the knock-down type and may be readily packed and transported in the escort wagon. This oven with equipment abown will bake enough bread for 8000 troops daily.

A smaller type—with a capacity of 216 rations—is now being gotten out for regimental use by the Subsistence Department.

derstand by his company commander that he is to enter the bakers' class, and that he has been specially selected from his company on account of his special aptitude for the trade of baker.

A new class of bakers is started under instruction the 15th of each month. The Post Bakery is operated by the School and all bread issued to troops stationed at Fort Riley is baked by the

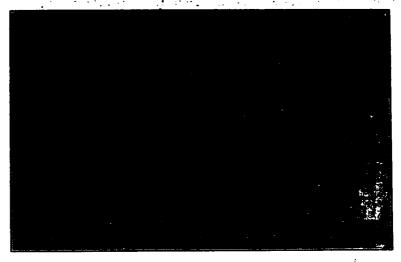
the state of the s



student class. Soon after reporting for duty, members of the new class are assigned to work in the bakery as assistants to the members of the older classes.

In addition to the regular issue bread, a higher grade of bread, called "Sales Bread," is baked for sale to officers and others authorized to purchase bread at the Post Bakery. Rye bread, graham bread, and all sorts of rolls, buns and doughnuts are baked in sufficient quantities for efficient instruction.

Four days each month are devoted to instruction in handling



71G. 4

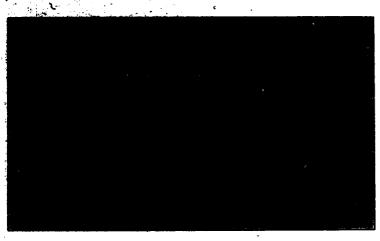
The old type of knock-down field oven. This is a draw fire oven and has to be fired for each batch of bread. It has a capacity of 112 rations per oven. It generally requires three of these ovens with a run of four batches of bread each to supply a regiment in the field.

the regimental field bakery and equipment. The student bakers are detailed by roster on the various duties of making straight doughs, sponges, yeasts and ferments; on the machine work, fires, ovens and pans and field ovens; as issue clerk and mixing room orderly. The field expedients embrace every kind of oven, from the open trench, hole in a bank, mud ovens, to the latest improved knock-down type. During the first two weeks, details are so arranged that men work together in pairs. As the instruc-

tion progresses they are thrown more and more on their own resources.

Detachments of student bakers from this School are sent regularly to attend maneuvers, instruction camps and military tournaments, for the purpose of supplying bread and giving instruction to the militia, etc.

The detachment established by Captain L. R. Holbrook, Commissary, U. S. Army, officer in charge of this School, furnished one of the most interesting exhibits at the big military tournament at Des Moines last summer. This detachment, it is



Pra S

Showing the barrel oven—a field expedient—which is built by using two barrels placed end to end and plastering them over with clay. The oven is then fired and the wood burnt out, leaving the oven complete. This oven has a capacity of fifty rations for each heat or for one baking.

worthy to relate here, demonstrated the kind of work that is being carried on continuously at this School. It arrived at Des Moines after dark in a pouring rain, unloaded its equipment, loaded it on wagons, hauled it out to camp, put up its field ovens, and had excellent bread ready for issue by daylight the next morning. Such an achievement was never heard of before.

After the student baker has become familiar with the daily work in the bakery, he is issued the authorized text-book free, and required to attend daily recitations, which are conducted by an officer. Thorough instruction is given in handling all the accounts properly required of a Chief Baker at a post, as well as in the theory and practice of baking.

In order to test the ability of student bakers to handle a bakery as a Chief Baker, each member of the graduating class is given three days continuous charge of the bakery, and his ability to perform this duty is taken into consideration in determining



Fig. 6.
A Russian Field Oven of the type used in Manchuria.

his fitness as a Chief Baker. During this period he controls all help and makes all details, as well as to make out the reports required of a Chief Baker.

Upon completion of the four months course, student bakers are rated as Chief Bakers, Assistant Bakers, or non-graduates, according to their ability.

In determining the class standing of student bakers,

SCHOOL FOR BAKERS AND COOKS.

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200 points are allowed for practical work in the Post Bak-

100 points for practical work in the field bakery.

50 points for cleanliness and work as mixing room orderly, issue clerk, etc.,

100 points for recitations,

150 points for examinations.

Total, 600 points—450 points are required for proficiency. The work turned out by the bakers' class at the Fort Riley



. Ptg. 1

A type of the Field Oven on Wheels in use to-day by several of the great European powers.

School is of the highest order and reflects great credit on the service. The bread baked is equal to that of the best modern bakeries in our large cities. The art of making good bread is thoroughly gone into, both in theory and in practice. The constant trying out of new methods, improving new field expedients, makes the work interesting to the students, so that by the time the soldier finishes the course and graduates, he has developed into a good practical baker—capable of commanding a good salary in civil life, should he leave the Acmy.

DEPARTMENT OF COOKING.

If it is important that the soldier detailed for the bakers' class in the Training School be above the average in intelligence and energy, then it is doubly so in the case of the cook; for not only has the company cook to understand baking bread, but he should know the value of every article of the ration, how to cook it, and how to preserve it, both in the garrison and in the field. A good mess sergeant who is also a good cook

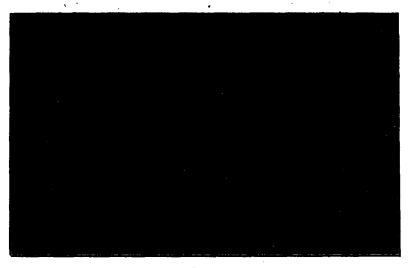


Fig. 8.

The DUNKE-HOLEROOK Kitchen Table. A great modern convenience in the kitchen, which we hope will soon be supplied to the service by the Quartermaster Department.

is indispensable to an organization. There is no investment a company commander can make which will bring him a better return for the time and work he puts on it than a good mess. No one thing does more to promote health and contentment in the organization and to reduce the number of desertions. It has been said that the nearest way to a man's heart is through his stomach; whether this is true or not, it is now generally conceded that where organizations have lost many men by desertion they have had a poor mess.

The authorities at Washington have long recognized this fact and have provided the means of furnishing organizations with good cooks and mess sergeants. It is, therefore, only a question of a few months from the time these details are made until the organization may be furnished with a good cook—but it is up to the company commander to detail the right kind of a man to take the course.

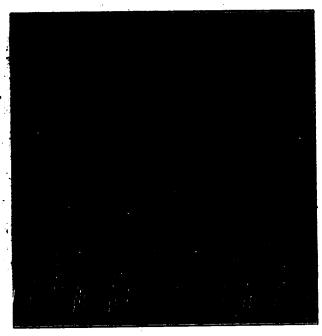


Fig 9.

The Fireless Cooker issued by the Subsistence Department.

A good quartermaster sergeant is not necessarily, de facto, a good mess sergeant. This is an error many company commanders make. To be a good mess sergeant, it is absolutely necessary that he should know how to cook, or else he will be at a disadvantage in dealing with his cooks, who will soon take advantage of his ignorance of the details of the kitchen. Not all good cooks necessarily make good mess sergeants, but it is confidently believed that most of the men who graduate as first

cooks at the Fort Riley School, if given the opportunity, will eventually develop into fairly good mess sergeants.

There is but little theory used in the instruction at this School. It is all a practical demonstration, and no man is graduated until he has proved his ability to take the Army ration and maintain a good company mess. That so few men graduate as first cooks is due to the indifferent class of men sent for instruction. To impress on the service the necessity of sending the best men possible is the only object for which this article is written.

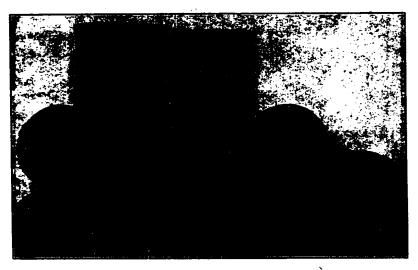


Fig. 16

An improvised fireless cooker used almost to the exclusion of all others by troops stationed at Fort Riley.

In selecting the man from his organization for detail to the school for cooks, the company commander should be careful to explain beforehand the advantage the school offers, and not make the mistake of sending a man who is unfitted for the work and responsibility of the kitchen. Men have often been sent who have no taste or liking for the work. This is not only a violation of orders and a costly experiment for the government, but it deprives some other organization of the opportunity of the detail.

Many schemes for practical work of student cooks were tried before a solution of the question was evolved. That of taking complete charge of a company kitchen and running the mess on straight ration, as put in operation at Fort Riley by the present officer in charge, Captain Lucius R. Holbrook, Subsistence Department, has certainly been the most successful. Under this system each student is tried out in the various positions from assistant cook to mess sergeant, and unless he has practically



F20, 11

A warming device used for slow cooking and for keeping cooked food at an even temperature, as deviced at the Training School.

demonstrated his ability to cook and run a mess successfully he cannot graduate better than second cook.

There are sixteen company messes successfully operated by the School. In addition to the messes there are three field kitchens, in which student cooks make all sorts of pastries, sweet doughs and cakes, for instruction.

Members of the new class are first assigned to duty as assistants to the first and second cooks in the various kitchens, and work with them during their hours of duty. The details for the

kitchen are made out once a week and the students are changed from kitchen to kitchen, in order that they may familiarize themselves with the different conditions.

Each kitchen has, as a rule, five men, one instructor, one first cook (usually a first classman), one second cook (usually a second classman), and two assistants from the third and fourth classes. Upon graduation or promotion of first and second cooks, members of the lower clases are advanced to fill their places. The assignment to duty as first or second cook simply means that the student is being tried in that particular position, and he will graduate as such only in case his work is satisfactory. It is the scheme to have the student cooks spend one week in each of the three field kitchens, one month as second cook and one month as first cook in organization messes. They are promoted to the various positions as they develop sufficient ability to master the work. Should they show special aptitude, they may be advanced to assistant instructors, and after graduating are given extra duty pay while acting as such. Men who, for any reason, have failed to attain satisfactory proficiency during the regular four months course may be retained one month for additional instruction. During the period that student cooks perform the duties of assistants, they attend recitations in the theory and practice of cooking. During the last two months of the course, student cooks receive instruction in dressed beef inspection and cutting up of the carcasses for company use. Partial examinations are held weekly during this period in the theory and practice of cooking and a final examination upon the completion of the course.

While performing the duties of first or second cook, the student is given practical instruction in handling the ration. During the last month he must demonstrate his ability, by actual practice, to run the mess without assistance. He must make out his own ration return, figure on his savings, and make all purchases outside of the ration come within the money saved from the ration. He must also make out the bills of fare, work into edible dishes any articles left over, and keep the quality and variety up to the standard required by the School. It is only after performing these duties successfully and passing a satisfac-

tory written examination in mess accounts that he can graduate as a first cook or mess sergeant.

Beef Inspection. Before he can graduate, a student cook is given thorough instruction in dressed beef inspection and the value of the different cuts of meat. He must be able, upon examination of a fore or hind quarter, to tell the quality, sex and age of the animal, and whether it comes up to the specifications of the contract. He must also show, by demonstration, how to cut up the carcass, so as to get the best parts for roasting, steaks, boiling, etc., and give the proper names to each of the parts.

This part of the course is unique in itself and has given the most satisfactory results. The necessity of being able to judge meat has been too long neglected in the service. Few men, outside of butchers who have long been in the business, are able to tell anything about the age or sex of commercial dressed beef after it leaves the packing house. The method of instruction given at this School is so thorough and made so clear to the student that, after graduation, it is almost impossible for him to make a mistake.

Baking Bread, Cakes, Pastry, Etc. Although baking is in a separate class by itself, each student cook is given instruction in the preparation and the value of different kinds of yeasts and baking powders. Fresh bread, such as rolls, buns, crullers and the like are made each day in the kitchen by the first or second cook. All sorts of pastry and cakes are made for desserts. In addition to this, each student cook spends one week in each of the field kitchens, where he has to make all sorts of pies, cakes and sweet doughs, under the supervision of special instructors. In the field kitchens the student cook learns the value of the different processes for making dough and the effect of temperatures on yeasts, ferments and sponges. So that by the end of three weeks' work, with what he has learned in the kitchen, he should the able to graduate in this class of work.

Field Cooking. From time to time the class is sent out with the field range and are taught the use of camp expedients. Once each week the class is given a demonstration in individual cooking.

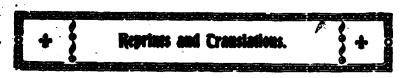
Hygiene and Samitation. Another important part of the cook's education at this School is kitchen hygiene and sanitation. Each student is required to have a good supply of white uniforms and is issued a liberal number of white caps and aprons. The caps and aprons are furnished by the school and are laundered without expense to the students. Instruction is given, from day to day, on the importance of keeping the person clean, the necessity of frequent changes of clothing, and presenting a neat appearance. Kitchens and the utensils used therein are inspected daily by an officer, and lectures on the necessity of keeping them clean and sightly are frequently given.

Prizes of from five to twenty-five dollars are given to those students who demonstrate special ability in each of the classes. While the foregoing outline of the work required of student bakers and cooks at this School may seem to cover all their time and the reader may wonder when the student is to find time for recreation, yet the course has been so well arranged and systematized that every detail has been looked after and provided for.

It is true, especially so in the case of the cooking class, that there is little time for play, if the course is to be covered in four months; but the details in the kitchen are so arranged that it is necessary for only one cook and his assistant to get up to cook breakfast; the other cook comes in about 8 o'clock and attends meat inspection, cooks supper and breakfast the following morning—so that the work alternates. The cook that goes off after getting dinner attends recitations in the afternoon.

A good library and pool room is maintained in the detachment barracks. Passes are frequently given to visit function City. Furloughs are granted only to men who graduate with credit, and upon approval of the organization commanders.

Men seeking details to the Training School for bakers and cooks should bear in mind that the school is maintained at considerable expense to the government, and that if sent here their organizations are deprived of their services for a period of four months or more. That, in justice to the government, they should make the most of their opportunity, and endeavor by every means possible to perfect themselves in the trade which they have selected to take at government expense.



MODERN WAR.

From the Journal of the United Service Institution of India.

THE following is a translation, made by Mr. Somerville, Chief Clerk at the Staff College, Quetta, of an article in the Deutsche Revue, attributed to General von Schlieffen, a former Chief of the German General Staff.

It will be remembered that this afticle created some stir. It was quoted by the German Emperor in a speech made to German Generals. The Emperor, at the time, gave his Imperial approval to the sentiments expressed in the article. It was later explained that the Emperor's approval was limited to the military portion of the article and did not necessarily include the political opinions expressed therein.

With such high approval, we may perhaps regard this article as the latest expression of German ideas as regards the battle of the future. The article is, however, not strictly official, and does not necessarily accord literally with German regulations. It is also, in some respects, palpably speculative. Still, taken as a whole, we may consider it as a fairly true indication of German military tendencies.

It will, therefore, be very instructive to compare the general military principles expressed in this article with the very latest principles adopted by us, and expressed in our new Field Service Regulations which now supersede "Combined Training."

Many points of similarity will be noted; there are also several important differences.

The chief and most essential difference is this that, whereas the German ideal whole-heartedly supports the Moltkeian prineiple of strategical advances on a wide front from different directions and the tactical envelopment of the enemy on both flanks, by the combined attack of the different columns on the battlefield, our regulations reject this idea as unsuited to our army.

The General Staff at home have arrived at this opinion after much reflection and sifting of evidence. It is, therefore, a deliberate expression of the official view and, as such, cannot be called in question.

The premise on which our General Staff work is no doubt, though not so officially expressed, the fundamental axiom that the British Army, being a small army, must normally expect to meet an enemy who outnumbers it.

From this premise it is, no doubt, argued that the best opportunity of success will be afforded us if we adopt, strategically, the principle of Interior Lines, and, tactically, the principle of maneuvering with a large reserve. In other words, if we still adhere to those methods which were more commonly made use of by Napoleon.

The developments in numbers, means of communication, fire effect of guns and rifles, and other matters, which caused Moltke to depart from Napoleon's principles of war, have, needless to say, been fully considered by our General Staff. The upshot of their reasonings is that, despite all these developments, and despite the experiences of 1866, 1870, and 1904-05, the British Army will do best to adhere to those principles which, for the sake of conciseness, we may describe as Napoleonic.

There is, however, nothing in the directions of our General Staff which would compel us to pedantically adhere to those principles, if circumstances clearly indicate that they are inapplicable.

All our regulations say is this—that the Napoleonic principles are better suited to our army, and therefore they have been chiefly considered in our regulations.

We might perhaps have wished that, as, ex hypothesis, our enemy will be more numerous than ourselves, and therefore he will probably, consciously or unconsciously, adopt the methods of Moltke, more space might have been taken in our regulations to explain these methods, so that we might not run the risk of failing to understand our enemy's principles of strategy and tactics.

But no doubt, considerations of space, which must be regarded in official publications, have prevented this course being followed.

Another point, and one in which the German ideals go further than we do, is in the matter of frontage for an attack. The German article, purporting to derive its lessons from the Manchurian War, contemplates attacks with three or less, men to the metre. Our regulations, also deriving their lessons from the latest example, consider that a decisive attack should not be delivered with less than three to five men per yard of front to be attacked.

There was a time when the British Army prided itself on its capacity to fight on a wider front than any foe which it ever met. It was this capacity which caused its fire to be more effectual than the fire of any other troops. It was greatly due to their power of extension that we won our battles in the Peninsula: It was said of the great Duke of Wellington that, even while he was in India, he had recognized that this British capacity for fighting in line, while its enemies were obliged to fight in column, could be utilized with every chance of success on the fields of Europe.

If the article, here translated is really expressive of what the German Army is now prepared to do, we must, following our regulations, modify to some extent our ideas as to the comparative power of extension of a British force.

The probability, however, is that extensions have been lately much overdone, and our General Staff are obliged to swing the pendulum decidedly in the opposite direction, to secure equilibrium. No one really doubts the ability of the British soldier of the present day to exhibit the same fighting qualities as his fore-fathers did.

There is another possibility which must also be considered; and that is that the lessons of history are differently read by different people, and that even the facts of history are differently recorded by different observers. It follows, therefore, that the events of even the latest campaigns may provide very different lessons, dependent on the evidence which may be available.

The Germans, pre-conceiving the type of battle they mean to fight, and enforcing this conception on their enemy by a ruthless advance and determined initiative, are able to assign to their cavalry on the battlefield a very definite rôle. That rôle is—first, to ascertain the position of the enemy's flanks, and secondly, to com-

plete envelopment by acting in extension of one or both flanks of the attacking force. If the complete envelopment fails, the cavalry is favorably placed for the pursuit on parallel lines (article pages 17 and 18).

As we have no pre-conceived idea of the battle, but are obliged to some extent, to await events and then act with a large reserve as seems best at the moment, we cannot assign to our cavalry so definite a task. We rely, therefore, on concentrating our cavalry on the battlefield in a suitable waiting position, and keeping up a close telephonic (or other) communication between the Commander-in-Chief and the Commander of the Cavalry. In this manner it is anticipated that we shall be able to use our Cavalry with decisive effect on the issue of the battle. (F.S.R., I, 106 (2)).

The German article, and here it is somewhat speculative, contemplates a very free use of aeronautic inventions in the battle-field. If this is justifiable, much of the exploration duty of cavalry is lightened. No longer will we be obliged to demand of our independent cavalry that it shall pierce the enemy's protective screen and find out the movements of his main columns. Such work can be allotted to the aeronaut. However, we have not yet reached this stage of development, and for the present our knowledge of the enemy's movements must principally depend on the enterprise and ability of our cavalry.

We need not remark on the lurid political situation so graphically described in the article.

Colonel Drake has explained in a footnote the reference to a "haven in Jutland." The strategical maneuver involved in this hypothetical landing appears to have been taken more seriously in Germany than was probably ever intended in England.

(Translated from the January, 1909, number of the Deutsche Revue.)

The Peace of Frankfurt only outwardly terminated the struggle between Germany and France. Although arms were grounded, a latent form of war nevertheless continued to be waged.

One of the two opponents discovered a quicker firing rifle, a longer-ranged gun, and more effective projectiles than had been used hitherto. She might rest assured that the other Power,

within a very short time, would produce a still quicker firing rifle, a still long-ranged gun, and a still more effective projectile. While each was unremittingly striving to out-do the other, they eventually succeeded in attaining equality almost and weapons scarcely susceptible of further perfection. Thenceforward, it became their earnest endeavor to gain an advantage over their outwitted enemy in the imminent war of revenge by means of superior rifles and guns. Each strove to reproduce a similar state of things to that of 1866, when one of the opposing Powers had stepped into the arena armed with the needle-gun, and the other with only a muzzle-loader. In the course of the years, there have occurred moments when one or other of these two Powers has believed herself to have attained the goal, and when it seemed that the only thing to be awaited was a favorable opportunity that could be made the pretext for declaring war on the opposite camp. Still confidence in new weapons, the result of painstaking experiments, never sufficed to suppress all other considerations and doubts. While temporizing, the opponent was allowed time to recover the lost ground and even to get further ahead.

The other Powers could not witness this competition with indifference. Whoever wishes to make his voice heard in Europe, or anywhere all over the world, cannot afford to remain too far behind the two States which set the pace in the matter of arming their soldiers. For the other Powers it was not necessary to take part in every single phase of the battle. It was sufficient to make use of the object-lessons afforded and attain the same end with less exertion and less expense.

After the lapse of several decades, the German-French strife has reached the point (and the technical departments, goaded to their utmost, have brought it about) that almost all armies, not of Europe only, but also those of the Far East and West, find themselves in possession of weapons of pretty nearly equal value.

Rifles and guns are light and handy, are quickly loaded and quickly fired, are of great range and accuracy, and command great spaces. A new powder betrays neither the rifleman nor the gun by far visible smoke. A projectile of the smallest circumference and weight admits of the accompaniment of great quantities of ammunition and makes possible the fullest utilization of quickness of fire. It seems useless to strive to rise to still higher perfec-

tion in these matters, or to set new tasks to experimenters. The ideal has been attained.*

One projectile has scarcely accomplished its flight before another can be sent after it. If only the hand is sure and the eye sharp, the most distant object can be hit. The propelling force is so great that almost the whole space between the muzzle of the piece and the object is dominated. The projectile cannot be further reduced in size. Indeed, although it suffices to put the civilized European out of action, it does not do so with any degree of certainty in the case of the son of nature of uncivilized parts of the world.

No body of troops in close formation, no men standing free and upright, can afford to expose themselves to the rain of projectiles. Even at Mars la Tour, when opposed to an imperfect and obsolete weapon, a certain Prussian regiment; advancing to the attack in close order, lost 68 per cent of its strength in rather less than half an hour. Three years ago, the Japanese Nambu Brigade had to pay for its courageous advance with a loss of 90 per cent in a far shorter period of time. In South Africa, a single covered gun easily strewed down in front of it fourteen charging attackers.

The science of weapons has the most brilliant triumphs to celebrate. But it has given no one that which Germany as well as France has striven for, and that which all other Powers desire to attain—easier conditions in battle and superiority over the enemy. While the science of arms distributes its expensive gifts to all, indifferently and impartially, it at the same time prepares for all the greatest difficulties and the weightiest disadvantages. It is easy to say how, by means of these effective weapons, one can strew down and annihilate one's enemies. But how to escape annihilation oneself is a problem not so easy of solution. A complete change in tactics became necessary in consequence. It is no longer possible, as in the 18th century, to march up to a position in two lines close to one another and deliver volleys at the enemy from no very great distance. Both armies would, inside a few minutes, be wiped off the surface of the earth by magazine fire. It is out of order to make Napoleonic columns, as deep as they are

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^{* (}Norz.--We have yet to get automatic rifles and silencers.)

broad, advance to the attack of a hostile position. A hail of shrapnel would smash them to pieces. Nor is it practicable, as was considered the case only a short time ago, to attempt to overcome the enemy by the fire of dense swarms of riflemen. The swarms of riflemen would be themselves the first to be mowed down. It is only by the utilization of cover, trees and buildings. walls and ditches, elevations and depressions in the ground, that the infantryman can reach his enemy, now lying, now kneeling, and sometimes standing he must endeavor, without allowing himself to be seen, to hit the small tiny objects which occasionally offer themselves to him, by his fire to silence that of the enemy, and quickly thereafter to gain new cover to his front, from which he can take up the fight anew. But no matter how many covered positions the battlefield may afford, sooner or later an open space of ground, affording no manner of cover, will spread itself out in front of the enemy. If only this space is a narrow one, the attackers will make a quick dash forward and throw themselves on the enemy, shattered by the protracted firing. Should, however, the space be a wide one, the only thing for it will be to dig cover with the spade and, as in fortress warfare, to press forward from trench to trench and, when necessary, under cover of night.

(Compare this statement with our Field Service Regulations, Part I, Operations, 1909, 105(6)-

"During the process of establishing a superiority of fire, successive fire positions will be occupied by the firing line. As a rule, those affording natural cover will be chosen, but if none exist, and the intensity of the hostile fire precindes any immediate advance, it may be expedient for the firing line to entrench itself. This hastily constructed protection will enable the attack to cope with the defenders' fire, and thus prepare the way for a further advance, but entrenching by infantry during an attack, when it involves any diminution in the volume of its fire, is only to be employed if further progress has become impossible, and an energetic advance must be resumed at the first possible moment." F.S.R., Part I. Operations, 1909, 134(2)-

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"A night advance during a battle may be made when it has not been found possible to gain a sufficient superiority of fire during daylight to justify an assault, for the purpose of renewing the fight under more favorable conditions at dawn. Night advances of this nature will often be advantageous against a strongly posted enemy who offers such stubborn resistance as to cause the operations to extend over a period of more than one day. The objective of the advance when gained should be entrenched, so that it may afford a point of support to further progress in daylight. Occasionally, it may

happen that an enemy has occupied a position which leaves the assistant little or no scope for maneuver and has been strengthened to such an extent as to make the success of an attack in daylight doubtful. Under these circumstances a series of advances on successive nights from one fire position to another, may be advisable, each advance being for a few hundred yards only, and each position when gained being entrenched. Such operations approximate to siege warfare and should rarely be necessary or advisable in field warfare except in country where freedom of maneuver is very limited.")

It is the business of the artillery to support and assist this advance of the infantry. The artillery should, by means of their fire, ward off the fire of the hostile artillery from their infantry, fighting laboriously forward, search out the hostile infantry in their positions, and smash up the cover behind which they have crawled. To carry out its duties successfully the artillery must endeavor to protect itself against overwhelming hostile fire. But. since it is not so easy to make a gun invisible as it is a man, we are forced back to the protective weapons of earlier times and endeavor to render gun and rifle innocuous by means of shields.

(Compare our F.S.R., Part I, Operations, 1909: 106(3) " • • • The principle of the employment of artillery in the battle is that the greater the difficulties of the infantry, the closer must be the support of the artillery and F.S.R., Part I, Operations, 1909, 105(3).

"Artillery Commanders must closely watch the advance of the infantry, and direct their fire against what is for the time being, the most important target, always remembering that the object of their fire is to assist the infantry advance.")

To enable him to find suitable cover, to deliver a more certain dash forwards against a hardly visible object, and to enable him to get along at full speed in his forward movements, the infantry soldier must have elbow room. Infantry can only fight effectively, not in close order but in extended lines (say about one man to a metre), not in several closely locked-up ranks, but only in one rank. Additional ranks may follow at not too short a distance. They form in closer formations when the cover available admits of it. It is for them to replace casualties, fill up gaps, be prepared for unexpected emergencies, and act as reserve. If it is not, then, desirable to decrease the number of combatants compared with what it has hitherto been, this open formation must lead to extension of frontage. This stretching out of the front will be still more increased if efforts are made to bring as many effective rifles as possible into action. That will be possible notwithstanding the powers of offense and defense of the troops since a few riflemen can now accomplish more than could be done formerly by many. Before the decisive attack with the bayonet takes place, the reserves, who have been following up, must reinforce the leading loose line.

A greater extension of the frontage over which fighting is carried on is the immediate consequence of improved firearms. So it has come to pass that, whereas in the battles of the last two centuries (counting all arms and reserves) there was reckoned a total of 10 to 15 men per metre in the battle front, and whereas even 40 years ago 10 men to the pace was considered normal, in the East Asiatic war of 1904-05, three men to the metre was usual, but on occasions that number had to be reduced. Neither of the two opponents had entered upon the war with any hard and fast rules about the extension of the fighting front, nor had either of them taken much trouble about the application of the theories acquired in peace. Force of circumstances and the natural striving after keeping oneself under cover, and at the same time bringing into action the excellent weapons available, have produced the long battle fronts. It cannot be doubted that the phenomena disclosed in the Far East will repeat themselves in a European war. The battlefields of the future will, and must, assume proportions quite different to what we have known in the past. Armies of the strength of those of Königgrätz and Gravelotte St. Privat will occupy more than four times the space of former times. But what will the 229,000 men of Königgrätz, or the 186,000 men of Gravelotte signify, when compared with the masses which are destined to take the field in future wars?

(Compare our F.S.R., Part I, Operations, 1909, 104(3)

The latest experience goes to show that a smaller force than from three to five men per yard on the front on which the decisive attack is to be delivered, will rarely prove sufficient, this force being distributed in such depth as circumstances make advisable.")

Forty years ago, the idea of the duty of universal military service was the unique possession of Prussia, and it was not envied by any of the narrow-minded States. Since 1866 and 1870, almost all the great Powers have hastened to possess themselves of this secret of victory. Since that time, whatever is healthy and strong has been impressed for military service. In order to ac-

quire as great numbers as possible, the period of service with the colors has been curtailed as much as possible, while the period of liability to service in war has been prolonged to the utmost. No Power has been able to excuse itself from the rivalry to possess a maximum number of battalions. If any one held back it was at the risk of strangulation.

Seeing that Germany, with a population of 62 millions, represents annually 250,000 recruits with a 19 years liability to war service, and France with its 40 millions of inhabitants produces annually 220,000 recruits with a 25 years' liability to service in war, the former has available for war 4,750,000 and the latter 5,500,000 men! But these numbers are more or less imaginary, apart from the casualties occurring during a long course of years. The man who fifteen years ago escaped from the barrack-room to the factory or the coal-mine, cannot remember much of the tactics which were taught him on the parade ground of his garrison town. The weapon from which the Landwehr man as a recruit fired his musketry course has long ago been turned over to a black warrior of a foreign protectorate. He regards the new weapon placed in his hands with the same distrust that a grenadier of the "old Dessauer" would have exhibited towards a needle-gun. The artisan, who is in the habit of cycling in the morning to his work-shop and in the evening back again to his home, would, with difficulty, be able to nut behind him daily a distance of from 30 to 40 kilometres, carrying his arms, his ammunition, and his kit. The Landwehr, the Landsturm, the Territorial Army and the Reserve of the Territorial Army, can be added to the strength of the "Nation in Arms" to a very meager and inconsiderable extent. Of the balance, moreover, a great many will have to be left behind as fortress garrisons and reserve troops. If the conditions of 1870 are taken as a standard of comparison—when the Landsturm was not taken into consideration at all, and the Landwehr only to a very limited extent—and still out of a total strength of 1,200,000 men only some 500,000 took the field, it will be seen that at present we can only reckon on very little more than a million of men. Nevertheless, such an army is a large one in comparison with those of former times; and it is also large for those who will have to command it and direct its movements; in another

sense it is small since it will have neither the assurance of superiority as regards weapons (as in 1866) nor of numerical superiority (as in 1870) over its enemy; and it will only be sufficient if it should prove possible to hold these masses together and to insure their working together for one end. Even if this is successfully accomplished, it is still not indispensable that the total strength of the force should be concentrated on one hattlefield. twenty times larger than that of "Königgrätz." We know that the small battle of Dresden consisted of two separate parts; and were there not at Leipsic three distinct battles on the 16th October? And did not Le Mans dissolve into quite a number of independent fights? The issue does not depend upon the result of local engagements, but upon the manner in which these affect the more intimate inter-dependence of events as a whole; so that fighting may go on on one field to gain victory on another. This much, however, is certain, that general as well as partial engagements, isolated as well as connected battles, will be fought on fields and over areas which will prodigiously surpass in magnitude the theatres of former military achievements.

(Compare our F.S.R., Part I, Operations, 1909, 105(5).

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the attack, more often than not, will resolve itself into a series of distinct engagements, each raging round a different locality, and each possibly protracted over many hours."

and F.R.S., Part I, Operations, 1909, 105(4).

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All leaders, down to those of the smallest units, must endeavor to apply, at all stages of the fight, the principle of mutual support."

But however extensive the battle-fields may be, they will afford but little for the eye to rest upon. Nothing will be visible on the wide expanse*. Were it not for the thunder of the guns deafening the ears, the only thing that would indicate the presence of artillery would be faint spurts of fire. It would not be possible to tell from what direction the rolling sound of infantry firing came, were it not for a thin line making occasional dashes forward—up and down, now here, now there, and again vanishing from view with equal rapidity. No horseman is to be seen. The cavalry is obliged to seek its rôle outside the theatre of activity of the other two arms. No Napoleon, surrounded by a glittering suite, is to be seen on a hill. Even with the best field

(Compare our F.S.R., Part I, Operations, 1909, 104(5)

"During an engagement the position of a Commander will depend a great deal on the size of the force he commands. With a small force it may be possible to exercise personal supervision, but with very large forces the Commander-in-Chief should usually be well in rear, beyond the reach of distraction by local events, and in signal communication with his chief subordinates. Subordinate commanders should take up positions where they can obtain a good view of the area in which their commands are operating, and which admit of easy communication with their immediate superior and the units under their command.

These messages will differ from those of former times more particularly as regards the magnitude of the numbers they deal with and less in respect of the nature of their contents. There will be, as there has been for centuries back, a general agreement in their tenor, the enemy has strongly fortified himself, the artillery is suffering heavy losses, the infantry cannot possibly advance further, and strong reinforcements are urgently necessary. The field Commander will not be in a position to yield to these demands. Even if he should have kept in hand a strong reserve at his own disposal, it would quickly be used up, if he were to attempt to comply with all the apparently well-founded calls for assistance from remote parts of the field and from all directions, at distances of many miles and days' marches. Since the fighting can only be carried on by a proportionately limited number of units, the despatch of strong reinforcements (which, having no room allotted them, can find no cover) would only increase the losses. The real task of the director of the battle is ended when

glasses he would not be able to get a view of much. His grey horse would become an easy target for innumerable batteries to aim at. The commander in the field will be found further to the rear in a house with spacious offices, in which telegraph apparatus (ærial and helio), telephone and signaling apparatus are at hand. Crowds of motor vehicles and motor bicycles, equipped for the longest journeys, are waiting in expectation of orders. Seated here, in a comfortable chair in front of a broad table, the modern Alexander has before him on a map the whole battlefield; from here he telephones his ardent messages; and here he receives the reports of Army and Corps Commanders; of captive balloons and dirigible airships which are in observation of the movements of the enemy along the whole line and which have his positions in watchful view.

he, long before actual contact with the enemy can take place, has allotted to all the armies and corps the highways, roads and directions by which they are to advance, and has indicated to them approximately the objects to be attained that day. The approach march to the battle begins immediately the troops leave the railway. From the railway stations the Corps and Divisions, some expediting their march, others retarding it, endeavoring to reach the places which have been assigned to them in the order of battle.

(Compare our F.S.R., Part I, Operations, 1909, 102(3) and 102(4)...

"The principles upon which the deployment is made will depend upon the Commander's plans. The first object of a Commander who seeks to gain the initiative in battle is to develop superiority of fire as a preparation for the delivery of a decisive blow. In the case of very large armies, or of an army which possesses a decided superiority in powers over its antagonist, the development of fire effect is usually facilitated by aiming from the outset at the envelopment of one or both of the enemy's flanks. This may be done by continuously extending the front as the enemy's dispositions are discovered until his line is overlapped, or by a converging movement of two † portions of the army, so timed as to bring both simultaneously to the battlefield. Few methods are more effective than the latter, when successful, for it combines the advantages of enveloping attack on the battlefield with a convenient division of the army before the battle. Converging movements, however, demand the most skillful timing and complete arrangements for inter-communication, for any failure may lay the divided parts of the army open to the risk of defeat ^ in detail by an enterprising enemy. In neither of these cases is it usually possible for the Commander to keep a large force in his own hand after he has once decided on his plan of battle and issued his orders. He, therefore, has little further control when once battle is joined, but he influences the general course of the action by his preliminary dispositions, which determine the direction of the decisive attack, and the force with which it is to be delivered.")

102(4). "A Commander may also decide to obtain the decision of the battle by maneuver on the battlefield with a large general reserve which he has retained in his own hard. By keeping a considerable part of his force under control he is in a position to take advantage of an enemy's mistakes and to choose his own moment for striking, but, if this method is to be successful, the size of his army must allow him to keep in close touch with the course of events on the battlefield, and to strike with his reserve at the right place and time. This method will usually be most suited to the circumstances of our army, and has been chiefly considered in the succeeding sections".)

As fighting frontages expand, so also the columns, endeavoring to reach the battlefield, will march with the same frontages, as

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nearly as possible, as they will occupy in the actual fighting. Concentration for the battle will lose its importance.

(Compare this with our F.S.R., Part I, Operations, 1909, 102(2).

"Before deploying it will usually be desirable for each column to close up and assume a formation of assembly. When time presses it may be necessary to move units directly from the line of march into their position in the deployed line, but the occasion must be very urgent to justify a Commander in abandoning the advantages which systematic arrangements for a concerted advance confer."

Those Corps which run up against the enemy will be obliged to fight it out without being able to reckon on any support.

Having 144 excellent guns, instead of, as formerly, only 84 indifferent ones, and having 25,000 excellent rifles, each Corps will be in a position to perform ten times the amount of execution which was possible in the days of muzzle-loaders. It is no dissipation of force, but an enhancement of existing strength, for a Corps to occupy three times as much front as 40 years ago. With such a fighting front it is still quite feasible to maintain one's own in the fight, make good losses to the extent of 50 per cent, and yet have a reserve in hand for the final assault.

It will doubtless be a slow business, and it will be a fatiguing one—this fighting forward from cover to cover, this crawling advance up to the enemy, this holding out to the end, this constant state of preparedness to ward off a counter-attack.

Not every Corps will be in a position to participate in the battle on the first day. At Leipsic the evening of the third day had arrived before the last Corps of the Allies appeared even in the neighborhood of the scene of the battle. In the second half of the war of 1870-71, battles of several days' duration were the rule, as at Orleans, Le Mans, etc. The battles of the future will also demand of the masses of troops spread over great areas, a correspondingly long duration of several, or rather of many days, even if they do not extend to fourteen as at Mukden. On every fresh day the field Commander will encourage those Armies and Corps already engaged, to fresh exertions, preserving those not yet committed in their march formations or indicating to them any change of position that may have become necessary.

^{*} Or mobility.

[†] Or more.

^{*}Note.—Of course the writer means direct support; indirect support will automatically be given when each column strives to accomplish the object directly before it.

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These protracted battles will, by no means, be more bloody than those of earlier times. The daily battle casualties in the East Asiatic war amounted to only from 2 to 3 per cent, as against from 40 to 50 per cent in the days of Napoleon and Frederick. The fourteen days of Mukden cost the Russians, as well as the Japanese, less than the few short hours of Mars la Tour cost the Germans and French.

The Russo-Japanese war showed that a purely frontal attack on a hostile position may very well be successful. But the consequences of such an attack are, even in the most favorable circumstances, only meager.

(Compare our F.S.R., Part I, Operations, 1909, 103(2).

"A Commander should consider what parts of an enemy's force can be attacked with most prospect of success, and choose as the objective of the decisive attack that part the defeat of which will give the greatest results. This will usually be one or other of the enemy's flanks."

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The enemy may certainly be driven back, but after a time he repeats, on another site, the opposition which he had temporarily given up. The campaign drags itself along. But such wars are impossible in our time when the existence of the nation is founded on the uninterrupted progress of trade and industry, and the machinery which has been brought to a standstill has to be again got into motion by means of a quick decision. Any half-hearted strategy is inadmissible when the maintenance of millions demand the expenditure of milliards. But to attain a decisive and annihilating success an attack from two or three sides, as well as against the front and against one or both flanks, is requisite. Such an attack is comparatively easy for those to carry out who find themselves in possession of superior numbers. But such a superiority is not under existing conditions, to be reckoned upon.

(Compare again our F.S. Regulations, Part I, Operations, 1909, 102(3) and (4).

"The principles upon which the deployment is made will depend upon the Commander's plans. The first object of a Commander who seeks to gain the initiative in battle is to develop superiority of fire as a preparation for the delivery of a decisive blow. In the case of very large armies, or of an army which possesses a decided superiority in power over its antagonist, the development of fire effect is usually facilitated by aiming from the outset at the envelopment of one or both of the enemy's flanks. This may be done by continuously extending the front as the enemy's dispositions are discovered until his line is overlapped, or by a converging movement of two portions of

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the army, so timed as to bring both simultaneously to the battlefield. Few methods are more effective than the latter, when successful, for it combines the advantages of enveloping attack on the battlefield with a convenient division of the army, before the battle. Converging movements, however, demand the most skillful timing and complete arrangements for inter-communication, for any failure may lay the divided parts of the army open to the risk of defeat in detail by an enterprising enemy. In neither of these cases is it usually possible for the Commander to keep a large force in his own hand after he has once decided on his plan of battle and issued his orders. He therefore has little further control when once battle is joined, but he influences the general course of the action by his preliminary dispositions, which determine the direction of the decisive attack and the force with which it is to be delivered.

(4) A Commander may also decide to obtain the decision of the battle by maneuver on the battlefield with a large general reserve which he has retained in his own hand. By keeping a considerable part of his force under control, he is in a position to take advantage of an enemy's mistakes and to choose his own moment for striking, but, if this method is to be successful, the size of his army must allow him to keep in close touch with the course of events on the battlefield, and to strike with his reserve at the right place and time. This method will usually be most suited to the circumstances of our army, and has been chiefly considered in the succeeding sections.")

The means for strong flank attack can only be made available by making the force operating against the hostile front as weak as possible. But, however weak that may be made, it cannot be so weakened as to be brought to a standstill and "occupy" the enemy by long-range fire or merely "contain" him. The front must be "attacked" under all circumstances and the advance against the front must always go "forward."

(Compare our F.S.R., Part I, Operations, 1909, 103(3).

"The objective of the decisive attack should be struck unexpectedly and in the greatest possible strength," and F.S.R., Part I, Operations, 1909, 105(4).

"In order to prevent the enemy from thinning his line so as to reinforce the point against which he expects the decisive attack will be directed, and to force him to use up his reserves, it will be absolutely necessary for the troops to whom the role of wearing down the enemy's resistance is allotted to act with vigor. No half measures will succeed. The enemy must be deceived, and this will call for as much self-sacrifice and devotion on the part of these troops as will be required from those taking part in the decisive attack

In addition, it has been found that the quick-firing, longrange rifle can take the place of several of the earlier rifles, and that it can respond to all demands made upon it, if only the neces-

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sary ammunition is forthcoming. Instead of heaping up reserves behind the front, which must remain inactive, and whose absence from the decisive point is felt, it is better to give heed to the question of the supply of ample ammunition. Ammunition brought up in motor wagons affords the best and the most reliable of reserves. All troops who would otherwise have been kept well in the rear with a view to being available for the decisive moment, must nowadays from the very beginning be pushed forward to a flank attack. The stronger the force is, which can be brought up for this purpose, the more decisive will the flank attack be.

(Compare again our F.S.R., Part I, Operations, 1909, 102(4).

"A Commander may also decide to obtain the decision of the battle by maneuver on the battlefield with a large general reserve which he has retained in his own hand. By keeping a considerable part of his force under coutrol he is in a position to take advantage of an enemy's mistakes and to choose his own moment for striking, but, if this method is to be successful, the size of his army must allow him to keep in close touch with the course of events on the battlefield, and to strike with his reserve at the right place and time. This method will usually be most suited to the circumstances of our army, and has been chiefly considered in the succeeding sections.")

But in order to attack a hostile flank it is necessary to know where that is. Hitherto the cavalry would have been charged with the determination of the point.

. (Compare our F.S.R., Part I, Operations, 1909, 92(1).

"Tactical reconnaissance is one of the most important duties of the protective cavalry, who when touch with the enemy is gained will assume a vigorous offensive, drive in the enemy's advanced troops, and discover his dispositions and intentions.

It is to be expected that this task will, in the future, be allotted to a fleet of dirigible airships, which, from above, will be able to see better than cavalry, impeded in its work of looking around by hills, woods and town.

(Compare our F.S.R., Part I, Operations, 1909, 95(1), (2).

"The technical balloon officer should be told what information it is desired to obtain, and given as free a hand as possible as regards time and place of ascent. The observers should be fully acquainted with the situation and provided with the best maps and glasses procurable.

(2) Captive balloons and kites may be employed:-

(i) To obtain information of the enemy's position and of the movements

of any considerable bodies of troops, when in such close touch that the cavalry can no longer make progress.

(ii) To obtain targets for and direct artillery fire.

- (iii) To ascertain the position of our own troops on the field of battle.
- (iv) To ascertain the nature of the ground to the front or to a flank.")

But as cavalry, before it can complete its work of exploration, must first of all drive the hostile cavalry from the field, in the same way will the airships be obliged to fight a battle with their similarly equipped antagonists in the upper regions.

(Compare our F.S.R., Part I, Operations 1909, 91(1).-

"To obtain for the Commander-in-Chief the information he requires is the first duty of the independent cavalry, which will push into the zone separating the two armies in the direction in which it is desired to reconnoiter. In this area the hostile cavalry will usually be operating; and until it has been disposed of, the independent cavalry will find it difficult to obtain satisfactory information regarding the enemy's columns.

Happy then will be the fightly constructed aerostat which is successful in mounting higher than its rival, slinging down the annihilating explosive on its more deeply floating antagonist, and then getting way to a distance with all speed to escape being caught in the ascending flames.

The cavalry, relieved from its present duty of exploration, will attempt to carry to the rear of the enemy the fire at its disposal in its artillery, its machine-guns, and in its long-range carbines.

(Compare our F.S.R., Part I, Operations, 1909, 106(2).

"As the crisis of the battle approaches and the enemy becomes morally and physically exhausted, the chances of successful cavalry action increase. For effective intervention, the concentration of as large a part of the cavalry as possible is required, the rest depends chiefly upon the Cavalry Commander, who should be where he can best watch the progress of events, keep in touch with other Commanders, and carry out the instructions of the Commander-in-Chief, with whom he should be in signal communication (if possible by telephone). When a favorable opportunity for cavalry action arises, it must be seized at once; but it is important that the result should promise to have a direct influence upon the decision of the battle, and that cavalry should not be exposed to heavy losses and horses be exhausted on minor enterprises. The attacking infantry should take immediate advantage of the results of the cavalry action.")

There will be no change in the obligation resting upon the cavalry of attacking any hostile cavalry which it may encounter on its way and overcoming it, before it can rightly set itself to the

accomplishment of its proper task. For in these matters things will remain unaltered in the future—to a greater or less extent, in the first place, artillery will be directed against artillery, cavalry against cavalry, and airship against airship, before all can combine to assist the infantry towards final victory.

The battles of the future will not, however, run their course so simply. At the close of the war of 1870-71, France and Germany, to protect themselves on the one hand from a fresh invasion, and on the other from a campaign of revenge, constructed fortresses on their common new frontier. The latter confined herself to the fortification of the newly-acquired places of Strasburg and Metz. The former erected an almost unbroken barrier along the upper Moselle and the Meuse, which was intended to cover her whole Eastern frontier between Switzerland and Belgium. Her neighbor was placed in a difficult position. Although she was free from all designs of conquest, she could not calmly look on while a revengeful enemy awaited, in the security of her strongholds, a favorable opportunity for making an irruption against her. The best form of defense is the attack.

(Compare our F.S.R., Part I, Operations, 1909, 99(1).—"Decisive success in battle can be gained only by a vigorous offensive."

* * and Sect. 100(1).—

be assumed only to await or create a favourable opportunity for decisive offensive action."

To apply this means in case of need, Germany was obliged to keep her hands free. It was of no avail, as was proposed, to oppose a line of fortresses to a line of fortresses, and so she sought to create for herself a new tool of attack. Heavy artillery with an explosive shell of hitherto unknown effects was provided which neither walls nor casemates were supposed to be capable of withstanding. The secret was not long kept. On the other side of the frontier similar annihilating projectiles were invented. Since that time, on both sides a long, embittered, and by no means yet extinguished, battle between the engineer and the artillerist set in. The latter is always discovering new, larger, and more accurate guns, and more effective projectiles, the former is always opposing to them works more capable of resistance. This struggle the neighboring Powers were as unable to remain indifferent

to as they were in the matter of the rifles and the field guns. It was everywhere taken for granted that peaceable Germany was contemplating a campaign of plunder in the smiling plains of the Seine and the Loire. If, indeed, the direct road thereto was barred to her, it was nevertheless assumed that she would seek to find a way round the unpleasant obstacles through Switzerland or through Belgium. To anticipate such an attack on her right wing. France has from time to time closed all the passes over the Jura with works. On the left Belgium came to her aid. She has cut off the great international highway along the Meuse and the Sambre with commanding positions and shielded towers, and has erected behind Antwerp an impregnable bulwark. The Netherlands endeavored to support the efforts of their neighbor according to their power, in order to protect themselves as well as France from German aggression. But even this was not suffi-It was assumed that she would make use of an attack by Germany on France to recover the lost provinces. All roads and tracks over the dividing highlands must therefore be barred to her. Italy saw in the French fortifications not a means of defense but a threat, and she hastened to set up opposite each fort, each battery, and each earthwork, a corresponding one, and to erect opposite the entire system of fortifications on the west side of the Alps, a similar system on the east side. Hardly had two decades passed away since the Franco-German war before a Chinese Wall, extending from the Zuyder Zee to the Mediterranean, was set up, with the ostensible object of preventing any repetition of that calamitous invasion.

It was still conceivable that the Italians on one side of the Chinese Wall might throw in their lot with the German allies beyond the Alps, and that their combined forces, like a river overflowing its banks, would pour into the coveted land over fortresses and sweeping away million-strong armies on their way. In this pressing danger, Switzerland did not lose any time in coming to the rescue. The passes of the St. Gothard, the approaches through the Rhonde and Rhine valleys, all paths between impassable glaciers and heaven-aspiring giant mountains were barricaded by fortresses, and posts amid the eternal snows were occupied by garrisons. The putative lust of conquest, to which on one side an effectual barrier had been opposed, would of neces-

sity be obliged to seek another atmosphere. If Germany was prevented from marching on Paris, it became obviously necessary cient. Italy had not long ago lost several provinces to France. that she should take the high road to Moscow. Russia felt herself compelled, therefore, to erect fortresses against Germany. Streams, rivers, and swamps, made the project an easy one. The German provinces beyond the Vistula were forthwith enclosed by a broad marshy canal. The few approaches over it were defended by walls and guns. It was of course self-evident that similar measures of defense should be taken against Austria, which was allied with Germany. So, just as the three allied States were parted from the rest of Europe by a western line of forts, in like manner were they hemmed in by an eastern line of obstacles. In the north, Denmark has created a great stronghold out of Copenhagen and has assumed charge of the entrance to the Baltic. England possesses a powerful floating fortress which she can at any moment erect in the North Sea, and she has assured for it, by means of a harbor in Jutland, * a way of approach to Schleswig.

The erection of so many frontier fortresses has proved so infectious in its operation, that at last Italy has fortified herself against the allied Austria, and Austria has fortified herself against Italy. The iron ring which has been forged round Germany and Austria remained open only on the side of the Balkans. But this gap also has now been filled up by Turkey, Servia and Montenegro, while Bulgaria and Roumania have been pressed into the Austrian camp.

Such is the military condition of Europe. In the center, and unprotected, stand Germany and Austria; and round them, behind ramparts and ditches the remainder of the Powers. The political situation corresponds to the military one. Between the encompassing and the encompassed Powers there are points of difference which are difficult to remove. France has not yet abandoned the revenge she swore to in 1871. As this idea of revenge has kept the whole of Europe under arms, so also does it constitute the cardinal point of all politics. The tremendous

increase in her industries and her trade has procured for Germany an additional implacable foe. Hatred for a formerly esteemed competitor can neither be toned down by assurances of devoted friendship nor aggravated by impassioned oratory. It is not sentiment, but debit and credit, that indicates the intensity of the animosity. In the same way Russia, by the inherited antipathy of the Slavs towards the Teutons and her traditional sympathy with the Latins, is bound fast to her old ally and (owing to her need of loans) throws herself into the arms of the very Power which can do her most harm. Italy, excluded from all expansion westwards, is convinced that there is not yet an end to the oppression of the foreigners who once descended over the Alps to the fruitful plains of Lombardy. She is unwilling to tolerate it either on the southern slopes of the mountains or on the shores of the Adriatic.

It is not contended that these passions and covetous feelings will translate themselves into strong action. But the emulous desire on the part of these Powers, to conduct a common attack on the center is ever present. At any given moment the gates may be thrown open, the drawbridges let down and million-strong armies may stream in over the Vosges, the Meuse, the Königsau, the Niemen, the Bug, and at the same time across the Isonzo and the Tyrolean Alps, subjugating and devastating. The danger appears gigantic. It appears of smaller dimensions when viewed more narrowly.

England cannot destroy Germany's trade without seriously injuring her own. It is well understood that it is to her advantage to allow her detested rival (who is, however, at the same time her best customer) to live. Before she carries into execution the advertised landing in a Jutland haven, she will have to await telegrams from Africa, India, East Asia and America. If she sets the world ablaze, she will have something better to do than, according to the Bismarckian prescription, allow her army to be arrested in Schleswig. Russia, when in full possession of her power and strength, withstood the allurements of her ally to attack us. It is doubtful whether Russia, having learned the nature of modern war, can see anything seductive in such an attack. France has laid it down as a rule for herself to postpone the enjoyment of her revenge (grown somewhat cold) until she can do so in the company of good friends. All have misgivings

^{*(}Note.—This refers to a political speech made in England in 1905 to the effect that we were prepared, under certain eventualities, to land a force of 100,009 men in Schleswig.—Colonel Drake.)

ahout the tremendous cost and possible great losses, which form the red enectre in the background. The duty of universal military service, which will consume as food for powder rich and poor, high and low alike has toned down the rage for fighting. The fortresses deemed impregnable, behind whose shelter one feels warm and secure, make it appear less fascinating to charge out into the open and expose one's breast in battle. Arms factories, gun foundries and steam hammers for hardening the steel of shielded towers have brought about more friendly faces and more amiable intercourse than all the Peace Congresses have been able to accomplish. Every one has to think twice before attacking a well-armed and numerically strong neighbor, and hesitates to put in motion the destruction-carrying appliances which he has constructed for himself with so much pains but which he doubts if he thoroughly understands how to use. And even if he is satisfied on all these points and all difficulties are removed, and if the resolution is taken to begin the mighty approach march from all sides, there makes itself unmistakably heard in every breast the anxious question-Will "the others" also come? Will the distant allies put in an appearance at the right time? Or will I not be exposed, alone and forsaken, to the club-like mauling of a more powerful antagonist? These misgivings compel him to stand fast, to wait, to postpone his revenge, and to return to the scabbard the already loosened sword.

"The coalition is ready" is being shouted over from the further side of the Channel. In spite of that, however, it is still doubtful whether actual hostilities will ensue, and it is by no means necessary as a preliminary. The positions which the Allied Powers have taken up are so well chosen that their very existence constitutes a permanent menace and they automatically affect the German nervous system, already shaken by economic strife and trade crises. To escape from this obsession we are obliged to yield points to accommodate ourselves to circumstances, and to allow one advantage after another to slip through our hands.

While this kind of struggle is going on, suddenly the scene has changed. By the latest occurrences in the Balkan Peninsula, Austria finds herself indefinitely hemmed in on that side. She demands the support of her ally, but cannot guarantee her any

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support in return. The tactics of the adversaries have succeeded in assigning to each of the two a separate theater of war, and in preventing them from overthrowing first one and then another of opponents by united annihilating preponderance. Austria must face the South. Germany must turn towards the West. Russia reserves for herself to give the decision with her full strength on one side or the other.

Although the situation has become so very favorable to them, the enemies all around us do not seem in any hurry to take up arms. There are many considerations still undecided. Even after being separated, Austria and Germany are still too strong. The next step will therefore be to weaken them by sowing discord between them. In Austria the strife of the nationalities is being energetically stirred up by the friendly offices of diplomacy, by deputations inciting to fight, and by the battle cries of the press. It has already been shown not long ago, how, in Germany, the same object may be accomplished by a short magazine article containing cunningly pieced together out-of-date accusations. And, therefore, what is required for the further fighting (whether it be conducted weapon in hand or by other means) is a "nation of brothers" as well as a large, powerful and mighty army, led by one firm hand and animated with unbounded confidence.

DIVISIONAL CAVALRY.*

By Major IMMANUEL.

ITS STRENGTH, UTILIZATION AND DUTIES.

WHAT should be the numerical strength of the cavalry of an Infantry Division? Although at the present day the organization of army corps in the different armies is about the same, opinions differ as to whether or not cavalry should be permanently assigned to infantry divisions and what strength would be most suitable. This question is

^{*}Translated from the Austrian Cavalry Journal, June, 1909, by H. Bell, M. S. E., Army Service Schools.

very instructive and important, but not easy to answer, because no country is willing to betray its actual war organization.

In the German Army, in time of peace, the entire cavalry, with exception of the Guard Corps, is attached to divisions, one cavalry brigade to each division. How the case will be in war is not known. The new Field Service Regulations prefers four troops. If by that are meant four troops of one regiment, or if one regiment is utilized by calling up reserves (men and horses) to form the two cavalry divisions of one army corps, is not published. But as a matter of fact it is entirely immaterial in which way the divisional cavalry is formed. We are justified in accepting the examples given in the Field Service Regulations as facts and will therefore assume that each infantry division will have the independent and permanent disposition over four troops, which will form the divisional cavalry and remain always in close contact with the infantry division. We may from this also conclude further that all cavalry not needed for divisional cavalry will be organized into cavalry divisions, i. e., army cavalry. It may be assumed that the latter will consist only of regular cavalry, not reserves. The reason for this is the necessity to have cavalry immediately at hand at the outbreak of hostilities and that efficient cavalry is required just then when the mass of the army is getting ready for battle.

As far as known Austria-Hungary uses three troops as divisional cavalry. Japan had in the late war divisional cavalry regiments of three troops, was satisfied with that arrangement and, as is said, has held to this organization in the reorganization of its army after the war. England is satisfied with mounted infantry, an organization which has proved satisfactory during the South African War. The above-mentioned three powers form their surplus cavalry into cavalry divisions in time of war; still there are cavalry divisions also in time of peace. For instance, Austria has five cavalry divisions, an organization well suited according to our views to meet all requirements in case of war.

While therefore the question as to strength of divisional cavalry seems to be settled in Germany, Austria, Japan and England, different views obtain in France, Italy and Russia. France

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believes they have sufficient divisional cavalry with one troop, with which in addition is a troop composed of reservists. The reason for this can be seen only in the fact that the French cavalry is numerically weaker than the German, and that the French will have their hands full to effectively oppose the masses of German cavalry divisions and can not therefore spare any more of its cavalry for divisional cavalry. France believes that this object can be gained by the formation of corps cavalry brigades. That for special purposes, especially when acting independently, infantry divisions may require additional cavalry from the corps cavalry brigades is not denied in the French cavalry, and the French army authorities are fully cognizant of the trouble that may and will be caused by the disruption of organizations and by the splitting up of corps cavalry brigades. On the other hand, they console themselves with the fact that the infantry has mounted messengers and cyclist detachments.

Russia goes a step farther and confines the divisional cavalry to from one-quarter to one cossack sotnia, and these, as a rule, are formed of the second and even third reservists. As a general rule the mass of its cavalry is organized into divisions; however, it is not known whether or not the cavalry will be corps or army cavalry in time of war. In the Manchurian War the organization differed greatly and changed often, without being bettered thereby in the matter of organization and tactics, for on the whole the Russian cavalry did not come up to expectations in that war.

Italy has no divisional cavalry at all; in place of it, it has a corps cavalry regiment of six troops, which furnishes the infantry divisions with cavalry according to requirements.

The above shows clearly how different the opinions concerning the organization of cavalry are in the armies of the different European powers. To continue our problem, we will assume that divisional cavalry of from three to four troops is necessary and cannot be dispensed with for the correct combined action of all arms.

The new field service regulations make a distinction in the reconnaissance duties of cavalry between "far off" and "near" reconnaissance. This at once defines the duties of the divisional cavalry. The far off reconnaissance is the duty of the cavalry

divisions, which are entirely independent of the other arms. whose duties lie at a great distance from the army, and who are bound to the army only by the requirements of keeping up communication with it. This duty of communication naturally consists of all other tasks, the final object of which is that the cavalry divisions keep the commander-in-chief informed at all times concerning affairs with the enemy, have a care for screening and securing the army, and that they are always at the place where strategy requires them to be. These duties require a certain freedom of movement and independence. A cavalry division which continually sticks to its own army, which always looks to the rear instead of the front, which makes its movements dependent on those of the army, will never amount to much. And it will fulfill its duties just as little as will the commander-in-chief who interferes with its freedom of movement and independence. If the cavalry division is charged with a definite, far reaching and very important duty and left freedom of movement, it will fulfill its task its own way and find means to cut loose from, and find connection again with, its army. The utilization of Napoleon's cavalry divisions in the campaign of Ulm (1805) is still to this day used as a model.

It is entirely different with the divisional cavalry. It also does not stick to the infantry; it also is an arm of mobility and celerity; but very different from the cavalry division. It is an organ in the hands of the commander of the infantry division; it is an auxiliary arm to the other arms; of course this is no humiliation or belittling of the cavalry spirit and cavalry self-consciousness, but a requirement for the combined action of the arms, a trust which the division commander and his troops place in the divisional cavalry. If the cavalry of the army is far to the front and executes its duty well and independently, the divisional cavalry must operate dextrously and delicately. It must appear just there where the infantry needs the help of cavalry. And this is the case daily and even hourly.

The first and the main task of divisional cavalry is the near reconnaissance. The meaning of near-reconnaissance is manifold and extensive. If there is no cavalry of the army in front, or if it is very far to the front, then the near reconnaissance may have to extend far forward and even take charge entirely of the

duties of far reconnaissance. And even if the cavalry of the army is in front and moves not very distant from the army, the near reconnaissance does not cease. Par. 143, F. S. R., reads: "The presence of army cavalry does not relieve the divisional cavalry from the duty of near reconnaissance." The divisional cavalry precedes the infantry at a defined distance. It keeps up touch with the army cavalry, it forms the connecting link between the strategical far reconnaissance and the tactical near reconnaissance. It advances to the front on its own volition as soon as the army cavalry disappears for any reason whatever from in front of the army; it moves closer to the army as soon as the army cavalry gets closer and the distance from the enemy decreases. It is clear that during the march periods in a campaign the operations of divisional cavalry can become very simple. As cavalry of the advance guard it marches a few kilometers in front and insures a secure and uninterrupted advance. It relieves the infantry of difficult and exhausting security service; it permits all means to be taken for the security of the march and this should be confined to that which is absolutely necessary. At a halt, when there is no close touch with the enemy, it remains in front of the territory occupied by the infantry. It occupies villages on and near the route of march, takes comfortable quarters, and is the most advanced unit of security.

More difficult and more responsible are its duties the closer the army gets to the enemy, the more imminent contact with the enemy becomes, and the more urgent the tactical reconnaissance becomes. It will have to perform its principal duties just before a battle. Of course there is a difference as to whether an infantry division is part of a larger force, or whether it is situated on the wing of an army. Undoubtedly battles of the future will be fought by enormous armies. What amounts an infantry division to when hemmed in on the right or left by parts of a giant army? Possibly it has a front deployment of 3,000m. often less than that. Where then should the divisional cavalry remain? If the enemy be at a distance, it will still have a field of activity in such a confined space. It ascertains the front of the enemy, drives the hostile near-reconnaissance from the field and thereby-that is by absolute offensive action-gains certainty as to the enemy's disposition of forces, his advanced positions, etc.; and also screens

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the movements of its own troops and insures the advance on the enemy, be that a question of deployment from march-column in movable battle, or a question of attack on a position in readiness. It is clear that when masses advance with narrow fronts the divisional cavalry will find a large field of activity in the matter of security, near-reconnaissance and screen. But it will soon find its limits. How can the cavalry reconnoiter when within range of the hostile artillery, what should be its activity between two lines of troops ready for battle? How can it reconnoiter 2,000 meters to the front when opposed to it are invisible sharpshooters in good positions, machine guns in folds of the terrain ready to overwhelm the cavalry with a murderous fire, and when it cannot even see where the rain of bullets is coming from on account of the smokeless powder? In that case there is nothing left for the divisional cavalry but to retire behind the front of the infantry lines and wait for situations in the battle which may bring it new and important duties. And in such a situation the near reconnaissance becomes the task of the infantry. It only can perform this duty provided there is no captive balloon or airship to take over that duty in part.

Different is the activity of divisional cavalry of the divisions fighting on the wings of an army. In that case their reconnaissance duty lies on the flank. This duty is, as far as their numerical strength allows, in the nature of attack—attack in the sense that the cavalry advances to the front, drives the hostile cavalry to the hostile flank and goes around the hostile flank to gain a view from the side and from the rear of the position of the hostile reserves, of the movements of forces behind the hostile line, and ascertain if hostile reinforcements are coming up. In this manner reconnaissance and protection of the flank are combined. A large field of activity will open to the venturesome cavalry leader, such as annoying the flanks, appearing in their rear, firing from the flank on artillery positions, attacking or sudden firing on the enemy's reserves—all these manifold phases offer to an energetic leader of divisional cavalry excellent opportunities to help the sister arm without it being absolutely necessary to sacrifice the cavalry in duties which are not worth the sacrifice. What a multitude of duties, what a measure of caution, consideration and what an impulse for action is offered here to a cavalry leader!

How should we solve the question of occasionally combining the cavalry of two divisions as corps cavalry?

We will assume that the army corps is compelled to use but one road for its march, as will be the case very often in war. Would we leave the divisional cavalry with the division in rear and thereby compel it to march at a walk for possibly days at the time with the march column, to be an obstacle to the other arms and a burden to itself? If conditions allow we push forward the cavalry of the rear division, combine it with that of the leading division and in that manner give it not only freedom of movement and elbow room but also have a larger body of cavalry at our disposition just there where it is needed, that is, near to the enemy. Of course this combination has its disadvantages also. Let us imagine that the division which is deprived of its cavalry has to assume a new duty by an unforeseen change in the situation, where the absence of its cavalry might be a very serious matter. It would then have no means for proper reconnaissance and might get into a very difficult situation before its cavalry can be called back. Therefore paragraph 147 of the Field Service Regulations says: "In any case not less than one troop should be left with the division,"-a requirement which is surely wise. Of course in this the regulations assume an all-sufficient supply of cavalry with each division, a more liberal supply than any other army has. There are other points of minor importance to be considered in combining the cavalry of two divisions: the divisional cavalry separated from its division cannot be supplied by the division with rations and forage, its baggage cannot possibly be brought up, and these are points which may be very annoying to this cavalry.

The question is a different one in battle. After the near reconnaissance has been concluded, it can easily be seen in advance that the divisions in battle can do without their cavalry without danger, that is without all except one troop. Should the divisional cavalry remain inactive behind the front? That would be wrong. In place of that we would send all cavalry which is not absolutely needed to the flank, organize it into regiments or brigades and even into divisions or attach it to the

permanent cavalry divisions in whole or in part. The example of Mars la Tour, on the part of the Germans, supplies an excellent one to follow.

In this manner large, effective bodies of cavalry are created, which General v. Bernhardi in his "Thoughts on a new cavalry drill regulations" calls "fusible formations," which can perform all duties open to an active cavalry. They will operate against the hostile flank and line of communications to the rear; they will be an instrument in the hands of the commander to timely take up the pursuit as soon as victory is assured; they can, in force, effectively interfere and help, if the battle takes an unfavorable turn. Every true and brave cavalry will be in readiness and in position, without being called and without waiting for orders, to render a good account of its arm and to act for the benefit of the whole. We will mention two examples in passing. How different would have been the pursuit at Woerth, in the afternoon of August 6, 1870, if at the extreme German flank there had been not only the Fourth Cavalry Division but also, in addition to the Wuerttemberg cavalry regiments, the four divisional cavalry regiments of the Fifth and Eleventh army corps, at least 50 troops! Then again on the 16th of August, 1870, at Mars la Tour, there were nearly all the cavalry regiments of the Prussian left wing on the plateau of Ville-sur-Yvon at the critical moment when the battle took an unfavorable turn. Through an attack in force that cavalry swept the French cavalry from the field, and with such good results that Ladmirault's corps, in spite of its success over the Thirty-eighth Infantry Brigade, discontinued its advance. On the other hand, Bredow's brigade, in its celebrated charge, had no support given it by the nearby divisional cavalry, which remained inactive, not because it did not wish to participate, but merely because we at that time had not cut loose from the rule that the divisional cavalry should stick close to its division in all situations and in a frontal battle should form a sort of reserve for the division. In that case we waited for orders when we should have acted on our own initiative. Today all this is different; today the cavalry in a battle will be where it belongs in accordance with the situation and where it can be used in interference.

Now a word as to the splitting up of the divisional cavalry. It is naturally not possible to furnish to each of the twelve or thirteen battalions of the infantry division four or six mounted messengers, to establish relays, to give one platoon to each battalion of artillery, etc. That would fritter away three or four troops. Strict economy in detaching cavalry, keeping together the force, and saving the horses is important wherever possible. Only then can cavalry, at the decisive moment when the last breath of man and horse is required without regard to consequences, perform everything expected of it. Therefore, economy in making detachments, and carefully considering the necessity for making any and all detachments is essential.

Who issues special orders to the divisional cavalry? How often do we hear that subordinate commanders, for instance advance guard and outpost commanders, issue to the cavalry attached to their command personally very exact orders, going into the minutest details in regard to patrols, reconnaissance, and security sectors? Such a procedure is not to be recommended in general, when the respective commander of a certain unit has a squadron or a platoon attached to his command. Where, in that case, would be the independence of the cavalry leader? The danger of splitting up the command, of sending out superfluous patrols would be increased. Therefore paragraph 146 of the Field Service Regulations deserves especial emphasis:

"The leader of troops gives instructions or his views for the reconnaissance. To carry out the reconnaissance is the province of the cavalry commander. The sending out of patrols rests entirely with him. If the leader of troops sends out patrols himself, he will inform the cavalry commander thereof as also of the duties set the patrols. If the cavalry commander is without instructions, or he is suddenly confronted with a changed situation, then it is his duty to regulate the reconnaissance in the manner he would if he were the supreme commander."

These are actually golden words! The first two sentences should be specially emphasized. It is earnestly hoped that they will be earnestly considered and thus advance the education of our leaders; the leader of troops, in the sense of a correct, self-conscious but withal economical utilization of his cavalry; the cavalry leader, in the sense of independence and action in conjunction

with the other arms, without there being a necessity of having the leader of troops order everything down to the minutest detail. These are important maxims for the education for practical service. They must be known and properly estimated in time of peace, so that they will be second nature in time of war.

To conclude, we will give in a few terse paragraphs what the above views intend to convey:

- 1. Without damage to the leading of armies and troops, divisional cavalry cannot be dispensed with; three or four troops is the correct strength for one infantry division.
- 2. The object of having divisional cavalry is a close combined action with the other arms, especially with infantry, without, however, sticking close to the infantry.
- 3. Delicate and adroit, flexible and clear-sighted, the divisional cavalry will have to see for itself what it should do and what not.
- 4. The peace education of the divisional cavalry, and that means of the entire cavalry, should be had with a view to frequent combined action with infantry in war. It would be wrong to want for this to take place only in the fall maneuvers and confined to the few days available then, for the instruction at maneuvers is not sufficient and too one-sided. No battalion, regimental, or brigade exercises of infantry should be had, if ever practicable, without having cavalry take a part therein. That cavalry would then take the place of divisional cavalry. But it is not sufficient to have only one platoon of cavalry, and always the same platoon, on the drill ground during the entire summer for that purpose. We admit that it is difficult to change the platoons, often inadvisable, and always expensive. But it is in the interest of the cavalry that we should be liberal minded and not stingy; otherwise the results are not great enough, and otherwise too few officers will be educated in the art of leading patrols. This, according to our view, is a point which needs especial consideration.
- 5. We should avoid spoiling our troop leaders in regard to strength of cavalry placed at their disposal. It leads to a false estimation of actual conditions in war, when for instance a cavalry regiment of five troops is attached to an infantry brigade

of six battalions, or a cavalry brigade of ten troops to an infantry division. This superfluity of cavalry spoils the troop leaders and gives them erroneous ideas, ideas not corresponding to actual war conditions. Therefore we ought to be economical and utilize all superfluous cavalry as parts of cavalry of the army and give them a special duty, that is duties independent of infantry brigades and infantry divisions. Doing this we would avoid giving the latter too much cavalry and would at the same time create a very welcome opportunity to practice the working hand in hand of the far and near reconnaissance, this means to teach the very necessary, difficult and instructive combined action of the cavalry division and divisional cavalry.

6. The utilization of the divisional cavalry and its parts, as well as the issuing of orders to and setting tasks for that cavalry should be based on the maxim that independence, elbow room, freedom to arrive at a decision on part of the subordinate cavalry commanders must be as carefully guarded and fostered as is done in the other arms, especially in the infantry. That is a method and means of education as well for the one who issues orders as for him who carries them out.

THE NEW RIDING SCHOOL AT PADERBORN.*

BY LIEUTENANT OSTERLAND.

THE new Riding School at Paderborn was opened October, 1906, for the purpose of giving a number of young officers of the German Cavalry—excepting Bavaria and Saxony—a good grounding in equitation, to make later use of their greater knowledge and ability in the service of the regiment and especially of the troop.

I said "a number," for it is a pity that not all young officers Saxony. Only one-fourth of the incoming officers can go to the

^{*}From Kavalleristische Monatschefte, June, 1909. Translated by Chaplain F. J. Feinler, First Infantry, July 27, 1909.

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RIDING SCHOOL AT PADERBORN.

can learn their military riding so thoroughly as for instance in school, for the simple reason that for lack of room the maximum of 40 cannot be exceeded.

The Riding School was started at Paderborn for the sake of economy and the excellent grounds. The stables, riding halls, etc., of the Hussars, now garrisoned outside the town, were sufficient.

There can hardly be found better grounds than the fine wide prairie surrounding the town with its elastic soil.

At the head is a staff officer with the rank of major. Three captains are detailed as instructors. These have to be successful graduates of Hanover with a good record in equitation and in other branches of the service.

The school has also a surgeon and a veterinarian. From eight to ten sergeants of different regiments act as stable sergeants and mounted orderlies. They are recruited from the riding school for non-commissioned officers at Hanover. Fifty to 60 army horses are permanently at the school, drafted from Hanover. Paderborn is subject to the orders of the Chief of the Military Riding Institute of Hanover.

A term lasts nine months, from October 1st to June 30th, so the officers can assist with their regiments at the fall maneuvers. For each term are detached 40 officers of Cavalry, no Field Artillery, who during the preceding year have advanced to the rank of lieutenant. They have to bring a service horse and a good private one. The school supplies besides, an old "standby," ten to twelve years old.

The officers are divided into three riding squads and two for dismounted service. The former are each in charge of an instructor, the latter of the two younger captains.

Work begins immediately on the first day. All three horses, also the private ones, are ridden daily by the squad, each horse for an hour and a quarter, so that this work occupies daily three and three-fourth hours.

The students take part, in the fall, twice each week with their own horses in the hunts of the local hunting society of which each student is a member for the term.

Riding stands naturally first, though the other branches are not neglected. All horses are ridden on the snaffle bit in the

first months, the private horses mostly with stirrups, the others without.

In the first weeks the young officers practice nothing else but exercises in every gait to get used to the saddle and to acquire equilibrium.

They begin soon with jumping, simple and double jump to render the stiff hunting seat more elastic. This is soon and easily accomplished.

At the end of each month there is a little inspection by the Commanding Officer, who can thus after a few weeks acquaint himself with the progress of his students.

Most of them naturally are considerably run down in the beginning from the great exertions, not in rlding alone, but also by the work in the other branches. Two hours are given each week to the manual of arms, gymnastics and veterinarian instruction, one lesson on riding together with little talks, and one on longeing.

Special importance is given to the manual of arms. It is to be regretted that the young cadets, in the short time spent with the troop, receive no adequate instruction in riding or any other branch. They do not learn enough at the War College. Returning to the service they soon do duty as officers without having had, in most cases at least, the practical instruction of recruits. All young officers should therefore go first to a riding school.

Meantime, good progress has been made in the art of riding. After three months the instructors can give also some attention to the horses. The riders sit firmly and properly, the hunting seat is in order. Now begins the second part of the training, to learn how to influence and to use the aids properly.

Some sit straight as an arrow on a well trained horse without the least influence and earn applause, while another far more able rider shows up poorly with a badly trained horse. I do not care to speak about the main factors in influencing, fork seat and military seat. Every horseman knows that both are difficult to teach and to learn. The school is satisfied to educate all if possible to be sympathetic riders.

The horses have now been sufficiently ridden with the snaffle, and inspection follows about the middle of February. This is as exacting as it is possible with a beginners' class. Espe-

cially from the troop horses are most vigorously demanded the gaits and steady uniform gaits. According to each man's progress stirrups have been allowed during January.

After this inspection the horses are schooled to the curb bit. The students are instructed in the proper way of adjusting bridles. This is yet somewhat neglected. Riding is begun now on the great square. The students ride with arms, with the saber and very often with the lance. The drills with arms, which have been dismounted, are now practiced mounted in every gait until perfect. Jumping is practiced with lance and rifle over obstacles, ditches, hurdles, bars, and there are other exercises to promote docility. It is not necessary to take too high or too wide obstacles, but it is important how the man sits in jumping and how he acts with a refractory horse. It is now also important to keep right time for the fast gallop in the restricted area. Track riding is never entirely neglected. Now and then it is done to adjust improper seating. Even in the fastest gaits the seat must not be lost sight of.

After five weeks of mounted drill and running at heads they begin cross-country riding. Early in the morning everything is alive on the beautiful green prairie. One day they ride on the square with one horse; the next day on the great square with the second horse; the third day with the third horse cross-country. At the great square they practice above all fast gaits and two or four together. In cross-country riding each student is ordered, for instance to gallop as fast as possible to a grove in sight, to write there a short report and to return with it in fast gallop. They have to learn thereby how to ride boldly across the field and to overcome all obstacles, as well and as fast as possible. They must practice dismounting without an orderly, perhaps a lively horse, and to write their report. These gallops on the prairie are not so simple after all, as they know, who have galloped over the "Senne." I want to say to those who have not seen it, that the Senne is traversed by many swampy creeks, which are deep cut and present excellent climbing problems.

After these exercises lasting about four weeks, troops are arranged in skeleton to drill in this formation for a while. Most cavalrymen do not believe in it. But at the riding school there is no other way to make young officers troop commanders. If

done intelligently, these exercises attain their end. At any rate the detached students have become at the end of this period a splendid troop.

In veterinarian science the instruction is first theoretical about symptoms, different forms of lameness, and their treatment. Later comes practical application with little lectures on sick horses, where the students have to express their opinion about prognosis and treatment.

Then it is important that everyone knows how to shoe a horse in case of necessity. This art is certainly valuable to a patrol leader.

The instructors teach the students longeing, so that they are able to place the longe right and to use longe and whip correctly. They must know the why and the wherefore of longeing.

The target practice is similar to that in the regiment, every officer shoots according to conditions prescribed for his class. There is enough ammunition drawn for the school for squad and company shooting on unfamiliar ground. The whole target practice is under the orders of an officer of Infantry of the local garrison, who is detached for a few months to this service. The students receive also thorough and constant instruction in leading squads and troops in dismounted action.

Every student has to write an essay during winter for his intellectual benefit, about some subject in equitation. Some students have to give lectures. On several Kriegspiel evenings they are instructed as leaders in reconnaissance, where they must make quick and immediate decisions.

A staff officer of Infantry speaks about changes and the latest regulations in other branches of the service, so that the students are always posted up to date.

In the last four weeks are arranged night rides in order to learn how to find one's bearings in unfamiliar surroundings and under the most difficult conditions. This is very hard in the beginning till one knows how. It is naturally made as arduous as possible for the students. Highways and good roads and sometimes bridges cannot be used. These rides had mostly for an object, that two despatch officers, sent by two different commanders, should find each other or to meet as soon as possible at

a certain point or on a certain road to exchange orders. All rides were made without companion; maps were allowed.

Shortly before the end of the term, in the last week, there is a final inspection by the Chief of Hanover, sometimes also by the Inspector General of Cavalry. During this week, instructors, students and horses are put to the highest test. There is a rigorous examination in cross-country riding, track-riding, manual of arms, longeing, veterinarian science, and all other service matters.

Naturally the progress in everything after continued effort was highly pleasing to the military authorities and they did not fail to express their appreciation of the work accomplished. They only regretted one thing, I believe, namely the fact that there is as yet only one Paderborn and not four, so that all young officers of Cavalry might get such an excellent preparation for their profession.

I can truly say that I was much pleased to observe the lively activity and zeal of the school. These students had to go through everything, starting from the very beginning. Yet I believe that all those who have been in Paderborn and all future students of the school will ever feel grateful to those who initiated them in the noble art of riding, to the instructors, and above all to the energetic Commander, who is the soul of the whole school, Major Leiffert.

COMPOSITION AND ORGANIZATION OF THE GER-MAN CAVALRY DIVISIONS.*

THE composition and organization of the cavalry divisions has undergone manifold changes in years gone by. Doubts have now arisen as to whether or not the present organization is the best one. The strength of the several cavalry divisions organized during the campaign of 187Q-71 differed greatly. There were

divisions of from sixteen to thirty-six squadrons—the Twelfth Division, for instance, had sixteen, the Fifth Division thirty-six squadrons. The number of guns accompanying the cavalry divisions ranged from six to twelve. Since then, the rule has been to compose the cavalry divisions of three cavalry brigades of two regiments each, the latter being composed of four squadrons; there is also attached to each division a battalion of artillery, two batteries of six guns each, one machine gun detachment and one detachment of pioneers. In addition there are the usual detachments for message service, such as telegraph, flag-signal and balloon detachments. Under special conditions several cavalry divisions can be consolidated into a cavalry corps under one commander. Cavalry divisions also may be reinforced by divisional cavalry in rear and by infantry if necessary, be that on wagons or cycles.

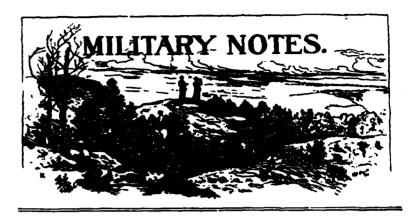
At the present day there are far greater demands made on the cavalry for independent reconnoitering duties than was the case heretofore. The cavalry divisions are expected to be far in front of the armies and must be able to act independently, that is, they must solve their tasks by themselves and with what means they have at hand. The different duties of reconnaissance security and screening, make numerous detachments necessary which lessen the fighting strength of the cavalry division. In spite of all efforts to unite all the forces in battle, there will frequently not be sufficient time to call in the detachments, reconnoitering squadrons sent out on different roads, escorts for trains and columns, guards at message stations, at telegraph stations, etc. If we bear this in mind and also consider the numerous patrols and unavoidable losses during a march, it is clear that the fighting power of a cavalry division is easily frittered away during an advance. Consequently it is questionable if the number considered normal at present, i. e., twenty-four squadrons, is sufficient for all purposes in a future war. There are many authorities who think that cavalry divisions in future should consist of nine regiments, thirty-six squadrons, organized into three brigades of three regiments each. Thus, after making all necessary detachments, patrols and guard details, the division will have sufficient fighting power left

^{*}Translated from Kavalleristische Monatshefte, December, 1909, by H. Bell, M. S. E., Army Service Schools.

The organization of the artillery, two batteries of six guns each, does not seem correct. Even if we do not decide to organize our entire field artillery into batteries of four guns each, like the French, it should be done at least with the horse artillery. With three batteries of four guns each, the division commander would be enabled to give to a detached brigade a complete battery, without having to deprive himself of one-half of his artillery as now. The tactical employment of three batteries is also easier and simpler in a cavalry battle.

The addition of machine gun detachments has greatly increased the fighting power of the cavalry division. Many, however, think that one such detachment is not sufficient, that two are necessary, especially considering French conditions. The French intend to send mixed detachments of all arms ahead in front of their armies, to prevent hostile reconnaissance. Our cavalry will not always be in the situation to go around these detachments but will often be forced to attack them in order to open up a road to its further use. For this purpose an increase in machine gun detachments is urgently desired.

Experiences of the last few campaigns have proven the great importance which the dismounted fire fight is to cavalry. Only after our entire cavalry shall have been armed with a modern long-range carbine, will it be competent to fulfill all of its tasks. Still we should never forget that the mounted action is the main element of cavalry. The fire fight will always remain a side issue. Cavalry can never do as well as well trained infantry in a fire fight. For that reason probably many attempts have been made to attach infantry to cavalry divisions—but these only hinder the cavalry in its mobility and are a drag on it. In this direction only cyclist detachments could help out, but these ought to be created and organized already in time of peace. Equipped with folding bicycles they could follow the cavalry everywhere; they would find plenty and manifold employment in guarding villages and important crossings, in the attack on fortified positions, etc.



THE UNIVERSALITY OF THE "FELLER."

Forty years ago Mr. Richard Grant White was writing instructive articles on "Words and Their Uses," and officers stationed at Fort Hamilton had frequent opportunity of hearing that cultured gentleman in his daily horse car journeyings to and from the city. Thirty years ago, in the columns of The United Service, General Closson was just beginning an equally instructive series upon the derivation of the many words and expressions peculiar to military life. But neither Mr. White nor General Closson, to my recollection, ever gave us the origin of a term for comrade soldiery that I first occasionally heard in the early war days in the camps about Washington, that sometimes slipped out at West Point after the Southern vacancies were filled by young men from the Northern Volunteers, and that has grown and flourished and now lives perennial in the rank and file of the national regular, volunteer and militia forces. It may mean "Fellow Soldiers." It is briefly and simply "Fellers."

In his parting words to the little class graduated in 1866, one of our best and most honored teachers, General Francis L.

Guenther of the old Fifth Artillery, said somewhat as follows: "Remember always to treat your soldiers as men, and, what is also important, address them as 'men.'" Those of us who had been with the Volunteers remembered them rather as "the boys." Those of us who had the good fortune later to serve under model officers who had learned their trade from such as Lee, Thomas, "Pike" Graham, "Beau" Neill, Clitz, and "Billy" Chapman—men of high breeding and chivalric mould—found them using but one word when addressing our sturdy soldiery. But those of us who marched long in the line of file closers,—and who did not between '66 and the Spanish War?—were made aware that the soldier himself, for himself and his kind, had another title or descriptive which he much preferred, and stoutly clings to to this day.

"Come in here, you fellers," was the stable sergeant's translation of our captain's order to send the gunners in to assist the drivers at the stalls in '66. "Step lively, you fellers," said big Sergeant Smith, to his "Permanent Party" at Governor's Island in '67. "Double quick, you fellers," shouted Sergeant Ryan to a lagging squad of the Cavalry Detachment at West Point, in 1870. "Dem vellers makes fun mit me." complained my German "striker," in Arizona, in '74. "Shoot low, fellers," ordered Sergeant O'Connell, when the Sioux were circling the gray troop at Slim Buttes. "Steady there, you fellers on the left," growled Sergeant Shine, when the Cheyenne zephyr whirled a havstack into the faces of his platoon, in '78. "Lie down, you fellers." thundered old Sergeant Dolan, himself hard hit, yet erect. when the Utes had them corralled on Milk Creek, in '79. "Salute our own officers, of course," said a volunteer at San Francisco in '98, "but didn't suppose we had to salute other fellers'." "Come on, fellers," shouted a gallant Californian, as he charged at Santa Ana, in '99, for now we are getting among the officers who themselves had been "fellers." "Hurry up, fellers," is something I hear every year from the lips of captains in the Organized Militia-men who know better and who bite their lips in chagrin that they cannot overcome the habit of their days in the ranks. "There's three fellers shy, but I don't know just how to say it," blushingly reported a corporal who found himself unexpectedly in command of the guard. "Are you the feller that enlists the

boys?" asked a youth in khaki of a gray-haired brigadier in double-breasted blue, at a local railway station; and finally, "Say, are you fellers regular officers?" asked a blithe, hearty youngster, in service dress, at one of our recent camps. Answered pleasantly in the affirmative, the lad then astonished the officers in question by the announcement, "I'm a regular, too—served three years in the —teenth Infantry, old Joe ———'s regiment."

"And did you refer to your officers in the —teenth as 'fellers'?" asked a veteran regular, who overheard.

"Sure we did!" was the unabashed reply, all innocent of of-

It looks as though we might as well adopt "fellers," without reproach or prejudice, as part of our military vocabulary. It has obviously come to stay.

CHARLES KING.

ARTILLERY HORSES.

The French Minister of War has prescribed for certain regiments of artillery a traction test for artillery horses. These tests have for their object the determination of the relative value for artillery of draft horses of different breeds: Brittany, Normandy, Lorraine, etc. Also the determination of the size and conformation which promises best for artillery purposes.

The tests are to take place in several places and with four six-horse teams of each breed or size compared, hitched to guns and caissons with service loads; the tests are to last two weeks. The judges are officers of remount and artillery, and an inspector of the state stud, all known for great competence in the matter of horse-flesh.

Last year the Directorate of the Artillery made known to the public what it held to be the desiderata in the matter of artillery horses. They wanted a horse having both harness and saddle

qualities, compactly built, weighing about 1,100 pounds, close to the ground, strongly made legs, and standing from 15 hands 11 inches to 15 hands 3 inches as a maximum. The speed of his trot need not be more than one mile in 8 minutes. The best French judges of artillery horses believe that a horse of 16 hands is too tall to give useful service.

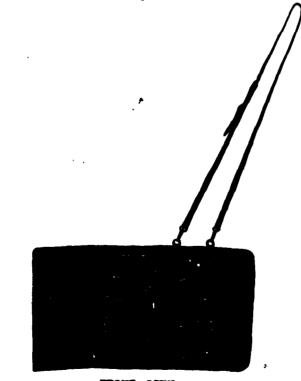
A NEW MAP CASE.

The Editor:-

FRONT

In answer to your request I send herewith four photographs showing as many different views of the map case I brought back with me from France.

They show the case folded and open.



FRONT-OPEN

The case is made of pig skin, and is quite light and soft and appears to be durable as it has been used a good deal and frequently in the rain.

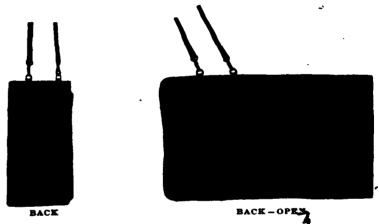
The idea is to have a large surface of the map showing and to protect it from the weather.

For convenience in reading distances I had very light lines cut into the under side of the mica an inch apart and at right

A small compass is riveted in one corner.

For frequent reference the case can be worn open, the inside next the body.

When raised with the right hand the map comes top side up



(as it hangs the other way) and the compass is then in the upper left hand corner.

The case can be folded and buttoned as shown in the photos. The pocket on the outside holds extra maps and papers, pencils and erasers, etc.

The whole thing was quite cheap, although made to order. This case measures 17x11 inches open and 6x11 closed.

There are several advantages in having it hang from the strap as shown.

Very sincerely yours,

G. T. LANGHORNE.

Fort Oglethorpe, Ga. January 29, 1910. Captain Eleventh Cavalry.

ENCOURAGING THE BREEDING OF CAVALRY HORSES IN ENGLAND.

The English Board of Agriculture and the War Office acting in concert have worked out a scheme for the improvement of the horses sold to the army and for the benefit of farmers raising stock suitable for the army. The object is to mutually benefit the producer and the military service.

The idea is that stallions suitable in blood and conformation to get army saddle horses shall be registered as such by the state and a certain premium awarded them. A further premium will be given the owner of the stallion for every foal which his horse gets to a registered mare. It is hoped that in this way stallion owners will become missionaries amongst the farmers, inducing as many as they can who have good mares to register them.

The ambition is to get 500 stallions and 25,000 mares thus registered. Owners of these mares are entitled to free veterinary inspection by a government veterinary and free guarantee of soundness, if merited. They also are to get a small premium on each colt from a registered mare.

Colts out of registered mares by registered stallions are to be inspected when three years old. If the army continues as at present to buy horses at least five years old, then a premium must be paid the owner of the colt for each year he keeps the young animal after he has been accepted for the army service. The army has the first choice; if the colt is not accepted, the owner can dispose of him as he likes.

Something over \$150,000 has been or is to be appropriated for the first year's trial of the scheme.

These brief details are quoted from an English paper to indicate the difficulty experienced even in Great Britain in getting horses up to the modern cavalry standard, and the necessity of government stimulation to induce farmers to raise in sufficient quantity horses of moderate price and conformation suitable to the cavalry.

There can be little doubt that more high-class saddle horses, ideal cavalry mounts, are raised in the British Isles in proportion to other types, than elsewhere, and that more Englishmen ride horseback in proportion to the population than do men of other nationalities. Nevertheless, the steady decline in horse raising, above all in saddle-horse raising, is felt in England as well as elsewhere. Good saddlers are raised, but they are articles of luxury beyond the price the army pays. On the other hand, cavalry requirements have become severer. All over Europe the exactions made of individual officers, troopers or patrols on reconnaissance, and of large bodies of cavalry in long marches and raids, have become greater and greater. Horses are required to make longer distances at higher speed each year, the exactions of campaign are more severe, but the number of horses raised seems to decline rather than increase, unless the government intervenes to stimulate production.

In England, where good saddle types are so abundant, the War Office seems decided that it must not only be ready to pay a big price for cavalry mounts, but it has got to take steps to see that a sufficient number of these types are raised. English sentiment and practice are all against the government breeding its own horses, as in Austria; resort is therefore had to a system of government certificate and premiums which have a real commercial value to stock owners and which induce them, whether at a profit or not, to raise animals suitable for the military service.

SICK REPORT FOR PUBLIC ANIMALS.

General Orders No. 252, War Department, 1909, requires that "A memorandum of the dates on which a public animal is unfit for duty and of the disease or injury causing the unfitness will be kept by the officer who is responsible for the animal. When a public animal is transferred from one responsible officer to another, any important ailment the animal has had since the preceding transfer will be noted on its descriptive card. No blank

form will be furnished by the War Department for the purpose of keeping the memorandum referred to in this order."

In order to carry out the requirements of the order quoted, the blank given below has been designed. This blank is three and three-fourth inches wide by eight and one-half inches long, being uniform in size with the descriptive card of public animals. It is printed on a light flexible bristol board that will take ink.

(Memorandum required by G. O. No. 252, W. D., 1909.)

Troop E, 15th Cavalry

HORSE No.

ON SICK REPORT

DISEASE OR INJUR	Y AND CAUSE
	-
,	
	DISEASE OR INJUR

The ruled columns are continued down the back of the blank. The blank should follow the horse when transferred and will thus probably last a horse during its entire life in the military service. The cost of the blanks is insignificant. The regimental adjutants can probably furnish them from the regimental printing press; or, failing that, blanks can properly be provided out of troop funds.

This record should be kept at the stable and the farrier should make the entries at the time the event recorded occurs.

H. R. H.

SKETCH MAPS BY TELEGRAPH.

Although efficient military maps of all terrain upon which the Army is likely to operate have doubtless been prepared by the War Department, it is frequently desirable, and sometimes necessary for patrols, outposts, cavalry screens, etc., to transmit map sketches to the commanding officers of other units.

The transmission of map sketches, plans of earthworks, etc., between a cavalry screen and a main body two or three days' march distant may be desirable, as may also be the case between outposts or patrol commanders and superior units five or more miles distant.

The ordinary method of transmission of sketches by mounted messenger over such distances requires the expenditure of an amount of time and energy proportionate to the distance covered.

The following method of transmitting sketches has proved practical over the telegraph line of this detachment:

The only accessory required is the issue of cross section paper in message blank size to accompany the message pads as issued, or better, the printing of such cross section lines on the back of the sheets in the present message pads. The two millimeter appears to be the most practical unit for the cross section paper for this purpose.

Every point on the cross section paper is determined by a pair of numbers. These numbers, the "co-ordinates" of the point, serve to locate the point on the paper, using the "origin" as the point of reference. The "origin" is ordinarily the lower left hand corner of the intersecting lines. The first number of the pair indicates the horizontal distance of the point from the origin; the second number indicates the vertical distance from the origin. The two numbers, when written, are separated by a comma; for example, 35,48. This point is then thirty-five units to the right and forty-eight units above the "origin." The location of a sentinel, a house, a field gun or any comparatively small object in the sketch is determined by one word and a pair of numbers, for example, "church 64,83." Linear features, such

as roads, streams and shore lines, are determined by a series of pairs of numbers, which locate successive points along the road or stream. Straight sections of road or stream require but two pairs of numbers which determine the ends of the road or stream. An angular road is outlined by pairs of numbers indicating the successive angles of the road, and a stream in a similar manner. The width of a stream or valley may be determined by expressing its width in cross section units, for example, "river 6 wide," the numbers following indicating the center line of the river. Areas, such as villages, ponds, hills or wooded tracts, are determined by a series of pairs of numbers which locate successive points in the outline of such features, thus forming a closed curve. If an area on the map is approximately circular the location of its center and the statement of its radius (in cross section units) is sufficient: for example "hill 100 feet high at 26,73 radius 12." A plateau is determined by stating height and locating the crest line, the direction of the slope being added if necessary.

To transmit a map sketched on the cross section paper by an observer, the operator, or if necessary, an officer, transcribes the features of the map as explained above. The operator transmits the data over the telegraph or buzzer line or by wireless to the destination. By plotting from the data at the receiving end the map can be reproduced identically, the degree of exactness depending upon number of points set down by the transcriber.

The accompanying sketch serves as an illustration of the method. The transcription required about 11 minutes, the transmission by telegraph about eight minutes, and the plotting about ten minutes. The total time required being a little less than half an hour.

Data transcribed from sketch for transmission:

River 47,0/55,14/62,18/66,26/75,31.

Lake 75,31/84,41/96,39/91,31/75,31.

River 96,39/11,41.

Creek 18,57/23,54/43,29/47,25/49,20/60,17.

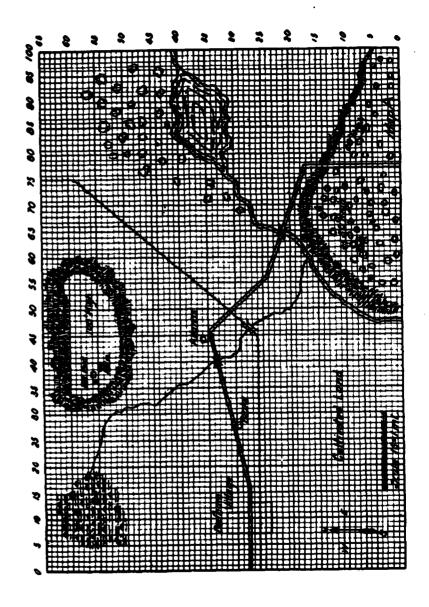
Dedham Village 7,32/11,32/11,28/13,28/13,24/7,24/7,32.

Road fenced 0,28/16,28/46,35/56,24/77,17/77,0.

Railroad 0,26/45,26/75,59/75,65.

Plateau 50 feet high timbered 49,0/08,16/75,14.

Plateau 20 feet high timbered 75,14/100,4.



Timber 68,28/80,53/93,57/100,45.
Cultivated land south of Dedham, west of river.

Marsh rad 6 at 11,57.

Hill 100 feet high 34 60/55 61/57 57/45 51/24 55/24

Hill 100 feet high 34,60/55,61/57,57/45,51/34,55/34,60. Bridge 64.21.

Culverts 40,32 and 46,23.

Adams house 44,36.

Blake house 28,30.

Company A 62,8.

Detached post 9 men with heliograph 37,56.

Cossack posts 55,6 and 69,15.

Scale 15 units one mile.

We find it most practical to use the fractional mark (a dot in the Morse code) to separate the pairs of numbers when a feature requires a series of pairs:

RALPH G. GAUDY,
Master Signal Electrician Michigan National Guard.



+ Problems. +

At the annual meeting of the Cavalry Association, held January 17, 1910, the question of the continuation of the publication of problems was fully discussed. It was the opinion of those present that the problems had been a valuable feature of the Journal, but that it was believed that many of our members had been deterred from attempting solutions of the various problems by reason of their stereotyped form, which led them to believe that none but graduates of the Army Service Schools would be able to solve them.

It was therefore agreed that the publication of problems should be continued, but that the problems and their solutions should be more general in their form and not in that required at the Service Schools.

Several letters received since this meeting confirm the belief that there is a general interest taken in these problems.

At the annual meeting it was also suggested that an attempt be made to interest our non-commissioned officers in the Journal, and to that end it was proposed that the publication of simple tactical problems open to competition for a small prize be considered.

The Executive Council of the Association has decided to adopt both of these suggestions, and this number of the Journal contains two problems on these lines.

Regarding the problems intended for the instruction of non-commissioned officers, the following rules have been adopted:

1. A prize of an amount not to exceed ten dollars will be

awarded for the best solution received, the amount to depend upon the merit of the best solution.

- 2. The competition will be open to all non-commissioned officers of the regular cavalry service or to those of the cavalry of the National Guard.
- 3. Solutions to be mailed to the Editor of the Journal, signed by a nom de plume, with the name of the author of the solution and his nom de plume enclosed in a sealed envelope

4. Solutions must reach the Editor not later than the 10th of the second month after publication, in order that the solution may appear in the following number of the Journal.

While this latter requirement will necessarily bar those non-commissioned officers who are serving abroad from competing for these prizes, it was deemed best to start out with this provision in order that the solutions might be published before they were forgotten and interest lost in their solutions. It is possible that this requirement may be changed, in case there is a general interest taken in these problems, and either have the time extended or some special provisions made whereby those serving abroad may compete.

Editor.

PROBLEM.

HANDLING OF A CAVALRY TROOP.

Captain Jones' horse was beginning to blow pretty hard as the captain halted his troop at the corner of Metropolitan avenue and Twelfth street, and there were several troop horses that looked as if they had failed to appreciate the charms of a ten mile trot and gallop. But the immediate cause of Captain J.'s sudden stop was not because his horses were tired but because from the corner he could see Corporal Brown appearing over the top of Prison Hill with his horse at the full gallop—and Corporal Brown was not in the habit of galloping his horse without good reason.

But before stating the cause of Corporal Brown't haste, let us first see why it was that Captain Jones had pushed his troop so hard on a day when the mercury was not far from 80°.

It had happened in this way: Less than an hour before, Captain Jønes' troop was in its squadron camp fully 10 miles southwest of Leavenworth, the other three troops being temporarily absent. And all at once "To horse" was sounded and, while the troop-was saddling, the squadron commander gave Captain Jones the following order:

"I have just received word that last night about a battalion of Missouri infantry crossed the Missouri in flat boats and landed on the Kansas shore about a mile south of the mouth of Salt Creek. And this morning they sent two companies into Leavenworth and seized a lot of ammunition and supplies, which at last accounts they were loading into 40 or 50 impressed wagons.

"I want you to go after them at once with your troop. I'll follow with the other 3 as soon as they get in. I've already sent for them and will not be more than 15 or 20 minutes behind you."

On arriving at Twelfth and Shawnee streets Captain Jones learned that the Missouri troops were moving north on Seventh street. So he had continued up Twelfth street, sending Sergeant Wilson's squad to get in touch with the enemy and delay their march. Corporal Brown was a member of Sergeant Wilson's squad—and we now see why Captain Jones waited for the corporal to come up.

This was Corporal Brown's report:

"Sir, they've turned the wagon-train off on that road that lies next east of Grant avenue. There are only about 50 men with the wagons. They are just now, beginning to cross this street (Metropolitan avenue). All the rest of the enemy are marching north along Seventh street and were still 5 or 6 blocks south of Metropolitan avenue when I left—and I've come on the jump. Sergeant Wilson is shooting them up whenever he gets a chance. I saw a mounted officer galloping north on Grant avenue as I came along."

What does Captain Jones decide to do?

Note.—Corral creek and its tributaries are passable almost anywhere by cavalry or infantry, but it would be difficult to cross wagons except on the bridges. Fort Leavenworth is ungarrisoned. Four-inch map of Fort Leavenworth to be used in solving this problem.

NON-COMMISSIONED OFFICERS' PROBLEM NO. 1.

SITUATION.

Your regiment, acting as the advanced cavalry force of a division, has just arrived at Fort Leavenworth from the south.

The country is friendly to your side.

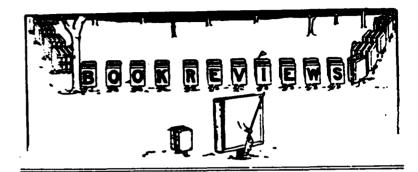
Your regimental commander has sent for you and then gives you personally the following verbal instructions:

"The enemy was reported to me yesterday as being at ATCHISON." I have not heard anything about them to-day. Take a patrol from your troop and reconnoiter for the enemy toward KICKAPOO."

It is now 10 a. m.

REQUIRED.

- 1. Are the orders given to you sufficient? If you need more instructions than that, what, in a general way, should they tell you?
- 2. How many men besides yourself do you think you will need?
- 3. Do you inspect your patrol before starting out, and, if so, what, in a general way, do you look for?
- 4. What should be your personal equipment as a patrol leader?
- 5. What signals, if any, will you require your patrol to use and when would you tell your men about them?



The Reality
of War.*

This little book it written as an introduction to "Clausewitz."

The writings of Clausewitz have formed the basis of a large share of the writings on the military profession for a long time.

Anyone familiar with the great work "On War" has recognized this free borrowing. Sometimes credit is given to Clausewitz. Sometimes to someone else who took it from Clausewitz. Sometimes, if you are charitable, you consider it a remarkable case of two men widely separated thinking out the same question in the same way and almost in the same words.

How much Clausewitz has influenced military thought is illustrated by two quotations by the author. From a letter from General Mechel: "I, like every other German officer, have, consciously or unconsciously, instructed in the spirit of Clausewitz. Clausewitz is the founder of that theory of war which resulted from the Napoleonic. I maintain that everyone who nowadays either makes or teaches war in a modern sense bases himself upon Clausewitz, even if he is not conscious of it."

From the Times' military correspondent: "But as all save one of the great battles in Manchuria have been waged by the

^{*}Atchison is 25 miles northwest of Fort Leavenworth.

[&]quot;The Reality of War." By Major Stewart L. Murray, late of the Gordon Highlanders. Hugh Rees, Ltd., London. Price 2s. 6d., net.

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Japanese in close accordance with the spirit and almost the letter of Clausewitz's doctrine, and as the same battles have been fought by the Russians in absolute disregard of them * * * it is certainly worth showing how reading and reflection may profit one army and how the neglect of this respectable practice may ruin another."

The statements "Clausewitz was a realist of war," "free from pedantries" will appeal to all students of his works.

To the statement from Clausewitz "Theory is nothing but rational reflection upon all the situations in which we can be placed in war" the author adds "and we can reflect without reading too many books." This combination should be carefully pondered by our officers until its full meaning is grasped.

Are not too many officers condemning as "theory" what is merely much useless reading of many books. Some books must be read, but without rational reflection will do little good.

The same idea is again brought out when the subject of Historical Study is referred to.

Many find Clausewitz hard reading. On this subject our author recommends that such officers keep the book as one of reference, reading it little by little as the spirit moves. This may be good advice, only read the book and read it carefully and thoughtfully

The arrangement of this little book is excellent. The author has devoted the first three chapters to a very short "Life of Clausewitz," "The Influence of Clausewitz on Modern Policy and War," "The Writings of Clausewitz." The last chapter briefly refers to the changes since his day.

The remaining chapters are devoted to a brief statement of principles as taken from Clausewitz. Each chapter is followed by the author's "Reflections." These "Reflections" are of unequaled value, some are very pertinent and valuable.

Those to Chapter VI, "Public Opinion," may suggest some means that would hardly meet general approval in this country. There is no doubt of their efficiency.

Chapter VII contains remarks on treaties and preparation for war more applicable to America even than to England.

Chapter VIII, "War as Policy," with the "Reflections" of the author, should be in the hands of every man in Congress. The importance of keeping your policy proportionate to the means of enforcing it and of knowing just how much you can enforce is not appreciated in this country.

The author in his selections from Clausewitz and in their presentation has been most happy. The little book is most enjoyable reading. Officers who do not study Clausewitz "On War" and keep it in their library cannot afford to be without this much of that great work. The student of Clausewitz will enjoy reading it,

M.

Firearms in
American History.*

The author covers the period from 1600 to 1800 and gives a very interesting description of the firearms of that period, together with a discussion of their influence on the early history of our country.

The colonists were, from necessity, great users of firearms, and, while at first they derived their supply from England and Europe, it was but natural that gunmakers should soon appear in a country where there was such a ready market for their wares. By 1774 it was estimated that "there were sufficient gunmakers in the colonies to make 100,000 stand of muskets per year." Speaking of the firearms industry of the early days, the author says:

"An investigation of the firearms of the early struggles in America yields various results. Besides the simple and direct one of rejuvenating a long lost knowledge are others of greater importance. Firearm makers of old were men of surprising ingenuity and artistic skill. Ingenious solutions of problems in form, balance, decoration, boring, grooving, throating, disposition of parts, mechanisms for turning, stopping, locking and unlocking, present to the inventor of to-day bases upon which to build again. Ornamentation by means of form, chiseling, engraving, embossing, openwork, gilding, inlaying with gold, silver, ivory, mother-of-pearl, so far surpassed anything attempted now that reference to the antique would be absolutely necessary in the

^{*}Firearms in American History." By C. W. Sawyer. Published by the Author. No. 41 Humphrey Street, Boston. Price, net, in cloth, \$2.60; in flexible leather, gilt, \$4.10 postpaid.

production of a modern decoration of real merit. The immensity of the firearms industry of old is beyond the imagination of the uninitiated; it clearly indicates the necessity of studying the close relation between skill with arms and human progress. The money value of so great an industry had a strong influence upon the economics of the times, and needs attention in regard to the present and the future. Debatable aspects of history are clarified by the presentation of information hitherto neglected regarding weapons used in critical periods of decisive warfare; and history is enriched by the addition of facts connected with those antique implements which assisted in the spread of civilization, the growth of a new nation, and affected the totality of human progress."

Beginning with the matchlocks and wheellocks of the Pilgrims, the author describes the different types and varieties down to include the accurate small bore rifles of the Revolutionary period.

There is also an interesting description of the early manufacture of arms in England and Europe. It is interesting to note that it was not until 1717 that France began to arm her infantry with uniform muskets made in government armories.

While rifles had been made as early as 1500 they were inaccurate and the difficulty of loading had prevented their use in the military service. The American gunsmiths were the first to make accurate rifles and to make use of the greased patch in loading. This development of the rifle had an important influence on the later Colonial wars, the troubles with the Indians and the War of the Revolution.

While there were a few factories or large shops for the manufacture of arms, many were made by individuals. The author gives a very interesting description of how the old time gunsmith in his little shop, working alone and making most of his tools, turned out rifles that are scarcely surpassed for accuracy at short range by the machine-made arms of the present day.

There are twenty-eight plates, containing numerous illustrations, of the firearms of the period, each of which is thoroughly described.

There are also several lists of gunmakers of England, Europe and America, giving the dates of their work and its character.

The book would be interesting to the average reader, and would be of great use to collectors of ancient arms.

C. E. STODTER, Captain Ninth Cavalry.

The Question of

Mounted infantry.*

This is the title of a little book of 94

pages, written by F. M. C., apparently
an officer of the British Army, who

finds in the wars of the last half century lessons which teach the value and necessity of a highly mobile mounted force, thoroughly trained to employ the rifle in dismounted action. The idea is so old (the author does not claim that it is new), especially in the American service, where it first thoroughly took root during the Civil War, that American officers will accept it without argument.

Not so, however, with reference to the author's opinion that the need for such a mobile force cannot be supplied by increasing the cavalry of an army and adapting its training to the changed conditions, but must be met by the creation of a corps of mounted infantry. He bases this opinion on his belief that cavalry cannot reach perfection in both sword and rifie, that a man who is taught to rely for morale on his horse and his sword can never compete on foot with the man who is trained to stand and to handle his rifle with the care and skill of a sportsman. And, since he thinks it impossible to excel in both mounted attack and dismounted defense, he concludes that the solution is to train one part of the mounted force of an army to excel with the horse and the sword and the remainder to excel with the horse and the rifle.

American readers probably will not agree with this conclusion, but we must admit that it is one way of solving the most difficult problem that confronts the cavalry of all armies, and especially that of the American army, the establishing a proper

^{*&}quot;The Question of Mounted Infantry." By F. M. C. Hugh Rees, Ltd., London. Price 3 shillings.

balance between fire power and shock action. The problem confronts different nations in different ways, but in all it is the same problem. Until recently American cavalrymen, generally, have believed that the cavalry of continental Europe has not given to the rifle as a cavalry weapon the importance that it deserves; on the other hand, Europe has looked upon American cavalry as excellent mounted infantry but possessed of little real cavalry training and spirit.

Each of these opinions has been fairly correct, but the time has come when we must modify our judgment of European cavalry, unless we wish to deceive ourselves only to reap the whirlwind at some future day. In the last edition of the German Cavalry Drill Regulations* no subject is treated more thoroughly than that of dismounted combat. The Austrian Cavalry, probably more devoted than the German to mounted combat and cavalry traditions, is rapidly giving the rifle its proper place. Likewise the French cavalry. Dismounted action is no new thing for the Russian cavalry, however bad may be their system of instruction, and the Japanese appreciation of the value of dismounted action enabled their small cavalry to accomplish much in Manchuria against great odds.

There can be no delibt but what European Cavalry is struggling to maintain a proper balance between its shock action and fire-power, but it cannot be said that we are doing the same, for shock action, which has never been considered of prime importance in our service, occupies a place of less importance in our training with each succeeding year. Under the conditions of today, no nation can afford to have its cavalry trained by an extremist, whether his fad be the saber or the rifle. Cavalry must be able to fight well both mounted and dismounted and that cavalry will be the best which has most accurately located the point of balance between shock and fire in its training.

F. M. C. claims to be a friend of the cavalry and it is because he firmly believes in the vast possibilities of a well-timed, well-aimed cavalry charge that he wishes carefully to consider the question of mounted infantry. But we cannot believe the

time has come for two mounted forces, one to excel with the rifle and the other to excel with the saber. Still, if we are to leave these forces combined in one uniformly trained mounted arm, the peace time scheme of instruction should devote to each of the trooper's weapons, the horse, the saber, the rifle and the revolver, the attention that is its due.

If this very interesting little book but helps to show the necessity for such a scheme of instruction, its author need not feel disappointed, although he may fail to get the mounted infantry he so much desires.

MATTHEW E. HANNAH, Captain Third Cavalry.

of dealing in a comprehensive manner with the un
Ignorance.* preparedness of the United States for war that
has appeared since the publication of Upton's

"Military Policy of the United States." The author has treated
his subject with masterful philosophy, yet withal so simply that
he has not placed his deductions beyond the grasp of the average lay mind. The nation in general and the military and naval
services of the United States in particular owe him a debt of
gratitude for having addressed this appeal for adequate national
defense to the American public, for after all the public must be
educated before we obtain a military policy suited to our needs.

In the first part of the book the author points out that we are an unmilitary nation, yet at the same time arrogant in our belief that wealth, of which we have an abundance, and arbitration, by which we are deluded, constitute sufficient safeguards against a well-organized and determined foe. An arrogant demeanor before the remainder of the world, with naught but wealth and arbitration to allay the passions aroused by such arrogance, surely will result in disaster to the nation in the end, for wealth, however vast, is not a substitute for military strength, and arbitration is an illusion.

The German Cavalry Drill Regulations may be purchased, in German or in French, through the U. S. Cavalry Association.

[&]quot;The Valor of Ignorance." By Homer Lea. Harper & Brothers, New York. Price, \$1.80.

The author's analysis of the elements that constitute our military weakness is logical and complete. No essential point is omitted. We are no longer isolated from other countries. Modern inventions have annihilated distance. Oceans are but small streams, and the ingenuity of man has placed both Europe and Asia at our very doors. The whole world is more compact than were the United States in 1830. Let arbitration do its full share, and still the lines along which nations move cannot be kept apart; eventually the collision will come. We have assumed a position among nations, in the last decade, that is bound to involve us more frequently in international difficulties, and unless human nature changes some of them will embroil us in war.

When that war comes we have practically nothing with which to meet it. Militia cannot be depended upon today, any more than they could when Washington warned the country against substituting them for regular troops. A hostile army can reach our shores in but a fraction of the time required a few decades ago, but there has been no change in the time it takes to make a soldier. And wars are fought and won by soldiers.

In the second part of the book the author gives us his estimate of the situation, political, commercial and military, that exists today in the relations of the United States with Japan, and reaches a decision, the logic of which appears sound, that war between these two nations is inevitable. The probable military operations of this war are then discussed with such marked ability that the military reader is fascinated and tied to the book until its last page is reached. Although the reader may have thought in an indefinite way that the United States would have a stupendous task to protect her territory, should fate bring the republic to blows with Japan, still just how fearful the disaster might be he probably will fully realize for the first time when he reads this remarkable book.

Commenting on the probability of such a disaster, General Story says in his introduction to the book: "Never has there been on this earth so rich a prize, now so helpless to defend itself, as the Philippine and Hawaiian Islands, the Panama Canal, Alaska, and the states of the Pacific coast."

Were it not that we know something of the valor of the ignorance of the American people, we might believe that they would demand that the author's statements be either refuted or confirmed. Instead, to quote from General Chaffee's introduction to the book, they probably will answer the author's "well prepared practical demonstration of our actual and possible military situations in their usual way: 'Just let'em try it and you'll see what we can do.'" If the American people do not give this book the reception it deserves, the reason therefor is to be found written in the book itself. So great is the valor of their ignorance that they must be taught their lesson in some more drastic way.

Needless to say, we think the book should be read by every intelligent American. General Chaffee says of it:

"We believe it will greatly interest public officials, national and state, as well as the mass of intelligent citizens in private life, who have not hitherto had arranged for them a series of pictures equal in importance to the collection that is to be found in the twenty-one chapers of this book. We do not know of any work in military literature published in the United States more deserving the attention of men who study the history of the United States and the Science of War than this."

MATTHEW E. HANNA, Captain, Third Cavalry.

Military Occupation
of
The author of this book is vicepresident of the New Mexico HisNew Mexico, 1846-51.* torical Society and states in the introduction "while making no special pretense as an historical writer, the author has attempted to record,
with reasonable accuracy, the events of the American Occupation period."

In the opening chapter, the discriminating reader is led, in the following words, to believe his author is skilled and unbiased, for he says:

^{*}The Military Occupation of New Mexico, 1846-1851." By Ralph Emerson Twitchell. The Smith-Brooks Company, Denver, Colorado. Price, \$2.50.

"Accuracy of knowledge, intimate acquaintance with facts, mastery of the sources of evidence and of statements, are the necessary fundamental factors in historical writing. Great diligence and patience are important adjuncts.

"The writer of history, in his presentation of events occurring during a given period, may be compared to the lawyer in the preparation and presentation of a case. The lawyer first acquaints himself with the facts. He then applies the law and forms his conclusions. The writer of history digests all the accounts of any series of events. From these, varied though they may be, he draws a conclusion. The lawyer, as he brings out the facts for the consideration of a jury, is engaged in preparing the mind of the juror for the formation of a conclusion. Later, in his capacity of advocate, he does not recite to the jury what the witnesses have said verbatim, but, in a logical presentation of the principal facts, endeavors to assist the juror in the formation of a conclusion similar to the one he has himself drawn from a study and investigation of the weight which should attach to each."

Notwithstanding that the author has so splendidly stated what an historical writer should do, yet a checking up of several of his statements in this volume shows that he has not pursued that diligence that produces accuracy of knowledge, nor weighed his source of evidence with that care that leads to unprejudiced statements and conclusions.

When the author would impress a fact or conclusion very forcibly on the reader, he usually notes the documents on which he relies. This might convince a reader who did not know of other and more authoritative source documents. However, the chief fault lies not in the lack of documents so much as in their quality.

The author has failed to assist this reviewer to a conclusion similar to the one he has himself drawn in portraying the History of the Military Occupation of New Mexico.

One leaves the book with the feeling that the author is not presenting unbiased facts and well balanced conclusions, but that he is advocating a particular cause from a biased point of view.

. S. X.

RECEIVED FOR REVIEW.

"The French Verb. Its Conjugation and Idiomatic Use." By First Lieutenant C. F. Martin, Fifth U. S. Infantry, Instructor of Modern Languages, United States Military Academy, 1910. American Book Company, New York and Chicago. Price \$1.25.

"The Relations of the United States and Spain. Diplomacy." Charles Scribner's Sons, New York. Price \$4.00, net.

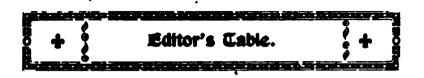
"Little Rimes of the Garrison." By Birdie Baxter Clarke. Franklin Hudson Publishing Company, Kansas City, Mo.

"A System of Free Gymnastics based on the Swedish System, including Dumb-Bell Exercises." By Sergeant Major J. B. Betts. Gale and Polden, Ltd., London. Price 1s. 6d., net.

"The Field Gunner's Catechism." By Major A. T. Anderson, Royal Field Artillery. Gale and Polden, Ltd., London. Price 1s. 6d., net.

"The Magnetic Compass and How to use it." By Captain R. F. Legge, Leinster Regiment. Gale and Polden, Ltd., London. Price 9d., net.

"Circular on Horsemanship." By Captain William R. Wright, Squadron A. Cavalry, N. G., N. Y. Published by the Author for the use of his Troop.



"WIRELESS FOR THE CAVALRY."*

For some time the Army Signal School, at Fort Leavenworth, has been making experiments with wireless apparatus that are of surpassing interest to the cavalry. The object of these experiments has been to develop a portable field wireless set in which weight, bulk, ease and rapidity of operation and reliability are combined in such manner as to make the apparatus of practical utility under war conditions, and the results up to date warrant the opinion that wireless for the cavalry is assured.

The apparatus is simple and compact, and, excepting the mast, is carried in four-chests, two of which contain the operating apparatus and two the hand generator. These chests weigh about seventy pounds each. The mast consists of six or eight light tubular sections, each five feet six inches long. These, together with a leather bag containing the aerial wires and gear and two small storage batteries, weigh about 150 pounds.

The entire outfit is carried in a light instrument wagon that may follow the cavalry or remain near it with its train, according to the military situation. So far as weight and bulk are concerned, the outfit might be carried on three pack animals, but there may be some question as to whether the apparatus would stand the wear and tear.

The apparatus can be set up anywhere in a few minutes, and has been set up under favorable conditions in sixty-eight seconds. The station can be closed and the apparatus loaded in the wagon in about the same time. The efficiency of the set has been so

increased that there is no longer any doubt as to its value. A range of over thirty-one miles has been attained, and at that distance the signals were so plain that it is believed that they could have been read several miles further. With stations ten or fifteen miles apart, it takes more than the ordinary atmospheric disturbances to prevent the signals from being understood.

The officers of the Army Signal School do not claim that this wireless set is a piece of mechanism that is not liable to get out of order, but they do claim that they have so developed and perfected it that the chances of trouble are remote. We believe that the apparatus, as it stands today, has sufficient reliability and a radius of action great enough to leave no doubt as to its value to the cavalry. On those occasions when the wireless fails, the cavalry is in no worse condition than formerly, for messages and other communications can still be sent by mounted messenger.

These developments mean much more to the cavalry than may be apparent at first thought, but one has but to assume a situation involving the operation of cavalry and carry it along on the map through a period of three or four days, to see how far reaching are the advantages of this innovation. A still better plan would be to give the apparatus a test under field service conditions during the coming summer.

It is to be hoped that the Army Signal School may succeed in so perfecting the apparatus that it may be carried on pack animals. It is believed that the present outfit might be so carried without impairing its efficiency, but this cannot be asserted positively without a thorough test under service conditions.

> MATTHEW E. HANNA, Captain, Third Cavalry.

^{*}This article was received too late for insertion under Military Notes where it properly belongs.

CARBINE OR RIFLE.

Some time since, the Fort Leavenworth Branch of the Cavalry Association had under discussion the question of a shorter and lighter rifle—a carbine—for the armament of our cavalry. While the merits and disadvantages of the present rifle as a cavalry weapon were fully set forth, yet it would appear that the principal, if not the only strong argument against returning to a carbine was the one as to the demoralizing effect that it would have on our men to arm them with a weapon that was inferior in range and flatness of trajectory to infantrymen's rifle. That cavalry would not then hold a position against infantry until our own infantry could come up with that tenacity that they might otherwise do if armed with a weapon equal to that of the opposing cavalry or infantry whichever might be in their front.

The following is an extract from a letter on this subject received at the time this matter was under discussion:

"Colonel Thompson, Ordnance Department, who has charge of the cavalry equipment, tells me that the subject of a carbine for the cavalry is now, up for consideration. He says that the cavalry can have anything that they want, provided they know what they want.

"He requested me to get an expression of opinion from the Leavenworth Branch of the Cavalry Association. So get busy and send your report to him.

"Do you want the same gun with, say, a twenty-inch barrel?

"Do you want a smaller gun with a smaller bore and shooting a different cartridge from the rifle?

"Do you want a shorter and lighter gun, which will have the same size cartridge as the rifle, but with a smaller powder charge and shorter range, and which, in an emergency, could use the full charge rifle cartridge?

"Do you want the rod bayonet?

"I would vote for the last two propositions.

"If you want anything not mentioned, please say what it is."

Later, this same officer, Captain Gray, 14th Cavalry, writes as follows:

"An officer of the General Staff has recently asked me what the cavalry wants regarding the change of weapon and in considering that question the following arguments are worth considering:

- "1. Any change at all means a reduced velocity and a shorter range.
- "2. Any change in length means a shorter distance between the sights and reduced accuracy.
- "3. Any reduction in accuracy means a loss of morale. I know that a weapon that is effective up to 1200 yards is all that the cavalry needs, but I think that the moral effect should be considered. The men are apt to think and say: 'We cannot stand against that infantry with their better guns.'

"Many claim that by the present method of carrying the rifle, the use of the left leg, as an aid, is lost. I admit it, but will the matter be at all changed by making the gun four inches shorter? I have had no trouble in my troop with carrying the rifle. It is carried nearly vertical, so that the lower strap merely steadies the gun. Given this method of carrying it, a contrivance to stop flopping and a redistribution of weight so that a counter poise will be on the off cantle, and I see no objection to the present gun, except that it should have a rod bayonet. The weight of the present gun cannot be reduced.

"All kinds of experiments have been tried for carrying the rifle, but I do not believe any will be found that is better than the present one. Although it is possible that one may be found such that the weight will be partly on the rider and partly on the horse and which will permit the rifle to go with the man when the horse goes down without catching the rider in a trap. The English method will not permit the man to go free when the man is thrown on the off side.

"To sum up, would it not be better for us to try and secure a suitable way of carrying the present gun rather than suffer a loss in morale?"

In this line, the following is from one of our prominent field officers of cavalry:

"I have been wondering what our people think about the semi-automatic carbine. While not yet perfected, it is surely"

coming towards perfection, and Colonel Thompson—the ordnance sharp in the Chief's office—says it can be made to fire the
infantry cartridge, which I consider a necessity, although we
might use less powder, as we did in the old .45 Springfield.
Colonel Thompson says the strife is now on for a still flatter trajectory for the infantry rifle, which condition does not especially
appeal to us. Most cavalrymen want a lighter and shorter rifle;
in fact a carbine that can be more easily carried and handled than
the present weapon. The present rifle can be shortened and
somewhat lightened, but in view of the possibility of an automatic carbine, it would hardly be wise to make a change which
would be very costly and which possibly would be a back number
in a couple of years.

"Would it not be possible to find out through the Journal whether the present arms are satisfactory, and if not, what the majority of officers desire? If the Executive Council can find out the feeling of our people in the matter, it might be of great value.

"The perfect Colt automatic is on deck, and the automatic carbine is, I believe, only a matter of months, or at the farthest of a year or two."

In view of the above, especially of the last quoted extract, the Executive Council is anxious to hear from our members as to their views as to a change in the rifle, and to that end will very soon attempt to have a systematic canvass made of all the regiments and the recorded opinions of all cavalry officers obtained on this question, which is of such vital importance to our branch of the service.

VARIOUS NOTES.

PROBLEMS.

As has been noted elsewhere in this number of the Journal, the question of the continuation of the publication of problems and their solutions was fully discussed at the annual meeting of the Association, and the consensus of the opinion of the members was that their publication should be continued.

While it is quite natural that those of our members present at the meeting who are instructors and student officers of the Service Schools, and who are therefore thoroughly familiar with this valuable form of instruction, should be of this opinion, and that our Executive Council, almost entirely made up of Instructors at the schools, would agree with them, yet the Council was not entirely influenced by their predilections in favor of them in deciding that their publication should be continued, but rather, to a large extent, by the several letters received from outside members who strongly favored their retention.

One of our leading and progressive cavalry officers writes as follows regarding this and other questions:

"I want to congratulate you on the good work you are doing with the Journal. You seem to have the faculty of getting interesting professional matter, even if the greater part of it is not original—a condition not by any means essential, according to my way of thinking. Keep it up, and if my opinion is of value, I would say keep up the 'Problems.' While you do not hear much about them, they really add to the value of the Journal as an instructive service magazine."

Another member writes:

"By all means keep up the publication of the problems, as, to my mind, they and the military notes are the most interesting and instructive parts of the Journal. Also give us more such articles as the ones on the 'Battle of Gettysburg' and the 'Lessons of a Decade by a Volunteer Cavalryman.' They are intensely interesting and are in line with our work."

As before mentioned, it has been determined by the Executive Council to continue the publication of problems and their solutions, but in a modified form from those heretofore given.

It is hoped that this action will meet with the approval of our members, and that they will show their interest in these problems by submitting other and possibly better solutions. It it not claimed that the approved solution is the best possible and their discussion in the Journal is desired.

SHORT ARTICLES.

At the annual meeting it was also suggested that efforts be made to induce our members to submit short articles for publication, either as a leading article or under the head of "Military Notes," giving their experiences with any special work or experiments they may be making in instructing their enlisted men, non-commissioned officers, troops, squadrons or regiments. Articles similar to the one in the September, 1909, number of the Journal entitled "Field Firing for Company or Troop" were suggested as being desirable. It was claimed in these days when all officers are kept busy and in many instances have little time for professional reading outside of the prescribed courses in the gagrison schools, they will frequently, when having a spare moment, read and digest a short article on some such special topic in their line, when the longer ones are passed by to be taken up on a more favorable occasion, if ever.

A member writes us as follows:

"Another thing of interest to cavalrymen is the keeping in touch with the Signal Corps in all that they are doing in the line of wireless work. Brief memoranda from time to time would serve to keep our people on the alert."

AUTOMATIC PISTOL.

"I wish the Leavenworth members of the Association, whose action on the Rhodes' letter was fine, could have seen the test of the modified Colt Automatic Pistol, which I saw on February 9th. It seems that the various kicks have been all referred to the Colt people and that their expert, Mr. Browning, has been at work for some months on the .45 caliber, in order to overcome the reported objectionable features of the arm. I think he has surely done the trick, for a single pistol, selected at random, was fired one thousand times without a hitch. Mr. Browning fired three clips—twenty-one shots—in fifteen seconds, and I fired the same number of aimed shots in thirty-one seconds, although quite unfamiliar with the weapon. It seems to me to open possibilities for cavalry which we have never had before, both in mounted work against a mounted enemy and in the certainty of being able

to take up and hold a position pending the arrival of our infantry. The weapon is intended to be carried loaded at the safety and is without doubt a safer arm than the revolver."

A MEMBER.

BETTER OFFICERS' MOUNTS.

"My reason for suggesting to you to print this article* is that I think such papers as this tend to rouse the curiosity and raise the standard of our mounted officers in the matter of military horseflesh. I think you will agree that we are very far behind other nations in our standard of excellence in what constitutes a proper and serviceable mount for our cavalry officers, having in view campaign conditions. The better mounted our officers are, even to the point of fancy horseflesh, the more they will ride in time of peace and the further and faster they will go in time of war—in other words, the more efficient they will be as cavalrymen.

"Now, the moment the majority of our officers are really well mounted, the time when our men will all be furnished suitable horses of the cavalry type is not far off. We can't create this standard of excellence at the bottom and hope to have it rise and permeate the top; it must begin at the top and it will surely filter down. Our troopers are badly mounted now and ride indifferently, because our officers do not lead the way in excellence, whether as regards their own horses or their skill as riders or teachers. I do not believe this is due to poverty, but to indifference, or rather to the lack of a higher standard. The great najority of our mounted officers dispose of a larger income, grade for grade, than do foreign officers, counting all sources of their income. They do not spend a fair proportion of their pay on horseflesh, for the same reason that a man who rarely smokes tobacco has no large bills to pay for cigars.

"The Cavalry Journal does so much to stimulate interest in the mounted arms, that I make bold to suggest the great good it can do by representing the injury which results to those arms through permitting officers to buy and ride the indifferent type

[&]quot;Referring to a translation to appear in the next number of the Journal.

of horse so prevalent in our service. A mounted officer is allowed \$150 a year for the purchase of horseflesh. It would seem not to be unreasonable to require him to invest at least two years' allowance in the horse he rides. In the absence of any severe official requirements in this matter, the Cavalry Journal can do much to inculcate a higher standard and lead to the gradual betterment of our remount. The government gives us an allowance which, if spent for the object contemplated in the law, would enable us to be mounted better than any other service in the world, for no other service allows so much money for mounting its officers. If our officers were splendidly mounted, our men would not be long in having at least first class horses."

T. B. M.

TACTICAL INSTRUCTION.

^I heartily agree with you that the tactical instruction of our officers and men is the army's greatest need, but as far as my personal observation goes, it seems the most difficult to introduce.

"Here and there isolated cases along the lines laid down by you have been noticed. This, however, has been confined principally to junior officers whose opportunities have been restricted and who have been unable to pursue any progressive scheme of instruction.

"Of course, everyone should make the best of his opportunities—should create them, if necessary—and should try to surmount apparent obstacles and not allow the limitations, which are now legions, to diminish our ambition and enthusiasm, but there is no discounting the fact that until the field officers take an active interest in this important branch of instruction next to nothing can be done.

"During the last few years I have witnessed the progress of several post-graduate courses, and with one single exception they have been most perfunctory and have resulted in no good to the various student officers. There is no reason why these post-graduate courses should not be made instructive and interesting and form the basis for the work in the field at maneuvers.

"Another thing that is entering quite noticeably into the work of officers. While the majority of them are endeavoring to give value received in return for their commissions, this con-

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30	-	-	_	16 42	
35 -	_	_		18 92	
40	-	-	_	22 16	
45 -	_	_		26 36	

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tinued agitation in Congress to eliminate, etc., etc., has made many an officer cast his eye about for some means of livelihood should the ax fall on him and this continued unrest does not enlist the strictest attention to military duties." G. W.

SELECTION AND ELIMINATION.

"The brief note on selection and elimination in the last number of the Journal is pertinent, timely and sensible. In the face of the fact that a propaganda has been cultivated among our younger officers teaching them that our veterans must go to the rear, such comment is refreshing.

"I believe that Congress could be persuaded to give to our field officers the same opportunity for retirement that is given to naval officers of like grades. Such retirements would work automatically and for the most part without compulsion. Our senior majors have, by long and faithful service, earned and deserved the next grade. It is not fair to push them to one side with an 'I. C.' brand merely because they are old for their grade. Give some of them a chance once a year to retire with the next higher grade, as in the navy. Then justice would be done and promotion would accrue without brutal treatment of the veteran field officer."

ANNUAL MEETING OF THE U. S. CAVALRY ASSOCIATION.

The annual meeting of the association was held on January 17, 1910, with a quorum present or represented by proxy. The election of officers resulted in the re-election of all of those of last year with the single exception of Captain Saxton as a member of the executive council, who declined a re-election on account of not having the time to properly attend to the work. Captain R. S. Fitch, Second Cavalry, was elected a member of the executive council vice Captain Saxton.

The secretary and treasurer's report was read, accepted and ordered audited. This report is given herewith below. As

will be seen from this report, the finances of the association are in good shape, there having been an increase in the net assets of \$1,461.32 during the year 1909. The gain in membership, especially among the regular, active members, has not been as satisfactory. It had been hoped that the appointment of regimental members on the executive council would result in a large gain in membership from the different regiments. While such has been the case in two regiments, yet there has not been a gain of more than one or two in the others, and in one case there has been a loss of one member. It is hoped that the members in those regiments where no regimental representatives have been selected will make a selection without delay, as the increases noted above have been the result of their work. The membership by regiments will be found below, together with the percentages of membership and the order in which the several regiments stand as to membership.

REPORT OF SECRETARY AND TREASURER.

FINANCIAL REPORT

FINANCIAL REPORT.
· Receipts.
Cash on hand January 1, 1909 \$ 1,402.55
Received from members and subscribers
Received from advertisers
Received from sales of books 8,773 06
Received from interest on time deposits
Total
Disbursements.
Editor's salary and clerical services \$ 1.424.33
Printing Journals, engraving, etc
Printing and purchase of books
Postage
Commissions on advertisements
Refundments, office supplies, etc
Balance on hand December 31, 1909
Total

Assets.

Cash on hand December 31, 1909\$	2,309.04
Due from members and subscribers	1,026.50
Due from advertisers	353.25
Due for books	886.27
Books on hand-bound and unbound-cost	1,283.04
Total	5,858.10

Liabilities.

Due-from outstanding accounts-for books sold on	
commission	616.60
Due U. S. Infantry Association	10.50
Due for expressage	7.70
Net assets	
Total	5,858.10

Membership.

Regiment.	No. M	lembers.	Per Cent.	Order.
First Cavalry		47	92.11	1
Second Cavalry		37	69.81	12
Third Cavalry		39	73.58	7
Fourth Cavalry		37	71.15	11
Fifth Cavalry		<i>3</i> 9	75.00	6
Sixth Cavalry		41	77.36	4
Seventh Cavalry		27	51.94	15
Eighth Cavalry		43	81.11	2
Ninth Cavalry		35	68.63	13
Tenth Cavalry		42	79.25	3
Eleventh Cavalry		38	71.89	10
Twelfth Cavalry		39	73.58	8
Thirteenth Cavalry		40	76.94	. 5
Fourteenth Cavalry		38	72.00	9
Fifteenth Cavalry		31	59.62	14

+ Publisher's Motices. +

ARMY NATIONAL BANK.

The attention of our members is called to the following statement of the financial condition of the Army National Bank. The growth of this bank has been great and the number of those making their allotments payable to it is steadily increasing.

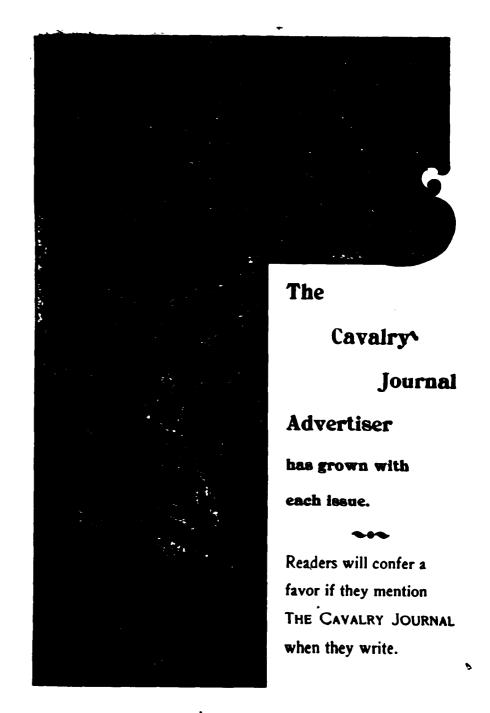
DIVIDEND STATEMENT, DEC. 31, 1909.

resogrees.	1	LIABILITIES	•
Loans and discounts\$129,388 5 U. S. bonds and premiums 25,450 0 Other bonds	20 44	Capital stock Surplus fund Undivided profits	\$ 25,000 00 3,000 00 1,912 06
Purniture and fixtures 1,000 of Redemption funds 1,250 of 72,247 o	∞	Dividends unpaid Circulation Deposits	765 00 25,000 00 172,970 03
\$228,647	9		\$228,647 09

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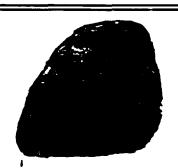
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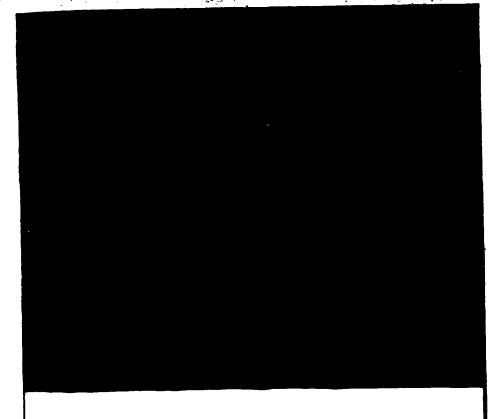
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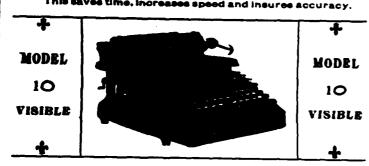
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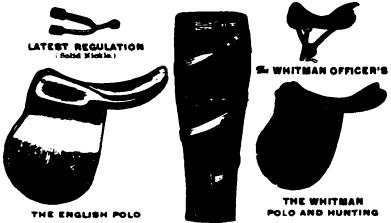
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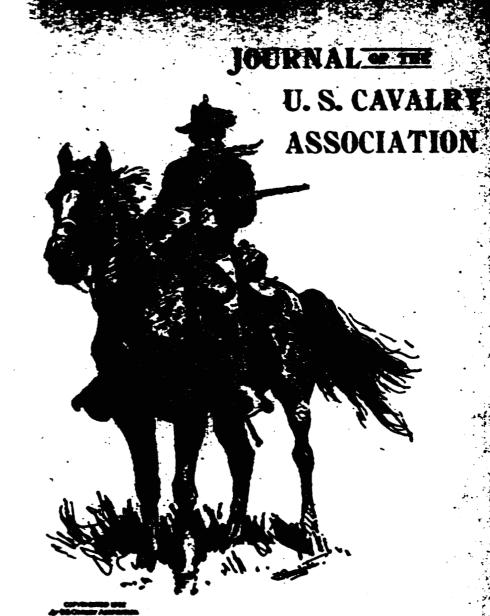


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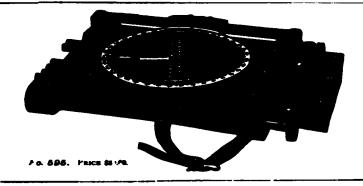
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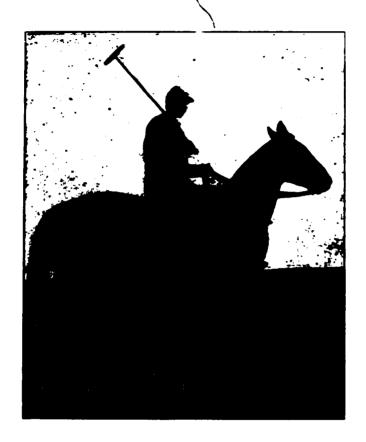
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VOL XX.

MAY, 1910.

No. 78.

CONDITION COUNTS.

By VETERINARIAN R. VANS AGNEW, FIFTH CAVALRY.

FIT" animal resists disease, an "unfit" animal easily suc-

For some years the general trend, in the army, has been towards using a better bred animal. Officers are buying thoroughbreds; great discussions are going on as to the rival merits of the different breeds suitable for a cavalry mount. Almost everybody concurs in the opinion that the possession of some good blood is necessary in his horse.

But with the better bred horse comes the fact that he must have more care in every way, and in return he will give better service.

Remount stations have been started; riding schools have been established; officers go abroad to study horsemanship; books, etc., are being written on the higher art of equitation; even a double bridle is spoken of. All this means that we are beginning to realize that the horse is getting to be more valuable and important. The broncho has departed, for good blooded sires are used. Now has come the time to talk about the care of this more valuable animal, for the "old order changeth."

We are facing newer conditions and in time of war will have to demand more from our horses, they must be in better condition than ever.

A horse, to be in good condition or "fit," requires:

- (1) Proper feeding;
- (2) Intelligent grooming;
- (3) Sanitary stabling;
- (4) Sufficient exercise.

PROPER PEEDING.

Proper Feeding means: To give the animal such suitable proportions of foodstuffs as will enable him to perform certain required work without appreciable deterioration in energy, temper or health, i. e., to be "fit" and keep "fit."

To feed properly we must first study the structure of our animal and his habits. In all veterinary colleges and by all books on the horse, we are told that his stomach is small in proportion to his size, and that for this reason he should be fed little and often. Freighters, livery-stable owners, cabmen hack-drivers, race horse owners, and most men who own horses recognize this and feed their animals accordingly three times a day and often four or more. Grazing horses nibble nearly all the time. European cavalry also recognize this principle.

Paragraph 886 Cavalry Regulations differentiates, but the custom of our service is to feed only twice a day. This twice a day feeding no doubt originated during the exigencies of our Indian campaigns, through the scarcity of cultivated foodstuffs and from abundant facilities for grazing on very nutritious grasses. But these conditions also have vanished with the broncho, for roads are fenced; grazing is not permissible; herding not possible except in certain localities; and grasses are impoverished from overstocking and erosion of soil. Moreover, our knowledge is less empirical, we know now whereas before we simply tried to rise to the occasion.

Paragraph 886. "In camp hay is fed at the picket line, morning, noon and evening."

I sincerely hope that it will be.

Paragraph 886. "In garrison hay is usually fed in the evening, but when horses are kept in the stable during the entire day, a portion is fed in the morning." This also will be a step in the right direction. Let us itemize the twice a day feeding:

All the hay is fed at night with a major portion of the oats, the minor portion is fed in the morning.

This means that horses (with no grazing) in summer go about ten hours without any food at all, in winter about eight hours. It also means that they have absolutely no hay at all for about fifteen to eighteen hours. Now think of all the rules and reasons laid down in our schools and taught by authorities every day for feeding little and often. We surely have worked down to the reductio ad absurdum. It really is amusing if the question was not such a serious one. Why do we feed only twice a day? I have never been able to get a comprehensive answer to that question. I am told that at Fort Riley all the horses of the School of Equitation are fed three times a day—Why?

Paragraph 874. "In ordinary cases cavalry should not leave at a very early hour * * for horses as a rule eat more freely during the early hours of the day. Ample time should be left, after a seasonable reveille, for the horses to be fed."

If this is so, why not feed some hay in the morning, especially as no hay is given till the evening?

Many experiments of well-known authorities have proved that if oats are fed first and hay afterwards, that the hay pushes the oats rapidly out of the stomach before certain fluids have had time to act on the oats, and that as the stomach is so small (in proportion) it cannot hold large feeds which have to pass out before they are properly acted on, and that if we want to get the greatest benefit from grain we should feed some hay first, then oats, to be followed by the rest of the hay. By so doing, the oats push the first hay out and settle in the lowest part of the stomach where the digestive aiding fluids are formed, and the following hay to a great extent passes over the oats, leaving them to be thoroughly acted on before passing into the intestines. Consequently we get the most good from the more nourishing and more concentrated part of the food.

With our present method, we give oats in the morning, the animal has to keep up on that feed all day, by evening he is ravenous and on being led into his stall finds hay and grain already placed there, naturally he bolts his oats first, then gorges on his hay, which pushes the oats out half acted on; hence indigestion and its attendant ills.

This is why we have the common and disgusting sight of seeing so many of our cavalry horses eating their droppings and also of gnawing all the wood work they can reach.

When I first went to Fort Logan in 1903, I was horrified to see almost every horse in two troops eating their droppings. Colonel (now Brigadier General retired) Cooper, then in command, arranged that green alfalfa should be hauled and thrown into the yards in the forenoon, as grazing was not practicable; this soon stopped the vile habit amongst the horses. Unfortunately almost all veterinarians report the same to be happening at their stations.

I experimented with my own horses and found that if I fed them only twice a day that they would also do it, but that as soon as I divided their allowance into three parts they are no droppings or wood work. If anyone likes to take the trouble, he can see this beastly sight for himself, especially when our horses are first turned out.

Feeding twice a day is especially hard on the new and young remounts that certainly should be kept and fed in a separate stable for some time before being assigned to troops. Most of them have come from pasture or have been fed at least three times a day. Suddenly they are thrown into strange stables, are bullied by strange companions, handled by strange people often much too roughly, their nervous systems badly deranged. Their digestions are already disturbed by a railroad journey, often a long one, and in inclement weather arriving into a totally different climate and presented with a totally different food, which is fed only twice a day. What is the consequence? Chronic indigestion, ill temper and an "unfit" horse, who if he makes good proves another of patient nature's miracles. Truly a survival of the fittest. Why is it that the horn on our horses' feet is so rough and has so many irregularities? Those wrinkles tell the tale of intestinal troubles and too heavy shoes; the good and bad periods are clearly marked to those that know. Of course animals (as

well as people) that have indigestion can work and no doubt at times feel partially well, but they are never really "fit" and go all through life without ever having felt the joy and exuberance of the perfectly sound being.

I venture to state that at least half the officers and men of our cavalry have never ridden a perfectly sound and "fit" horse since they have been in the service.

Once I implied this to an officer of my regiment and he laughed at me. Some years after he went to the School of Equitation at Fort Riley and I again met him about a year after he had graduated. He reminded me of my former statement and acknowledged that he now knew what I meant, and that he had never been on a really good horse till he had been to the school at Fort Riley. They keep horses "fit" there but they feed them three times a day.

Our horses lose flesh too rapidly on fairly easy practice marches-hence saddle sores. If they were fed at noon this loss of flesh would be minimized. And why can they not be fed at noon? There are very few occasions when they could not be halted for an hour, even two hours, and fed grain. Girths can be loosened, the weight relieved, the backs restored to their normal condition. I have generally managed to give the horses I have ridden on all these marthes, a feed at noon, when troops were halted 50 that the men could eat their sandwiches, etc.—for we men, we work so hard riding our horses, we really need the nourishment; besides there is no time to feed the horses for we must get into camp as soon as possible so as to get cozy and comfortable for the night. I have read of soldiers who have shared their food with their hungry horses—but these must be fairy tales so foolish, you know. The wagon mules could so easily get a bucket of water apiece and a feed of grain at noon.

All other cavalry halt and feed at noon, why not our cavalry? Horses everywhere are built alike internally.

A good feed schedule would be:

CONDITION COUNTS.

IN GARRISON.

Morning 2 lbs. hay Noon 5 lbs. hay Evening 7 lbs. hay	3 lbs. oats 3 lbs. oats 4 lbs. oats	If needed increase to 4 lbs. 3 lbs. 5 lbs.
ON MARCE	₹.	
Morning 4 lbs. hay	3 lbs. oats	4 lbs.
Noon No hay	3 lbs. oats	3 lbs.
Evening*10 lbs. hay	4 lbs. oats	5 lbs.

At present we feed so much hay at night in camp that the horses soil and paw it over, consequently it is not good feeding.

Drill schedule should be arranged so as to groom, water and feed horses at noon, turning them out afterwards if necessary.

INTELLIGENT GROOMING.

There is absolutely no doubt that our grooming should be done after drill or exercise. This is taught and practiced all over the world. To turn a wet horse loose into a dusty yard and try to clean him several hours afterwards is not rational treatment and is not conducive to fitness of condition. At any rate, after a hard drill he should be wisped or rubbed dry, and especially should his legs be handrubbed for they do most of the work. A man running in races puts a great deal of work on his legs, he knows the value of it, especially after he has run hard. On the march a horse can stand less grooming, but he needs that grooming on arrival. In the rain a brush does more harm than good, wisping is sufficient.

All these ideas may seem trifling, to the uninitiated, taken singly, but with many others as seemingly unimportant they form a whole that keeps a horse in condition. This should be a good half of the cavalryman's duty, to know how to keep his horse "fit."

In these days of machines, street cars, bicycles and large towns the knowledge of horses is vanishing among the class of men that recruit for our cavalry, consequently they require more teaching, and with our better bred horse that requires more care, still more and a higher form of instruction will be needed.

SANITARY STABLING.

This comprises:

- (1) Proper ventilation:
- (2) Sufficient cubic space;
- (3) Plenty of light;
- (4) Clean mangers and feed boxes;
- (5) Dry, smooth stalls;
 - (6) Good drainage.

All these are necessary for the conditioning of our horse.

Adequate ventilation is no doubt the most important, but as a rule stablemen have very hazy ideas on the subject. With them, if it storms or is cold, is the maxim "shut up everything tight." Our climatic conditions are so diversified that what suits in one state will not do in another; the high, dry breezy western states allow us more latitude in stable construction than in the south and east, and no doubt exists that some of our older stables in the west are hardly up to the proper standard, but the newer ones being built now are excellent with the exception of a few faults, one of which comes under this heading. In hopes of future improvement in stable construction, attention is drawn to these faults.

A few months ago, two magnificent stone stables were completed at Fort Yellowstone. They are large, airy and commodious. There is a window in each stall, above the horse, but these windows slide sideways, consequently in heavy storms and in very cold weather, they have to be shut, otherwise the cold air blows directly down on the horses. To rectify this fault, we have had to fasten ten or twelve windows in each stable, at their bases with hinges, put on triangular pieces on each side, with bases uppermost. This allows us to open the windows from above inwards and prevents the wind from blowing directly downwards. It works admirably in all weathers, as the openings can be gauged. In addition, as lofts have since had to be put into these stables, owing

^{*}Horses to be given a little hay as soon as they reach camp and remaining portion of hay afterwards.

elsewhere, it is recommended that small openings or slits be made in the walls, for the cubic air space is now necessarily restricted and we require a greater current of air. Also the kicking boards between the horses consist of one board each 1½ by 6 inches, and a flat piece of iron with sharp edges is screwed on the upper side. One end is fastened to the manger by a hook, and the other slung from the roof by a chain. This narrow, light board is really dangerous, not only from the sharp iron edges, but being so narrow and light horses can kick over them, and we have had numbers of horses badly cut and injured. Kicking boards should be broader and heavier with turned edges.

Good ventilation consists in removing foul air and substituting fresh air. To do this it is necessary to have fresh air come in from below, carry the foul and warm air, expelled from lungs, upwards through openings in the roof provided for that purpose.

If we close all our lower openings in a stable, the foul and warm air rises, as it must, but it meets the fresh air coming in, for fresh air must gain an entrance somewhere, the consequence is that the cold fresh air vaporizes the warm, foul air which falls down and keeps the stable damp and the horses inspire a partially fouled air again and again; this naturally impairs their condition. It is not necessary to have warm stables, in fact they are injurious. As long as draughts are avoided, the temperature of a stable should approximate the outside air. All wirdows and doors should be opened wide when horses leave a stable.

The other points are so well known that it is hardly necessary to go into them, still attention might be drawn to the extra care needed by feed boxes and nose bags. Feed boxes ought to be loose so that they can be taken outside to be cleaned. If they are cleaned inside, the mangers suffer; you simply "rob Peter to pay Paul." How often are nose bags thoroughly washed and disinfected, and is the same nosebag always used on the same horse, during a march?

SUPPICIENT EXERCISE.

A horse should have just the amount of work to suit the exact condition he enjoys at that particular time. If he is in good

condition he can stand hard and severe work, if his condition is poor he needs light work. Therefore it is important that idle or convalescing horses should have separate and milder exercise and should not be taken out to drills of severe character.

Also it is well to recollect on a march that the slow horse should regulate the speed and that it impairs his condition if he is forced beyond his limitations. We all know that there is a "hard ride" in every horse, but it is very much better and decidedly more intelligent to keep it in him until the actual necessity arrives. On a march our horses are overweighted, as we all know; that, in conjunction with fast work soon shortens their quantum of usefulness and ruins their legs, and the "age of a horse is the age of his legs." If we need to look elsewhere for examples of bad results from work in an unfit condition, let us think of the enormous losses in horse flesh in the last South African war, the main cause being that the animals were not "fit" for the work.

A PLEA FOR THE VETERINARIANS.

In this work of conditioning the cavalry horse the veterinaman can aid very materially. In the past we possibly have not done as much as we might, and have thrown most of the burden on others. We have waited until animals have become sick. Now we are realizing that this is the wrong idea and are prepared and willing to undertake our proper share of this work. On the other hand, custom (which we brought on) has relegated to us the belated position we occupy. We want to change that position and come to the front, but those in power must help us a little by giving us the rightful means of accomplishing this. In these days medical science seeks to prevent disease, therefore a very important duty of the Army Veterinarian is to point out the proper methods for prevention of disease and of keeping animals in good condition.

From his more intimate knowledge of this subject, he can point out the consequences that follow wrong methods and ignorance. In this way he truly helps in and takes his share of the duty, but he also must be helped in turn by a proper consideration of his suggestions. In his present anomalous position there can be no question of rank, it must be treated solely as one of knowl-

edge, and knowledge has a separate rank of its own and a very good one to those who can appreciate it.

The veterinarians have to inspect meat, they should certainly be ordered to inspect the hay, straw and grain with power to reject it on sufficiently good reasons. These foodstuffs are so important in regard to the health of the animal that only an expert should decide on them, and no one can deny that the veterinarian is competent, for this is certainly a part of his profession. No doubt quartermasters do the best they can, but as a rule they are not experts in this line, and a definite knowledge of immature grain, foxy oats, unsweated or mow-burnt or weather-beaten hay, and many other conditions existing in foodstuffs is naturally wanting in him and other officers that are called in to decide upon these by no means easily acquired facts. A have often got a good deal of quiet enjoyment out of opinions (much more so than the horse who figuratively has to eat them) expressed on characteristics of hay and grain. These opinions always recall a time when on an expression of doubt as to sufficiency of knowledge, on my part, of a certain subject, made to a professor at the Ontario Veterinary College just before the viva voce examinations, he kindly eased my fears with this sage counsel: "If you know very little about a subject, talk all around it in a loud and confident voice." I got honors in that subject.

Moreover Quartermasters come and go, while the veterinarian alas! is not allowed to assume the duties of a Major or a Brigadier General, he always stays a veterinarian, more than true in the case of Doctors Service, Tempany and Corcoran, who I understand are in their second reincarnations patiently awaiting Nirvana or a pension, but while we mark time our knowledge of hay and grain increases; this double knowledge is our consolation. The sonorous title of foragemaster is given to certain individuals who have a highly specialized knowledge on the height of the highest peak in Labrador or the exact number of the inhabitants in Timbuctoo, but we want it on cereals. Fortunately arithmetic is also in their curriculum, and hay and grain must be weighed.

Hay and grain should be nearly a year old to be really good conditioning food for horses and mules. Do we get it?

As the veterinarians do not seem to be able to get a corps, they should have some one to whom they could send statistics and reports. Reports on the hay and grain in different localities, with prevailing prices; on stables, water-hard water is a source of indigestion; on pasturage; statistics on sickness and diseases at different stations and their most successful treatment; on transportation by car and at sea; on remounts, on local breeds for cavalry. Personally, if we cannot have a veterinarian as a head, I would like to see a major or lieutenant colonel (one who possesses an extensive knowledge of this subject and has a lively interest in it) designated as our head, to whom we could send our reports and who could acquaint us with the nature of the statisties required and get information for us. Just now it would be interesting to find out all about conditions and forage for horses around the Isthmus of Panama. If we could get all this information together, compiled properly, and send it out again, all of us would advance greatly in knowledge of the care and conditioning of our horses.

For instance, two squadrons of the Fifth Cavalry started from Arizona and New Mexico for Honolulu and took their horses with them. The horses were several days on the cars; they reached San Francisco early one morning and we commenced loading them on a large vessel about 7:00 a. m. By 4:15 that afternoon they were all loaded and started for Honolulu. On looking at my note book, I find the following extracts about the ship: That ventilation was defective owing to bulkheads; that some important ventilators were so rusty that they could not be turned; that the port-hole through which we took the horses in was too low and therefore dangerous; that there was no space behind the horses to enable us to clean up properly; that there were not enough forks and brooms to clean stalls; that stalls were built in front of port-holes; that the stall floors were too low and checked drainage; that scuppers were hard to get at and in consequence some horses stood up to their fetlocks in accumulated urine, etc., for some hours, while the smell from the ammoniacal mixture was peculiarly irritating and nauseous; that there were no disinfectants; that some passageways were so narrow that horses could not have been moved; that stalls were jammed up

against bulkheads and steam pipes and engine rooms; that there were no receptacles for carrying manure to the port-holes; that the forage was all piled in one place, necessitating cutting of bulkheads and carrying it all over the ship; that no barrels were placed for water, necessitating carrying it in buckets all over the ship; that loose boxes had to be hastily constructed for sick animals; that there were no side lines for the horses; that excellent oat hay and very round, full, plumb oats were provided, but that the oats had evidently just been threshed; they were so new; that there was no bran or salt. Now our horses' systems had already been deranged by their car trip, so one can imagine what the effects of feeding exceedingly heavy new oats and good oat hay would be to a lot of seasick animals. It was like offering a seasick man beef and then a chunk of fat pork. Let us not even imagine the result; luckily for us, horses cannot betray certain violent emotions at sea.

I may say that most of these conditions were rectified, but they entailed a tremendous amount of work on the men, to whom too much credit cannot be given for their nauseating labor. We were fortunate in losing only two animals, but no doubt the condition of all the animals was temporarily affected, possibly permantenly in some.

What is claimed by this is, that if we had reports and statistics to look up, and if a veterinarian, having them, had been sent down beforehand to inspect the ship and forage, all these evils could have been averted and our animals would have landed in better shape, for this is the veterinarian's business and part of his profession.

To have to sit still, waiting to doctor colics, kicks, bruises, saddle sores, founder, etc., when the cause is not removed, is monotonous, endless, and decidedly farcical.

Good condition in our animals removes almost all these causes. Let us get our animals "fit" and then keep them so.

In conclusion I wish to thank all the different Army veterinarians who have so kindly aided me by their answers and suggestions in regard to this article; their correspondence shows that any of them could have written fully on this subject, but I have ventured to "rush in." However, the usual indulgence is not

claimed for this act. These are my honest opinions, and all asked for them is a fair consideration of what I sincerely believe will benefit our cavalry service.

COMMENTS ON THE FOREGOING ARTICLE.

The article by Dr. R. Vans Agnew is a valuable acquisition to the general subject of maintaining service horses in proper condition and I fully endorse the major elements of his paper.

The relative smallness of the horse's stomach is well known—a fact that brought about what was formerly considered a first requisite in a cavalry horse, a big barrel that he might carry in him as much forage as possible. In fact such importance was attached to the big barrel and short back that the ideal cavalry horse in the eyes of a number of officers was simply an overgrown pony. Fortunately, in recent years this type has been replaced by the hunter type which at its normal gallop would keep the former animal extended.

As far as I knew the only reason why horses are not generally fed three times per day is the trouble that would be caused thereby. Every one who has experimented in this direction has learned the advantage of three feeds. All training stables practice this, and some stables feed four times per day. At certain cavalry posts in our service only grain is fed in the morning. This is an error that could be remedied with but very slight interference with stable cleaning or anything else and should be corrected everywhere.

I am persuaded that three feeds per day would contribute greatly to the maintenance of good condition in service horses where no grazing is practicable.

I agree wholly with Dr. Vans Agnew's ideas as to putting greater responsibility upon Veterinarians as to prevention of diseases and as to passing upon forage.

These officials should have and, when they are fully up to their duties, do have a much more thorough and profound knowledge of these matters than can be possessed by cavalry officers. Under supervision of commanding officers they should, like medical officers, be held equally responsible for the sanitation of the surroundings connected with the work in which they must have special practical knowledge.

If we are to get best results, greater responsibility must be put on veterinarians. That of course should imply reward for efficiency and elimination for inefficiency.

Under the present status of veterinarians their sphere of usefulness is greatly restricted. Their classification is very vague, there is no field of healthy competition or rivalry, they know little of what each other is doing, and in general as a body they can have no great pride in their work.

The suggestion made by Dr. Vans Agnew that some field officer of cavalry be given general supervision of veterinarians would be in the line of good administration and should bring commensurate results.

HENRY T. ALLEN,
Major Eighth Cavalry.

PURCHASING AND TRAINING HORSES FOR MILI-TARY SERVICE IN FRANCE.

BY AN OFFICER ABROAD

IT MAY be of interest to our mounted officers to have a succinct account of how horses are purchased and the preliminary training they are given before they are ready for military service in France.

In each horse raising district notices are published giving the dates and places where horse purchasing boards will appear. Persons having horses for sale bring them to one of these places bridled but not saddled. The board assembled out of doors, generally on some public square or market place, where a stretch of good ground is roped off from the spectators. The board, consisting of two officers and a veterinarian, is assisted by two non-commissioned officers, who make a rough register of every horse presented, name or owner, reasons for rejection, etc. This is done very rapidly and without delaying in the least the operations of the board.

Each horse having been given a number by a soldier, this man calls out "Number so and so." The owner brings up the horse. The board looks at him and in a few seconds decide whether his conformation is such as to prohibit his purchase. If so, he is at once rejected. On the other hand, if the first glance indicates suitable conformation, he is trotted off and back. If his action is satisfactory, he is measured and his teeth looked at. His height determines in a degree his price. If big enough for a dragoon or cuirassier horse, the price is higher than for light cavalry. The president of the board then says "I accept the horse for light cavalry, \$190," or "I take him for dragoons, \$220," or "for cuirassiers, \$240." These prices represent the average of what is now paid for the three categories of horses at 3 years old. The offer is almost invariably accepted, as the owner knows

that if refused, he will be obliged to sell to a horse dealer, who probably will not give him as much by from \$20 to \$50.

The above prices are paid only to actual owners and for the most part the breeders of the horses.

To insure against fraud, the horse must be represented and inscribed by his owner to an official at least six months before being offered for sale. On this presentation the owner is given an officially stamped paper which shows the owner's name, the date the horse was foaled, the name of sire and dam's sire, and the race to which these progenitors belonged—as English thoroughbred, Anglo-Arab, pure blood Arab, etc.

The object of this system, as can be seen, is to encourage small farmers to breed and present horses of good saddle conformation and to ensure that the profits go to the breeder and not to a horse dealer. Dealers can and do present horses "without papers," which are then bought purely at their market value and not at the slightly increased price which the army offers for horses presented by their breeders.

A few horses of 5, 6 and 7 years are bought, and if they are well broken to the saddle and ready to be put in the ranks, a higher price is paid for them, to cover the expense of feed, keep and training to the breeder. But the vast majority of horses bought for the army are 3 years old. As they are bought chiefly in January, February and March, they are actually only 3 years and a few months old when purchased. (In France a horse's age dates from January 1st.)

Dragoon horses represent about the type of our cavalry horse in height and weight. At 3 years for a trooper the price is about \$220, more or less, according to the points of the subject. For officers' mounts, up to \$350 is paid for a 3-year-old, and for horses for the schools, such as the War College, St. Cyr., Saumur, the Artillery School, etc., much more is often paid—\$400, \$600, even \$1,000.

The operations of the horse boards are extremely rapid. They will pass on twenty horses in an hour, buying from five to ten. The seller is responsible that his horse is sound, otherwise it can be returned to him at his cost. Of course, horses

bought in this rapid way are afterwards gone over by the veterinary when the board has finished buying them for the day.

All 3-year-olds thus bought are at once sent to a remount depot, where they are kept about one year. These depots are noticeable for their plain, simple, sensible methods of caring for young horses. The stables are clean, airy and simple, paved with rough stones set in cement. There are two or more large paddocks, where the horses are turned out all day, except in wet weather. Surrounding each paddock is a track fenced on both sides. Here daily exercise is given the colts. This consists in starting them all around the track, led by one mounted man with another in rear. The colts are kept at the walk for a while, then made to trot and finally to gallop. The length of this exercise, of course, varies and progresses till toward the end of their year at the depot two miles at the trot and one at a hand gallop are exacted, with much walking. The colts are never mounted. They are all shod in front and not behind.

The grooming is done out of doors when the weather admits. The colts are tied up to their mangers when being fed and they are given a liberal ration of oats. At night they are not tied up, but are all turned loose in the stable, which is liberally bedded down over its entire floor space, there being no stalls. This system is not universally practiced in all the remount depots, but it does seem to be generally accepted as a good method, especially in the colder parts of France. Mares and geldings are indiscriminately mixed, and all officers unite in saying that the former give no trouble, whether in the stables or corrals.

Under this system a few men can take care of a large number of colts, as they have only to feed and groom them, two mounted men alone being required for their exercise.

After a year at the remount depot the 4-year-olds are sent to their regiment, where the colonel assigns them to squadrons. It may here be remarked that each regiment is allowed new horses to the extent of about 10 per cent of its strength every year. A captain knows that every autumn he can get rid of, say, fifteen horses from his squadron. He picks out the worst fifteen and presents them to the colonel for his inspection. When the

new horses arrive he is given fifteen of them, and his fifteen old horses are sold, as with us.

A regiment is not allowed to keep over any condemned horses in excess of its authorized strength.

The new 4-year-olds having been assigned to squadrons in November, their education begins under the supervision of the captain. Re-enlisted men and re-enlisted non-commissioned officers are entrusted with the breaking to the saddle and training of the new mounts. They are all kept together in one part of the squadron's stable, the same men always groom them, and a real isolation is kept up. The breaking of these colts is a very simple matter, and as a rule their education offers no difficulties. The work is, of course, progressive, and at the end of eight or ten months these horses, now coming 6 years, are made to go on the shorter marches and garrison manœuvers of the regiment, but they are not yet given heavy work or sent to the autumn manœuvers.

The following year, however, when the horse is coming 7, he is turned in to the squadron as a troop horse fully grown and educated.

It can thus be seen with what care a young horse is strengthened and trained for his work in the French mounted service. He is bought at 3 years old for a price ranging from \$175 to \$250; he is required to have excellent blood in his veins and to show it to the eye; he is housed, fed and gently exercised for a year at small cost at a remount station; he is then sert to his regiment, broken to the saddle and progressively trained for two years more before he is ready for his work as a troop horse. These last two years are not expensive to the government, as the horse is always available after eight or ten months to take his place in the ranks at a pinch, and his training has helped to develop a considerable number of horsemen who are available for the most part of their lives in the reserve to train horses for the army if needed.

The captain of a French squadron has got to be a good deal of a horseman to know how to train young horses; if he is not, he is going to have a poorly mounted command and will be put down in the black book of his colonel. On the other hand, a cap-

tain does not have to bother himself about teaching horsemanship to his lieutenants, for these have all graduated from Saumur, and on returning to the regiment their education is continued by a captain whose whole duty is to teach horsemanship to lieutenants and non-commissioned officers.

The French government has no breeding farms where horses are raised for military purposes. All horses for the army are bought as above described. It does keep a large number of excellent stallions in all the horse districts for reproduction. No stallion can be stood in France which is not inspected and "approved" by the agricultural department, which owns all the state stallions.

THE FUTURE SUPPLY OF HORSES FOR OUR ARMY.

BY CAPTAIN KIRBY WALKER, QUARTEMASTER, U. S. ARMY.

NE has but to watch the auction sales at the large horse markets of Chicago, St. Louis and Kansas City in order to realize that a large percentage of the horses used in our country are inferior in breeding and conformation and also that a deplorably large number are unsound. Of the thousands of horses that pass through these markets every week there are probably 90 per cent that fall below the standard one might wish to see established. It is difficult to classify a great many of these horses, particular types not being numerous, and some are mongrels and misfits altogether, hardly worth while sending to the market. In spite of this the demand is great and seems to be increasing, with prices high.

Opinions differ as to the cause of the inferiority, but there is no doubt that some of it is caused by haphazard, ill-advised and, in some cases, pernicious breeding. There is not much attempt to breed to types, and in some extreme cases no man of judgment could possibly expect other than a worthless foal. A farmer owns a mare and expects her to produce a foal every year. She may be totally unfit to be bred, but that does not matter. He takes her to a stallion totally unfit to serve, but that does not matter. What is the result? Nothing. But that does not prevent the farmer from doing the same thing the next year. He fails to realize that the expense of feeding a good horse is no more than that of a poor one. Sometimes, to save \$5 or \$10 on a service fee, or to save a trip of ten or twenty miles, a mare is bred to a stallion which, by common consent, should not be allowed to serve.

A great many unsoundnesses are hereditary, yet breeding

unsound mares and serving unsound stallions still goes on, without apparent regard for results. Of course, I am speaking of some of the worst features, and I am glad to say that not all breeders are so short-sighted. This country is not educated up to the errors of breeding, nor has it arrived at the point where breeding is governed by state or national regulations. In some European countries stallions are examined by a board of government inspectors, and none but those that pass a satisfactory examination receive a license to serve. Even the latter class are examined each year afterward, and in case of disease or defect the license is revoked. So far as I am aware, there is but one of our states, Wisconsin, that has a law restraining or regulating service, and that law was quietly secured by a veterinarian from the legislators, who apparently did not realize that their action would produce such indignant remonstrances from their country constituents. Perhaps earnest efforts by breeders' societies, governmental agencies and others interested might put other states in the same list with Wisconsin.

Of the horses that pass through the markets mentioned above, the three largest horse markets in the United States, there is a marked scarcity of those that could be used for army purposes, especially of cavalry horses. This scarcity of cavalry horses is not only noted in the markets, but exists in the country remote from the markets also. Ten or twelve years ago there were plenty of cavalry horses in Missouri and surrounding states, probably ten to where there is one now. The Spanish-American war and afterwards the Boer war exhausted to a large extent the supply on hand. Since then that type of horse has not been bred so extensively as formerly. Draft horses and mules have apparently proved more profitable to the farmer. The visible supply of cavalry horses at the present time is small, and will be apparently smaller in the future, while the demand will be as great, if not greater, than in the past, even in time of peace, whereas, in case of war, it would be practically impossible to secure enough horses of the proper type for our mounted service. To call attention to the conditions mentioned above and to suggest means for the improvement of these conditions is the purpose of these remarks. To correct the inferiority and improve

^{*} From a report made to the Quartermaster General of the Army and published by his kind permission.

the breeding of the general run of horses will require a more general knowledge of breeding than now exists and a desire to use that knowledge. State or national legislation prescribing the character of stallions and mares to be used in breeding will be necessary.

To obtain a better class and a larger supply of cavalry horses I believe the assistance of the government is necessary. As this assistance would be rendered in the interests of one of its departments, the money expended would be returned in value received. Missouri, for example, has a number of good saddle bred and trotting bred mares, more than any other state, probably. The best families of saddle bred horses in the country are in Kentucky, Missouri and Tennessee. If appropriations to be expended by the War Department or Department of Agriculture for the purchase and maintenance of high class stallions could be secured I believe the desired result would follow. Twenty stallions stationed in various parts of Missouri would be in a region which in the past has been noted for good cavalry horses. The service should be free or for a nominal sum, with an option by the government to buy the colt as a 3-year-old at a stated price. The colt should be inspected when 3 years old by a purchasing officer representing the government, and if not purchased then the owner should be free to sell to anyone. Even if no option is taken by the government present conditions would be greatly improved.

One Missouri dealer has informed me that he would be willing to maintain six stallions belonging to the government free of expense. None but well selected mares, mares of the proper type, size and conformation and perfectly sound, should have service, and upon this point the man in charge of each stallion should have specific instructions.

The stallions themselves should be above reproach in breeding and as individuals, and would probably cost from \$500 to \$1,200 each. As to the type, on account of the lack of thoroughbred blood in Missouri of recent years I would say that ten stallions should be thoroughbred. The other ten should be divided equally between saddle bred and trotting bred. The cross of a thoroughbred stallion and a trotting bred mare should be

good. The saddle bred and trotting bred stallions and mares ought to produce a foal inheriting some of the characteristics of both, such as the beautiful head and neck and short back of the saddle bred horse with the bone and substance of the trotter. If each stallion serves seventy-five mares during a season there, should be at least 1,200 foals annually. Should a plan such as ourlined above proved successful in Missouri it could be extended to such states as Kentucky, Tennessee, Virginia and perhaps others.

KILPATRICK'S RAID AROUND ATLANTA.

RAID OF THE UNION CAVALRY, COMMANDED BY GENERAL JUDSON KILPATRICK, ABOUND THE CONFEDERATE ARMY IN ATLANTA, AUGUST, 1864.*

By W. L. CURRY, CAPTAIN FIRST OHIO VOLUNTEER CAVALRY.

In military parlance, cavalry is called the "eyes of the army," and the life of a cavalryman in time of war is one of constant activity, hard and dangerous service. During the winter season, when the main army is snugly ensconced in winter quarters, cavalry is the most active and has the hardest service to perform, as it is kept constantly patroling and scouting. All these movements of the cavalry arm of the service require vigilance, secrecy, energy, promptness and dash; and whether the command is composed of a platoon or division, the commander must not halt or hesitate in an emergency, but must act immediately and supply by strategy what he lacks in numbers.

During the last two years of the War of the Rebillion, cavalry officers were composed largely of young men, who were at the beginning of the war privates or non-commissioned officers. The older officers could but with rare exceptions endure the hard duty of picket guard, routs, raids and scouts of fifty and sixty miles a day, which were of usual occurrence. Many of the most dangerous expeditions were under command of officers of the line, penetrating the lines of the enemy with a company or squadron, capturing outposts and couriers with dispatches that were of vital importance. Scores of instances of bravery and heroism in the rank and file could be related that would do honor to a Kilpatrick or a Custer, and instances of individual adventure and heroic deeds in the cavalry service could be multiplied by the hundred.

As an instance of the importance of a cavalry expedition ordered by General Sherman on the Atlanta campaign, and how little the loss of life was considered, the order to General Kenner Garrard, bearing date of July 20, 1864, read in part as follows: "I do wish to inspire all cavalry with my conviction that caution and prudence should be but a small element in their character." "It is a matter of vital importance and must be attempted with great vigor." "The importance of it will justify the loss of a quarter of your command." Garrard's division numbered four thousand men, and the order meant that one thousand men should be sacrificed in this one raid, rather than it should fail.

A cavalry raid is defined in military sense "to be an incursion or irruption of mounted troops into the theater of war occupied by or under the control of the enemy."

One of the main duties of cavalry in time of war is to make raids in the rear of the enemy's army. These raids, when successful, always add to the efficiency and raise the morale of the cavalry arm of the service and give forces engaged confidence for any expedition, however hazardous it might seem.

In fact, the cavalryman is always in his element when on reconnaissance or raid, teeming with dash and adventure. Cavalry raids have been in vogue more or less from the earliest times of which we have any history of the cavalry service, yet in no prior war was it practiced to the extent that it was during the War of the Rebellion.

There is no kind of service that so develops the skill of the officer and the endurance and intelligence of the soldier as the cavalry raid. From the time he cuts loose from the main army until the object of the raid is accomplished the commander must depend on his own resources, as he has nothing to draw from, and his command is being constantly weakened by contact with the enemy. His men are being killed and wounded; his horses are exhausted or killed by hard marching or by the bullets of the enemy; his ammunition is being rapidly consumed, his rations eaten up, and there is a continuous destruction of his forces.

The object of the raid is to destroy the enemy's communication by burning bridges, filling up tunnels and railroad cuts with rocks and timber; cutting telegraph wires; burning ties;

A paper read before the Ohio Commanders, M. O. L. L. U. S., Fahenary 4, 1907.

heating and destroying rails; burning and destroying army supplies; capturing railroad and bridge guards, and creating general consternation and havoc in rear of the enemy's lines. Raiding expeditions must carry all their ammunition from the start, as they have no resources from which to draw should their ammunition become exhausted. Therefore they usually avoid all large bodies of the enemy excepting those in their immediate front, who are endeavoring to repel the expedition from striking some point on a railroad or depot of supplies.

They capture all prisoners that come in their line of march, but the prisoners are usually paroled, as the command moves so rapidly, often marching fifty and sixty miles a day, that prisoners cannot be guarded if they are mounted, and if on foot could not march the distance required; besides, all the good mounts captured are needed for the dismounted troopers of the command, as many horses become exhausted, while others are killed or wounded by the enemy.

When prisoners are captured on such raids they are taken to the commanding officers and questioned very persistently as to their commands, strength, name of commanding officer, and any other information that may be of interest or benefit to the commander.

No rule can be adopted for the time and place of raids, but the commander must be governed by the developments of the campaign. If he sees an opportunity that he may think desirable to draw the enemy's cavalry away from the front, before making an attack in force, if he has the cavalry to spare from his own army, a raid may be made in the enemy's rear; or if he fears the enemy will reseive reinforcements, he may attempt to cut his communications. All these matters must be governed by circumstances, and the commander considers carefully all the surroundings, and whether or not the sacrifice will justify sending out the expedition.

One of the most daring and successful raids made by the cavalry of the Army of the Cumberland during the Civil War was the raid made by two divisions of cavalry, commanded by General Judson Kilpatrick, in August, 1864, and as an officer of

the First Ohio Volunteer Cavalry I participated with my regiment in that expedition.

General Sherman's magnificent army moved out from Chattanooga May 5, 1864, and the Confederate army, commanded by General Joseph E. Johnston, had been driven back steadily through the mountain passes and across the rivers of Northern Georgia during that great battle summer of 1864—the "one hundred days under fire from Chattanooga to Atlanta." The battle of bloody Kenesaw Mountain had been fought, the Chattahoochee River had been crossed, and by the middle of August the Union army was closing in around the "Gate City."

During the month of July two cavalry expeditions had been sent out, one under General Stoneman from the left flank and the other under General Ed McCook from the right flank. Neither of these expeditions had been as successful as General Sherman had hoped for, as McCook's division had been repulsed by an overwhelming force of the enemy, and Stoneman, with about one thousand of his command, had been captured. Sherman, therefore decided to make another effort to break the enemy's communication before beginning his grand flank movement to the right. General Kilpatrick, who had been severely wounded early in the campaign at the battle of Resaca, had just returned to the front, and was chafing to again be in the saddle for a raid full of dash and danger, was selected to command the two divisions of cavalry detailed for this hazardous undertaking.

The expedition was composed of five brigades of cavalry and two batteries of artillery. The Third Cavalry Division, commanded by Brigadier-General Kilpatrick, was, on August 17th, encamped on the Chattahoochee River at Sandtown, on the right and rear of the army. The three brigades were present; Lieutenant-Colonel Robert Klein commanding the First Brigade, composed of the Third Indiana, Major Alfred Gaddis, and the Fifth Iowa, Major J. Morris Young. Lieutenant-Colonel Fielder A. Jones commanded the Second Brigade, composed of the Eighth Indiana, Major Thomas Herring commanding; Second Kentucky, Major Owen Starr commanding, and Tenth Ohio, Lieutenant-Colonel Thomas W. Sanderson commanding. Colonel Eli H. Murray commanded the Third Brigade, composed of the

Ninety-second Illinois Mounted Infantry, Colonel Smith D. Atkins commanding; the Third Kentucky, Lieutenant-Colonel Robert H. King commanding; Fifth Kentucky, Colonel Oliver L. Baldwin commanding; the Tenth Wisconsin Battery, Captain Yates V. Beebe commanding.

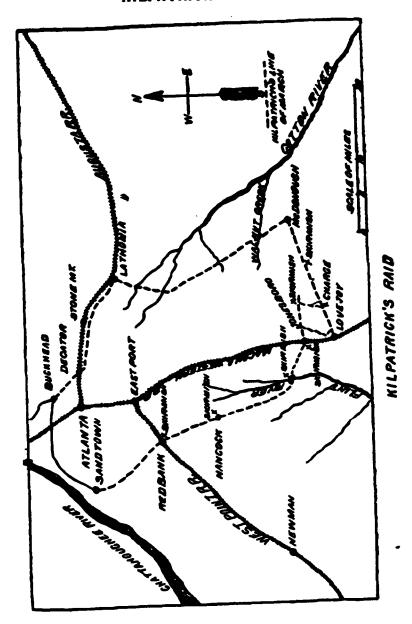
The First and Second Brigades and a battery of artillery of General Kenner Garrard's division were ordered to report to General Kilpatrick at Sandtown, to engage in the movement against the Macon Railroad. The First Brigade, commanded by Colonel Robert H. G. Minty, consisted of the Fourth Michigan Cavalry, commanded by Major Frank W. Mix; Seventh Pennsylvania, Major William H. Jennings; Fourth United States, Captain James B. McIntyre. The Second Brigade, commanded by Colonel Eli Long, consisted of the First Ohio, Colonel Beroth B. Eggleston; Third Ohio, Colonel Charles B. Seidel; Fourth Ohio, Lieutenant-Colonel Oliver P. Robie, and the Chicago (Illinois) Board of Trade Battery, Lieutenant George Robinson commanding.

The whole command, numbering about 4,800 men, was composed of veterans of long service, well drilled, splendidly officered, and was ready and anxious for any expedition which had promise of adventure and fighting.

The brigades of Minty and Long were on the extreme left of the Union army at Buck Head, and marched all night on the 17th of August in the rear of the army and joined the Third Division at Sandtown, on the right of the Union army, on the morning of the 18th of August at sunrise, and General Kilpatrick assumed command and turned over the command of his division to Colonel Eli H. Murray, who in turn turned over the command of his brigade to Colonel Robert L. King.

We lay in bivouac all day, and on the same evening at sundown we were in the saddle, and the order from General Kilpatrick was read, stating that we "had been selected as the last hope of the Commanding General to break the enemy's communication, and we must go forth with the determination to do or die."

General Sherman, in a communication to General Thomas, bearing date of August 17th, said: "I beg you will convey the following orders to govern Kilpatrick in his movement on the



Macon road. It is not a raid, but a deliberate attack for the purpose of so disabling that road that the enemy will be unable to supply his army at Atlanta. He will have his own division of cavalry and two brigades from General Garrard's division. With these he will move tomorrow night, aiming to cross the West Point road between Red Oak and Fairburn. If he has time he should remove a small section of the road without using fire, simply to lessen the chances of an infantry force being sent to intercept his return. He should move then in force to the nearest point on the Macon road, about Jonesborough, and should destroy as much of that road as he possibly can do, working steadily until forced to take to his arms and horses for battle.

"He should avoid battle with infantry or artillery, but may safely fight any cavalry he encounters, and all the army should so engage the attention of the enemy that he cannot detach infantry as against General Kilpatrick. Instruct the General to advise at the earliest possible moment of his success.

"I wish to notify General Garrard to have one of his brigades ready to make a demonstration, without risking battle, on our left, and have this effective part of two brigades, under Long, if possible, ready to move this night by moonlight by Pace's Ferry and Sandtown bridges, to operate with Kilpatrick on our right."

Strong demonstrations were made along the front of the Union army as soon as the command drew out from Sandtown, by infantry and artillery, making feints by the display of troops as if to assault on both the 19th and 20th. General Garrard with his remaining cavalry force made a demonstration to the left toward Stone Mountain, and drew a force of Hood's army in that direction. General Jefferson C. Davis, with his division of the Fourteenth Corps, moved out from the right and drove the enemy across the West Point Railroad and destroyed a portion of the track.

In spite of all these aggressive movements of Sherman's army, Hood detached a division of his army to attack Kilpat-

rick's cavalry, which was seen from the signal station, as shown by the following dispatch:

HOWARD'S HEARQUARTERS, August 20, 1864-5 p. m.

General Scheheld: The following just received from signal officer:
"A train of fifteen freight cars just left Atlanta, loaded with troops inside and outside; tops of crrs were crowded."

O. O. HOWARD.

Major-General.

This force proved to be Clebourne's division, which fought Kilpatrick at Lovejoy.

Every officer and soldier in the command realized that the proposed expedition was very perilous, and the chances were that many of us would be either killed or wounded, or, what seemed worse, land in prison. After the order was read, the command was given for "the pack train to fall out and all troopers whose horses were lame or exhausted should go to the rear." In a few minutes, and just as the sun was dropping behind the mountain, the command was given, "Right forward, fours right!" and we were off on what proved to be one of the hardest cavalry raids during our four years' service. Soon after dusk we struck the enemy's pickets, which proved to be the advance of Ross' and Ferguson's brigades of cavalry, and a brisk skirmish was kept up all night, and during a greater part of the time we were dismounted, as the enemy would throw up barricades at every good position at bridges or along the edge of a wood, and they gave us so much trouble that instead of reaching the West Point Railroad at midnight, as we intended, we did not strike it until just at daybreak of the 19th. King's brigade of the Third Division had the advance during the night, but before daylight, and before we struck the West Point Railroad near Fairburn, King's brigade swung to the left, and Jones' brigade of the Third Division had the advance when we reached the railroad. When the railroad was reached Long's brigade dismounted and commenced tearing up and destroying the railroad track near and southwest of Fairburn.

Cavalry, when they become accustomed to this kind of work, would tear up a track very rapidly. When the order is given to dismount, number one, two and three dismount, and number four always holds horses, remains mounted, and leads the other

three horses. Number three hands his reins to number four: number two ties his reins to the bit of number three, and number one to rein of number two. The men then form along one side of the track in close order, and at command grasp the rails and ties and turn the track over, and sometimes a half mile of tracks is turned before a joint is broken. The men move along rapidly, and many rods of the track will be standing up on edge. If there is time, the rails are then torn loose from the ties by picks and axes, carried for that purpose; the ties are piled up and the rails on top of them, and then the ties are fired; thus the rails are heated in the middle and bent out of shape by being twisted around trees or telegraph poles, are left there to cool, and no doubt some of them are there yet to mark the trail of the cavalry raiders. The brigade destroyed about a mile of track, when we were attacked by the cavalry and artillery of the enemy in both the rear and left flank. The brigade was ordered to mount, and galloped forward to join the First Brigade, under Minty, which had crossed the track and had the advance.

Long's brigade formed a line of battle facing toward the left, and as we began to advance a battery galloped into position on a little knoll to the right of our line. Just at this moment General Kilpatrick, who had been giving orders to the commander of the battery; came dashing along in front of our line, mounted on an Arabian horse, looking the ideal cavalryman. He directed Colonel Long to move his brigade forward at a gallop, and we dashed across a field in front, over ditches and fences, and into the woods, routing the enemy and taking a number of prisoners.

Still farther to the left the First Brigade, under Minty, had a sharp fight with cavalry, mounted infantry and a battery of artillery, which had been carefully masked, and the fighting was terrific for a short time. The Eleventh Wisconsin Battery was brought into action, shelled the woods to the left, and very soon the enemy retreated in confusion toward Atlanta, and were driven back a mile or two from the left of our column.

During all of this time General Kilpatrick's headquarters' band, mounted on white horses near the railroad track, where the work of destruction was being prosecuted vigorously, was en-

livening the scene with patriotic airs, which was rather an unusual innovation during a fight.

As the real objective point was the Atlanta and Macon Rail-road, as soon as the left of the column was cleared of the enemy harassing the flank that part of the command which had been participating in the fight joined the main column and moved forward toward Jonesborough, Long's brigade having the advance, while Minty's brigade was in close support in column, and the Third Division was protecting the rear and flanks.

We struck the enemy in a short time and attacked them at once, pushing them back slowly but steadily. The country was thickly wooded, and a very bad place for cavalry to operate. The enemy would throw up barricades at every favorable position, such as woods, streams or ravines, firing on the advance from ambuscades. The progress of the column was much retarded, and the enemy made every effort to keep our column back from the railroad until reinforcements could be moved down from Atlanta. About noon the advance halted and dismounted in a thick piece of woods to let the horses rest, and to eat a hard-tack, raw-pork sandwich. The men were all sitting or lying down, when all at once the enemy fired a volley and charged the advance guard, driving them back on the reserves before we could mount.

Colonel Long ordered the brigade forward, dismounted and on the double-quick, and the bang of the carbines was soon ringing out and the Confederate horsemen were suddenly checked and sent scurrying back through woods and fields. The brigade then advanced, dismounted, with a strong skirmish line in front and flankers to protect the column, as the enemy's cavalry kept a continuous fire from the woods to the right and left. The Confederate force was pushed back steadily until we reached Flint River, and on the east side of this stream they had thrown up works, dug rifle pits, and had a strong position.

As soon as our advance appeared a Confederate battery opened up and the Chicago Board of Trade Battery was put in position, and after a lively artillery duel their battery was silenced. The First and Second Brigades of the Second Division dismounted, advanced some distance in the woods on the west

side of the stream, where we halted, and both of our batteries, with eight guns, were put in position on a hill in our rear, and at a signal they opened up by volleys for several rounds, and as soon as the batteries ceased firing the two brigades rushed forward with a yell, and the Confederate line left their works and rifle pits and fell back rapidly toward Jonesborough.

When the bridge was reached the planks had been torn up, and there was nothing left but the stringers, on which the First and Third Ohio and Fourth Michigan crossed. As we crossed Kilpatrick himself came up, and was ordering the men to jump into the stream after the planks to repair the bridge. The dismounted men moved forward, and reached Jonesborough about sundown. The bridge across the stream was soon repaired, and the artillery, mounted men and led horses were closed up by the time we reached the town.

We had some skirmishing in the outskirts of the town, and to the south on the opposite side of the town a strong force of Confederate cavalry was drawn up in line of battle in plain view, and the officers could be seen dashing to and fro forming the lines. Our lines were straightened up, and, moving forward, the rear guard of the enemy dismounted, opened up fire on our skirmishers from houses and buildings, and a brisk fire was kept up from a brick church. A section of the Chicago Board of Trade Battery came dashing down the street up to the skirmish line, unlimbered, and sent a few shells into the church, making the bricks and mortar fly, and the church was evacuated in short order.

The sound of the guns and scream of the shells was sweet music to the ears of the skirmishers, and they moved forward with a shout, and the bang! bang! of their sharp-ringing carbines swelled the chorus as the mayor and a few citizens appeared in the main street with a white flag to surrender the town and claim protection for the citizens.

The line advanced rapidly through the town, the enemy fell back along the railroad, and we soon had undisputed possession. The shells from the artiflery had fired the cotton bales, used as barricades around the railroad building, and soon both cotton and buildings were blazing, and the water tank at the station had been shivered by a shell. Our men took possession of the tele-

graph office, and it was reported that an old operator in our command caught a dispatch stating that reinforcements were on the way from Atlanta, which was very important news to Kilpatrick, Jonesborough is about twenty-five miles south from Atlanta, and a considerable amount of clothing and commissary stores were found, with whisky and other necessary munitions of war. All of these supplies that we did not need for immediate use were burned and destroyed.

As Hood's whole army was now between us and Sherman's army, it was not particularly desirable for less than five thousand cavalrymen to remain in this position very long, and the destruction of the railroad, which ran through the main street of the town, was commenced at once. Tearing up the track and destroving the rails and ties was done principally by the Third Division, as they had not been engaged in the fight when we entered the town. The Second Brigade formed a line of battle south of the town and across the railroad; the First Brigade was formed facing Atlanta, and skirmishing was kept up all night. It was a wild night and a most graphic scene. The sky was lighted up with burning timbers, buildings and cotton bales; the continuous bang of carbines, the galloping of staff officers and orderlies up and down the streets carrying orders or dispatches, the terrified citizens peering out of their windows, the constant marching of troops changing position, Kilpatrick's headquarters' band discoursing national airs, with the shouts of men-all made up a weird scene never to be forgotten by the troopers who were on that raid.

By midnight about two miles of the road had been effectually destroyed, and in attempting to move farther south along the road a strong force of infantry was found posted behind barricades, with timber cut in front. This position could not have been taken without a hard fight and heavy loss, and Kilpatrick then determined to withdraw from Jonesborough, make a detour to the east and strike the road again farther south. The movement was commenced about 2 o'clock on the morning of the 20th by Murray's division and Minty's brigade of the Second Division marching on the McDonough road to the east, and the Second Brigade, under Colonel Long, remaining in the barricades to

hold the infantry in check. The Second Brigade withdrew just as the first streaks of dawn began to appear in the east, and they were followed up closely by the enemy, both cavalry and infantry, the First Ohio holding the rear. After we had marched about five miles the advance regiments halted to feed their horses, and the enemy made an impetuous attack on the rear guard, and one battalion was dismounted, throwing up barricades hurriedly of logs and rails, and prepared to give the enemy a warm reception.

The enemy attacked the barricades, and as their line was much longer, the battalion was outflanked on both sides, and the balls were soon whizzing from the flanks, and, as the Johnnies would say, they took us "end ways." Although heavily outnumbered, this battalion of the First Ohio held its position until reinforcements were ordered by Colonel Long, and the enemy were soon driven back in confusion toward Jonesborough. General Kilpatrick, in speaking of the fight, complimented Colonel Long for the manner in which he maneuvered his command. As General Phil Kearney once said to a brigade commander who reported to him during one of the great battles in Virginia, and asked as to the position his brigade should take, "Fighting Phil" replied, "Just go in anywhere; there is lovely fighting all along the line." This seemed to be about the situation at this time.

As soon as the enemy was repulsed, Long's brigade was ordered to the front on a gallop of three or four miles toward Lovejoy Station, where we found that Minty's brigade, on striking the railroad, had been attacked by a heavy force of cavalry and Reynolds' division of infantry. The infantry line was concealed in a railroad cut, and the Seventh Pennsylvania and the Fourth U. S. Cavalry dismounted, drove the enemy's line in, and were within twenty or thirty rods of the railroad, when the infantry line raised up, delivered a very destructive volicy, and, rushing from the cut, drove the line of Minty's brigade back in considerable confusion. Just at this moment Long's brigade arrived on the field with the Chicago Board of Trade Battery. The brigade was dismounted, formed a line of battle, and by this time some of the dismounted men of Minty's brigade came rushing back through our line, and it was not safe to fire. as it would endanger the lives of some of our own men. Although the balls

from the enemy's infantry were whizzing on all sides, the officers of Long's brigade made every effort to keep their men from firing until the Confederate line was almost upon us, but when our troops did open up the Confederate line was repulsed and driven back with heavy slaughter. The Chicago Board of Trade Battery was up on the front line, and did excellent execution, and the enemy's infantry fell back into the railroad cut. During this fight the lines were so close together that the officers of the First and Second Brigades used their revolvers with good execution.

Our ammunition was exhausted, and a detail was sent back to the ammunition train and got a supply in boxes, and the boxes were broken open with stones, and the cartridges were distributed in a few moments, much to the delight of the troopers.

The Second Division held this line for an hour, and during this time staff officers were busily engaged in forming the led horses in columns of fours facing the rear. One of the guns of the Chicago Board of Trade Battery was disabled in a cornfield just to the left of the First Ohio, and it was hauled to the rear by some of the troopers of the Second Division. When the Second Division had driven the enemy's line back, and the firing had about ceased, Colonel Long and Minty were ordered to withdraw their brigades and fall back to the led horses, a few hundred vards in the rear.

Now we began to realize that we were surrounded, and the chances began to look desperate, as our ammunition had already been pretty well exhausted, and we must cut our way through the lines. The distance between the two lines of the enemy could not have been more than three-fourths of a mile. When the Second Division was fighting along the railroad and near the station, King's brigade was in support of the rear and right and had some hot work. Jones' brigade was protecting the rear, and was hard pressed by the divisions of Ross, Ferguson and Martin, and kept up a continuous fight for two hours all along the lines. The rattling volleys from the front and rear echoed back and forth alternately, mingled with the shouts and cheers from both the Union and Confederate lines.

At this critical time the situation was as follows: In our rear were two brigades of Clebourne's division of infantry, the

cavalry brigades of Ross and Ferguson, and about a thousand State troops which had been sent from below Lovejoy Station, and on the right were the remaining brigades of Clebourne's division. Martin's and Jackson's brigades of cavalry were on the left, while Reynolds' division of infantry, with a brigade of infantry and a six-gun battery sent up from Macon, were along the railroad at Lovejoy Station, with twelve pieces of artillery sent down from Atlanta. A total of five brigades of infantry, eighteen pieces of artillery, six brigades of cavalry, in all a force of more than ten thousand of all arms surrounding our two divisions of cavalry, numbering less than five thousand.

Kilpatrick, finding that he was completely surrounded, ordered his division and brigade commanders to cut their way out. His cavalry had been up to this time fighting almost entirely as infantry, but they soon were going to be given the privilege of drawing their sabers from their rusty scabbards for a cavalry charge, and the opportunity was hailed with delight. Saddle girths were tightened, revolvers examined, saber belts and spurs adjusted, and all equipments were made taut for the shock and melee of the charge. When all was in readiness and the order was given to mount, many a brave trooper sprang into his saddle for the last time and rode to his death in that wild charge, cheering his comrades on to the front as he fell.

Kilpatrick, a cavalry general, remembering the mistakes which had been made on a former expedition for the same purpose, instead of scattering his troops, massed them. The brigades of Minty and Long were formed on the right of the road, and one regiment of Minty's brigade formed in the road. The Third Division, under Colonel Murray, formed on the left of the road, all facing toward McDonough, while the artillery, ambulances filled with wounded, and ammunition wagons were formed in the road with orders to follow up the charging columns as closely as possible. The troops were formed in columns of fours or platoons with the proper intervals, as it was thought best to strike the enemy's line and pierce it in several places rather than charge in line, as it was a long distance to charge, and in some places the ground was cut up by ditches and washouts, with two or three fences between our forces and the enemy's lines.

During the time the troops were-forming the surgeons and ambulance corps were busy gathering up the wounded and caring for them as best they could. The enemy had formed two or three lines with infantry behind barricades of fence rails and logs, as it seems they had anticipated a charge, and they were not disappointed in their expectations. When our troops were forming, two batteries opened up on our lines from the front, and the infantry was closing up from our now rear from the rail-road. When all was ready every eye was turned intently toward the line of barricades in front, from whence shells were now coming thick and fast, and through this line and over these barricades we must cut our way out, or surrender, and, perhaps, starve in Andersonville.

Draw saber! and forty-five hundred sabers ring out as they are drawn from their scabbards, the reins are tightened, the horses are excited, with nostrils extended as if they "sniffed the battle afar off."

It was a glorious sight, with horses stamping and champing the bits as if eager for the fray, standards and guidons flung to the breeze, with the dashing here and there of staff officers carrying orders, the serious face of the commander, the stern, quick commands of the officers as the squadrons are forming. Many of the boys who witnessed and participated in that charge, but whose hair is now silvered with gray, can feel the flush of youth again mount their cheeks and the blood course more rapidly through their veins as they go back in memory to the day they charged with Kilpatrick, August 20th, 1864.

The command "Forward!" is given, the bugles ring out "Trot! Gallop! Charge!" in quick succession, and the columns swept forward under the spur with a yell, scaling fences, jumping ditches, in that wild and reckless charge; the shells from the batteries were sweeping the lines, while troopers and horses were falling on every side.

The First Brigade struck their line at and just to the right of the road, and Long's brigade struck further to the right, and Captain W. H. Scott of the First Ohio fell mortally wounded in front of one of the guns of a Confederate battery. When our columns struck the barricades the enemy retreated in great con-

fusion, but a lieutenant, commanding a section of artillery, who gave his name as Young, was mortally wounded just in front of where Captain Scott fell, as he was attempting to fire one of his pieces after all of his men had deserted their posts. Both brigades urged their horses over the barricades, cutting right and left. Many of the prisoners had saber cuts on their hands, arms and heads, and it is estimated that from six to eight hundred prisoners were sabered. Infantry, cavalry, led horses and artillery were fleeing in confusion, and at one time we had at least one thousand prisoners, but they nearly all escaped in our rapid march that dark night following.

After this long charge over broken ground, ditches, fences and woods, the regiments and brigades were considerably broken up, as many horses had been shot, troopers wounded or killed, and some horses falling in a ditch that we crossed were with great difficulty extricated, so that many of the men were dismounted.

Before Long's brigade could get into position, as Colonel Long had been ordered to cover the retreat, Minty's brigade and the Third Division having moved out on the McDonough road, Long's brigade was furiously attacked by Pat Clebourne's division of infantry and a battery of artillery, and this fight lasted about an hour, with a part of the brigade dismounted. In this assault Colonel Long was severely wounded, but rode his horse to the rear, supported on either side by two mounted orderlies from his escort.

The First Ohio was forming on some high ground just as Colonel Long rode to the rear, pale and bleeding. As he passed by the regiment he smiled and bowed, and was given a rousing cheer by the boys. The Third Ohio was still fighting, dismounted, and the brigade was falling back by alternate regiments, and just at this time the Chicago Board of Trade Battery came galloping back, dashed through a gate and into the dooryard of a plantation house on the opposite side of the road from where the First Ohio was forming. On the long porch in front of this house there were twelve or fifteen women and children wringing their hands; while some were crying, others were praying.

The battery opened up at once, and the enemy's battery in our rear soon got range and sent the shells thick and fact, and at least one of them struck the roof of the house, thus adding to the terror of the women and children. While our battery was firing one of the guns burst, injuring two of the gunners. There was not a grim veteran of our command whose heart was so hardened by the every-day scenes of carnage that it did not go out in sympathy for those mothers with their children, and who would not have freely risked his own life to have saved them; but no aid could be rendered those helpless ones, as no soldier could be spared from his post of duty.

The enemy was crowding the rear guard, and making a desperate effort, by shot and shell, to create a panic and stampede in the brigade. Never were the words of General Sherman more truthfully demonstrated that "War is cruelty, and you cannot refine it," than by this incident. Lieutenant Bennett, who commanded the section of the battery in this fight, informed the writer the next day that all of the women and children escaped injury, which he considered almost a miracle under the circumstances, as the shells tore up the ground on all sides of the house.

Soon after Colonel Long was wounded his brigade fell back in column through the lines of Minty's brigade immediately in the rear, and Minty's men covered the column during the afternoon and had some sharp skirmishes with Clebourne's division, following up with infantry and artillery.

The whole command moved rapidly toward McDonough. Both men and horses were tired out and exhausted, and after the excitement of two days and nights of almost continuous fighting there was a complete collapse when the fighting ceased, and the men had lost so much sleep that they seemed perfectly indifferent to all surroundings. The command marched all night in a drenching rain, but it was utterly impossible to march in any kind of order or to keep out an advance guard, as men and officers would go to sleep. In some instances the horses would halt along the road in fence corners, and the riders would either unconsciously dismount or fall asleep until dragged out by the real guard and compelled to mount and move on with the column. Many of them lost their hats, and no doubt others were taken prisoners by the enemy, and the column moved on silently, horses exhausted, half of the men and officers asleep, and the night as

dark as pitch. About 2 or 3 o'clock in the morning of the 21st the column halted.

We were ordered to unsaddle, as we had not unsaddled since leaving Sandtown on the evening of the 18th, and as soon as the saddles were removed the men tumbled down among the trees on the wet ground at their horses' heads, and were soon sound asleep. We halted there until 6 o'clock, about three hours, then saddled. Moving on about half a mile, we found ourselves on the bank of a stream called Cotton Indian Creek, at high flood, the banks full to overflowing, and no bridge. We had to swim our horses across this stream, and, as the banks were steep, there was a deep cut on either side of the stream, leading to the ford, and it was not possible to get up the bank only at one point, so that the process of crossing the stream was tedious. Picket ropes were stretched across the stream, and General Kilpatrick and his division and brigade commanders were on the bank superintending the crossing. Men, horses and mules were floundering around in the stream, and it was no doubt the first attempt of some of the horses to swim, and in some instances the men would get frightened, pull on the reins, and as a result many of the riders were unhorsed, and were saved only by the ropes. A number of soldiers were drowned. Forty or fifty horses and a number of mules were lost, and the dismounted gun, hauled in an ammunition wagon, was abandoned. But the ambulances, carrying nearly one hundred wounded, were all safely crossed. Having crossed this stream, we were not again troubled by the enemy; they did not follow us up, as they were in no better condition for fighting than our own forces. Guns and ammunition were soaked with water, as every man in the command was wet above the waist after fording the creek.

The command marched on all day, and about dark reached Lathonia, on the Augusta Railroad, and went into bivouac for the night, rejoicing to have the opportunity for a much-needed rest, as we had now been out three days and nights, had only unsaddled once, and had not more than two hours' sleep, excepting what we had snatched in the saddle. The next day the command marched through Lattimer and Decatur, and reached our old

camp at Buck Head about sundown of the 22d, having marched completely around Hood's army in five days.

General Kilpatrick, in his report to General Sherman after the raid, stated that the defeat of the Confederates in the charge "was the most complete rout that the rebel cavality had sustained

during the war."

In summing up results he stated that "four miles of railroad track was completely destroyed, and then miles badly damaged. Two locomotives with one train of cars were totally destroyed, and another train partially destroyed. A wagon train and many ambulances were captured, and a large amount of army supplies burned at Jonesborough. One four-gun battery, three battle flags, with a large number of horses and mules, was captured, and one hundred prisoners of the eight hundred to one thousand taken at Lovejoy were brought into our lines, the balance having escaped in the darkness during the rapid march in a pouring rain on the night of August 20th."

General Long, in a letter written to the writer a few years ago, stated that in the fight with Clebourne's infantry, after the charge, and when Long was severely wounded, that he "maneuvered his brigade by bugle commands or signals as he had never seen done before or since in a battle."

The losses in killed, wounded and missing in the two divisions was 326, of which 216 were in the brigades of Minty and Long, Second Division, and 110 of the Third Division. Among the officers killed were Captain W. H. Scott of the First Ohio Cavalry, inspector-general on the staff of Colonel Long; Captain James G. Taylor, Seventh Pennsylvania Cavalry; Lieutenant C. C. Hermans, Seventh Pennsylvania Cavalry. The Confederate losses were heavy, but could not be ascertained definitely, but they were, no doubt, as heavy as our own.

A dispatch sent from Atlanta to the Memphis Appeal, and published a few days after the fight, gives the Confederate side,

and is herewith published:

"The newspapers have lately been full of accounts of how Martin's division of cavalry was run over by the Yankees at Lovejoy on the 20th ultimo. The writer was on the field on that occasion, and in justice to the much-abused cavalry states the facts in the matter.

"Martin's division, supporting the battery, was formed on the McDonough road. Ross' and Ferguson's commands on foot were in front and on each side of the battery, behind rail breastworks. A brigade of Clebourne's infantry was on the left of the road in three lines, the last one in a piece of woods. About one hundred yards in rear of the position of the battery, on the right of the road (east side), the State troops were formed in line. When the Yankees charged they came in a solid column, ten or twelve lines deep, running their horses and yelling like devils. They didn't stop to fight or attempt to keep any kind of order or formation, but each fellow for himself rushed on, swinging his saber over his head.

"They rode over Ross' and Ferguson's men in the center, and over and through Clebourne's lines, one after another, on the left. Clebourne's first line, they say, tried to use their bayonets, but the Yankees cut them to pieces. After the Yankees had cut through all the other forces and captured the battery, Martin, seeing the field was lost, retreated in good order to the east and joined Clebourne's main body, and aided in the final defeat of the enemy on the McDonough road that evening, and pursued them to and through McDonough that night, recapturing nearly five hundred of our men, which they took in the charge. The effort to arouse the people against Martin and his brave division is more digraceful and demoralizing than the Yankees' charge itself, and should be frowned upon by all who wish well to our cause."

The distance marked by Kilpatrick's command was about one hundred and twenty miles, and the route can be traced on the accompanying official map.

THE TRAINING SCHOOL FOR SADDLERS.

BY HARRY B. JORDAN CAPTAIN ORDNANCE DEPARTMENT, U. S. A. IN CHARGE OF SCHOOLS.

O'N the 17th day of December, 1906, at the suggestion of the chief of ordnance, General Order No. 202, War Department, was published, establishing a Training School for Saddlers at the Rock Island Arsenal.

The aim of the school, as stated in the order, was to instruct the enlisted men in attendance "to make or repair efficiently and in the most practical and expeditious manner any horse equipments or harness on which they would ordinarily be required to work in their organizations," the instruction being entirely practical and of eleven months' duration.

The first class, consisting of ten men, reported on the 1st of August, 1907; of these, eight men completed the course and were awarded certificates of proficiency.

The possibilities of this instruction and the advantages accruing to the mounted service through it were so promising that recommendation was made for the attendance at the next term of all the enlisted men it was practicable to accommodate in the ordnance barracks. On August 1st, 1908, sixteen enlisted men reported for instruction. Of these men, five graduated with credit, having done some most excellent work; seven were awarded certificates of proficiency, and four, for various causes, did not complete the prescribed course.

During the summer of 1909, certain improvements having been made in the ordnance barracks, recommendation was made for attendance of thirty-four enlisted men at the session of 1909-10.

On August 1st, 1909, thirty-four enlisted men reported for instruction. The program of instruction laid out for these men is as follows:

~ ~		Da	YS.
1.	Making waxed ends or preparing thread for stitching		^ 4
2.	The use of awls and needles in stitching		4
3.	Stitching, including the preparation of laps		6
4.	Proper arrangement of tools on the bench		1
5.	Preparing stock or raw material for working		1
6.	Taking down or splitting leather		1
7.	Punching holes for buckles		1
8.	Fitting up and finishing		3
9.	Applying above principles in making strap work		30
10.	Making halter-headstalls and halter straps		15
11.	Making quarter and stirrup straps		20
12.	Fitting and finishing leather parts of cinchas		10
13.	Making parts of artillery harness		30
14.	Trimming horse covers		10
15.	Making waist belts		3
16.	Making curb bridles		10
17.	Making saddle bags		20
18.	Making stirrup hoods, including guidon sockets		4
19 .	Covering saddle trees with rawhide		12
20 .	Covering saddle trees with leather		40
21.	Putting quarter straps and metal parts on saddles		10
22 .	General instructions on pack outfit, including repairs		
	same		15
23.	Cutting, including leather and cloth		30
	Total	2	280

In all of this work the enlisted men are under supervision of three instructors, selected from the most skillful harness makers at the Rock Island arsenal as the best qualified in every way to impart this knowledge. The men who report, in the majority of cases, have little or no experience in saddler's work, and are given all the requisite personal attention and supervision. The first crude attempts at wax ends and stitching are very soon followed by better work, until at this date (December 1st) the present class has six men who have made as good coat straps, halters, saber straps, quarter straps, stirrup straps and parts of artillery harness as could be asked for. All the work of the enlisted men on completion goes to the same inspectors that pass upon the

regular work of the civilian harness makers, and the marks of the class compare most favorably with those given the harness makers. Of course, some of the men are more capable than others, and the progress made in the work and the quality of workmanship is far better. These individuals are given work of various kinds outside the regular program—a sample of any device of interest is turned over to the school, all repair work on harness, or service material, jobs of deblacking equipment and degreasing the full stuffed equipment, etc. Special instruction is given all the men of the class in regard to proper methods of cleaning and keeping the various kinds of leather equipment in good condition.

Aside from one or two lectures on leather, the course is entirely a practical one, and the end desired is to return to the different organizations at the completion of the school term troop or battery saddlers capable of keeping the leather equipment of an organization in good repair and able to instruct others how to clean and care for their leather equipment properly.

All the tools, material, etc., needed for the work are supplied the men; eight hours' work per day each working day for eleven months is required of the graduates, and no man unwilling to give the best in him should be selected for this detail. The institution is one that should be valued by the mounted service and its best men sent to secure the instruction which is so invaluable to use in field and garrison.

The Ordnance Department is desirous and willing to give these men all the instruction possible, to return valuable men to their organizations, and it asks the active co-operation of organization commanders to this end.

It has been the privilege of the writer, a cavalry officer detailed into the Ordnance Department, to have charge of this school for two sessions, and the men returned to their organizations as graduates are known personally to be thoroughly proficient saddlers.

The detail in charge of this school has been highly valued, and, from my observation as a cavalry officer, I earnestly hope to see a school with one man from each troop and battery in the

service in attendance. The maximum number of saddlers has now been reached with the present barrack accommodations, and until the Congress appropriates money for additional barracks, no further increase can be made. In the meantime, with a yearly output of thirty-four men properly instructed, the good work will help many a troop commander and cause the mounted service to appreciate the interest of the chief of ordnance in inaugurating the instruction given in the Training School for Saddlers.

LOCALIZATION OF REGIMENTS.*

BY CAPTAIN JAMES C. RHBA, SEVENTH U. S. CAVALRY.

THAT would be the advantages and disadvantages in war if all our regular regiments were localized?

Localization, from a broad standpoint, includes not only a system of local recruiting, but also a system of reserves, supply depots and magazines, as well as complete plans for the mobilization of units fully recruited, supplied and equipped.

It is not supposed that we can in a day develop a military system such as that of Germany—possibly such a system is not even desirable—but some system is a necessity, and a modified one applicable to our people and in harmony with our institutions and traditions is practicable.

It was found in the Civil War that when war was once begun it was then too late to inaugurate such a system; in order to be of advantage it must have been originated and been developed under peace conditions.

In this paper it has been assumed that a localization system is possible in our country and that it has reached its full development before the outbreak of war.

INFLUENCE ON MILITARY POLICY.

Policy is so closely connected with localization and war that it has seemed desirable to take it up in that connection. We can never have localization, neither can we ever make war properly, without a definite military policy.

If we have any policy at the present time, it is probably that outlined in the ultimatum of Mr. Olney to the English government in 1895, in which he says: "The United States is practically sovereign on this continent.

^{*}Thesis prepared as a part of the course in Military Art at the Army Staff College, 1908-9

bounded resources, combined with its isolated position, render it master of the situation and practically invulnerable as against any or all the other powers."

This bold front worked well in its time; conditions have, however, changed since then, and the day has passed when we can rely on our "boundless resources" and "our isolated position" to protect us in case of war. We have not developed our resources, and the fact that undeveloped resources are in reality a source of weakness is now recognized by all the other powers; neither are we so isolated, since we now have weakly garrisoned outlying possessions as a constant temptation and the matured Monroe doctrine as a constant irritation to the powers.

If our natural strength in position and resources will not avert war, neither can we expect that our path will always be as easy as in 1898. To make our position secure we must show that we are prepared to utilize all our advantages, and this can be best done by the adoption of a localization system.

The beginning of such a system is the localization of our regular regiments in time of peace; this would also mark the beginning of a stronger military policy. It is entirely logical to suppose that policy would dictate the formation of a system of reserves in the various districts, with the idea of having available a force of trained men sufficient to prevent invasion. Then would follow supply depots and magazines in central positions, a more equitable distribution of military posts, etc., until, the military policy and the localizing system developing together, we might, after passing through intermediate stages, reach that one where our policy would be to destroy the enemy and where localization would furnish the men, trained, supplied and equipped for accomplishing that end.

This may appear to be a fanciful and far-fetched view, but I believe that it does not assume too much. The development of our naval policy is an example of what may be accomplished along these lines even in our country. Our naval policy is strong, and for good reasons. Our navy, by making itself popular with the masses, has risen to a high rank among the navies of the world.

Development along these lines is largely a question of politics and the education of the people. With the localization of our regular regiments the people would be brought into more intimate contact and sympathy with the army, and, with a better understanding of our needs, their influence would stimulate our government to favorable legislation. We have the men and the money; there only remains for us to so interest the people that both may be applied to our advancement. Contrasting our military position, last among the powers, with our naval position it appears that we have possibly neglected our duty in this respect, and that with proper action on our part we may bring about improved conditions.

Von der Goltz, in discussing the conditions for success in war, places the influence of policy first. He says: "Upon policy the whole general condition, the temper, the constitution, the moral and physical vigor of a state depend; and upon these elements, again, the manner of making war. Policy determines the way in which the war is begun; the influence of a wavering policy or of a strong policy is immediately felt. Policy, furthermore, regulates the relations, not merely between the states immediately concerned, but also with those indirectly interested in the final issue. Their sympathy or ill will may count for much, in either impeding or in promoting the action of a belligerent. Policy, then, really creates the 'General Situation' in which the state enters into the struggle, and this will be of material influence upon the determination of the commander-in-chief and even upon the general spirit of the army. The object itself of a war is of such importance and will so powerfully stimulate the exertions of nations for its attainment that almost on that account alone we are tempted to place policy first among the conditions of success. We may unhesitatingly lay down the maxim that without a sound policy success in war is improbable."

If, then, localization necessarily includes a strong military policy, we will have gained the first requisite for success in war merely through the fact that we have system of localization. LOCALIZATION WOULD PROVIDE MORE TRAINED SOLDIERS.

It has been estimated that in order to protect our coasts from invasion we will require about 250,000 men. Accepting this estimate, we know that of the 45,000 fighting troops eligible to form a part of this army, only some 25,000 are available, as the remainder are scattered over a half of the world. The other 225,000 would have to come from our National Guard and new organizations.

The theory is that we will have time to prepare this number for active operations while our navy is seeking a decision on the seas. The practice is, or will be, that our influential seaports and our politicians will not allow the navy to leave our coasts until there is an army there sufficient to protect them from invasion. On the outbreak of war, then, we must have at least 250,000 men properly trained and equipped and immediately available before our navy can be free to pursue its proper functions.

Our navy may then gain control of the sea, in which case we should have men enough to invade the enemy's territory; it may neutralize the hostile fleet, in which event we may expect the enemy to invade our island possessions or South America; our navy may lose control of the sea, when we would require a large army in order even to protect the shores of the United States.

In any case we must be prepared to put a large number of men into the field if we are to escape a disgraceful peace, the terrors of an invasion or the humiliation of lost possessions

In our present condition we cannot expect more than to maintain ourselves on the defensive and we may fail in that: the result may be an enforced peace, and the best we can hope for is to prevent invasion long enough to enable us to call our latent resources into action.

Our military thought seems to extend no farther than this; we do not seem to realize that in order to win we must at some time take the offensive. For us a war really divides itself into two stages—first, a defensive stage, which may be more or less prolonged and desperate, and second, an offensive stage on soil other than our own.

It is a mistake to expect that, while fighting on the defensive, one can easily create an arm capable of taking the offensive. The nation that is thrown on the defensive at the beginning of a modern struggle will find it daily more difficult to change to the offensive; the late war in Manchuria is an illustration of this fact. Masses which have been hastily levied are incapable of an energetic offensive; while they are being prepared the enemy will not have been idle, and incidents creating a favorable turning point are rare. Theoretically, a mistake of the enemy furnishes such an incident, but, in fact, the enemy does not make many such mistakes, and if he does make one it must be taken advantage of at once, and that means trained troops, and not raw ones.

Further, it is a great mistake to surrender the initiative at the beginning of a war; to make war means to attack, and why should a nation as great as ours ever consider doing anything else? It is seen that we must some time take the offensive why should we not, then, take it at the beginning and reap its full benefits?

The number of men required for taking the offensive is, of course, variable, but it will be a very large number as we may easily see if we examine the capabilities and resources of other nations.

They make war on the following theory: "A clashing of interests leads to war and for the sake of these interests war must aim at the complete subjugation of the enemy. This necessarily entails the decisive use of all means, intellectual and material alike, tending to subdue the foe, and it is consequently right and equitable in time of peace to prepare all available resources with a view to the whole being in a state of readiness for war whenever the occasion arises. The number of effective fighting men is certainly a very important requisite for success, numerical superiority confers the first right to expect success." (Von der Goltz.)

The application of this theory has led to the almost universal introduction of compulsory service in foreign armies, thus changing the character of those armies and practically revolutionizing the art of war. Their localization system, growing more perfect and scientific each year, now extend to every able-

bodied man of the nation, thus giving all a personal and patriotic interest in the welfare of their armies.

This will have the effect, in the next war in which such nations are engaged, of involving at the very beginning, an enormous number of enthusiastic and trained soldiers in the struggle.

In such cases the advantages to us of a localization system would be in direct proportion to the development of the system. With a partial development we would be able to prevent an invasion; with a full development we would be on an equal footing as regards numbers of trained men and hence in a position to assume the offensive at once or whenever a favorable opportunity offered.

LOCALIZATION WOULD FACILITATE MOBILIZATION.

Such a system of localization would demand the co-operation of the civil and military authorities so that the districts could be divided in such a manner as to take in complete political divisions of the United States. This would make each military district independent, like the army of a small country. This district would then be required to furnish all the men, horses and supplies for that part of the army, the highest military and civil authorities being more or less independent and with sufficient powers to decide and carry out everything necessary.

It is admitted that in case of a large war our present system of central administration would not be able to handle the situation. The independence of the several parts of the army and the decentralized system of supply would not only lighten the whole course of business, but it would particularly simplify the mobilization of the army for war. It is easier to mobilize a small army than a large one; local sentiment would require that the mobilized forces be equipped and supplied without the delays incident to our present system. That is the natural arrangement in a system too large to be governed by one central department.

LOCALIZATION WOULD FACILITATE CONCENTRATION.

It will be the policy of any of the powers with whom we may go to war, to strike us a quick blow before we can prepare to meet the attack, and we will be surprised at the rapidity with which they can carry out their policy.

The advantage they would gain by such action is very clear. The next great wars will probably not be fought to a finish, for if one of the contestants can gain a substantial footbold on his opponent's territory and follow this with even small successes at arms, the power of commercial relations, money interests, political conditions and many other outside influences will bring a tremendous pressure on the other to conclude the war.

Strategic conditions have been greatly modified within recent years; large armies can be moved with greater rapidity and supplied with greater ease than was formerly the case. Our possible opponents have worked out every detail for taking advantage of these conditions and for quickly transporting their troops by land and by sea.

It is doubtful whether, even if we had the men, we would be able to concentrate them under present conditions in time to meet such a movement. We have no plans for utilizing our water transportation, even if we had the shipping, and while we vaguely assume that our railroads are equal to the task of handling any problem of land transportation, a consideration of the question which brings us down to facts and figures shows that the movement and supply of large armies is a very slow and tedious process.

Looking at the situation from a military standpoint, we must admit that, under present conditions, the advantage is all with our opponents. He is ready to transport and supply his army, however large, to any place in the world and that he could do this while we are still legislating.

When we consider the terrible strain we would be under in raising, equipping, organizing, drilling and transporting a sufficient number of men to meet the enemy, it must be evident that our present system is a failure. Events take place with such great rapidity that there is now no time for making preparations after war has been declared. There will be no long marches in which to break in the recruits; he must be trained during times of peace and when war does come, be transported to the battle field and take his place on the firing line.

With the system of localization assumed, we would be able to concentrate as quickly as our enemy, and surprise would be impossible. Given the men mobilized in their respective districts, the points at which they are to be concentrated and the means for effecting this concentration, our General Staff should be able to solve the problem to the most minute detail.

LOCALIZATION WOULD GIVE US A BETTER ARMY

Our localized army having served as brigades in time of peace and at times as divisions in connection with the reserves and militia of the district, would be much more efficient than an army organized under our present system.

Higher officers having served in more independent capacities and with experience in maneuvering, larger commands would be more efficient and more willing to accept responsibilities. This system would also offer opportunities in peace for a certain selection of those required for higher commands in time of war.

Staff officers having worked together under field conditions, each would know his proper functions in war and there would be little difficulty in expanding an efficient and selected staff for a war footing. The questions of marching, camping, sanitation, orders, supply, etc., would be understood and would be greatly simplified because of the increased efficiency of the staff and the fact that they would understand each other and their respective functions and work on the same system. As the General under these conditions knows his staff and to a great extent has selected it and has confidence in its members, there would be less friction in the official household.

This increased efficiency would extend through all the grades. The working of the system in peace will have determined the men to be selected for higher commissions. This would give us selected men for the subordinate positions and would also relieve those in authority who, in time of war, are greatly hampered in their legitimate duties by the scramble for commissions on the part of politicians.

The army being closer to the people and the military enthusiasm being greater, we would have more men from whom to choose. Instead of enlisting any man who was willing to shoulder a rifle, we might select those only who were physically fit for the field army, preferably young men; those men having had previous training will know how to preserve their health, and will not waste the rations, ammunition and supplies that raw recruits would. With system we could get the greatest good out of the men we do accept. We can not all fight; a large percentage of the army is otherwise occupied. We require men having a special training, such as engineers, signal troops, hospital troops, train troops, transport troops, bookkeepers, clerks, etc.; for the less efficient men without special training there are places in guarding railroads and lines of communication, occupying conquered territory, conveying sick, woulded and prisoners, etc. Any one not a cripple can be utilized in some way. By a localization system in peace we will have selected and listed the men for these various duties, and on the outbreak of war each one will at once find his level.

LOCALIZATION SIMPLIFIES RECRUITING.

Under present conditions we do not know how we would raise a large army or how we would keep its ranks full in case if war. Every system we have ever tried has proven a failure under pressure. Localization would assist in solving this problem. The regulars, reserves and militia would first be sent to the field army, their places at the depots would then be taken by recruits, who would there be trained for the field army by retired officers and men or by convalescents. These men could be easily recruited because of local interest; the home papers would arouse enthusiasm by following the movements of the local troops; those at the front would increase this feeling through correspondence; there would be rivalry among districts; all these elements would influence eligible men to enlist and take their training at the rendezvous in the hope that vacancies might occur for them in the active army. By this means the regiments at the front would be maintained at full war strength, and the officers of these troops after having learned their duties through experience would not find themselves forced out of the service because their commands had become depleted.

DESCIPLINE.

Discipline would be better because through this system the men of organizations would be known to each other, each man would have friends with him, and no one would want to commit any offense the details of which would immediately be known at his home and which would lower his standing.

LOCALIZATION WOULD FACILITATE THE ARRANGEMENT OF MANY DETAILS.

Localization would furnish a basis upon which our General Staff could make intelligent calculations.

They would know how many trained men could be mobilized in the United States, and when and where; knowing this they could make complete plans of concentration for any contingency.

The depots in the various districts could be supplied with the necessary rations, equipment and summer and winter clothing for the troops of that district at war strength. The men, animals, wagons, etc., in that district could be listed with a view to acquiring them in war; estimates for suitable amounts of ammunition, wagons, canvas, shoes, etc., could be prepared and arrangements made with manufacturers for keeping these stores in stock for quick delivery; railroad time tables and plans for operating them could be tabulated; facilities for reproducing any maps that might be required is a feature that would then probably receive more attention.

With all these matters disposed of as well as many others of like character, our staff would be free to attend merely to the execution of details computed on a correct basis.

LOCALIZATION WOULD STIMULATE OUR FINANCIAL SYSTEM.

It is a notable fact that we have come near failing in all our wars through ignorant financiering.

The principles of emergency financiering seem to be well established, the government must rely on taxes, supplemented by loans, and it must not impair its credit. The necessity for loans is greatest at the outset, while newly levied taxes are being brought into a state of productive activity; if the financier can successfully administer the finances during the industrial transi-

tion from peace to war, and establish business firmly on a basis of war conditions, he can then extend his taxing system to the extent necessary to produce the required revenue. The service of loans is only to cover this intermediate period. Sound business principles would then seem to demand that, to avoid any danger of financial collapse during this critical period, we should have a system that would make borrowing unnecessary at any time.

There should be a war fund created for war purposes only, to be kept as a cash reserve and immediately available in the discretion of the president.

If our people can ever be aroused to the extent of adopting a system of localization this feature will certainly receive the attention it deserves.

DISADVANTAGES OF LOCALIZATION.

Localization would furnish an opportunity for organization among the members of the commands, and open the way for a greater political influence in the army.

An effort to enforce strict discipline, for instance, might produce "round robins," unfavorable newspaper criticism and political interference to such an extent as to force commanding officers to unwise action and seriously interfere with dicipline and with military operations.

The politician of a district might have influence enough to interfere with the War Department plans for concentration. Some might want the troops left in the district, especially those along our coast line; while those in the interior might insist that each be the first sent to the front.

I prefer to believe, however, that we have men strong enough to deal with all these propositions, and do not consider them as serious disadvantages of the system.

There are other points in this connection which, however, are rather arguments against the system than disadvantages from a military standpoint. It might be said that localization would be a menace to liberty in placing so much power in the hands of the military; that it would revive sectionalism; that it would be an added and unseen expenditure. These arguments

would soon answer themselves in war. The only real disadvantage is the possibility of an increased political influence.

In the year 1777, during the Revolution, Congress recommended the adoption of a localization system, or rather a territorial system. It is most interesting to speculate upon the probable result had the states followed this recommendation or had Congress been strong enough to enforce it.

It is safe to assume that the Revolution would not have lasted seven years, and that in that war it would not have been necessary to call out 400,000 men to drive 20,000 British regulars from our soil. Neither could 5,000 of these same soldiers have successfully invaded our country and destroyed our Capital as was done in the war of 1812.

If we had possessed trained men in the Florida War we might have driven 1,200 Indians out of a swamp—a feat which 60,000 men, from first to last, tried vainly for seven years to accomplish.

With a localization system General Scott would not have found it necessary to suspend a successful campaign and wait for months in a hostile country for reinforcements; the Civil War might have ended with the First Bull Run.

The advantage of a comprehensive system of localization in these instances can not be estimated; it would have avoided many long years of war with their resulting loss of life and increase in national debt.

The absence of such has undoubtedly retarded our national development in many ways, but for which we might at this day be a nation, powerful in a military way, with every man a trained soldier, and our dominion extending from pole to pole.

It requires a considerable degree of optimism to believe that we will ever have in our country such a localization system as has been assumed; but evolution is only possible through the establishment of a high standard for our endeavors, and a recognition of how far we fall short of the standard that the reality of war demands.

"Half measures do more harm than good, and it will not be those nations which will survive in the 'great world struggle' for existence which seeks only for a harmonious development of all their living forces, rather than those which devote themselves with a single mind to the evolution of the utmost fighting power."

"The palm of success beckons across the field of destiny to the race which strives towards the highest, and has made the greatest sacrifices and dared the most to deserve it."

FIELD SERVICE REGULATIONS: A COURSE FOR NON-COMMISSIONED OFFICERS.

BY CAPTAIN HOWARD R. HICKOK, FIFTEENTH CAVALBY.

RDERS of the War Department require that non-commissioned officers shall be instructed in minor tactics—an essential part of the soldier's training. In this Department (Department of the Missouri), orders require instruction in Field Service Regulations, a text including within its covers the general principles of security and information as well as much other important matter. In accord with the Department orders, the post and squadron commanders have designated the scope of the instruction in this subject. The troop commander was allowed discretion as to the manner in which this instruction should be imparted.

The portions of the text taken were:

Paragraphs 55-8, Messages.

Article III, Information.

Article IV, Security.

Article V, Marches.

Article IX, paragraphs 426-40, Entraining and Detraining, and paragraphs 558-91, Convoys.

Article XII, The Laws of War.

Towards the end of the month, the squadron commander held a quiz examination in the subject.

It will be seen by reference to the portions of the text named that much of the subject taken was not minor tactics. Some of it, also, is of such a nature that non-commissioned officers will never have occasion to personally use or apply.

In addition to the paragraphs and articles named, the various rules pertaining to the construction of messages were collated and each non-commissioned officer was given a copy.

Field Service Regulations are a collection of condensed

abstract principles. To learn them bodily by memory is a mental gymnastic of doubtful utility. To learn them by applying the principles involved to concrete cases is practical and serves to fix in the mind the principles concerned in a way that causes them to be retained much longer and in a form that is available for instant and constant use. This is called the applied or applicatory method of instruction. Its utility reaches into almost every branch of instruction and is a great aid in the instruction of non-commissioned officers. This method was followed in the course in Field Service Regulations in this troop (E, 15th Cavalry).

Orders of higher authority set aside one month for this subject and prescribe that recitations shall be held three times weekly and be of one hour duration. This has been interpreted to prescribe the minimum time that shall be devoted to instruction and not to restrict the activities of the troop commander who is disposed to accomplish more. Based upon that interpretation, my non-commissioned officers were assembled five times a week and the session was made as long as necessary, an hour being the minimum. Taking out such days as pay day, muster, the day set aside for the examination, two days in reading the Laws of War, and three days in a quiz review of the text preparatory to the squadron commander's examination, only four-teen days were left for the practical part of the course.

I had previously had two weeks' daily instruction in map reading. This is not prescribed in orders from above and, consequently, time had to be found somewhere when it could be run in. A course in map reading is an essential part of the noncommissioned officers' training for field work and is an absolutely necessary preliminary to a course in map problems.

The practical part of the course in Field Service Regulations as carried out in the troop consisted of ten map problems, one problem on entraining and detraining, and three tactical rides. These problems are as follows:

(See map of Fort Leavenworth, Kansas, and vicinity, page 156. Cavalry Journal, July, 1907.)

PROBLEM NO. 1.

General Situation.

A Blue force has arrived in Fort Leavenworth from the south. A Red force is approaching Fort Leavenworth from the north and west.

The country is friendly to the Blues.

Special Situation.

The commanding officer orders you to take a patrol and to reconnoiter for the enemy towards Kickapoo. It is now 10:00 A. M.

REQUIRED.

- 1. How many men besides yourself do you think you will need?
- 2. On one of the men designated for your patrol you notice a strong odor of liquor. Another man is woefully stupid. One of the horses of the patrol is a black and white pinto. Another horse is one that you know neighs a good deal when it has to travel alone. Do you take any action in these four cases, and, if so, what do you do?
- 3. What should be your personal equipment as a patrol leader?
- 4. What, in general, should be the equipment of your patrol, full pack or light marching order?
- 5. Are the orders given you as above stated "take a patrol and reconnoiter for the enemy towards Kickapoo" sufficient? If you need more instructions than that, what should they tell you in a general way?
- 6. State the different signals you will require your patrol to use.

PROBLEM NO. 2.

(Continuation of Problem No. 1.)

REQUIRED.

1. What information and instructions do you give to your patrol before starting out?

- 2. Assuming that your patrol was composed of yourself and 4 men, draw a diagram showing the dispositions you would make of your patrol while marching (1) through the woods and (2) through open country. Indicate the distances between the various men and indicate your own position in the patrol.
- 3. In all the various formations of your patrol what should always be provided for?
- 4. What route will you take to Kickapoo, or do you intend to go there?
- 5. As you go past point "5" you pass a cossack post belonging to your command. What do you do then?
 - 6. What gaits do you take?
- 7. Assuming that you took the road past Prison Cemetery, what would you do when you arrived at the road fork just west of there?
- 8. Will you go to Hancock Hill? If so, how do you dispose your patrol when you arrive there and what do you yourself do?

PROBLEM NO. 3.

(Continuation of previous problems.)

REQUIRED.

- 1. As you arrived at the road fork west of Prison Cemetery, you caught sight of 2 Red troopers who hastily turned their horses about and galloped up the road towards 15. What do you do? If you think you should write a message, write it out.
- 2. Having arrived at Hancock Hill, this is what you see: 3 Red troopers riding south on the 15-F road and they are now nearly at the M. Kern house. On the 17-H road you see 3 or 4 mounted men moving south of the Burns house while between the Taylor house and 17 you can see a thin cloud of dust rising above the trees. What do you do now? If you think you should send a message, write it out.
- 3. What do you next intend to do? If you are going to move out, indicate your route.

PROBLEM NO. 4.

(Continuation of previous problems.) Situation.

Assuming that you have arrived at Crook Point, you observe the following:

A body of dismounted men is marching east on the 51-43 road. First there are about 8 men. These are followed at about 300 yards by a small body in close order which are 40 seconds in passing point 49. They turn south at 43 and march to 23, where some men move out to the right and left and 8 of them go to the M. Aaron house. After these troops passed 49 it was 4½ minutes before the next arrived there. Then men march past for 2 minutes in apparently 3 well marked divisions. Then follow some kind of vehicles that look as if they might be guns or caissons that take 3 minutes to pass, and after that dismounted men march past for 6 minutes. All these troops, except the part that marched to 23, turned south into the field at the Spicer house and apparently are pitching shelter tents.

It is now 12:00 o'clock noon.

REQUIRED.

- 1. What are your conclusions as to what you have just seen?
- 2. How many men have you seen and into what are they probably organized?
- 3. If you conclude to send a message, write it out and indicate the route the man will take in carrying it back.
 - 4. What do you intend to do now?

PROBLEM NO. 5.

(Continuation of previous problems.) Situation.

You remain in observation at Crook Point until 3:00 o'clock P. M., and see nothing new. You then start back to your camp. Up to that time you have seen nothing of the cavalry that you observed from Hancock Hill.

REQUIRED.

- 1. Assuming that you sent a message each time you discovered something new about the enemy, as stated in the previous problems, how many men have you left now?
 - 2. What route do you take back to your camp?
 - 3. What gait will you take?
- 4. Assuming that you started out via 21-19-17, after turning east at 19 you suddenly encountered 3 Red troopers. What do you do?
 - 5. When you arrive back in camp, what do you do?

PROBLEM NO. 6.

1st Part.

Situation: Your regiment arrived last night from the north and camped on West End Parade. It starts out this morning to march toward Kansas City, Kansas. This troop has been designated as advance guard, with orders to march by 8-70-Prison Hill—7th Street—Soldiers' Home.

REQUIRED.

- 1. How would you dispose the advance guard?
- 2. By what names are the different parts called?
- 3. What distance and intervals would you have between the different parts?
- 4. What should the right flankers do when they reach points D and E?
- 5. When the point arrives at Corral Creek you find the bridge there broken and no place where you can cross between Hancock and Grant Avenues. What would you do?
- 6. As your point passes 72 it receives half a dozen shots from Prison Hill. What do you do?
- 7. When the point reaches Prison Hill, where should the tail of the advance guard be?

2d Part.

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- 8. You are in command of a platoon of your troop that has been attached to an infantry advance guard marching over the same route as above given. What duty should your platoon be given?
- 9. Suppose you were in command of a small advance guard—a squad or a platoon—marching via Rock Island Bridge towards Beverly. Would you have out flankers in going through the Timber Reserve and, if so, where would they march?

PROBLEM NO. 7.

Ist Part.

Situation: Your squadron is retreating via the route 64-Atchison Cross—Frenchman—Kickapoo. The enemy in superior force is following. Your troop has been designated as rear guard.

REQUIRED.

- 1. What are the different sub-divisions of the rear guard called?
- 2. Indicate the strength of any flanking groups that should be sent out.

What routes should these groups be instructed to follow?

- 3. On the supposition that the retreat is made without interference from the enemy, indicate the proper location for the different parts of the rear guard when its leading element has arrived at Frenchman.
- 4. Assume that the rear guard was halted at Atchison Cross for the purpose of delaying the enemy advancing from the direction of 64.
 - (a) Where should the lead horses be held?
- (b) How long would you remain in position before counting and retreating?

- (c) Would you delay the enemy as he goes through the woods on Government Hill and, if so, how?
 - (d) Where would you make your next stand?

2d Part.

Situation: Your platoon has been assigned to an infantry and rear guard retreating over the same ground as in 1st part.

REQUIRED.

- 1. What part of the rear guard would your platoon constitute. What would it be called?
 - 2. At what distance would you follow the infantry?
- 3. Indicate where the cavalry should be when the infantry of the rear guard passes Frenchman?
- 4. You have received orders to destroy the bridge at Frenchman as soon as your last man is over. How do you do it?

PROBLEM NO. 8.

Situation.

The enemy is understood to be near Kansas City, Kansas. Your troop has arrived in Fort Leavenworth from the north and at 3:00 P. M. bivouacs west of Merritt Lake. You have been directed to establish the outpost.

REQUIRED.

- 1. How many non-commissioned officers and privates will you need for the outpost?
- 2. Where will the several posts be placed and what kind of posts will you use—cossack posts, sentry posts, single or double vedette posts, et cetero—
 - (a) in daytime?
 - (b) at night?
 - 3. Will you send out any patrols and, if so, where-
 - (a) in daytime?
 - (b) at night?
 - 4. When do you make your first round of the outpost?

- 5. Do you visit the outpost at night and, if so, how many men do you take with you?
 - 6. How long will your sentinels remain on post?
 - 7. What do you do with the horses of the outpost?

PROBLEM NO. 9

Situation.

The enemy is reported to be at Atchison. A large force, to which your troop is attached, comes from the south and camps at Fort Leavenworth. The commander orders a battalion of infantry and your platoon of cavalry to form the outposts on the line Missouri River at Salt Creek Hill—Sheridan's Drive—Southwest Hill.

REQUIRED.

- 1. Infantry sentinels are posted on Millwood Road near the Kern house, on Hancock Hill, Bell Point, Wagner Point, at G, and 300 yards northwest of 16. What is this line called?
- 2. One company is posted on the road in the edge of the woods just east of the Kern house; two companies are posted on the east crest of Bell Point; one company is on Atchison Hill.
 - (a) What is each of these bodies called?
- (b) What is the name of the line occupied by these companies?
- 3. Your platoon of cavalry has been ordered to observe Atchison Pike and Millwood Road.
- (a) What is the general name given to cavalry used this way with the outpost?
 - (b) Where would you post the main body of your platoon?
 - (c) What sentinels would you post and where?
 - (d) What patrols would you send out?
 - (e) Where would you yourself take post?
- 4. Where do you think your platoon should be posted at night and why?

5. At night a squad of men under an officer is sent from the company on Atchison Hill to take post at Frenchman to guard the bridge there. What is such a post called?

PROBLEM NO. 10.

Situation.

Your squadron has been in garrison all winter and has had one hour daily mounted drill. Your troop receives orders to march to Fort Riley, Kansas, 150 miles.

REQUIRED.

- 1. How long should the first march or two be?
- 2. Towards the end of the trip how many miles per day should the troop be able to march without injury to the horses?
- 3. In what formation or kind of column should the troop march?
- 4. Your troop marches by E-H-Atchison Pike-I-O-P-S-to Easton.
 - (a) When or where would the troop make its first halt?
- (b) After that, how often should the halts be made and how long should they be?
 - (c) What gaits would you use?
 - (d) How long will it take the troop to reach Easton?
- (e) If the wagons start at the same time the troop does, how long will it take them to reach Easton?

Weather conditions: Temperature 45°. Roads dry.

PROBLEM NO. 11.

Your troop, 65 men, has been ordered to change station by rail from Fort Leavenworth to Fort Oglethorpe, Georgia.

The troop has 25,000 pounds heavy baggage, for which one box car is necessary.

The troop will take 60 horses with it. Each stock car will hold 18 horses.

The box lockers and rations will not half fill a baggage car.

"Each tourist sleeper has fourteen sections. 3 men are assigned to each section.

The trip will occupy the greater part of 2 days.

REQUIRED.

- 1. How many cars of each kind will be required?
- 2. Who arranges with the railroad to supply them?
- 3. Should the cars be inspected before their acceptance and by whom?
- 4. What must be especially looked for in stock cars and what must be done to them before loading?
 - 5. What should be looked for in the passenger cars?
 - 6. With what should the train be equipped?
- 7. Where and how should the horse equipments be carried?
 - 8. In what order are the property, men and horses loaded?
- 9. How much forage per animal, and the total amount for all of them, should be taken and where would it be carried? Should the horses be fed the entire hay and grain allowance?
- 10. What arrangements should be made for watering the horses both before starting and while en route?
 - 11. How long should it take the troop to entrain?
- 12. If possible to so arrange the schedule, what is the best time of day for the troop to arrive at its destination?
 - 13. In what order will the troop detrain and unload?



The problem for each day was given out at the preceding conference. The problems were solved by the members before the next meeting. While they were making their solutions, discussion among them was freely permitted. The paragraphs in the text pertaining to the problem given out were indicated; but, for the solution of the problem, no memorizing of the text was required. This is an essential feature of the applied method of

instruction. Principles are the things to be impressed upon the mind and not the mere words of the book.

For the daily conference, a large scale map, 12 inches=1 mile, was provided. This was spread out, the class gathered around it, and all dispositions, operations, et cetera, were discussed directly from the map. In the course of the conference many other situations, illustrating the principles of the text, were introduced and decisions thereon were required.

The first five problems made one continuous problem on patrolling. These were followed by a ride (called a tactical ride, because the tactics of the situation and dispositions are there discussed and illustrated) over the route on which the problem was laid out. The various members were given the opportunity to lead the patrol. Errors of leadership, as well as correctness of dispositions, were pointed out. The various points touched on in the problems were also discussed on the ground and the limitations of the map and of vision were indicated. Advantage was also taken on the rides to do a little map reading on the ground.

The problems in advance and rear guards and the two in outposts were similarly discussed in conference, followed by tactical rides. All told, three tactical rides were held. With more time available, more problems and rides could be held, giving a varied application of principles. Problems and rides of this character have their greatest application as a preparation for the practical work of the field training season. It is true that the matter of map problems and tactical rides may be overdone, though the chances are that the instructor will himself grow tired and close the course before that point is reached.

The little course here laid out and followed is not perfect; far from it. But, it is an illustration of one of the means within reach of the troop commander whereby he can impart some tactical instruction to his men. The interest taken by the non-commissioned officers was keen. The principles were strongly impressed on them and the application thereof is now made with a facility not otherwise obtainable in half the time or effort. The matters taught are not of the nature of a higher education that is beyond the scope of that necessary for non-commissioned

officers to know, nor are they beyond the comprehension of these men.

COMMENTS.

Apropos of this subject of instruction of non-commissioned officers are the following extracts from General von Bernhardi's "Cavalry in Future Wars":

"As concerns the education of the squadron, this must be rooted from the very beginning in modern conditions, which in the first place demand the development in the man of the greatest possible individuality. War requires this, as well as the gift of grasp and resolution even in difficult situations, from every cavalry soldier, from the highest to the lowest. The exercise, however, of such qualities can only be demanded from men who bring with them at least a certain degree of comprehension for the nature of war, and it is therefore of the utmost importance than this comprehension should be developed by suitable instruction. This is often sinned against, because sufficient attention is not paid to such instruction, and also because we still work on out-of-date lines and without any well-defined principles. In my opinion the recruit must not be overwhelmed with a whole mass of thoroughly unpractical knowledge.

"In this period of education one must limit the scope to only the most important and necessary matters, but teach these so that the men understand them clearly and thoroughly.

"In the later years one can build out systematically on this foundation. Thus I consider it quite unnecessary to harass the recruit with long-winded explanations of the military virtues—loyalty, obedience and courage—or with long lists of different salutes to be given, the recipients of which never come within his ken. It is quite superfluous to teach them the different parts of the lock of the carbine and their mutual interaction, all about stable duty and guard mounting. Even the theoretical instruction about the organization of the army, treatment of sore backs, horse sickness, etc., can be reduced to much smaller dimensions than at present.

"Stable work and guard duties, and so forth, a man farns much quicker and better from daily practice. On the other hand,

the time gained by curtailing these matters must be used most zealously to teach him what he absolutely must know for war. That is to say, the simplest principles of Field Service, the composition of mixed detachments, practical shooting, and the exterior treatment of the carbine. The instruction in Field Service, which interests us here the most, can, for the recruits, be kept down to very narrow limits. The principles to be observed in placing pickets, vedettes, etc., he can very well do without. On the other hand, he must know thoroughly those things which he will have to do himself-his duty on patrols, or as bearer of a message, or orderly, also the general connection of the military conditions amongst which he will have to move or to notice amongst the enemy, such as organization of the troops, arrangement of the outposts, relation of the commands, plan and appearance of entrenchments, shelter trenches, gun epaulments, cover, etc.*

"He must know, too, that if taken a prisoner, he must give no correct answers as to anything concerning his own army.

"It is quite possible to awaken the intellectual faculties of the man and to develop them even within these narrow limits, for the more tersely the facts are stated, and the more thorough the instructions, the more is his thinking power stimulated, whereas a mass of material to be absorbed merely confuses him. This intellectual pressure of the instructor must not, of course, be limited solely to the lesson hour, but he must seize every possible opportunity to assert his influence. Especial attention is to be directed to habituate the men to carry in their minds verbal messages for a considerable period, and then to repeat them clearly and concisely. It is of great assistance to the intellectual development of the men if they are compelled always to express themselves in grammatically complete sentences, instead of in broken phrases; but I should consider it as a serious error to attempt to teach the recruit the neighborhood of the garrison, both on the map and on the ground. For in this way one deprives the man of one of his few opportunities which occur to him during his whole service of learning to find his way in the

^{*}Instruction with models helps the man the quickest; it is very difficult for the recruit to form a mental picture of military things.

unknown country, and thus to develop the instinct of finding his way, which requires considerable practice.

"That this faculty is one of the most important in war-time for every cavalty soldier can hardly be open to doubt. From this same point of view I must enter a protest against the absurd misuse of maps in peace-time. Of course, the men, and particularly the patrol leaders, must understand how to read a map and find their way by it, and all non-commissioned officers and men out of their first year's service must be trained in so doing, but it is altogether impractical, and therefore a bad preparation for war, if in the interests of better maneuvers result maps are issued in uncounted numbers even on the larger scales, so that not only every patrol leader, but every orderly, can obtain one for a couple of pence. In war, and particularly in an enemy's country, such extravagance in their issue is obviously out of the question.

"The education of the non-commissioned officers must also be systematically set in hand. They should be divided, according to their intelligence and performances, in different groups—two will generally suffice—and the abler men should not only receive instruction for the higher branches of their duties, but must also be rationally taught how to teach others. The non-commissioned officers' school must also receive thorough attention; if it is not conducted seriously, it involves a scandalous waste of time, but if the men receive a really earnest and stimulating instruction, it helps most materially in their intellectual development, and thus reacts most favorably on their military capacity.

"As concerns the practical exercises of the squadron, these must, as far as possible, cut themselves free from the spirit of minor tactics, and work as directly as they can towards the requirements of war on a great scale. The destruction of railways and bridges, service on requisitioning duties, etc., must naturally continue to practiced though in spirit they belong to minor tactics, they are also required in great wars. But, above all, one must break with the old one-sided schemes of outpost squadron—officers and non-commissioned officers, post and vedettes—and the whole subject must be treated on wider lines more in accordance with the changing requirements of active service. The different purposes for which localities are held

and utilized in different manners, the use of woods, and waves of the ground, must all be drawn most thoroughly into the scope of the exercises; and whilst still at squadron work the man must be made clearly to understand the difference between mixed outposts and those of Independent Cavalry, and the chief importance of their whole training in this branch of their duty must be laid on the latter, which is even nowadays not yet sufficiently the case. Further, there must be thorough training in duties of security and reconnoitering at night, and in particular of the defense of cantonments against nocturnal attacks.

"In general, it must clearly be understood that all squadron training can only be elementary, and hence must be regarded as a stepping-stone towards the whole field-service training. Where this is left altogether to the squadrons, the men never have the opportunity of becoming acquainted with the conditions of time and space which limit their action when in large bodies. Continuous exercises also, always in the same units, leads only too easily to empty repetition and many misunderstandings. The Squadron Field Service training must, therefore, be limited in time, and as soon as it is completed it must be continued in the regiment, and where the conditions at all allow—i. e., where the garrisons are not too far apart—it might culminate in brigade work."

THE OUTBREAK OF SEPTEMBER, 1879.

BY H. W. SPOONER.

A N OUTBREAK occurred in September, 1879, at the White River Agency, in Colorado, which was brought about by local causes.

The Agent wished the Utes to cultivate the soil, and, as they would not labor, an issue was soon raised between them, which culminated in an open rupture when the Agent attempted to plow a piece of land which they desired to preserve for grazing purposes. The Agent then asked for military assistance, and Major Thornburgh, of the 4th Infantry, who was commanding Fort Fred Steele, Wyoming, was instructed to proceed to the Agency with a sufficient force and restore order. When it came to the knowledge of the Utes that troops were marching towards the Agency, they became greatly excited and threatened to attack the soldiers if they crossed the boundary line of the reservation.

On the 19th of September, Captain Payne, with Companies "D" and "F," 5th U. S. Cavalry, moved by rail from Fort D. A. Russell, to Fort Fred Steele and joined Captain Lawson's company of the 3rd U. S. Cavalry, and Tieutenant Price, who commanded a company of the 4th U. S. Infantry, and on the 21st, the troops, under Major Thornburgh, set out for the Agency. The infantry company was detached at Fortification Creek and encamped to await further orders. The command, now reduced to six officers and one hundred and fifty-five enlisted men, then marched southward to Deer Creek and encamped on the 28th.

A number of the Ute chiefs visited Major Thornburgh at the camps at Bear River and Williams Fork and were informed that he was going to the Agency for the sole purpose of restoring order and that they had nothing to fear from the presence of the soldiers. Although the chiefs were dissatisfied and objected to the presence of any troops at their Agency, they accepted presents from the officers and departed with protestations of friendship.

The march was resumed on the 29th, and about 10 o'clock a. m., the command arrived at Milk Creek, about twenty miles north of the Agency. At this place, Captains Payne and Lawson, with their companies, turned off the road, taking a trail that led to the left, while Company "D," under Lieutenant Paddock, remained with the wagon train, which was about one mile to the rear. There was no serious apprehension of an attack, but it was deemed prudent to advance with caution, as the command was approaching a deep canon through which the wagons must pass. Lieutenant Cherry was in the advance with a small escort, and, while passing over some high ground, discovered the Indians lying in ambush along the ridges that commanded the road. With a quick perception of the situation, he turned and warned the companies, and the men were at once dismounted and deployed as skirmishers. Major Thornburgh and Lieutenant Cherry then rode forward and attempted to communicate with the Utes, but they refused to talk and at once opened a rapid and galling fire upon the troops. It was soon apparent that the exposed position of the troops in the face of an enemy well armed and in superior force (10 to 1) was untenable, and the men were directed to retire slowly and effect a junction with Company "D," which was protecting the wagon train. The men retired in excellent order, and the enemy, having been foiled in their purpose to ambuscade the command, moved around the left flank beyond carbine range and concentrated on a knoll to the left of and commanding the line of retreat, for the purpose of cutting off the companies from the wagon train, which had begun to park on the right bank of Milk Creek. Captain Payne, with a part of his company, charged the knoll and dispersed the enemy, and then retired to the train and

^{*}As will be seen from the "Military Note" from Captain Roberts, Adjutant Seventh Cavalry, which appears in this number of THE JOURNAL, this article was written by a former First Sergeant of Troop E, Fifth Cavalry.

adopted measures for its defense. Major Thornburgh started for the train just as Captain Payne made the charge, and was shot and instantly killed after crossing the creek and within five hundred yards of the wagons.

The command then devolved upon Captain Payne. The train was parked about two hundred yards from the water. The wagons formed the north side of a corral, elliptical in shape, its long axis running east and west. The south side was exposed to the enemy, who massed in the ravines along the stream and upon the heights and made a determined effort to capture and destroy the train before the wagons could be placed in a position for defence. A number of wounded animals were led out to the exposed space and shot down, thus making a continuous line of defense and affording a cover for the sharpshooters. The bedding, boxes and sacks of grain and flour were then taken from the wagons and used for breastworks, and in a short time the train was in as good a state of defense as the means at hand would permit.

In the meantime, Captain Lawson and Lieut Cherry, by their suprerb fighting, had held the enemy in check until this much had been accomplished, when they entered the corral, bringing all the wounded with them. The enemy having been defeated in their efforts to prevent the concentration of the command and the parking of the train, tok advantage of a high wind and set fire to the tall grass and sage-brush down the creek. An agency supply train was encamped within seventy-five yards of the corral and commanded the approach to the water, and Captain Payne, fearing that under cover of the smoke the enemy might make a lodgment in the train, ordered the grass on the north side to be fired, and in a short time the train was in flames. The fire which had been started down the creek now approached with great rapidity and threatened to destroy the exposed part of the corral. The officers and men, at this critical moment, when the enemy made their most furious attack, displayed great courage. Several lives were lost and a number of the men were wounded, but the flames were extinguished and the enemy was again repulsed.

From this time. 3:00 p. m., until midnight, the enemy kept sharpshooters at work, and three-fourths of the animals were killed, or so severely wounded that they were killed by the troopers. At dark, the enemy charged the corral and delivered volley after volley. They finally retired with a loss of several warriors, who were seen to fall from their ponies. During the night, the dead animals were dragged beyond the corral, a full supply of water for twenty-four hours was secured, Dr. Grimes (wounded) cared for the wounded, and by daybreak the corral was in a good condition for defense. Captain Payne, twice wounded, prepared his dispatches, and at midnight started couriers to Rawlins, where they arrived on the 30th, when news of the disaster first reached the country.

During the 30th, the enemy kept up an almost incessant fire, and killed all the animals except fourteen mules. They withdrew at midnight and renewed the attack at daybreak. On the morning of the 2nd of October, Captain Dodge, with Lieutenant Hughes, thirty-five men of Company "D," 9th U. S. Cavalry, and four citizens, rode into the besieged camp after a forced march of twenty-three hours. At Hayden's, on Bear River, a courier informed Captain Dodge of the disaster, and he never drew rein until he rode into the corral just at daybreak. Before dark, thirty-eight of his horses were killed and the others were wounded.

Meanwhile, a movement of troops, such as had never been witnessed in the Department of the Platte—if, indeed, in any department—was in progress. The troops fairly leaped to the emergency, and, moving from all points with the utmost dispatch, rapidly concentrated at Rawlings, where Colonel Merritt arrived at half-past five o'clock, a. m., on the 2nd of October, with Companies "A," "B," "I" and "M," of the 5th Cavalry, and at eleven o'clock, a. m., of the same day he began, with two squadrons of cavalry and five companies of infantax, what has been appropriately named "a lightning march" of one hundred and seventy miles to Milk Creek, where he arrived at half-past five, a. m., of the 5th of October, and raised the siege and dispersed the enemy, who retreated through the canon towards the Agency.

Companies "D" and "F," 5th Cavalry, had eight men killed, two officers (Captain Payne and Lieutenant Paddock) and fifteen men wounded, and one hundred and ten horses killed.

Captain Lawson, of the 3rd Cavalry, had one man killed and seventeen men wounded, and nearly all his horses were killed. The wagon master and four civilian employees were killed, as were nearly all the train mules.

The commands encamped at Milk Creek until the 10th (other troops arriving daily, among the number "H" of the 5th Cavalry) when Companies "D" and "F," with Captains Lawson and Dodge's companies, moved by easy marches to Rawlins, whence, after a brief delay, they were moved by rail to their respective stations.

This, Mr. Wallace, is an exact account of the fight and relief at Milk Creek. I could give you a very lengthy description of several personal experiences, etc., and name several of the officers and men who displayed much coolness and bravery, but I believe the foregoing facts cover the ground.

The exact reason, as given to the writer, why the Utes objected to the plow turning up the particular stretch of ground indicated by the Agent (Meeker) to be worked, was because it was the parade ground (so to speak) before the village, and the only open and level space left for the Indians to hold their dances, run their horses, etc., etc. (so said "Ute John"), and although the Indians told Meeker he had no right to take that ground for planting, and gave their reasons, he was so pig-headed he would have his way. The Utes told him that if he plowed that ground they would put the log-chain, or plow-chain, around his neck and plow the ground with him (they did so afterward, and pretty thoroughly too), still he was determined to have his way, and he plowed the ground.

Although I lost many good comrades in the fight, still I cannot believe the Utes altogether to blame for their loss; but Meeker is beyond blame, for all at the Agency, fourteen in all, with the exception of the women, were killed.

Of subsequent events in the uprising, if you wish, I will at some future time give you more details.

WIRELESS FOR THE CAVALRY.

By FIRST LIEUTENANT H. C. TATUM, SIGNAL CORPS.

NDER the title, "Wireless for the Cavalry," the March number of the Cavalry Journal contains an interesting description of a portable wireless apparatus which for some time has been undergoing tests at the Army Signal School with a view to its use for field service.

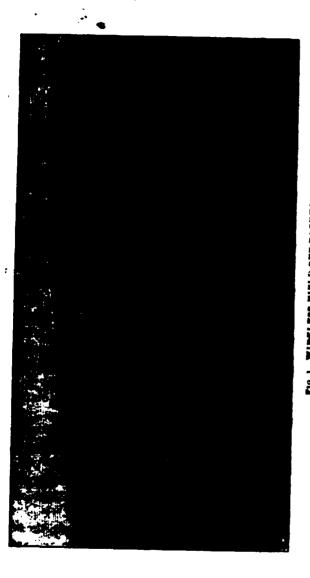
This article brings to the front a subject of special importance to the cavalry, and it may be of interest to note that the portable wireless sets referred to have recently been so modified that the entire apparatus can now be carried by pack animals instead of light spring wagons as described in the article.

The wireless pack outfit is identical in equipment and electrical efficiency with the portable sets. The same power units and instruments are used. With this equipment ranges from 25 to 30 miles have been attained under all ordinary atmospheric conditions. The fact that the apparatus is carried on pack mules instead of wagons does not affect the efficiency of the set nor its practical utility for field service.

The principal elements of the wireless pack outfit as now provided are as follows:

First: The instrument units. These units consist of the usual wireless apparatus, namely, transformer, leyden tube condensers, receiving condensers, interrupter, spark gap, linking coil, key, tuning coil, telephone receivers and accessories. These instruments are packed in two suitable chests, each measuring $21 \times 13 \times 12$ inches.

Second: The mast units. These units are the mast, antenna and counterpoise. The mast consists of ten sections of hollow spruce, each 5½ feet long. Four of the sections are 2½ inches in diameter and six are 2¾ inches in diameter. Each section is fitted at one end with a metal joint tube, over which



the socket end of the succeeding section is placed in putting up the mast. Seven joints of the mast (four large and three small diameter joints) are ordinarily used. The three extra sections are carried to provide for accidents or to increase the height of mast when necessary.

For the antenna, four phosphor bronze wires are used, each about 90 feet long and made up of several strands plaited together. These wires, together with the lead of the same material, about 50 feet long, are run from an insulator which fits on the top of the mast. For packing, each antenna wire is wound on a light wire reel, and, with the insulator and four antenna pins, is placed in a canvas bag measuring 8x16x24 inches.

The counterpoise consists of four pieces of cable core (seven-strand No. 20 copper wire, rubber insulated), each about 90 feet long. These wires, and a short lead, are soldered together at the inner end. For packing, the counterpoise wires are coiled separately to the center lead, secured with a thong, and, with the tools, are placed in a canvas bag of the same dimensions as the antenna bag.

Third: The power units. These units are a 20-volt, direct current hand generator, and two dry storage batteries of the "Duro" type. The generator gives about a hundred watts and is mounted on a light, four-legged support of convenient height for operating. The batteries consist of four cells each, put up in copper covered cases, which are inclosed in wooden boxes for packing. Each box measures 10x14x5 inches. The batteries will give about 100 watts for five or six hours' constant work, then require recharging. The set will operate efficiently with either battery or generator as the source of power. To maintain sufficient power when the batteries are low, they are used in parallel with the generator. Both sources are, therefore, deemed necessary to provide for all emergencies.

The above equipment, with accessories, is packed on three pack mules with loads evenly distributed and securely lashed to adjustable steel frames fitted to the aparejes. The distribution

of the loads and the weights carried by each animal are shown in the following table:

First Male.

No top load.

Off Load

Instrument chest, weight 73.5 Instrument chest, weight 73.5 pounds. pounds.

Total weight, 147 pounds.

Second Mule. No too load.

Near Load.

Near Load.

Off Load. 1 bundle (5 joints mast), length 1 bundle of mast, same as near

with connectors 652 feet, diameter of bundle 8 inches, weight 28 pounds.

I canvas bag containing counterpoise and tools, weight 33 pounds.

, 1 canvas bag containing antenna and pins, weight 32 pounds.

load, weight 28 pounds.

Total weight off load, 60 pounds.

Total weight near load, 61 pounds.

Total weight, 121 pounds.

Third Male.

Top load. Generator, weight 40 pounds.

Near Load.

1 box storage battery, weight 32

Off Load. 1 box storage battery, weight 32

2 generator supports, weight 20

2 generator supports, weight 20

2 generator cranks, weight 10 pounds.

1 generator cog wheel, weight 10 pounds.

Total, 62 pounds.

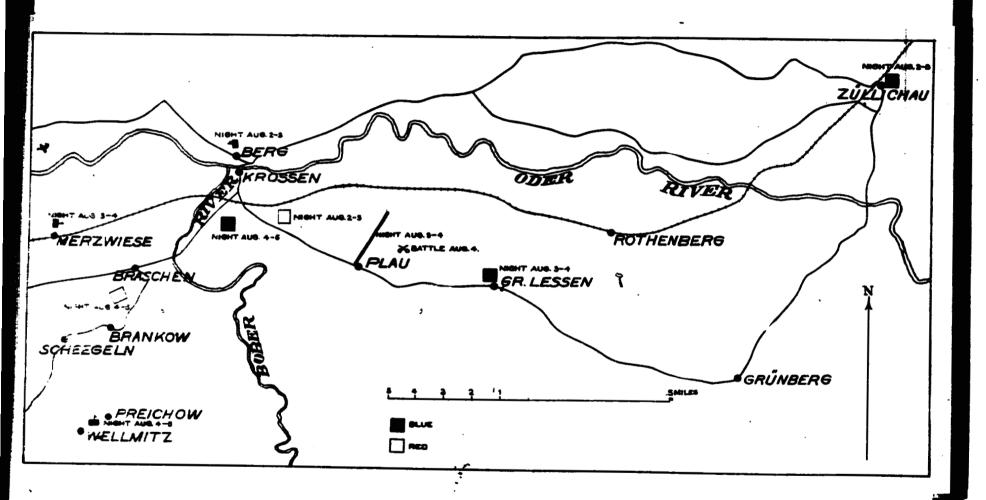
Total, 62 pounds.

Total weight, 164 pounds.

The accompanying plates show the appearance of the packs and method of putting up the station. It will be observed, however, that the plates show the generator and supports knocked down and packed in two chests. This arrangement has recently been so modified that the generator and supports remain assembled and are now carried in one piece, the generator forming the top load and the supports forming a frame for the aparejo. This allows the generator to be taken off the pack and used immediately, greatly diminishing the time required to put the station in operation. The battery boxes shown in the plate-as packed with the mast are now packed with the generator and the counterpoise bag with the mast, as shown in the table here given. Nine men, including one horseholder, are required to put up or take down the station. The mast is put up hand over hand as shown in the plates and taken down in the same manner, the antenna wires acting as guys in both cases.

By this method the wireless pack set can be unpacked and the station set up ready for business, using either battery or generator as the power unit, in two and one-half minutes, and taken down and packed ready to move off in three and one-half minutes. No special site is required for the location of the station. This makes possible the sending or receiving of short messages during an ordinary ten or fifteen minutes' halt on the road.

All the tests so far made with the pack outfit have given excellent results and warrant a firm belief that it will give efficient service in the field. For cavalry acting independently it will provide a quick and sure means for transmitting information. It will save our horses and men



WIRELESS WITH THE CAVALRY.

BY CAPTAIN MATTHEW E. HANNA, THERD CAVALRY.

THE following brief outline of a portion of the operations described in "Tactical Decisions and Orders"* may serve to illustrate the advantages to be derived from a dependable wireless set, such as the one with which Lieutenant Tatum has been experimenting.

A Red division, defeated August 1, is in full retreat, pursued by a Blue division. The cavalry with the Blue division consists of the First Cavalry, which is operating as independent cavalry, and one squadron of the Second Cavalry, which is operating as divisional cavalry.

The contending forces occupied the following positions the night of August 2-3:

The Blue division in and about ZULLICHAU.

The First Cavalry at BERG.

The Red division in the region PLAU-KROSSEN.

In the course of the afternoon the independent cavalry sends important information to the division commander, and at 10:30 p.m. the latter sends the cavalry its orders for the following day. These communications are relayed by mounted messengers. The distance is 25 miles.

The following positions were occupied the night of August 3-4:

The Blue division in and west of Gr. LESSEN.

The First Cavalry at MERZWIESE.

The Red division in and about PLAU.

During the advance on August 3, the independent cavalry sent an important message to the division commander. The mes-

^{*}The English translation of this book may be purchased from the Cavalry Association for \$1.25.

sage was carried 25 or 30 miles by relays. The wireless distance (a straight line between sender and receiver) was about 20 miles. In the course of the afternoon and evening other communications were exchanged between the cavalry and division headquarters. The cavalry was in the enemy's rear, and the messengers had to follow a roundabout route of about 35 miles. The wireless distance was 16 miles.

August 4 a battle was fought at PLAU. The Blue division was victorious and the Red division had to resume its retreat. The positions occupied the night of August 4-5 were as follows:

The Blue division east of the BOBER near KROSSEN.

The First Cavalry at PREICHOW and WELLMITZ.

The Red division west of the BOBER in the vicinity of BRASCHEN, BRANKOW and SCHEEGEN.

During the battle the cavalry operated on the enemy's rear, attacked his retreating trains and troops, and located the enemy's camp for the night; but the information sent did not reach the division commander until long after the events. Messengers had to follow circuitous routes and were in great danger of capture. The wireless distance was but 14 miles. The division commander's orders to the cavalry commander for August 5 were delayed in reaching their destination, for they could not be sent until the location of the cavalry was known at division headquarters.

It is not necessary to follow this operation farther to show the value of dependable wireless to independent cavalry. The value of much of the information sent by the cavalry (and this will always be the case) depended on its being received without delay. A glance at the distances involved shows that this was not possible, even if the relay system worked smoothly and the messengers were not captured or did not lose their way. At no time during the operation would it have been practicable to maintain a field wire in operation, for a single well led hostile patrol would have been able to cut it continuously.

The distance, in a straight line, between the cavalry and the division never exceeded the radius of action of the present field wireless outfit. Communications could have been sent in this manner with such ease that the cavalry commander would have reported much much frequently, and even if he should have sent

only negative information, the situation would have been much clearer to the division commander at all times. Moreover, close co-operation between the division and the cavalry would have been assured.

But three wireless sets (employing in all 9 mules and 27 mounted men) were necessary, one with the cavalry and two with the division. One of the division sets would have been in operation at all times (a very simple arrangement), ready to answer the calls of the cavalry outfit, which should have been set up at frequent intervals. This would have caused the cavalry no delay, for the main body of the independent cavalry could not advance uninterruptedly.

Not the least of the advantages of wireless for the cavalry is the assurance of the cavalry and division commanders that their communications have been received. With the messenger system this point may remain in doubt for days; with the wireless the sender has the receiver's O. K. as soon as the message has been received. Of course, communications often would have to be sent in cipher, but that is true also of written communications, unless we take chances on their contents becoming known to the enemy.

MAKING GENERALS* OR

TACTICAL STUDY FOR FIELD OFFICERS' POST GRADUATE COURSE.

BY A CAVALRYMAN.

SELECT your own course of study, but don't make too many generals." With this remark, the officer charged with the responsibilities of the post-graduate course of a regiment at a western post, seeking instructions from his regimental commander, was dismissed. That is one of the regettable things about our service—the disinclination on the part of our field officers to "make generals," either in their own proper persons or from the available material around them.

The writer was honored once by a lengthy personal conversation with a Major General of our army. The General was a good man, honored and respected by all who knew him for his kindness and directness of purpose and because of his honesty of speech. He was a Medal of Honor man and had served in the Civil War. It was at a foreign station during the Japan stir of 1907, when we were counting cartridges and drawing field rations, pretty well everywhere in the Philippines. Said the General, among other emphatic things: "Japan has its generals; they have been tried in the wars and Japan knows their worth. We also have generals, but they have not been tried nor have many of them received the proper instruction for making generals, and the same remark will apply to our other available

material for generals from which we will have to draw in time of war."

War Department orders prescribe post-graduate study and recitation for certain officers. The courses are not prescribed and there is no uniformity, no plan, no definite scheme of instruction. Those required to attend are all line officers.

Who has not noticed the tactical blunders, the hesitation and delay, the confusion of officers of field rank at maneuvers. Not all of our field officers, of course, but so many that the exceptions acquired undue prominence. As a rule, the job was too large, usually some one, at some time, had neglected the important work of "making generals."

Who has not noted the conduct of practice marches, where regiments, battalions and squadrons neglected to take opportunity of available time and terrain for tactical problems and exercises, of problems of concentration, of transportation and of supply? Of the neglect of the modern requirements of military hygiene for troops in the field and in camp? Of the neglect of Field Service Regulations and the neglect—and at times the actual prohibition of the principles taught in the service schools for the care and preservation of public animals?

Doesn't it imply that we, as a people, look to obtain our generals from those who are born such, and that our higher officers acquiesce in this arrangement? It is quite true that the American people feel that there are many such still undiscovered. The trouble is that we may not readily find them in time to dust them off after some nation has started something to find out who's boss around there.

The business of "making generals" has a good start in our service schools, and staff and war college. Incidentally, it's a good business, too, but its scale should be enlarged. This leavening of the mass of the army with this material for generals is all right (if not prematurely "eliminated"), as far as it goes, but it doesn't go far. Why? Because this material can't get the lid off! It cannot exercise its modern ideas!

The junior officers graduated from our service schools who have acquired a good knowledge of modern warfare—the requirements of minor tactics, of hygiene of barrack and of camp,

The publication committee hesitated about accepting this article on account of the harsh criticisms of our field officers, but as the writer is an officer of experience, not a graduate of the military academy or of any of the service schools, and as the views expressed, outside of the criticisms, are worthy of consideration, it is believed that its publication is justifiable.—Editor.

and other important things that had not occurred to the army a decade or more ago—have little or no opportunity to practice their arts; their modern ideas do not move in accord with the more "seasoned" thoughts of their immediate superiors. Now, if a way were devised by the War Department by which a course of study, comprehensive, leading up to something definite, uniform in its time, character and application like, for instance a course similar to Griepenkerl's Letters on Applied Tactics, to which should be added a course in the elements of military hygiene, and another covering the relations of the several arms to each other and their possibilities and limitations, to include all officers, especially those of field rank, in the line of the army, the business of "making generals" would be considerably expedited.

Plainly speaking, such a course should reach the majors, lieutenant-colonels and colonels now commanding the larger units of the line of the army, and should deal, in each grade in those military forces that would fall to the commands they would probably exercise if a war came suddenly; then so very much of the time and energy consumed by our younger men in the post-graduate and service schools would not have been in vain, and a more substantial return for the money spent on post-graduate education of the army would be assured.

It is good business to send our lieutenants and captains to the service schools, and it would be still better if the officers of our army of field rank could be brought to a better appreciation of the work and attainments of the graduates of these schools, and that the principles there taught were more respected. Not but what they are, in some instances, but the instances are rather few and far between.

In some instances—quite a number in fact—junior officers advancing the proposition and principles of the service schools, have been given to understand that their suggestions or practices are out of order, and, if not actually acts of insubordination are at least attempts to discount the experience of their military superiors. Who would march a regiment over 300 miles of open country, with many young officers and soldiers present, without a single maneuver, disposition for attack and defense, or problem

in the service of security and information? Who would neglect the admonitions of the field service regulations, the principles of modern military hygiene for march and camp, the opportunities for practical demonstrations in advance guard, rear guard, flank guard actions and marches—of the attack and defense of convoys, of scouting and patroling, in a fine big country where the Indian taught our army this art? Surely not the graduates of the service schools, for such neglect to them would be a sacrilege! And yet, just such things have occurred—shamefully often, in very recent times, and marches have been conducted with a deadly slowness and monotony that put black despair into the hearts of the ambitious.

Many of us could sing, with truth,

"Old Colonel Blank and his eight hundred men, (and horse), Rode up the hill. and then rode down again, (of course!")

But the lid on this thing must be pried off by those highest in authority, and modern ideas and principles allowed more play.

Now, if after a winter course as herein outlined, at which all field officers of the line were in attendance, and in the solution of whose problems they participated, it were required to devote a definite portion of each year to practical military manuevers at or near every post where the land is available, solving practically the problems of the theoretical term, and of a character appropriate to the number of troops available, and necessitating study and thought on the part of our officers of field rank, life in the active army would become too strenuous for a good many officers, and would obviate, to an extent, the necessity for elimination measures; and by the same token the army might then again sit up and take notice, and not devote quite so much deep thought to the proposition of whether or not it is worth while to buy a new pair of uniform pants!

All officers of ten or more years' service should be qualified to command a regiment or a brigade—not the perfunctory, ambitton-choking, chair-warming command so frequently exercised

—but a real live command that recognizes that there are others in the military service at home and abroad and that

" • • • To have done, is to hang Quite out of fashion, like a rust nail In monumental mockery.

For emulation hath a thousand sons,
That one by one pursue: If you give way,
Or hedge aside from the direct forthright,
Like to an enter'd tide, they all rush by,
And leave you hindmost.

(Troilus and Cressida.)

All officers may well prepare themselves along the lines that "make generals," for such services may be suddenly and urgently called for.

But such preparation must be forced or it will not be made. Field officers, especially those most responsible for the efficiency of our army, are not, as a rule (glory be to the exceptions) overanxious for maneuvers on field or map, or for the solution of tactical problems on paper. To preside at a session of a postgraduate class is not enough; at posts where six or more field officers are present, they should form a separate class, and the same work now done by captains and lieutenants along these lines, could and should be performed by them with much profit to the service. In such classes for field officers, the problems could include the movements of brigades and divisions with special attention to mixed or proportionate commands of all arms. A better knowledge than now seems to exist among many field officers, of the powers and limitations of the several arms, and their relation to each other, as well of those of our army, as of the enemy, and their proper use in combination, is highly desirable. But this must be started from the top.

+ Reprints and Cranslations. +

MEXICO'S MILITARY TRAINING SCHOOL.

By JOSE ROMBRO.

From the Bulletin of the International Bureau of the American Republics for March, 1910.

ECAUSE of numerous vacancies in the ranks of subordinate officers of battalious and regiments, and the small number of officials graduated from the Military College, in addition to other reasons, the War Department of the Mexican Government, which at that time was under the direction of General Mena, submitted a bill, approved by Congress on December 7, 1904, in the form of a decree, by virtue of which the "Escuela Militar de Aspirantes" (Military Training School) was established. The school has for its object the training of subordinate officers for the infantry, cavalry, and artillery service. The institution was opened on January 29, 1905, in the remodeled building of the old factory of Santa Fe, in Tlalpam, which had been acquired by the Department for that purpose. The rules and regulations now in force in the school were issued at that time, according to which it was specified that young men desiring to enter the school must be Mexicans between 18 and 21 years of age. In the case of minors it was necessary to obtain the consent of the father or guardian. Further requirements provide that the candidate shall have finished a course of primary instruction, shall be of good character, vaccinated, and possessed of the health and physical strength necessary for the pursuit of a military career.

Young men having the foregoing qualifications and who wish to enter the school are required to apply in their own handwriting to the Secretary of War and Navy, accompanying their

applications by documents stating their ages and civil condition as well as by certificates showing their academic and social training. At the bottom of the application the father or tutor must give his consent in writing to the entry of the applicant into the army as a prospective officer. Applications are to be made so as to reach the War Department in November or during the first half of December, also in May and during the first half of June, of each year.



CAVALRY PRACTICE

Cadet dominating fractions horse. Notice the good seat and light hands of the rider

If the applications are accepted, and after the medical examination certifying to the physical fitness of the candidates for the military service has been made, the applicants enter the training school on July 1 and January 1, respectively, and are enrolled therein in due course. Record is made of the class of officers the applicants desire to become and of their agreement to serve as such during the time they attend the military training school and in the army for a period of five years thereafter, the

latter time to be reckoned from the date they leave the institution.

Young men admitted as candidates must apply for entry into the school on the dates already mentioned, and pursue therein three theoretical-practical courses of six months each, and after separately completing said courses enter such battalion or regiment as may be indicated by those in charge of the school for a course of practical instruction. After a year's service as sub-lieutenants in the reserve army, if they have shown evidence of ability and of a military spirit, they will be transferred into the regular army.



SPECTACULAR JUMPING

Cadet accomplishing a difficult equestrian feat. Notice the jump is being made without use of the bridle and with stirrups crossed.

Cadets are allowed 73 cents Mexican money per day for board and other minor expenses; are given 50 cents weekly as a loan; and are allowed an additional amount of 60 cents a day for the purpose of forming a fund to be applied in the purchase of equipment and uniform to be used in the school, which becomes their property on leaving the institution and comprises their first equipment as officers.

Cadets are subject to military law for crimes and misdemeanors committed by them during the time they are in the service. The cadets live in the school, take their meals there, and only go out on Sundays and national holidays, or by permission and according to the judgment of the commandant.

The studies of the half-yearly theoretical-practical courses are, for the first six months, rules and regulations; auditing and military accounting; geography in general; elements of history, arithmetic, and algebra; elements of Spanish grammar and panoramic drawing. For the second six months the studies em-



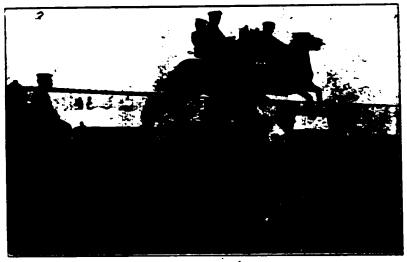
EXERCISES IN EQUITATION

An instructor clearing a table with bar held above it, showing that none of the isual table equipment would have been disturbed.

brace tactics with the weapon used in the department to which the cadet is assigned; campaign fortifications; practical knowledge of explosives and elements of physics and chemistry; military jurisprudence and law; geometry and trigonometry; topographic drawing. For the third six months the studies comprise general tactics or the use of the three weapons, including the application of themes relating to maps or charts of the country; theory and practice with small firearms (or artillery); communi-

cation and work in the field; military topography; military hygiene and military horsemanship for mounted officers.

In addition to the foregoing, during the three six-months' terms which make up the course, the cadets are instructed by a special professor for each subject in physical culture, swimming fencing, and markmanship with the revolver. Infantry cadets have a special six months' course in horsemanship, and mounted cadets are instructed in this branch during the entire period of the three six-months' terms. The cadets also receive military instruction in the interior service and management of the insti-



A NOVELTY IN STEEPLECHASING.

Cadets, in a race, taking the table jump used as one of the obstacles in a military steeplechase.

tution, as well as in maneuvering in solid phalanxes and instruction in campaign operations during the entire period of their training, daily practice being given them under the orders of the captains in command and in conformity with the programmes approved by the commander.

During the first years of the school the theoretical-practical courses of instruction were limited to two terms, and one term of practice in the service of the ranks. Experience, however, induced

the commandant of the school to broaden the course to the extent of the studies which now obtain.

All the professors of the school must be military men of acknowledged ability and practice in the subjects they teach. The school naturally seeks to impart instruction to the cadeis along all lines of useful knowledge, with particular reference to a military career. The staff of teachers consists of twenty-two professors.



"MONKEY" DRILL.

Bareback gymnastic exercises with moving horse

Examinations are held during the first two weeks of June and December of each year, no grades being accepted that fall below the approved standard known as the "three B's."

It is reported that the able director of the school, Lieut, Ccl. Miguel Ruelas, has submitted new rules and regulations in detail that are most appropriate for the needs and growth of the institution, and considering his natural ability and the desire he has to correct such defects as his experience of nearly five years has

shown him exist, these regulations will undoubtedly be approved by the War Department. Under the new regulations the artillery battery will again be established and the course of instruction extended to four terms of six months each.

The present budget provides \$174,551.35 Mexican money for the use of the institution, not including items of forage for 98 horses and 6 mules now in use at the school, and the keep of which is charged to the general expense account of the Department of War.



STUART IN THE GETTYSBURG CAMPAIGN—A DEFENSE OF THE CAVALRY COMMANDER.

By COLONEL JOHN S. MOSBY

From the Times-Dispatch, Richmond, Va., January 30, 1910

THREE letters have lately appeared in The Times-Dispatch from Colonel T. M. R. Talcott, in which he attempts to answer my objections to General Lee's two reports of the Gettysburg campaign in my book, "Stuart's Cavalry in the Gettysburg Campaign," which was published nearly two years ago. The ground of my objection is the injustice they do to the commander of the cavalry.

As his name is not mentioned in any of the official reports of the campaign, I do not know what were Colonel Talcott's relations with the army at that time, or what opportunity he had for observing its operations. He does not even profess to have discovered any new evidence to support the old and exploded charge against Stuart of disobedience of orders, and all the documentary evidence he produces is quoted or referred to in my book. It is true that he publishes a letter to himself from Colonel Walter Taylor, Assistant Adjutant-General to General Lee, but as Taylor is already a discredited witness, his testimony is entitled to little weight in this controversy.

The statements in his letter to Colonel Talcott are contradicted by a letter from General Lee to Stuart, dated 5 p. m., June 23, 1863. A copy of this letter appears in General Lee's letter book in Colonel Taylor's handwriting. Colonel Taylor says Stuart "was admonished all the while to keep in touch with our main army and to keep General Lee informed as to the movements of the enemy."

Colonel Taylor depends on his imagination for his facts. I defy him to point out one word in General Lee's letter to Stuart

about keeping "in touch with the main army," or keeping General Lee "informed of the movements of the enemy."

It was in reference to this oblivion which has come over General Lee's staff officers that I said the Homeric legend of the Lotus-Eaters, who lost their memory, is no longer a romance, but a reality.

Lee's Orders of June 22.

On June 22 General Lee had written Stuart to leave two brigades of cavalry with him, and to cross into Maryland with three brigades, "and take position on General Ewell's right, place yourself in communication with him, guard his flank, keep him informed of the enemy's movements, and collect all the supplies you can for the use of the army. One column of General Ewell's army will probably move towards the Susquehanna by the Emmittsburg route, another by Chambersburg." This letter is in Colonei Charles Marshall's handwriting. General Lee was then in the Shenandoah Valley with the corps of Longstreet and A. P. Hill; Ewell was about Hagerstown, Md., and had been ordered to the Susquehanna.

According to Colonel Taylor, General Lee issued an absurd order requiring Stuart to cross the Potomac and put himself on Ewell's right flank on his march to the Susquehanna, and at the same time keep in touch with the other two corps, and in addition to watch and report to him the movements of Hooker's army on the Potomac. If Stuart could have performed all those things he would have surpassed anything in the enchanting tales of the Arabian Nights.

Colonel Taylor does not say what General Lee expected to do with the two brigades of cavalry he kept with him in Virginia.

The letter of June 22 was sent to Longstreet to be forwarded if he thought Stuart "can be spared from my (his) front." Longstreet did forward the instructions, and referring to General Lee said, "He speaks of your leaving via Hopewell Gap [the Bull Run Mountain] and passing by the rear of the enemy." At the same time Longstreet, who was at Millwood, wrote to General Lee, "Yours of 4 o'clock this afternoon received. I have forwarded your letter to General Stuart with the suggestion that he pass by

THE GETTYSBURG CAMPAIGN.

the enemy's rear if he thinks he may get through." This was notice to Lee of the route Stuart would go. So the cavalry movement around Hooker's rear had the approval in advance of both General Lee and General Longstreet.

Hooker was then in Fairfax; General Lee was in his front. General Lee 'could not have expected Stuart to pass around Hooker's rear to cross the Potomac, and at the same time keep in touch with the main army and in communication with him unless he had a machine that could fly over Hooker's head and navigate the air. Yet his report complains that "by the route he pursued the Federal army was interposed between his command and our main body—preventing any communication with him until he arrived at Carlisle."

REPORT IS CONFUSING.

Nobody would suspect from reading his first report that General Lee kept two cavalry brigades with him to watch the enemy; or that he ever authorized Stuart to cross the river in rear of the enemy; or that Ewell had gone into Pennsylvania a week in advance of the main army.

The first report is dated July 31, 1863, and was immediately published in the newspapers. It is the origin of all the criticisms of Stuart. It says: "In the meantime a part of General Ewell's corps had entered Maryland and the rest was about to follow.

General Stuart was left to guard the passes of the mountains and observe the movements of the enemy, whom he was instructed to harass and impede as much as possible should he attempt to cross the Potomac.

"In that event General Stuart was directed to move into Maryland, crossing the Potomac east or west of the Blue Ridge, as in his judgment should be best, and take position on the right of our column as it advanced."

The statement that Stuart was authorized to cross the Potomac east or west of the Ridge is true; but it is not the whole truth, for, taken in connection with the complaint of Hooker's army being interposed between Stuart and our army, persons who read the report naturally inferred it meant that Stuart had authority to cross at some of the fords east of Harper's Ferry

but in front of Hooker's army. The report did not say a word about Ewell's corps having been detached and sent on several days in advance to the Susquehanna, and that Stuart was ordered to join Ewell. It speaks only of Ewell being in Maryland.

On the contrary, any one reading the report would conclude that the corps of Longstreet. Ewell, and A. P. Hill, united in Hagerstown, in Maryland, and that Stuart was ordered to put himself "on the right of our column as it advanced" into Pennsylvania. Now, as Ewell was at Hagerstown when he received General Lee's order of the 22d to move to the Susquehanna, and as he crossed the State line that day while Stuart was still in Fauquier county, Virginia, it could hardly have been expected that Stuart would overtake Ewell before he reached the Susquehanna, or that General Lee would rely on Stuart to watch and report Hooker's movements on the Potomac; especially as he had kept two brigades of cavalry with him.

Yet Colonel Taylor says that General Lee expected Stuart to perform that miracle.

GENERAL LEE'S FINAL INSTRUCTIONS.

Again, General Lee's final instructions to Stuart were written from Berryville at 5 p. m., June 23. As I have said, they were copied by Colonel Taylor in General Lee's letter-book. They were substantially a repetition of those sent through Longstreet the day before, but more explicit about crossing the Potomac. They gave Stuart the alternative of coming over the Ridge the next day, crossing the Potomac at Shepherdstown and then moving on over the South Mountain to Frederickstown; or he could pass around Hooker's rear, "doing them all the damage you can, and cross the river east of the mountain. In either case after crossing the river, you must move on and feel the right of Ewell's troops, collecting information, provisions, etc."

Clearly when General Lee told Stuart that if he crossed at Shepherdstown he must move on over to Fredericktown, he did not mean for Stuart to stop there, but merely to indicate the best route to join Ewell, as he had written Stuart that one of Ewell's columns would move to the Susquehanna by Emmittsburg. In this second letter he said, "The movements of Ewell's corps are as stated in my former letter" (22d). On that day he had written

Ewell from Berryville. • • • "Mine of to-day authorizing you to move towards the Susquehanna, I hope has reached you. • • I also directed General Stuart, should the enemy have so far retired from his front as to permit of the departure of a portion of the cavalry, to march with three brigades across the Potomac, and place himself on your right and communicate with you, keep you advised of the movements of the enemy and assist in collecting supplies for the army." There is not a word in the instructions to Stuart, although the report says so, about his being left to guard the passes of the mountain or harass and impede the enemy, "should he attempt to cross the Potomac"; for the plain reason that he was expected to cross in advance of the enemy and move on into Pennsylvania with Ewell.

STUART'S ALTERNATIVES.

Nobody can reconcile the statements about the cavalry in General Lee's two reports with his orders to both Ewell and Stuart on June 22, and his letter of 5 p. m., June 23, to Stuart, which is, as I have said, in Colonel Taylor's handwriting Nodiscretion was given to Stuart to remain with the army in Virginia or join Ewell in Pennsylvania; but discretion was given him to go by Shepherdstown, or cross in Hooker's rear at Seneca. No matter which route he went he would be equally out of sight of the emeny and out of communication with General Lee. Stuart would have been where General Lee put him. In his last letter to Stuart General Lee speaks of the movements of troops in the Valley the next day.

If General Lee had anticipated that it would break up Stuart's plan of passing to the Potomac not around Hooker's rear through Fairfax, but through the middle of Hooker's army, cutting it in two and destroying his transportation, he would have delayed the movement in the Valley, as there was no necessity for it that day, A. P. Hill was at Charlestown, about nine miles from Shepherdstown; he should have stood still to give Stuart time to cross the river.

Stuart would then have been so far ahead that Pleasanton's Cavalry could never have overtaken him. From the day General Lee crossed the Rappahannock Hooker had always moved so as

to keep in touch with Lee, and between Lee and Washington.

It could not be expected that after the whole Southern army had crossed the Potomac Hooker would halt in Virginia and uncover Washington.

HOOKER'S PROMPT MOVEMENT.

On the 24th A. P. Hill's Corps moved from Charlestown to the Potomac in sight of the signal station on Maryland Heights. The news was telegraphed to Hooker, and he set his army in motion for the Potomac the next day. Stuart found Hooker's army marching on the roads which he had expected to travel, hence he had to change his route and make a detour through Fair-fax around Hooker's rear. Instead of crossing the river on the evening of the 25th, he did not get over until the night of the 27th. Pleasanton's Cavalry Corps had been kept behind as the rear guard of the army, and crossed the Potomac some miles above on the same night. It was kept behind and neutralized by Stuart being in their rear, and gave no trouble to General Lee.

Colonel Talcott quotes from my book what is said about the premature movements in the Shenandoah Valley, making the Gettysburg campaign the Iliad of the South, and claims that this is an admission that the disaster was due to the absence of the cavalry.

His conclusions are illogical—a non-sequitur—no such meaning can be given to my language. No matter where Stuart crossed the Potomac—east or west of the Ridge—he would not have been with General Lee or anywhere near Gettysburg, but away off on the Susquehanna. I never said it was the cause of the loss of the battle, but of the failure of the campaign as originally planned.

HILL'S RESPONSIBILITY.

It was this movement of A. P. Hill on the 24th from Charlestown that disclosed our plan to the enemy and caused it to miccarry. There never would have been a battle at Gettysburg it Stuart had crossed the Potomac on the evening of the 28th as be had expected. With his transportation destroyed, the canal on the Potomac, which had become his line of supply, broken, and all communications cut between Washington and the North,

Hooker's attention would have been drawn from Lee to the capital, and Stuart would have marched leisurely on to the Susquehanna. Longstreet was at Millwood on the 24th, and marched out of view of the signal station by Bunker Hill and Martinsburg to Williamsport. As he had to march about three times the distance that A. P. Hill had to march from Charlestown to cross at Shepherdstown, Hill might have waited a day and then he, Longstreet and Stuart would all have crossed the Potomac on the same day and would have left Hooker behind in Virginia.

Of course, General Lee did not anticipate that Hooker would follow so promptly and defeat the operation that was originally planned. Still Stuart did cross in the enemy's rear.

Colonel Talcott says it was necessary for the two corps to move on the 24th to support Ewell. But Ewell's, Early's and Rodes's reports show just the reverse. A few militia met them at two or three places, but scattered without firing a shot. When Early got to York he sent Gordon to secure the bridge across the Susquehanna, but the militia set fire to the bridge and ran over the river. Hooker had detached no forces to follow Ewell. General Lee held him in Virginia, while Ewell foraged in Pennsylvania. Jenkins's Cavalry was skirmishing with some militia in the suburbs of Harrisburg when Ewell, who was at Carlisle, recalled him.

STUART'S CONDUCT ON JUNE 25.

Colonel Talcott also says that when, on the 25th, Stuart found out that he could not pass through Hooker's army he ought to have turned back, gone over the Blue Ridge and crossed the river at Shepherdstown. But it was easier then to go on than to turn back. He simply obeyed General Lee's order, kept on and passed around Hooker's rear. He could not possibly have reached Shepherdstown before the night of the 27th, which was the time he crossed at Seneca. General Lee had then been two days at Chambersburg.

If Stuart had gone back to Shepherdstown he would have rested for a night, and then have moved on through some pass in the South Mountain to join Early at York. He would have reached there about the time Early was leaving to join Ewell.

Stuart's crossing at Seneca, so near Washington, cutting the canal, intercepting communications and capturing supply trains seriously impeded the operations of the Northern army. Meade's attention was directed from Lee; he sent two-thirds of his cavalry and three army corps off to the east to intercept Stuart, save Baltimore, and open his communications, which Stuart had cut. But the fruit of these operations was lost by A. P. Hill's and Heth's Quixotic adventures in going off without orders to Gettysburg.

Yet nobody would suspect from reading General Lee's two reports, or what his staff officers have written, that A. P. Hill and Heth broke up his plan of campaign. And here I will notice a statement in Colonel Taylor's book—"Four Years With Lee"—that does great injustice to his chief. He says that at Cashtown on the morning of July I, Lee stopped and had a talk with A. P. Hill before he started to Gettysburg. If true, it makes General Lee responsible for the blunder of that movement. Fortunately for General Lee's reputation this statement is contradicted by the report of General Pendleton, who rode that day with General Lee.

On the morning of July 1 his headquarters were at Green-wood, about ten miles west of Cashtown. From there he wrote Imboden that his headquarters for the next few days would be at Cashtown. It must have been long after noon when General Lee reached Cashtown, as Pendleton says he did not stop there, but rode rapidly forward to the sound of the guns. He reached the field, about eight miles off, near the close of the fight. Heth's report says he left Cashtown about 5 o'clock in the morning.

HILL AND HETH KNEW CONDITIONS.

Colonel Talcott also says that Hill and Heth did not know that the enemy held Gettysburg. If he will read their reports he will see that they say they knew it; and A. P. Hill says that on the day before he sent a courier to General Lee informing him of it. I admit that Colonel Talcott in making this statement about ignorance of the enemy follows General Lee's first report, which is contradicted by his second report. The first report says that "finding ourselves unexpectedly confronted by the Federal army it became a matter of difficulty to withdraw through the mountains with our large trains." The fine Italian hand of a lawyer is

manifest here. Both Hill and Heth say they knew the enemy held Gettysburg; if so, the meeting could not have been unexpected. Nor does the report explain why General Lee could not save his trains without a battle, when he saved them with small loss after losing a battle.

Nor does this report explain why Ewell, with Rodes's and Early's Divisions, was marching away from Gettysburg on the morning of July 1, if the army had been ordered, as it says, to concentrate at Gettysburg. Colonel Taylor's book says the order was for the concentration at Cashtown. He contradicts the first report, which says Gettysburg. It is clear the absence of three brigades of cavalry with Stuart had nothing to do with bringing on or losing the battle. Ewell and Early had at least 2,000 cavalry with them, and General Lee had kept two brigades of cavalry with him. Nobody can show that General Lee did, or omitted to do, anything on account of his ignorance of the situation of the Northern army. As General Lee says that he had not intended to fight a battle unless attacked, it made no difference to him if the enemy were at Gettysburg, if they were not interrupting him; all he had to do was to be geady when they came. His whole army would have been concentrated at Cashtown, or in supporting distance, that evening if Hill and Heth had not gone off on an excursion and dispersed it. It is not credible that General Lee should have stayed two days in Maryland, on the Potomac, and in the shadow of South Mountain, with Hooker's army on the other side and in the gaps, with their signal stations on the peaks. without discovering their presence. Such bucolic simplicity is inconsistent with the character of the Confederate commander. Every private in his army knew where Hooker was.

GENERAL LEE READ REPORT.

No doubt he left when he was sure that Hooker's army was over the river. Nor could he have been surprised to hear it was at Gettysburg, unless he expected Hooker to stand still. At Williamsport he wrote Mr. Davis that he thought he could throw Hooker's army over the river; and yet his report says that he was surprised when he heard he had done it. For this reason I expressed the opinion that he must have signed without reading the report. Colonel Taylor says he read it. I am sorry to hear it

It is strange that the biographers and staff officers who have charged the Gettysburg disaster to General Lee's ignorance of the enemy's movements have ignored the letter from Genral Lee at Chambersburg to Ewell at Carlisle, dated 7:30 a.m., June 28, 1863, which refutes all they say, and proves that General Lee knew perfectly well where Hooker was. This letter is published in my book on page 117.

General Lee's report says: "It was expected that as soon as the Federal army should cross the Potomac General Stuart would give notice of its movements, and nothing having been heard from him since our entrance into Maryland, it was inferred that the enemy had not yet left Virginia.

"Orders were therefore issued to move on to Harrisburg.

" " The advance against Harrisburg was arrested by intelligence received from a scout [spy] on the night of the 28th to the effect that the army of General Hooker had crossed the Pin mac and was approaching the South Mountain." If General Lee had thought that Hooker was still in Virginia he would have marched directly to Washington and Baltimore. At least he ignored have done it

ALL KNEW HOOKER'S MOVEMENTS.

I have proved in my book that the spy was only a ghost that somebody saw, and that no order was issued to move on to Harmsburg. Ewell was then over thirty miles north of Carlisle; he had been a week in Pennsylvania and had detached Early's Discounting go east to the Susquehanna. Jenkins's Cavalry was about Harmsburg. General Lee, with Hill and Longstreet, had crossed the Potomac several days before. Now I say that any private or teamster would have told General Lee that Hooker would not stay in Virginia when he was in Pennsylvania. That was something that any man of ordinary sense would have known without being told.

According to Colonel Marshall, General Lee was thrown almost into a panic when he heard the news that Hooker was over the river and was following him.

"As I can't believe it, I said in my book, and I repeat, that in my opinion, when General Lee signed a paper containing such an absurdity he had never read it. If he had thought when he erossed the Potomac that Hooker's army was still in Virginia, then instead of marching north he would have turned east. The Chambersburg letter shows that General Lee knew that Hooker was still keeping between him and Washington. It told Ewell that he had written him "last night" (27) that Hooker had crossed the Potomac and was moving towards South Mountain, and that he had directed Ewell to move back to Chambersburg; but if he had not already progressed on that road he wanted him to move east of the mountain in the direction of Cashtown or Gettysburg. So on the night of the 27th General Lee wrote Ewell what his report says he had first heard from a spy on the night of the 28th. Neither Col. Talcott nor Col. Taylor tries to explain this letter or make it consistent with the statement of the report.

DATE OF LETTER ESTABLISHED.

I anticipated in my book (pages 117-121) that some one would insist that the date was a mistake, and should have been the 29th. But, if the letter in the Records should have been dated the 29th, then "last night's" letter would have been dated the 28th. Now, Early says that he received at York a copy of this letter on the evening of the 29th, and he started early the next morning, expecting to join Ewell west of the mountain. It is about seventy miles, via Carlisle, from Chambersburg to York.

The letter could not possibly have reached Early on the 29th if it had left Chambersburg later than the 27th. Again, Edward Johnson's division left Carlisle on the morning of the 29th on the Chambersburg pike, and before the second order arrived for Ewell to move east of the mountain, and Ewell's trains were passing through Chambersburg at midnight on the 29th, which shows that they must have left Carlisle probably on the evening of the 28th.

Again, Ewell says he arrived at Carlisle on the 27th, and was starting for Harrisburg on the 29th, but the movement was arrested by an order from General Lee to return. It is clear that Johnson left Carlisle and Early left York in obedience to the first order (27th).

But Ewell remained at Carlisle with Rodes's Division after receiving the second order, to give Jenkins time to return from Harrisburg and to unite with Early, marching west, at Heidlers burg. If the letter in the Records had been written on the 29th, then neither letter could have reached Ewell before he got to Harrisburg. His march north was arrested by the first letter. Of course, all presumptions are in favor of the correctness of the date of the letter published in the Records. The burden of proof is on those who impeach it. But Ewell's, Early and Johnson's reports verify the latter in every particular.

It would have been far better for General Lee's military reputation if he had written his own report of events of the campaign just as they occurred, instead of having an acute lawyer to write a brief for him; this

> "Had been an act of purer fame, Than gathers round Marengo's name."

I am aware that in Virginia there is a sentiment that tolerates only one side of a question that concerns General Lee.

LEE'S LAST ORDER TO MOSBY.

After General Stuart was killed, in May, 1864, I reported directly to General Lee. The following is the last order I ever received from him:

"Headquarters, March 27, 1865. "Rec'd 8-20.

"Col. J. S. Mosby, care Major Boyle, Gordonsville:

"Collect your command and watch the country from front of Gordonsville to Blue Ridge, and also Valley. Your command is now all in that section, and the general will rely on you to watch and protect the country. If any of your command is in the Northern Neck, call it to you.

"W. H. TAYLOR,
"Assistant Adjutant-General."

It was forwarded from Gordonsville by courier to me in Loudoun.

A few days afterwards we heard from Appomattox. My battalion was then on the line of the Potomac, where the war had begun. For General Lee I have always had a deep affection, but, to my mind, the fashionable cult that exalts him above mor-

tality and makes him incapable of error is as irrational as the mystic faith of the Hindoo in Buddha.

And now, in conclusion, I will say that some may think that Stuart needed no defense; and will apply to my effort to rescue. his memory from undeserved blame the words of Milton on a monument to Shakespeare—

What needs't thou such weak witness of thy name" "Dear Son of Memory, great heir of fame,

MACHINE GUN TACTICS IN OUR OWN AND OTHER ARMIES •

By Captain R. V. K. APPLIN, D. S. O.:
FOURTEENTH (KING.) HUSSARS, LATE INSTRUCTOR SCHOOL OF MISSETED SOUTH AFRICA, AND LATE D. A. S. G., MISSETED J. MISTA

THE Russo-Japanese war has given us many striking lessons and perhaps not the least important is the new light it has thrown on machine guns, their value on the battlefield, and their extraordinary power for decisive action when properly organized and handled. Their success in Manchufia—one of the features of the campaign—proves them to be a most important reinforcement to cavalry and infantry.

That this lesson has been accepted by the European powers is shown by the almost universal reorganization and increase of this arm, Japan and Russia leading the way.

I shall endeavor to deal with the use of machine guns in war, their place in the battlefield, and the general principles that should govern their tactical employment; and I only venture to express the opinion and make the suggestions that follow, on the understanding that I am to raise points for discussion at the end of the lecture, and the more debatable my hypothesis the greater the opportunity for instructive criticism.

In the first place it is necessary to clearly understand the

nature and potentiality of the arm with which we are dealing in order to fix its value as a fighting weapon, and I shall therefore say a few words on machine guns themselves.

The modern machine gun is essentially an automatic weapon of small arm caliber, capable of firing from 100 to 600 shots a minute from a light mounting of extreme mobility, and should fulfill the following qualifications:

- 1. It should be able to deliver about 400 shots a minute without less of accuracy, even with prolonged "continuous" firing.
- It should be capable of accompanying cavalry and infantry wherever these arms can go, occupy the smallest space, and be able to go into action quickly at rifle range.
- It should have a firm mounting, upon which the gun
 is steady, and from which it can be aimed rapidly
 and fired while kneeling, sitting or lying.
- 4. The gun and its mounting must present a small target, and be light enough for each, and, if possible, both, to be carried by one man for a considerable distance, and should admit of being dragged by a man crawling or crouching for short distances.
- 5. It should be in constant readiness for action and able to fire when limbered up if on wheeled carriage.
- 6. It should be simple, strong and durable. Mobility and constant readiness for action are indispensable with cavalry, while lightness and smallness of target are esential factors.

^{*}Lecture delivered before the Royal United Service Institution October 6, 1909. Reprinted from the Journal of the Royal United Service Institution.

There are seven main types of machine gun at present in use in the armies of the world, viz.:

Gun.	In use in.					
Maxim	Great Britain, Germany, Russia, Italy, Portugal, Turkey, Switzerland and U.S.A.					
Hotchkiss	France, Japan, Belgium, Norway, Sweden, Spain and Portugal.					
Perino	Italy.					
Puteaux	France .					
Schwarzlose	Austria.					
Skoda	Japan and China.					
Madsen	Russia, Deumark (Rekyl pattern), and China for Cavairy).					

The principal differences between these guns are:

- a. The automatic mechanism.
- b. Method of loading.
- a. may be divided into two classes:
 - 1. Recoil action—the Maxim, Perino and the Madsen.
 - 2. Gas pressure action—the Schwarzlose. Hochkiss, Skoda and Colt.
- b. consists of three classes:
 - 1. Belt loaders—the Maxim, Schwarzlose and Colt.
 - 2. Metal clip loaders—Hotchkiss, Madsen, Perino and Puteaux.
 - 3. Hopper loaders-the Skoda.

Several of the above countries, notably Russia. Japan, France and Austria, have more than one pattern of gun in their service, and it is difficult to say which they intend finally to adopt, but Russia, since the war, has ordered several thousand Madsen guns, and Japan is said to be trying this gun, one of which during the war fired 25,000 shots in a single day.

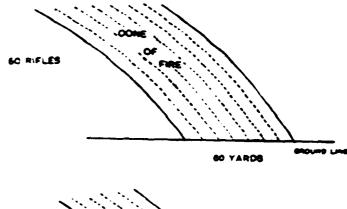
I have purposely omitted the Recar gun, which only weighs 17½ pounds, but is fired from the shoulder and is therefore more of the nature of an automatic rifle than a machine gun.

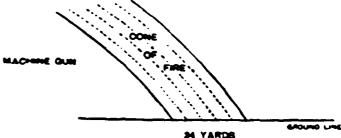
It would take too long to deal with each of these weapons separately. I shall therefore select the Maixm as the type with which to discuss the question of tactics, but it will first be necessary to demonstrate its capabilities and fire value as compared with other arms.

RATE OF FIRE.

Machine guns of this class are capable of discharging 600 shots a minute, but this very high rate of fire is obviously undestrable for several reasons, the principal being that, however skillfully a gun is handled, a great waste of ammunition must ensue, for a single man would be struck with eight or ten bullets and hundreds of bullets would be wasted in space. These guns are therefore regulated to fire at a maximum rate of 450 rounds a minute. The extreme range of this type of gun is, for practical purposes, the same as the infantry rifle, viz., about 3,500 yards, though it is more effective at the extreme ranges than an equal

TO SHEW THE ZONE BEATEN BY 50%, OF BULLETS





intensity of rifle fire, owing to the stability in mounting, which causes it to have a beaten zone of only half the depth, and nearly half the width, of rifles firing the same number of rounds

RIFLES AND MACHINE GUNS.

Careful experiments carried out at Hythe between 50 infantry and a machine gun, each firing the same number of rounds at ranges from 500 to 2,000 yards, proved this conclusively. The diagram herewith gives the result of the test at 1,500 yards, showing the depth of ground beaten by 50 per cent shots.

Another experiment carried out at the School of Muskerry, South Africa, between 42 rifles, all marksmen or first-class shors, and a Maxim, at an unknown range (about 1.000 yar is a time allowed, 1 minute; ammunition, unlimited; targets, a line of 50 head and shoulder figures at one pace interval, resulted as follows:

				 -		
	Rounds fired.	Hits.	Per cent	Figs. Fit.	Tergent.	
	- :					
Rifles	408	62	15 1	27	٤.	
Maxims	228	tig	30 2	<u>;</u> 2	4	

The rates of rifle fire are "slow"—3 rounds a minute—and "rapid"—15 rounds a minute. Slow fire is the normal rate, and "rapid" fire can only be used for a short time when a sudden burst of powerful fire is required at a critical moment, and it can only be kept up for about 3 minutes, at the end of which period the firer is exhausted, the rifle too hot to handle, and the aim consequently erratic. This is when the men are fresh, and they would probably be unable to keep up effective rapid fire for more than a minute and a half, after being in action for several hours. It is here that the machine gun is so greatly superior to rifle fire—

it is never exhausted, and it never loses its accuracy through the firer becoming tired.

FIRE POWER.

To compare the power of this gun with rifle fire: We may safely say it is equal, if not superior, in fire effect to a half company of infantry, while it has the enormous advantage over infantry of occupying only five feet of ground instead of fifty varis. In their words, fire equal to that of a battalion of infantry can be delivered from a frontage of only 60 yards. Its subscrability depends entirely on its mounting, which should be as near the ground and as inconspicuous as possible, and as it requires but two men to work it, it presents a very small and officult target.

MOBILITY

The last consideration is its mobility, and even here it is so tastly superior to infantry as to be beyond comparison. The gun new only weight to pounds, while it can be used with effect from a mounting of 40 pounds weight; therefore on a suitable carriage it should be capable of moving with the rapidity of cavalry.

FIRE EFFECT.

Nap leon's maxim that "Fire is everything, the rest of small account" is only applicable to the machine gun when the fire is effective; nothing is so useless and wasteful as ineffective machine gun fire, and the careful study of fire effect is imperative with this weapon, and the beaten zone is perhaps the most important factor in obtaining effective fire.

BEATEN ZONE.

We have already seen that the range of the machine gun is practically the same as that of the rifle, but that the beaten zone is only half the depth and about half the width of the collective fire of infantry, partly owing to the rigidity of the mounting and partly to the fact that the human error is greatly reduced by being concentrated in the person of a single individual, instead of being spread over some 50 men of different temperament, nerves and aiming power.

A similar experiment carried out between 42 "sharpshooters" and a Mrxim, during the annual training for 1908 in the U.S. A. at 600, 800 and 1,000 yards, at the "L" target, each firing 750 rounds, resulted in 22.45 per cent in favor of the Maxim. The Maxim fired "rapid continuous," and the men slow individual, the latter using the new S bullet.—U.S. Cartalry Association Journal, July, 1909.

The depth of the zone beaten by 75 per cent of bullets—which is the effective zone—is; at 500 yards, only 125 yards, against 220 yards for rifle fire; at 1,000 yards it is 70, as against 130; and at 1,500 yards it is 60, as against 100 yards. Therefore the extreme permissible error in estimating range is: At 500 yards, about 60 yards; at 1,000 yards, 35, and at 1,500 yards. 30.

In addition to these factors, the fire from machine guns is always collective and concentrated, unless deliberately dispersed by the firer, while rifle fire is always individual and dispersed, unless specially controlled by fire discipline under a leader. Fire discipline and fire control are in the hands of one man; there is no need to point out the target to a scattered firing line; there is no delay in passing orders down the line, in the setting of 50 different sights for the correct elevation, and for insuring that the rate of fire and expenditure of ammunition is regulated by the effect produced. Thus fire can be opened far more rapidly and accurately than with rifles, and can be at once directed on a fresh target without ceasing fire, while the effect can be seen by the firer, who can instantly change the rate or cease fire altogether

CONE OF FIRE.

For ranges over 500 yards it is absolutely necessary to know the range accurately or to find some other method of bringing the "effective zone" on the target. The machine gunner may be likened to the fireman with his hosepipe, whose object is to bring the base of his jet of water to play on a certain spot some distance away from the nozzle of his pipe. He does not trouble about the distance; he does not require to know the range; but, pointing the nozzle in the direction he desires to strike, he elevates or depresses it until he observes the base of the cone of water falling on the right spot, and then he holds his pipe so that it continues to fall where he desires. He does not trouble about the smaller streams and drops of water that fall short or go beyond, but devotes his whole attention to keeping the nucleus of the stream—the 75 per cent or 50 per cent—falling on his "target." In precisely the same way the machine gunner must look upon his stream of bullets as a stream of water from a hosepipe, and his object must be to cause the center of that stream to play on the target; this can best be done by "observing" the strike of the nucleus of the shots and altering the elevation accordingly. This observation of fire is the best method of obtaining the correct elevation at "effective ranges" (i. e., 600 to 1,400 yards), if the ground is suitable.

OBSERVATION OF FIRE.

If the target is only visible for a short time, groups or "gusts" of rapid fire may be fired; but as a rule "deliberate" fire at the quickest rate should be employed, and "rapid" only used when the range has been found. If the ground is not favorable fir the observation of fire, or the range is too great, this method cannot be used, and it will be necessary to obtain the range by instruments; but it will not always be possible to do so, and it is necessary to find some other reliable way of insuring that the target is within the effective zone.

COMBINED SIGHTS.

Supposing the range to be estimated at 1,000 yards, the effective zone is about 70 yards in depth; therefore an error of only 50 yards in estimating the range will render fire ineffective. There is but one way to overcome the difficulty, and that is by increasing the effective beaten zone, and this can be done by using "combined sights," and thus making two or more beaten zones which touch each other and overlap where the effective 75 per cent of shots of each ends.

There are two ways of using combined sights:

- a. The "single gun" method.
- b. The "battery" method.

In (a), with an estimated range of 1,400 yards, the sights will be set for 1,300, and aim taken; then the sights will be again set for 1,500 yards, but without altering the original aim, and "rapid" fire opened and the elevating wheel slowly turned to elevate the gun until the 1,500 sighting is aligned on the target. The result of this operation is to sweep the whole ground from 1,275 to 1,525 yards with effective fire, and if an error of 125 yards over or under the correct range has been made, the target

¹Lieut.-Colonel W. D. Bird, D. S. O., in lecture before the Aldershot Military Society.

is nevertheless brought within the effective zone by the combined elevations used.

The second method (b) is only used where at least four guns are available. The range is estimated as before, and then each gun uses an elevation differing by 25 yards from the next; thus, taking 1,400 yards again as an example of the estimated distance, No. 1 will use 1,325; No. 2, 1,350; No. 3, 1,375, and so on. No. 6 using 1,450 yards. In this way the effective zone of No. 1 gun will just overlap the effective zone of No. 2, and so on right up to No. 6 gun. Thus, instead of one small zone of 50 yards of effective fire, we have six guns joining to make one big effective zone 175 yards deep.

We have now examined its principle and characteristics and find:

- 1. Fire effect—50 rifles.
- 2. Vulnerability—A "file" (two men).
- 3. Mobility—Cavalry.

We are now able to decide its place in battle, and can discuss its tactical use; before doing so, however, let us see what has been done in this matter by other armies.

GERMANY.

Germany was the first great power to adopt modern machine guns in her army, and before doing so she appointed a committee of the great general staff to experiment with the guns, and to report on the best method of employing them. The result of these experiments was that the gun was mounted on a sleigh. capable of being dragged by hand into almost any position, and which can be adjusted to fire I foot 6 inches, 2 feet 6 inches, and 3 feet 6 inches above the ground. This sleigh is mounted on a galloping gun-carriage with limber, by a single clamp acting on the runners, and the gun can be fired from this carriage as well as from the sleigh if so desired. Each gun has four horses, and the whole detachment are mounted or carried on the guns. The guns are organized in batteries of six, called "Sections," which are again subdivided into "Divisions" of two guns. To each "Section" (i. e., six guns) is allotted three ammunition wagons and one battery wagon with 87,000 rounds. In order to avoid

confusion I shall use the English words "battery" and "section" to express six and two guns, respectively. There are 16 of these independent batteries, which in war would be attached to cavalry divisions. In addition to these each regiment is to have one company, "The 13th." consisting of six machine guns, each drawn by two horses, with three ammunition wagons and one reserve wagon, carrying 72,000 rounds, viz.:

With the	guns		 		18,000
With the	wagons		 	<i>.</i>	42,000
in the res	erve wagon	1	 		12,000
• • • •					72 000

The staff of the machine gun company will consist of:

- I lieutenant commanding:
- 9 N. C. O.'s:
- 74 men;
- 28 horses of saddles, 18 draught, and 3 spare).

The officers and three warrant officers are mounted, the men are armed with automatic pistols, and the infantry pattern range-finder is used

Guns are never used singly. The general principles governing their use are:

- I A powerful reserve capable of rapidly bringing an intense and overwhelming infantry fire to bear on any desired spot at the critical moment of the fire fight, with a minimum of front and vulnerability.
- 2. With independent cavalry to enable them to retain their mobility and functions as cavalry by doing away with the necessity for dismounted action.

Batteries of machine guns are under the immediate command of the G. O. C. in the field, except when attached to the independent cavalry. Their regulations and directions for tactical handling are very thorough and complete, there being no less than 261 paragraphs in their Official Text Book.

"The fire of a machine gun is approximately equivalent to that of 80 infantry: the dispersion of fire is considerably less; therefore, while the effect is greater with an accurate sight, it is less if the range is not accurately known. The most suitable targets are those of some size and depth, e. g., infantry columns, cavalry in all formations, and artillery when limbered up. At moderate ranges extended firing lines may be fired upon, but little effect can be produced upon men lying down, even at the shortest ranges, though the moral effect may be considerable; short bursts are more effective than long continuous fire."

RUSSIA.

Russia had 80 machine guns at Liao-Yang (September, 1904). The mountings were found unsatisfactory, and new wheeled and pack transport was adopted. Six-gun batteries were attached to the cavalry divisions, but since the war each cavalry regiment has had two guns permanently allotted to it.

In December, 1906, four-gun companies were allotted to each infantry regiment, and by November, 1907, 115 companies of 896 guns had been formed. These companies consist of four guns each, but are to be raised to eight as soon as possible—practically the whole of the infantry have now got them. The company at war strength consists of 2 officers, 50 N. C. O.s and men, 35 horses with wheeled transport, and 36 with pack: the gun is sighted to 2,000 yards, weight 68 pounds, the total weight with tripod, etc., being 198 pounds; 5,850 rounds are carried per gun. The Souchier range-finder is used.

JAPAN.

Before the war Japan had no machine gun organization, but six-gun batteries were hastily formed and attached to the cavalry. The importance of these weapons at once appeared, and Hotch-kiss guns were manufactured at Tokio, and, with Maxims purchased in Germany and America, were formed into six-gun batteries and attached to each infantry division. At Mukden each regiment had three guns attached, and by the end of the war 320 machine guns were available.

The Hotchkiss pattern has now been adopted and is mounted on a tripod weighing 40 pounds, the weight of gun and tripod together being 110 pounds. The gun has an all-around traverse, it is carried on pack animals and organized in six-gun batteries, one battery being allotted to each regiment; the battery is commanded by a captain or lieutenant, with a warrant officer, 6 N. C. O.'s and 36 men, 30 horses (6 for guns and tripods, 24 for ammunition). One ammunition horse follows each gun, and 18 under a warrant officer form a battery ammunition column; each horse accompanying the guns carries 1,500 rounds in two boxes, and 2,160 in four boxes are carried by each horse with the column. Each cavalry brigade has an eight-gun battery divided into half batteries of four-guns; the staff consists of 3 officers and 87 rank and file, all mounted. There are 32 ammunition horses, each carrying 2,400 rounds.

Tactical.—The guns are organized as a battery, but may be broken up into sections or even single guns. The most useful range is 800 yards; it is thought wrong to employ slow fire. Well hidden skirmishing lines or machine guns are considered unsuitable targets. They are never used to replace artillery or to fire at artillery at long range. Concealed positions and use of flanks and rear advocated; alternative position, great intervals between guns and measured ranges essential to success. Their tactics are undergoing modification, and there are likely to be many changes.

The Japanese may claim to have invented the first machine gun, if the following extract from a lecture lately delivered by Lieutenant Imari is correct: "In 1704 a Japanese (one Moue Geki) invented a 20-barrel Mitrailleuse; but a certain Sofu Ichimu, thinking the invention of such a weapon was a proof of seditious intentions, invited the inventor to his house and killed him.

"After which," as the lecturer naively remarks, "there was no inducement for men to invent such weapons."

FRANCE.

France has both the Puteaux and the Hotchkiss. Each infantry and cavalry brigade has a two-gun section attached, but it is intended that every regiment shall ultimately have a two-gun section. The question of mounting has not yet been definitely settled, but experiments are being carried out with wheeled car-

^{*}Captain von Beckman in Jahrbucher fur die Deutsche Armee und Marine, June, 1908.

²Von Lobell's Annual Report, 1908.

riages, similar to our own, but drawn by four horses. They have also tripods for use with infantry, which can be adjusted from 1 foot 3 inches for lying to 2 feet 6 inches. The weight of the gun is 50 pounds, and of the tripod 70 pounds. The detachment of one lieutenant, one under-officer and 23 rank and file are armed with rifles; the whole detachment with cavalry are mounted; no shields are used. The detachments have a Souchier telemeter, which is carried on a man's back, and has an error of about 1 per cent. Ammunition is carried in boxes, three on each side and one on top of a pack saddle; 8,700 rounds are carried with the pack transport, 16,500 with the cavalry ammunition carts. During the last year 4,000 machine guns have been issued.

AUSTRIA

Austria experimented in 1906 with the Schwarzlose. Last year three army corps received three-gun sections, and two cavalry divisions have been provided. It is intended to give each infantry regiment two guns, and each cavalry regiment four guns; pack transport is used, but has not yet been permanently adopted.

ITALY.

Italy has adopted the Perino, which has a water-cook led barrel and fires 425 shots a minute. It is loaded by a magazine containing 10 metal clips, each holding 25 cartridges. The grin weighs 27 kilograms, and is mounted on a tripol which weighs 20 kilograms, and can be adjusted to fire from any height by moving the legs.

The commission appointed to test the gun recommended that 4 guns should be attached to each regiment of cavalry and infantry, with the following detachments:

For cavalry, 1 N. C. O. and 5 men, with 2 horses per gun. For infantry, 1 N. C. O. and 4 men, with 2 mules per gun. No details as to ammunition, method of carrying, or tactics have been settled yet.

U. S. A.

The U. S. A., after prolonged trials, have adopted Maxims with tripod mountings, carried on pack animals. Every cavalry and infantry regiment is to have a section of two guns.

First Lieutenant A. E. Phillips, of the Tenth Cavalry, gives some interesting notes on Machine Guns with Cavalry in the Journal of the U. S. A. Cavalry Association for July, 1909. A test between 41 "sharpshooters" and a machine gun, each firing 750 shots at 600, 800 and 1,000 yards, resulted in 57 hits for the rifles and 97 hits for the machine gun, the percentage in favor of the gun being 22. The men used pointed bullets and the machine gun the old bullets; the men fired slow-aimed fire and the machine gun rapid continuous.

The Tenth Cavalry machine gun detachment, at the divisional meeting for 1908, from the halt in line moved forward in section column at a gallop for 200 yards, and went into action and fired a blank shot in 31 seconds. Speaking of the Maxim, he says: "No one without hard study and patient experiment can effectively handle the weapon."

SWITZERLAND.

Switzerland has just adopted the Maxim of 1908 pattern. Each of the four army corps has one mounted machine gun company of eight guns divided into four sections of two guns each. These companies are also attached to cavalry. The guns are carried on pack horses. The whole detachment is mounted, and they use their guns in the place of horse artillery, which arm does not exist in their service.

DENMARK.

Denmark has the Rekyl gun (Madsen pattern), and each squadron has a section of three guns carried on pack horses, 300 rounds with each gun, and one led horse with each gun with spare ammunition.

GENERAL PRINCIPLES.

I now come to the general principles governing their tactical employment in modern war. Machine guns enable commanders to develop at fixed points the maximum volume of rifle fire from the smallest possible front. Machine guns can be employed over any country that is practicable for infantry, and when once they are unlimbered they must be able to surmount considerable ob-

^{&#}x27;Von Lodell's Annual Report, 1908.

MACHINE GUN TACTICS.

stacles. In action they offer no greater target than riflemen fighting under like conditions, and they can, in proportion to their fire value, support far greater losses than infantry. When movement over the battlefield is contemplated, and the machine guns are unlimbered, they must be pulled or carried forward by hand. They can utilize all cover which infantrymen are able to use; cover which is barely sufficient for a section of infantry can protect an entire machine gun detachment. An engagement with a line of skirmishers under good cover should be avoided. It demands a heavy expenditure of ammunition, which is not commensurate with the result obtained. During a lengthy rifle action the detachment with their guns should be withdrawn temporarily from their position, so as to save their effect for the decisive moment.

Machine guns should be employed in pairs and in mutual support.

The whole detachment must not only be trained to work the guns, but must be also trained scouts and range takers. Nos. 3 and 4 must carry range-finders. When moving alone on the march or advancing into a position, scouts working in pairs must be pushed out ahead and on the exposed flank or flanks, and they should be taught to use a system of signals to indicate the following:

- 1. All clear.
- 2. Enemy in sight.
- 3. A good target in sight.
- 4. Cavalry (prepare for).
- 5. Artillery within range.
- 6. A good gun position.

Six simple and unmistakable signals can be easily learned during peace training, and might prove invaluable on service, for opportunity is everything to the machine gunner, and is usually so fleeting as to demand instant action.

TAKING UP A POSITION.

On moving to occupy a position, the guns will usually be in line at from 10 to 100 yards interval, with the sectional com-

manders leading their sections, and the scouts well ahead; the flank guns must arrange for the protection of the flank by scouts in the same manner.

The Germans consider that ground scouts should never go into the position, as they are so liable to expose themselves, and thus "give the position away"; and, as I have already pointed out, "surprise" is the essence of success. They say that the commander of the battery or section, whichever the unit may be, should alone examine the position and select the place for his guns to come into action, and I am quite sure this is the right method as a general principle. But in broken and hilly country, where cover is abundant and the position extensive, a battery commander can do no more than indicate generally the positions to be occupied by the sections, and it will be then advisable for the section commanders to select the gun positions. If the cover is good, the range-finders may next occupy the gun positions and proceed to take ranges. In open country, where there is no good cover in the position, the scouts will only approach it sufficiently to insure that it is not occupied by the enemy, and will then halt and find a good position for the guns to unlimber. The commander, passing through the scouts, will then reconnoiter the position himself and select the place for moving into action.

There are two methods of taking up a position, which depend for their choice upon the proximity of the enemy and the time at which the fire is to be opened. The first is the "deliberate" method, in which the guns are brought up and the ranges taken before the target appears. Cover is essential to success, and the guns must be most carefully concealed, the whole object being to surprise the enemy when the moment arrives, and therefore concealment is the first object in view. For this purpose artificial cover may be made by erecting screens of boughs, etc., in front of the guns, which are thrown down the moment before opening fire.

The second method is used when the enemy is in the immediate vicinity, when the country is open, and the position is without cover, or when within the artillery range of the enemy. The guns unlimber and prepare for action immediately in rear of the gun positions, and as close to them as possible, but com-

pletely out of sight of the enemy. The commander alone goes into the position, and having selected approximately where each gun is to go, he stations them immediately in rear of their intended fire positions. He then creeps forward alone and watches for the opportune moment. When this arrives, a blast on his whistle brings the guns up with a rush—no concealment is attempted, but, fully exposed, each gun opens fire on the nearest target. If the moment has been rightly judged and the range properly estimated, 60 or 90 seconds is sufficient time to obtain the desired effect, and before the enemy's artillery can get the range, a second signal from the commander sends the guns out of action again as rapidly as they appeared.

This is one of the most successful methods of employing machine guns. There is no risk of being discovered before the target appears; there is no "giving away" the position by careless scouts, and there is no chance that a powerful pair of field glasses will discover the guns in position before they open fire and turn the tables by surprising them. On the other hand, it requires a very highly trained detachment and a vast amount of practice to insure its success.

ALTERNATIVE POSITIONS

Alternative positions are always necessary when the deliberate method is used, and must be carefully practice in peace, the principal points being:

- 1. That the second position is suitable for bringing effective fire to bear on the enemy.
- 2. That the gun is able to gain the position without exposure.

Scouts so often forget that they can work with ease where it is impossible to carry a gun, and unless the foregoing conditions are fulfilled the positions may be useless.

MUTUAL SUPPORT.

Guns must always work in pairs for mutual support—one gun firing while the other remains concealed. When it is necessary for the gun firing to move to a new position, the supporting gun will open fire and cover its retirement. It will always be

advisable, and generally necessary, for a gun to move to an alternative position directly it has fired, and not wait until compelled to go; every gun and rifle within range will be turned on a machine gun when discovered, but if it is cleverly concealed and quickly withdrawn it may draw fire to its late position while it moves out of sight to a new and possibly an enfilading one.

METHOD OF FIRING.

The peculiar noise made by the Maxim firing "continuous" attracts attention at once, but if teams are trained to use "deliberate fire," a rate of 70 to 120 rounds a minute may be easily attained, and if the double button is struck irregularly to imitate rifle fire, considerable effect may be obtained on a target which would not justify "continuous" fire, while the gun's presence is not disclosed at all.

The place for unlimbering must always be as close to the posture as possible without exposing the teams to fire or view, and the reserve ammunition must be brought up to this spot. Frecautions must always be taken to prevent the teams being surpresed from the flanks or rear if exposed.

WITH INFANTRY.

Machine guns with infantry should be used as a mobile reserve and held back until the decisive moment of the fire fight. They should be under the immediate orders of the G. O. C., and must therefore be organized in batteries under a responsible officer. They should never engage a line of skirmishers and must be used to bring an overwhelming fire to bear on the point selected for assault after the last reserve has been thrown in. Owing to their narrow beaten zone and great accuracy, they can be used to fire over the heads of attacking infantry within a hundred yards of the position.

An officer who commanded one of these batteries at the battle of Mukden, and who later was detailed to lecture to the attaches with the First Army (Japanese), said that on one occasion there he continued this fire until their advancing infantry had arrived within 30 meters of the enemy's position."

United States Official Report on Russo-Japanese War.

MACHINE GUN TACTICS.

COVERING FIRE.

They are also valuable in the first deployment as covering fire, owing to the rapid and concentrated fire they can deliver and the ease with which they can sweep ground, change the target, and open and cease fire. When used for this purpose they should be concealed as much as possible, and where the ground is suitable the fire should be indirect from the reverse slopes of a hill, so as not to attract artillery.

They may also be used to reinforce threatened points, when their mobility will enable them to arrive at a distant part of the battlefield with the rapidity of cavalry; they must rarely be used in the firing line where their fire, being dispersed, is less effective than an equal volume of rifle fire, and where they are at more the target of every rifle. Machine guins can never engage are large and should avoid engaging other machine guins.

USE IN RECENT CAMPAIGNS WITH INFANTRY IN THE ATTA &

The following examples from recent campaigns will illustrate their proper and improper use under these conditions

At Mukden, on the 1st of March, all the machine guns of a whole Japanese division were brought into action upon a Russian point d'appui. The Russian fire was silenced, but burst out again whenever the machine gun fire slackened. The Japanese used these pauses in the enemy's fire to press forward to dose range under cover of their own machine gun fire. On 2d of March three machine guns of the Tenth Japanese Infantry Regiment acted in the same way against the Russian field work? This method of employing machine guns demands the closest possible co-operation with the infantry from the commencement of the fight.

IMPROPER USE IN FIRING LINE.

At Paardeberg the machine guns of the infantry attacking across the open, upon the left bank, were used in the firing line, and when the advance was checked their guns could not be withdrawn and were left standing upon the open plain. I believe the detachment suffered terrible losses. At Rietfortein a detach-

ment of the Gloucester's Maxim were almost annihilated when following the regiment in the firing line. Again, at Mødder River, the Scots Guards' Maxim detachments were annihilated by Pom-Pom fire, while advancing with the firing line, and the gun was left on the plain all day.

AT SKIRMISHERS.

At Her-konstai, on 27th January, on the left flank of the Japanese army attacking Sha-shan, four Russian machine guns, at a range of only 1.000 yards, swept the widely extended skirm shing line of the attack. Captain Takenouchi, who was present o minianding the company, says: "It had no effect whatever to our advance, and the enemy eventually evacuated the position."

IN THE DEFENSE.

In the defense they should be concealed and held back in reserve until the moment of assault; then their great fire power may be utilized with decisive results.

They are particularly useful at night with the outposts, as they can be trained by day to sweep roads, defiles or bridges, and can thus be used in the dark to sweep the approaches with accurate fire

At Mukden, on 1st March, the left of a Japanese division, being within 300 yards of the enemy's position and about to assault, the Russians suddenly opened a very heavy machine gun fire from cleverly concealed positions, causing such loss that the Japanese attack was temporarily suspended.

On 20th August, 1904, the Japanese captured a Lunette near Shuishi, after severe fighting, and the Russians made a counter attack with three machine guns and drove the Japanese out again with a loss of over 300. The three machine guns retired from the Lunette before the attackers got home, and taking up a position behind an open gorge of the work, showered such a hail of bullets on the victorious Japanese that they were compelled to retire

On the attack on 203 Meter Hill, machine guns on Akasakayama flanked the position and enfiladed the attackers. Four hundred Japanese were sheltered together in a parallel, where they

¹⁸ee Appendix.

[&]quot;The Great Siege," by Norregaard
"Times" History of South African War

were completely screened from fire from any part of 203 Meter Hill. Suddenly machine guns, which had been concealed on Akasakayama, where they could fire directly into the parallel, opened fire. Within a few seconds it was turned into a veritable pandemonium, a seething mass of humanity, where men were fighting wildly to get away, climbing over piles of corpses which blocked the entrance, and trying to escape down the coverless hill-side. Within a few minutes practically the whole force was wiped out. It took the Japanese days to extricate and carry away the fearfully intermingled corpses.

BY NIGHT.

The following is only one of the many instances in this war where machine guns have been able to repel a sudden night attack, when no other arm could have succeeded.

During the storming of Erhlung, at midnight, on the 20th November, the Japanese made a desperate attempt to storm the upper battery, but the assailants were mown down by the machine guns as soon as they appeared on the parapet.

AGAINST ARTHLERY

The result of not concealing them in the defense, and the necessity for alternative positions, is well illustrated by the following examples, which will also show their impotence against artillery:

At Kensan, on 26th June, 1905, when the Japanese were attacking the position, the Russians brought up two machine guns against the 43rd Regiment and a mountain battery at 3 p m. The battery at once silenced the machine guns, and by 5:30 p m, the hill was in the hands of the Japanese.

During the attack on North Kikuan Fort, on 19th December, by the 38th Regiment, the Russian machine guns took an important part in the defense, their galling fire making fearful ravages among the attacking party. The Japanese, therefore, got a couple of mountain guns hauled up on to the parapet, and with these succeeded in silencing the Maxims.

WITH CAVALRY.

The machine gun is essentially a cavalry weapon, and although this fact is fully recognized by the great Powers, as I have shown. I am afraid it is hardly admitted as such in our own Service, and I do not think that I shall be contradicted if I assert that many of our cavalry officers look upon it as a rather unnecessary encumbrance

The cavalry role is unloubtedly to fight mounted, and the object of the enemy should be to compel them to dismount. Dismounted cavalry are, for the time being, infantry, and no longer mobile or dangerous in their own role. It would be sound tactics, therefore, for the side which is weak in this arm, to endeavor to half up the enemy's cavalry by rifle fire and then compel them to dismount and join issue in a protracted fire fight, just as the Japanese did with the Russians. The possession of machine guns by the in lepen lent cavalry will enable them to do this without sacrificing their own mobility in the process, and as we are terribly weak in cavalry, surely we of all nations can least afford to neglect anything that will enable us to keep even a single squadrin mounted

Herse artillery requires an escort, and thus more men are taken from the precious squadrons for a service for which machine guns are admirably suited; indeed, it is a recognized principle that machine guns can confidently await the attack of taxalry under any circumstances.

The side weakest in cavalry will also find himself opposed to superior numbers in the cavalry collision, and can scarcely expect much assistance from his artillery to equalize matters, as they will probably be dominated by the superior artillery of the enemy; but the divisional commander, who has the four batteries of machine guns of his four brigades, is in a very different position, and skillfully handled, he may be able to completely surprise the enemy from positions on the flanks, preventing the out-flanking movement which must inevitably follow superiority in numbers, while the fire effect of 24 guns on closed masses of cavalry preparing for the "Charge," should be so decisive and overwhelming as to render it possible for a much smaller force to snatch a victory in the face of great odds.

[&]quot;The Great Siege," by Norregaard.

The Germans say in their Official Text Book: "Herse Artillery and machine guns, by reason of their fire, enhance the offensive and defensive powers of cavalry. In defense and against unexpected opening of fire they form the most effective portion of the force. In the advance of cavalry against cavalry, the machine gun detachments must take up their positions as soon as possible, so as to support the first deployment, and then the attack of the cavalry."

"A position will be selected most advantage us'v well to a flank of the advancing cavalry, since from there are minuted of fire is rendered possible up to the moment of the 'Charge'

In reconnaissance they are hardly less valuable and are used to break down resistance at small posts, defiles, etc. which are occupied, or tice tersa, to stiffen the opposition made by the cavalry at such points, and do away with the necessity of isomounted action as far as possible.

In pursuit their utility is obvious, and while they point the enemy on the flanks, and press him into making a stand, the cavalry are free to cut his line of retreat.

In covering the retirement of cavalry in face of a superior force or after a repulse, they are invaluable, as they can completely stop pursuing cavalry and hold onto a position until the last moment, and then retire with the rapidity of cavalry itself, only to stand again at the next opportunity.

Owing to the weakness in numbers of the Japanese cavalry, and the preference shown by the Russian cavalry for fighting on foot, the examples of the use of machine guns as an ail to mounted action in the recent campaign are very few, but the lesson of the war is summed up by Colonel Zaleski in the following words: "The adoption of machine guns—even their addition to squadrons, cannot be carried out too rapidly, and this weapon would now appear to be indispensable to cavalry."

On the 8th of June, 1905, at Nauching, General Samsonov had two cavalry regiments and one machine gun battery. During dismounted action these machine guns were placed in the firing line, two in the center about 100 yards apart, and one on each flank, some 400 yards away. The firing line fell back, leav-

ing the machine guns to hold the line alone. The Japs advanced to within 300 yards, and heavy artillery fire was directed against the machine guns, but as the latter were well posted, and their positions could not be accurately ascertained, they continued to hold their ground for nearly three hours, when the Japanese abandoned the attack and fell back.

The 3rd Cavalry Regiment, covering the right flank of the Japanese army during the battle of Wa-fang-kow was seriously pressed by three Russian battalions and one battery. General Akizma's cavalry brigade came up, and it was chiefly owing to the excellent work of the machine guns that the Russian force was brought to a standstill.

A Russian infantry battalion retreating across the Taitsi river was almost annihilated, being overtaken by a Japanese cavalry regiment, accompanied by machine guns, which swept the bridge from end to end, and for the first time in this war machine guns were used with decisive effect.

The golden rule for machine gun tactics is: Conceal your guns, utilize cover, and operate by surprise, for surprise is the essence of tactical success.

In conclusion, let us see how our own organization and training can be improved to meet modern requirements. For what purpose do we require machine guns? I think the answer is two-fold:

- 1 For savage warfare and small expeditions.
- 2 For a great war against a civilized enemy.

The question is, therefore, what organization will suit these two different conditions best? By our present organization two guns are attached to each regiment of cavalry and battalion of infantry, and I trust I shall be able to show the necessity for organizing machine guns in batteries for the purpose of training, and to enable them to be used as a great reserve by the G. O. C. The late Colonel Henderson said of the Volunteers in Mexico: "The ideal of the battle is a combined effort directed by a well-trained leader; as individuals they fought well, as organized bodies capable of maneuvering under fire and of com-

Internationale Recue Armies et Flotte

¹Captam von Beckman.

³Standard correspondent.

bined effort they proved to be comparatively worthless." We may say the same of our machine guns. We can scarcely expect to obtain a high standard of tactical training or organized bodies capable of maneuvering under fire and combined effort. from the regimental subaltern and his two guns left absolutely to his own resources. It is therefore absolutely essential that the machine gun section commander should be a subaltern of not less than three years' service, especially selected for his keeness and efficiency and self-reliance, who has passed the examination "C" for promotion, and who holds the special machine gun certificate from a School of Musketry. A "destroyer" in the Rayal Navy is commanded by a very junior officer, but he is most carefully selected for similar qualities to those I have just mentioned, and is in addition required to possess the necessary professional qualifications; consequently it is a command much sought after, and competition enables the authorities to appoint the pick of the Service, and thus obtain efficiency where efficiency is the essence of successful employment in war. The best, and nothing but the best, is essential to the successful employment of machine guns in war, and the necessity for obtaining the very best officers as section commanders is so great that I am inclined to doubt the utility of having machine guns at all if they are not commanded and handled by those who are in every way expert in their use.

It is further necessary that machine guns should be organized in batteries in peace time and trained under a senior officer for combined effort in war, and I think it will be admitted that such organization and training would vastly increase the efficiency of machine guns, while it would in no way prevent the two-gun section from being employed as at present as a separate unit when advisable. My suggestion is this: When a regiment or battalion is brigaded with others, either for administration or training, the six or eight guns should be formed into a battery under the command of a selected field officer, who would be solely responsible for their peace training and efficiency, and who would command them on maneuvers and on service; there would be little or no innovation in this, as signallers are now trained and commanded on similar lines under a divisional signalling officer.

CONCLUSION.

Given a suitable mounting, capable of great mobility, of a pattern that can be used lying behind cover, and organized and trained as above, the G. O. C. will have a splendid reserve in his hands for use at the critical moment of a fight, as mobile as cavalry, in fire action more powerful than infantry, having the enormous advantage of occupying in action the smallest possible front, yet capable of hailing a storm of some 10,000 bullets a minute with a maximum of accuracy and concentration. With our small army based on the system of voluntary service, we of all nations can least afford to neglect an arm which gives such enormous fire power in proportion to numbers.

APPENDIX.

EXPERIMENT IN INDIRECT FIRE.

The following is an extract from an article by First-Lieutenant A. E. Phillips, of the 10th Cavalry, from the Journal of the United States Cavalry Association for July, 1909:

"To determine how many, if any, of the bullets from the machine gun would strike troops in front of an assumed 'hill,' over which the gun was to fire, canvas frames were used to represent such objects, the targets being concealed from view.

"The target consisted of a strip of target cloth 6 feet high and 15 yards wide, along the bottom edge of which is pasted a row of 15 kneeling figures with an interval of a yard from center to center. Across the target and parallel to its top edge is drawn a narrow black line tangent to the tops of the heads of the figures. Value of hits on any figure = 5; value of hits on the cloth below the line = 3; value of hits on the cloth above the line = 1. Canvas frame, 8 feet high, placed 200 yards in front of the gun. Rapid fire:

FIRST EXPERIMENT.

RANGE 800 YARDS.

No. of Shots.	N	o. of Hi	ts.	Total.	Remarks
	Figs.	5's.	3's.		
3 0	5	10	12	22	Line of sight was if it, below obstruc-
30	8	10	9.	19	tion. All shotsover.
	_i				

SECOND EXPERIMENT.

RANGE 1,000 YARLS.

No. of above	No. of Hits.		L	Total per cent. of	Remarks.
No. of shots.	Figs.	5'8.	3'5	* 6	
30	9	T t	4	60	Line of sight was
30	13	17	7	80	tion. All shots over.

THIRD EXPERIMENT.

RANGE 1,200 YARDS.

No. of Shots.	No. of Hits.			Total	Remarks
	Figs.	53.	3'\$.	figs hit.	
30	2	2	5	13	Liñe of sight was
30	4	5	13	27	7 ft, below top of obstruction. All
30	8	tı	9	53	sbots over.

"It will be noticed that no 'I's' were made. Assuming the height above the ground of the average mounted soldier as 8 feet, had a troop of cavalry mounted been 200 yards in front of the machine guns in the third experiment, the line of sight would have struck about the backs of their horses, and all bullets would have gone over the riders with at least 4 feet to spare, as proved by the experiment. . . . The troop mounted could have moved forward to within 100 yards of the target, and would not have been struck by the bullets."

COMMENTS.

Colonel H. de B. de Lisle, C. B., D. S. O., 1st (Royal) Dragoons: There are two points in this very interesting lecture which I think are of great importance. The first is with regard to the question of ranging. I understood the lecturer to say that you can range with a machine gun in a similar way that you can with a fire hose. You can do that up to 1,000 yards; but my experience in Africa was that over 1,000 yards you could not range because you could not see where your shots went. I remember on one particular occasion, on a light loamy soil which had lately been plowed, after the range had reached between 1.000 and al.200 vards, even with the most powerful field glasses we could not tell where the shots were going. That I think is the great disadvantage of the present machine gun. After the South African war I advocated that the battery should be composed of a pom-pom combined with machine guns, because the pem-pom we found was the very best means of ranging. You can find out the range with a pom-pom in a shorter time than with any range-finder vet invented. Artillery officers always tell me that climatic conditions would make it very difficult for the machine gun and the pom-pom to be so set that a range of one would equal the range of the other. On that I am not prepared to offer an opinion. What I wish to emphasize is, that over 1.200 yards you cannot trust to your view to find the range because you cannot see where the shots are going. There is one more point in connection with the lecture that I want to bring out. The lecturer said that the mobility of the machine gun mounted is equivalent to cavalry. That is not quite right. In the past year I have tried many experiments with machine guns, and I have found on maneuvered that when a machine gun is put on a pack saddle suitable for a horse it gets out of order in a very short space of time owing to the rough action of the horse, but when it is put on a mule it is not. We find that mules can accompany a brigade on maneuvers provided the pace is not more than five miles an hour. I consider that the greatest mobilits that you can get out of machine guns mounted on mules is five miles an hour, and the distance is limited to about ten miles at the outside without a halt. Mules cannot move over broken country at a rate greater than five miles an hour, and that I think is the fastest pace at which you can expect machine guns to accompany the cavalry.

Major E. Sherman, 10th (Prince of Wales Own Royal) Hussars: I should like to say a few words with regard to the use of mules for the transport of machine guns. I gather that the lecturer was rather severe in his criticism of mules so far as their mobility is concerned. Those who have served in India and have seen the maneuvers with mountain artillery realize that mobility is dependent upon topographical conditions, and that the mule in this respect is a most admirable animal. At five to six miles an hour the mule can keep up with the cavalry, and that pace will not often be exceeded in a mountain campaign. Therefore I consider the mule is a most suitable animal for the transport of machine guns in some countries in which we have to fight. As regards what the lecturer said about a Maxim gun being a small target, it is true it is a small target in comparison with the volume of fire it emits, but at the same time it requires two or three men to manipulate the gun, and that is a large target compared with the space occupied. From what I have noticed on maneuvers machine gun detachments have not taken up the best positions. The peculiar report that the Maxim gun makes in action draws the attention of the hostile forces to it, as the lecturer remarked, and consequently a volume of fire will be directed upon it. Therefore we may assume that the casualties which will occur in the machine gun detachment will be great. I think one of the most recessary things is that there should be a reserve of trained men to replace the high percentage of casualties which will undoubtedly occur. What the figures are I do not know; perhaps the lecturer can tell us what the percentage of loss amongst the machine gun detachment has been or is likely to be, because it is a point that requires consideration.

Captain C. A. L. Yate, Yorkshire Light Infantry. As I was present throughout the siege of Port Arthur, where the employment of machine guns was a conspicuous feature, and as I have also recently returned from the maneuvers of a French Army Corps, where I have had opportunities of seeing the employment of machine guns, I should like to say a few words about them. The lecturer spoke about the organization of machine guns in

sections under subalterns, their concentration in larger units for the purpose of instruction, and suggested that "when a regiment or battalion is brigaded with others, either for administration or training, the six or eight guns should be formed into a battery under the command of a selected field officer, who would be solely responsible for their peace training and efficiency, and who would command them on maneuvers and on service." It may interest you to hear that the French, who adhere most rigidly to the section organization under subalterns, are in the habit of combining the three battalion sections of a regiment for instruction in harracks under a captain, but they make a point of not doing so in the field. I spoke to several officers in charge of machine guns, and they all said that even in cases where a good many machine guns were placed for tactical purposes at the disposal of a higher commander it was his habit to employ them in sections, widely dispersed, leaving the subalterns complete contril as far as fire tactics are concerned, the reason being that they are afraid that a larger number of guns than two will disclise their positions if concentrate it. Therefore, by the words mmand in the field. I should certainly make it clear that this simply implied administration and disciplinary purposes, and to the actual conduct in battle. Then the lecturer also mento ned the undestrability of the officers in charge of machine gun sections being left to themselves, which means, I presume, withut proper instructions. On the other hand, I have noticed this year a tendency to tie-them down too much. I have seen madime gun officers reprimanded for getting too far away and working to much on their own. I venture to think that, in additon to concealment and suddenness of action, enfilade or oblique fire is of great importance with machine guns, and if you are to get that you must allow the machine gun commanders to get far away from their units, to enable them to take up positions where they can obtain the enfilade or oblique shot. I saw an instance at the French maneuvers of a subaltern who left his regiment, and who was employed more than one and a half miles away. He was given an escort of a company of his own regiment, which he did not stick to, but left it behind in the village, whilst he came into action some distance away, very near a position oc-

cupied by a different regiment. If we want to get the maximum efficiency from machine guns I think we must give the machine gun officers instructions at the beginning of the day in the same manner as to other officers commanding detached forces, and after that leave them a perfectly free hand. This presupposes considerable knowledge and skill on their part, but with proper organization and training we shall be able to insure that they have it. During the Russo-Japanese war I noticed in many instances that the greatest effect was always produced by enfilade fire. There is one more position where machine guns are of the greatest utility. The lecturer spoke of their use in covering retirement -how they can remain to the end, then limber up suddenly and disappear. I remember reading of an instance at the Battle of Mukden, where the 10th Japanese Division was left in a disordered condition after capturing a position, and the only means by which the Japanese were enabled to hang on to the points they had won was that the machine guns immediately came into action. This seems to me to be an instance in which machine guns can be particularly useful. The firing line, after a long, exhaustive attack, will be scattered and demoralized, while naturally their fire will be erratic, but a machine gun detachment coming up at the moment and delivering a steady fire will have a atremendous effect in enabling the troops who have won the position to hold it, and to complete the discomforture of the men who have been driven out of it.

Colonel Applin: I have had some experience with regard to transport, especially with the mule, and of all the damnable animals I have ever had to deal with I beg to say the mule is the very worst. I have had some experience of it in the Crimea. China and other places. If you put a Maxim gun on that animal and then fire a gun he will probably go straight towards the enemy—you will never see him again. We had some experience of that in South Africa; mules on several occasions suddenly departed from our side and left the guns absolutely without ammunition. For heaven's sake do not use a mule or donkey or anything of that kind—we have quite enough of them already

There is no animal which is more obstinate, and therefore my advice is that, whatever you do on active service, do not employ the mule.

Major Mansell, late R. A.: Attending by chance Captain Applin's interesting lecture on the 6th of October, I am only now in a position to submit a few remarks upon the points raised by him, and the criticisms subsequently made. I fully agree with what was said by the lecturer that England, with this class of weapon, has in the past shown the way to other nations by adopting, in its Service, the Maxim gun, but it is very unfortunate we have not retained the lead thus given, and allowed other nations to outstrip us in acquiring newer and lighter Maxim guns with improvements in mountings, sights, etc. Most of the speakers based their remarks upon experience gained with the present heavier Service weapon, which is an older type, and which on a Mk IV tripod mounting weighs altogether 108 lbs.; and the greater part of these criticisms would not have had to be made with the newer and lighter type, a model of which was shown on the platform, and consequently it will be to the point to give herewith some of the recent improvements. This latest Vickers gun weighs less than 26 lbs., and is fired from a tripod, adjustable for firing by one man only, either lying down, sitting, or in any intermediate position, and it represents consequently a much reduced target. The tripod only weighs 34 lbs., and thus the combined gun and mounting now weigh together what the older gun weighed alone without mounting. The newer model is also provided with a condensing apparatus for doing away with any visible steam, and quite recently improved sights with a light gun have considerably added to its rapidity in laying and obtaining the range. The lecturer said that the leader of the machine gun detachment should be very well acquainted with his weapon; the makers also affirm that from their experience and from the reports received from the many countries they supply, it is a great advantage for every man in a detachment to be as efficient in the working of the gun as the sergeant himself. One instance of well instructed detachments comes to us from the Battle of Mukden, where 16 Maxim guns, used eight at a time, repelled seven fierce Japanese attacks; each firing lasted only a few minutes,

and during that time the eight guns not actually firing were being overhauled, cleaned, oiled, etc., by the detachments; the 16 guns fired altogether nearly 200,000 rounds, and at the end of the day every gun was in an excellent condition. In the list given by the lecturer of the different machine guns adopted by various countries, some corrections would appear to be necessary. The following countries should be added to the list that use the Maxim gun, viz: China, Japan, Bulgaria, Servia, Argentina, Chili. The lecturer leaves out the Rexer gun, as a weapon fired from the shoulder, but gives the Madsen gun-these two guns, however, are practically alike. In connection with the remark made by Colonel De Lisle complaining that after a few nines transport on a horse during maneuvers one of the machine guns was on that account found in an unserviceable condition. I cann t help thinking that this requires further investigation, in view of the long and severe traveling trials successfully carried out with this type of gun in all countries, and over every nature of ground. and with every sort of transport. In one instance last summer a mule, loaded with a Maxim gun, rolled down 250 yards of a very steep side of a hill in the Alps; only one of the eights was slightly bent, otherwise the gun was quite serviceable, and it was able to fire immediately a series of rounds. Surely such a gurif correctly assembled and packed, would not have been not our of order by a few miles' galloping on a horse. At maneuvers to teach the correct technical use of machine guns, and to practice detachments with the firing and mechanisms of their weaps of and the supply of ammunition, it is quite obvious that the organic attachment the Germans use is more practical than the bearing of a drum as used in the Indian maneuvers; these attachments require a special blank ammunition, the powder of which will completely burn in the gun and work it, which is not the case with our present Service blank ammunition. The provision of such ammunition is not a difficult matter, and the advantage gained would be very great, and would enable our guns to fire at maneuvers like those seen by Lieutenant Money in Germany.

Captain Applin, in reply, said: Colonel De Lisle emphasized the difficulty of ranging. I said in my lecture, "Provided the range and the ground are suitable." I meant if the range is short

and the ground dry and dusty, otherwise it is quite impossible. As to what has been said about the mule, I remember that some years ago in South Africa, when I was bringing in a convoy for Colonel De Lisle, I was told he had arrived on the camping ground. I presently came out to see him, and said to one of the men, "Where is Colonel De Lisle's column?" He replied, "You see that dust over there? That is Colonel De Lisle's column." If C lenel De Lisle had mules then he at any rate was making them more along. I know that Colonel De Lisle has a way of making animals move faster than anybody else I have ever seen; so that I take with a grain of salt what has been said about the mule being a mubile animal. It is mobile when employed in the country to which it belongs, such as South Africa, especially when it is properly handled by men who thoroughly understand the animal. But I am sure most of those who are present today · will agree with me that in the case of the ordinary British soldier or experience on maneuvers is that the mule often pulls one way and the man the other. With reference to what has been said about horses, you will find a note in the appendix giving the experience which has been obtained in the United States cavalry. The United States cavalry mount their guns on horses, and find them very mobile, both during training and on active service. The guns are carried at full gallop on the horses, but nothing is sail about breaking down. With regard to what Major Shearman said about the size of the target offered by the machine gun, I think you must all admit that it does form a very small target when it is worked by two men only, one man firing and the other man assisting. Two men cannot be called a large target. As to the result of finding that target. I have already said that if the machine gun is discovered it is very quickly wiped out. We need not go into the question of the percentage of losses. If accurate fire is concentrated on it, the machine gun is lost, and that is why I advocate alternative positions, and moving it as soon as it 15 discovered. Captain Yate made some very interesting remarks, but I should like to mention that I never proposed that the guns should be employed in batteries. My idea was to brigade them in batteries in order to train them, and to enable them to be used as a mobile reserve. If two sections from each battalion come up to the general officer and say: "Here we are, and there are twenty-eight guns," and he has to give orders to each subaltern, it would be very awkard. On the other hand, if he has one machine gun commander, he simply gives the necessary orders to him, and two guns are sent here, two to some other position, and so on.

The Chairman (Col. W. N. Congreve, V. C., M. V. O.) I think there can be no doubt that the subject of this lecture is one of great interest, and that it has produced a useful discussion. Captain Applin has gone very thoroughly into nearly all the points which can be mised with regard to machine guns. There are a few small matters of detail on which possibly I disagree with him, but they are hardly subjects for discussion here, and are really not germane to what he has said. I am afraid there is no doubt that, although we have had the gun longer than any other people in the world-we have had it now for twenty yearswe have fallen behind foreign nations in every respect, both in thought, in mechanical devices, and in recognizing the absolute necessity for making the workers specialists. The foreigners have given patient thought to the tactics of the gun, and have settled a definite policy with regard to it. We have not; ours are still in the melting-pot. They have adopted a very light gun. under 20 lbs. in weight, I believe, telescopic sights, and the French have got some sort of attachment, which is a secret thing. by which they can control the rate of fire, a question of very great importance. We have none of those things. Finally they have recognized that it takes three years to make a machine gunner. We, on the contrary, owing to drafts and other exigencies, take the men for about nine months, and are lucky if we can get them for as long as that. Again, I am afraid our gun still goes to bed. It goes out and fires its course, and a certain amount of training is given; then it is put into oil and goes back to bed again. As long as that continues I am sure we cannot get the larger training which is absolutely necessary if we are to produce any good. No doubt this is due very largely to the discredit into which the Maxim gun fell in South Africa,

but that was not the fault of the guns, they were put on high carriages and were worked in the firing line-an absolutely impossible position, where the gun could not live-and the result was exactly what one might have expected, they were perfectly useless and had to be abandoned; had we known as much about it as we do now different tactics would have prevailed. Then there also comes in the question of expense, which, however, is not a question for us to discuss here, as it is a matter of politics I presume; but besides these there is the apathy due to want of appreciation of senior officers, which is very largely to blame for the deplorable results we see at maneuvers and field firing. To go through a few of the questions dealt with in the lecture, deliberate fire is a thing with which Hythe does not agree. I am afraid I am rather new to it, and I have not seen all the experiments that have been carried out, but I understand that deliberate fire is not consadered to be of much value, the reason being, we maintain, that you want fire to be a surprise, which, we think, deliberate fire would not be, and that you want bursts of fire for observation. Captam Applin says you can get that. I hope to try his system firectly I go back, and I dare say I shall be converted. He uses it as a range finder to a certain extent; but it is absolutely necessary to have a range finder with the guns, with highly trained people to work it. We now have a one-man range finder, the Marindin, from which we hope much, and if we can get that I have no doubt it will be of great assistance. Then comes the question of pack to limber, each of which has its advantages and disadvantages. There is no doubt about it that the foreigners, who do not make changes or innovations without very good reason, are generally adopting pack transport for machine guns. They recognize that it is lower and that you cannot carry so much, but at the same time they think mobility is increased, and as mobility outweighs all other considerations they are adopting .:. One question that was brought up by one of the officers who joined in the discussion was the mobility of the mule. I do not know how the mule gets over the country. He may be all very weil on open ground, but I think he would rather stick at fences. Therefore for myself I think I should put my guns on horses if I wanted to get the most from them. The question of the brigad-

ing of guns is a very large one, which has been more or less approved of for our army in the amendments which were issued in August. But at the same time they cannot recognize the principle of a permanent special brigade machine gun officer. I think myself until we do get that brigade gun officer it will be very difficult to get any improvement. It again comes back to the old question of expense. Captain Yate has spoken of hear the French disperse their guns, and no doubt it is very useful passsibly it may be the best way of using them at times, but it is as well to have all you can up your sleeve, and it has been proved from the war in Manchuria that there are occasions where the fire of massed guns, or guns working under the central of one officer, have the greatest possible effect. Therefore I work we want to practice it, because you cannot improvise it which was breaks out; it requires very careful previous training. The arrangement of signals, the communication between the sam us units, and the working of scouts cannot be done in a moment, and, therefore, must be recognized and practiced in time if peace At present it is not done universally, for it is left to the discretion of Brigadiers. Then comes the question of overhead fire I have been told that in some of the actions in South Africa our own men were very much troubled by hearing the crack of the bullets over their heads, and in some cases officers sent back and asked that the overhead fire might cease. It seems to me in we ever, it must be a question of either hearing your own bullets or feeling the enemy's bullets, and the men will therefore come to the conclusion that they would prefer to hear their own. Overhead firing was proved to be of great value in Manchuria and there is no reason why we should not do it, for our nerves sught to be as good as the Japanese or Russians. In the precise of the lecture it is stated that the margin of safety is 100 yards. That we maintain is small. We do not say it is not possible to fire over your own men's heads when they are only 100 yards ahead of you, or 100 yards from the target, but you have to take into account the barrels and the mountings will be worn, that the firers will be excited, and that, therefore, the same accuracy of fire may not be obtained as on the range. Firing on absolutely level ground at Hythe we reckon we want a 300 yards margin of safety before

we can be quite sure of using overhead fire. There is one thing that Captain Applin has not referred to. He has spoken a good feal about the use of machine guns, but he has not told us much about how we are to meet them, that is to say how we are to attack them, to knock them out, or neutralize them. That, for the majority of us, is a greater consideration than the actual nandling of the guns themselves. I think if a company officer three threalize that a machine gun at a thousand yards can proface an absolutely annihilating effect on a suitable target he will appreciate how greatly his responsibility is increased. At present I am perfectly convenced we do not realize that. The way the guns are handled in maneuvers, the way they are attacked, leads re to believe that he ple take very little account of them. Of arse that is greatly five to the want of a muzzle attachment tie Mark frong Lieut Money referre I to the drum beating. It and an Jewinal Mea. The Japanese use it on their maneuvers; they have a tir full of some, which make a fearful rattle when they are worked round, and they say it does very well. You must try and get something to make the enemy and umpires understand that machine guns are at work. At present half the mistakes in the training at maneuvers are due to no one knowing where the machine gun is, and centainly not caring. It is very discentening to a man who has taken the trouble to get to the test place if no one takes any notice of him or gives him credit first. We are rather inclined to think that, owing to machine guns being so very vulnerable, if they are once discovered, to scattered infantry, and the very small result they will have against scattered infantry, that it is possible machine guns in the future may have more use in the attack than the defense, but without doubt they will make an organized disorder more than ever essential in an attack. Captain Applin, as a cavalry officer, says he wants to keep his men on their horses, and he hopes he is going to get machine guns to take the place of dismounted fire. The Germans thought the same thing, but they found it did not act. They have had to recognize that machine gun fire is not sufficient, and that you must have dismounted fire-in theory, anyway, they do, but as a matter of fact I believe they do not practice it much. If we, on the other hand, do recognize the

occasions when dismounted fire is of use, and train our fire unit commanders and men to a sufficiently high pitch, a pitch much higher than is wanted for infantry, we shall have great advantage over the people who do not practice it. Dr. Miller Maguire's remarks with regard to work in an enclosed country are very useful, but you must bear in mind that it is an extremely difficult thing to test. We can go and fire machine guns on Salisbury Plain, where we have a good large area, but there is no such thing as enclosed country where we can try it. We have, too, no muzzle attachment which will enable us to fire blank, and therefore we are very much at sea as regards the employment of machine guns in enclosed country. Whatever opinion there is on the subject must be theory. There is one thing that Colonel De Lisle mentioned about the pom-pom to which I should like to refer. The pom-pom no doubt is an excellent range finder, but the trouble is that it is so obvious. I think myself that machine guns are not going to be of very great value to us, except in exceptional cases, beyond an effective range of 1.400 yards. Within 1,400 yards the pom-pom ought to be spotted very easily by the enemy, and in that case your machine gun is knocked out before it can do any good at all. I dare say that is why the pompom fell into such discredit; it was served out to the cavalry, one of its chief merits being that it was supposed that it would be a good range finder; and the reason it has fallen out is because it was so obvious and so vulnerable. Gentlemen, I do not think I have anything more to say, but I can assure Captain Applin that we are very much obliged to him for his exceedingly interesting lecture, and I think we can all go away quite convinced in our minds of the truth of the American's saving which he quoted, that "the effectual handling of machine guns demands hard study and patient experiment."

CAVALRY ATTACK AGAINST ARTILLERY — DIS-CUSSED WITH REFERENCE TO TACTICS AND MILITARY HISTORY.*

BY IMMANUEL

T the present day opinions differ widely as to whether and Inder what conditions a cavalry attack can be successfully carried out against amillery. It is said that the extraordinary rapidity of fire of the modern gun could defeat even the most audactous and sudden cavalry attack and that the most determined attack would have to come to a halt in front of the hail of projectiles which the artillery could rain on the attackers. On the other hand, some points of view have been cited according to which modern tactical conditions favor a cavalry attack against artillery better than heretofore. In this sense, emphasis is laid on the fact that artillery firing from under cover is more open to surprise than a line of artillery which can see the terrain in its front from an open or but partly covered position. It is also pointed out that the vehicles in rear of the artillery, that is the organs of ammunition replenishment, are an easier prey to cavalry than ever before. The amount of ammunition used at the present day is materially greater than in olden times, as each and every artillery battalion in battle will utilize its increased fire rapidity in decisive battle situations by an increased consumption of ammunition. But to attain this object certain, which to-day forms the main point of the tactical utilization of artillery, it is necessary for the batteries to have a large reserve supply of ammunition

In this connection it must be remembered that the depth effect of the present day shrapnel fire—approximately 300 meters and more—makes it necessary to place the limbers and caissons

[&]quot;Translated from Kavalleristische Monatshefte, February, 1910, by M. S. E. Harry Bell, Army Service Schools.

of the pieces farther to the rear and flank of the guns in action, unless the terrain should be exceptionally favorable and allow them to be brought closer to the guns. Our artillery drill regulations require that the distance should as a rule be 500 meters and also require that the light ammunition column of the artillery battalion must in no case be more than 600 meters distant Still, these distances are so great that it is not an easy matter to protect the caissons and columns from operations of the lossile cavalry directed against their flanks.

Of course it should also be remembered that to-day or artillery is armed with an excellent carbine—our foot artillery with an excellent rifle—and thus is enabled to defeat hostile attacks against the ammunition wagons, especially if such attacks are made with insufficient forces. It is even said that the Freezib artillery is supplied with machine guns for that purpose at least, provisions have been made in the budget for the fiscal year bill for one platoon (section) of machine guns for each regiment, these machine guns to be transported on pack animals and to be for the specific purpose of defeating near attacks on the flanks of artillery in action or on the vehicles of the ammunity in surply

Up to the war of 1866 it was a general rule to attach a rowering group to artillery, mostly infantry, but occasionally also cavalry. Nachod, Koniggratz, Tobitschau have shown that a weak covering group is of no use against suddenly appearing cavalry. In the campaign of 1870 the German artillers was imbued with the conviction that its task was no longer dependent on co-operation with the other arms, but that it was its main duty to support these arms to its fullest ability. As a general rule the artillery in that campaign cut loose from the infantry and but very seldom had any infantry protection. At Worth it a lyanced beyond the infantry skirmish line; at Verneville (18 August) it stood close to the enemy with its flank unprotected; at Colmbey, at St. Hubert, at Beaune la Roland, at Loigny-Poupry it took position in the most advanced line. But in all cases it was but the French infantry which threatened the artillery; the French cavalry did not know that it was possible to ride through the firing batteries and to silence them. There are only two cases knownon a larger scale—in which French cavalry attacked German artillery; both without success. At Elsasshausen (Worth) the attack of the cuirassier division of Bonnemain went to pieces under the hail of shot and shell of the batteries of the Vth and NIth Army Corps; at Sedan the attack of the cavalry under Galliffet, which charged through a few batteries of the Field Artillery Regiment No 11, was the last desperate effort to break through, and that not at all with the firm determination to silence the German batteries. We will revert to the attacks of German cavalry against French artillery at another place.

The latest wars show us no examples of cavalry attacking artillery In the Balkan War of 1877-8 the Russian cavalry did not seek and consequently did not find an opportunity to attack the Turkish artillery. The capture of Suleiman's reserve artillers on January 19, 1878, at Karadzalar was not an attack in the open, but a well executed surprise of an almost unprotected Turkish artillery by mac. Parly in the morning of the 19th the 30th Cossack regiment surprised the Turkish artillery camp at Karadralar 40 completely that the Cossacks appeared in the midst of the his uac before the Turks could offer any resistance. Only a few meffectual shells were fire it and the completely surprised super sting fetachment, only five very weak battalions, fled into the rearby my untains without offering any resistance. Forty gins and 12) animunition wagons fell into the hands of the Cossacks. In the further pursuit the Russian cavalry scattered a few companies and captured the rest of the Turkish guns, twelve in number, which had escaped at the first moment of alarm. Thus it will be seen that that glorious deed of the Cossacks of riding d wn artillers was only a surprise and had nothing in common with cavalry silencing artillery in battle. "The capture of 52 guns by 600 Cossacks," says a Russian report, "was an unusual piece of luck, but nothing more. In order to take from the fleeing enemy such a prize, especially when that prize consists of his last guns, it pays to kill a few horses and to even lame a few squadrons, which in this case, however, was not at all necessary." Yet this case shows that cavalry still has opportunities against artillery

In the Boer war no cavalry attack against artillery took place, and the Russo-Japanese war also gives us no example thereof, no matter how instructive it may be in other directions. It is true that six sections of the 8th Japanese cavalry regiment

under Lieutenant Colonel Nagamura attacked two Russian guns which were guarded by one and a half dismounted Cossacks, at Shiutitian (north of Mukden). In that engagement, when the Russians perceived the Japanese cavalry charging in full gallop against the flank, they limbered up the guns, and the cavalry mounted. One gun was taken, and nearly half of the Cossacks were killed or captured. The Japanese lost 47 men and 18 horses.

It has been attempted to show from these minor happenings that future wars will offer no opportunity for cavalry to attack quick-firing artillery, except possibly only as a forlorn hope. The French especially are of the opinion that an attack on artillery only half disabled is as good as hopeless. This arises from the opinion that modern quick-firing guns can fire from fifteen to twenty rounds per minute if necessary and can rain a hail of pieces of shell and shrapnel bullets on the terrain 1200 meters in front of the guns.

The German cavalry drill regulations of 1909 speak in paragraphs 444 to 450 of the attack against artillery. We will cite the main points:

- 1. Success is best gained in attacking by surprise artillery on the march or engaged in limbering up or unlimbering.
- 2. Artillery is very strong in front, weak on the flanks; consequently the flank is the point of attack, wherever practicable.
- 3. Under favorable conditions attack is possible against artillery under cover, especially heavy artillery, without suffering much loss.
- 4. In a flank attack, a secondary frontal attack is generally necessary.
 - 5. Celerity is an absolute requirement in achieving success.
- 6. The formation should be in several lines with sufficient distances. Then the attack should be formed in several lines in such manner that one or more lines ride in open order followed by squadrons in close order.
- 7. Sight must not be lost of the fact that hostile covering troops are attached to the artillery and may participate in the engagement.

8. The main endeavor must be to carry off the guns, limbers, caissons, or to make them useless.

These general rules, given in outline from the regulations, sound clear and simple, and are to the point. But we should not forget that in actual war enormous difficulties and doubtful points have to be overcome. Can we always be able to attack the flank, can we always find out which is the flank? Must we not always count on meeting echeloned reserves of the enemy, hidden in the terrain? Would not a flank attack run danger of charging past in rear of the hostile artillery line, without inflicting material damage? These points are obvious if we will place ourselves in the actual situation. They show that, no matter how desirable the flank attack may be, the frontal attack has to be also considered and that the cavalry must take the difficulties of that into consideration.

And the point advanced in (6) above, the "open order" (single rank formation), is in contradiction to the general rules of our regulations that the charge must be executed in close formation (order) to have proper power. In paragraph 113 it is stated: "To reduce losses to the minimum it is advantageous to adopt a single rank formation with extended intervals between troopers either having a part of the squadron in front, or having the entire squadron in that formation. This will scatter the hostile fire. In certain cases the dust raised by the parts of the squadron in open order in front will facilitate the charge of the closed up squadron in rear." The same holds good for the attack of the regiment, in which paragraph 174 adds that in case of attack against artillery the distance between squadrons is to be dependent on the depth effect of the hostile shrapnels (300 m). Of course the terroin will always be a deciding factor in the attack formation

We must not forget, however, that shrapnel fire, especially when in accordance with the French regulations it is delivered as rapid fire with automatically changing elevation and dispersion, will have a material effect and that it easily may annihilate even thin lines with largely extended intervals—provided the artillery keeps cool and provided the fire control is excellent. General v. Bernhardi says in his latest work "Cavalry Service" on this point

(somewhat condensed): "It is an arbitrary assertion that a broad cavalry line can cover 1,500 to 2,000 meters at a gallop across country boot to boot, as regulations require. In such a charge not only the first (advance) line must ride in open formation, but the main body as well, according to existing (terrain) conditions. Regulations ought to prescribe such an open order; we cannot do without it; it will in general be adopted involuntarily and will be governed by terrain conditions; but there will always be sufficient room to adopt such a formation by sending a platoon or squadron ahead of the main line and thus gain resem for extension. In an attack on artillery the main point is to cross the danger zone as quickly as possible at a long gallop, to have our advanced line draw the hostile fire on it and away from the main line; to compel the artillery thereby to frequent changes in elevation; to have our advanced line try to get to the advanced positions of the artillery and thereby open the road to success for the main line, which should ride in line, or better still in a lumn of troops to take better advantage of the unbeaten zone. Consequently, in such a charge, there should be an advanced line with wide intervals and the main body or main line should a lorg a looser formation than now required by regulations."

If we compare the requirements of the regulations with the opinion of such an eminent authority as General v. Bernhards, we see that in an attack against artillery all existing a neith as govern the choice of formation and that there can be no hard and fast rules laid down, or ought not to be. The terrain the numerical and moral strength of the cavalry available for the charge. the general battle situation, have to decide whether and to what extent open formation should be taken and just when the close order should be changed to the open order. We must remember that shot and shell and shrapnel will thin our ranks and that on that account a more open order is advisable; still, on the sifter hand, if the intervals taken be too large the attack formation loses its strength and will be like a spider's web which is blown to pieces by a storm; the supreme commander will lose control over the charging mass and but few troopers charging as i reagers may get through the artillery line and their success he but a problematic one. Consequently success will depend on the proper choice of the most correct means.

Cavalry should always endeavor to not only draw the artillery's fire away from the sister arms, not only to charge between the guns and limbers, but also to try and carry off guns, limbers and caissons, or if that be not possible, to make them unserviceable. Experience teaches that this will not often succeed; in general the charging cavalry will sweep through the batteries without doing further damage. If the advance line is unsuccessful in stopping at the right time, then it should be the duty of the line in rear to halt within the batteries and to gather the fruits of success there which were prepared for it by the sacrifices of the advanced line.

We have to acknowledge that in peace maneuvers the charge of larger bodies of cavalry—regiments, brigades, divisions against artillery is practiced but seldom or insufficiently. Of course we can practice only the empty forms, still that is valuable and instructive. In practice, the main question is to bring the supreme cavalry commander face to face with a decision to be arrived at in the hurry of the moment, in accordance with conditions and terrain, and to have him decide how to form his command and whether he should attack the front or flank. But not only should the leader be trained, but also the troops. A charge of some 2000 meters across rolling country, and that in open order, requires considerable practice, and the cavalry should learn to recognize and overcome the difficulties attached to such an undertaking. All means should be used to secure calmness, order and alignment. In this exercise the leader has to pay special attention to keeping control over the men; especially in regard to the echelons in rear-to see that they are well in hand and mobile, to be used according to necessity to feed the front line and to execute changes in direction. We will here emphasize that it is not at all sufficient that a cavalry division believes the main object of its charge to be the capture of the two batteries of a hostile cavalry division; that would be an object of limited action, as regards time and space. Of far more importance is the attack of larger cavalry masses against extensive artillery lines in a battle. And that is the cavalry's most difficult task; special consideration and special drills are required for this task.

Two incidents in the Franco-Prussian War of 1870-71 appear to us as specially instructive in regard to the attack against

artillery—both on one and the same day, August 16, 1870, at Vionville. It is of course true that both tactics and technique have undergone considerable changes since then, but certain maxims remain unchanged and are to-day still instructive and useful. We will recount both cases briefly.

In the first case, there was an excellent opportunity for the Hussar brigade v. Redern to charge the hostile artillery. After having victoriously taken Flavigny, the Prussian 6th Infantry Division continued its advance. In order to cover the retreat of the Second Corps, General Frossard caused the cavalry which was immediately available—the Guard Cuirassiers and 3d Lancers-to attack the Prussian infantry. The charge made by the cuirassiers, although executed with great dash and bravery, failed under great losses; the cuirassiers retreating in the most complete rout. At that time General v. Redern had only the 11th Hussars (four squadrons) and the 17th Hussars (but three squadrons at his disposal; the other Hussar regiment belonging to the brigade (the 10th) was detached. Attached to the 17th Hussars, for the time being, was the Second Squadron of the Second Dragoons, which however was almost decimated in the prior battle. The 17th Hussars pursued the fleeing French cuirassiers and the 11th Hussars followed as right echelon. All at once a horse battery went into position about 800 meters southwest of Rezonville on a flat hill, led in person by the French commanderin-chief Bazaine, to cover the retreat of the French cavalry. While Captain v. Vaerst threw himself with parts of the 11th Hussars on the front of the battery, the 17th Hussars charged its right flank. The regimental history of the 17th Hussars states: "At that moment the leader perceived in his right front a battery, and with the command 'on the battery, charge!' he charged the artillery with the first squadron, while the second and fourth squadrons echeloned to the right and charged the battery, gaining it after the first squadron. Within the position of the battery a melee ensued; the battery had been able to fire but a few shells. But the French brought up reinforcements from several points. Both covering squadrons under Marshal Bazaine and General Frossard joined the melee; the Third Jaeger battalion also appeared and overwhelmed the Prussian cavalry with its fire There was no time to bring the three captured guns to the rear

nor to make them unserviceable; they had to be abandoned; the brigade Redern had to retreat. The losses of the two regiments and dragoons were five officers, 136 men, 155 horses. The moral effect of the German troopers was far greater than the material effect. They had gained the very center of the French position, had cut down a battery, and created far reaching terror. The attack finally came to naught because there were insufficient forces to start it with, because there was not enough depth in the attack formation and a consequent impossibility to defeat the hostile covering troops when the most advanced lines, in entering the battery, became dissolved.

The second case, which we refer to, is the well-known attack of the Brigade Bredow. Towards two o'clock in the afternoon the brigade received orders from General v. Alvensleben, commanding the III. Army Corps, to advance to the attack along the Trouville woods against the French artillery on the Roman road; two squadrons of that brigade to reconnoiter on the other side of the woods. The main point was to draw the hostile artillery fire away from the debris of the left wing of the sixth Infantry Division, which had suffered greatly and urgently needed resta glorious task for the brigade! It is unfortunate that the brigade commander had but five and one-half squadrons at his disposal. The deployment for attack could be made under complete cover behind a ridge; on the right three squadrons of the 16th Ulans, and two and one-half squadrons of the 17th Cuirassiers on the left. The squadrons were in double rank formation, in line; the Ulans echeloned 100 to 150 paces behind the cuirassiers, not intentional, but rather accidentally; two platoons of the cuirassers were echeloned to the left rear. General v. Pelet reports: "Thus the ridge was ascended; in the meantime Major Koerber had directed the fire of his four horse batteries on the probable point of impact and, when the Ulans appeared on the crest of the ridge, fired a few more shells on the enemy past the right flank of the Ulans. This timely interference of the artillery had drawn the enemy's attention away from the cavalry in such a manner that the brigade could appear on the crest as a complete surprise to the enemy. When the troopers reached the crest they perceived the nearest French battery, about 1,500 paces distant. There were seven French batteries, five of which were reached

in the charge on a gallop and cut down; two of them succeeded to turn about. It was in vain that a French Jaeger battalion covered the charging cavalry with rapid fire-mais rien ne semble devoir les arreter, says a French report of the affair." As a historical fact, the charge, after piercing the French artillery, rode down two infantry lines, until brought to a standstill by the appearance of superior hostile cavalry masses. The brave brigade lost nearly 56 per cent of its effective strength—18 officers, 4,222 men, 423 horses. But the sacrifice was not in vain, the seven French batteries had been silenced, the highly endangered left wing of the Brandenburg Army Corps had been relieved and a very moral impression had-been inflicted on the enemy, which was of far-reaching importance. In the terraiff between the Vionville-Rezonville and the Roman road the French did not attack again—and that was one of their main points or objects which the cavalry defeated in such excellent shape.

The attack executed by the Brigade Bredow is with ut doubt, in the most modern military history, the most successful and best executed cavalry charge against artillery—even if no guns were captured. The brigade had been started on its way in a very skillful manner, utilizing the features of the terrain to the fullest extent. To this was added the very effective support of the horse artillery, which fired up to the last moment on the hostile artillery. When General v. Alvensleben sent orders to the brigade to attack he only intended to have that attack silence the seven batteries which were so uncomfortable to the left wing of the III. Army Corps. This object was fully reached; that the spirit to do and to act led the attack deep into the hostile infantry mass, and even through it, was in entire consonance with the proper cavalry spirit with which the squadrons were imbued. And this heroic charge was well worth the cost. May our cavalry to-day charge with the same valor and with the same disregard to consequences or danger hostile batteries, when duty calls it to do so. And then success will be achieved even against armored batteries and against rapid fire guns-for to the brave belongs the world!

It is clear that the results of the charge of the Brigade Bredow would have even been greater and would have led to the capture of several batteries, if that attack had been made by four times the number of squadrons. To detach the two squadrons on reconnoitering service at the time the charge was to be executed was an error; there were twelve squadrons at least in the immediate vicinity so execute that charge. And in addition eight and one-half squadrons divisional cavalry could easily have followed up as support, which means that on the whole twenty squadrons instead of five and a half could have made the charge.

In any case the Brigade Bredow accomplished what our cavalry regulations of 1909 require, i. e., "if it can be done to silence the fire of hostile artillery, even if only temporarily, or to divert its fire from other targets, a material effect may be gained favorably influencing the course of the battle." And even if there is no visible success—such as captured guns—even if shrapnels have cut large swaths in the ranks of the attacking cavalry, which either saves or succors its sister-arm, the honor of the day will remain with the cavalry. Both—result and honor—are the highest aim of the cavalry arm!

THE SPIRIT OF SACRIFICE IN THE CAVALRY AND ESPRIN DE CORPS IN ITS OFFICERS.

(Extracts from the Rivista di Cavalleria, February, 1910. *)

DY many military writers the Cavalry is described as the arm of success and sacrifice. Some even cut off the first expression and limit themselves to the second and in my opinion they are both more concise in expression and more exact, because even in those cases in which Cavalry is called upon to confirm success it must be animated by a profound sentiment of sacrifice, must give itself wholly, to the limits of the possible, if it would succeed in its intent.

The very enumeration of the majority of the undertakings which it is customary to assign to the Cavalry today, clearly

^{*}Translated for the Second Section General Staff, U. S. Army, by Major J. F. Reynolds Landis, 13th Cavalry.

shows that their predominant note is sacrifice in favor of their sister arms.

Should it be a question of occupying certain important positions until the arrival of other troops, of preventing or delaying the uniting of the enemy's columns working towards the same objective, or of covering a turning movement, or any movement intended to surprise the enemy, or even in the classic and typical missions of pursuit or of protection for a retreat; above all other qualities must rise the sentiment of self-denial, the complete surrender of self in favor of the other arms whether it be a question of confirming and completing the success already obtained by them, whether it is a question of action in order to prepare for this success, or finally when the Cavalry must sacrifice itself in order to save them after a defeat.

Those actions of cavalry against cavalry which find in themselves both beginning and end lead to very slight positive results: they may constitute interesting epicodes whose material and miral consequences may even be important; but their practical effects never compensate for the waste of strength that has resulted.

This sentiment of self-denial, of sacrifice, of surrender of one's own personality, which is transformed into audacious action, from which almost every deliberateness seems to have disappeared and which seems often the fruit of a mind little given to reflection, finds its real ground for existence in the lack of proportion between the object to be obtained and the means at disposal generally existing in the actions almost always allotted to the Cavalry.

Often the lack of proportion is such that almost any reason, or if you will, the most rapid examination made by a mind accustomed to calculate the consequences of every act, would lead to the conclusion that to carry the action out was an impossibility.

Admitting that the spirit of sacrifice must be the breath putting life into every cavalry action, I put two questions:

- 1. Can this sentiment spring up unprepared in the breast of the cavalry unit when the moment to act has arrived?
- 2. Can it be presumed that the same septiment finds a natural lodging today in the breasts of all, from commander to

the last recruit, or is it possible to cause it to spring into being, to grow and to sink its roots deep into the hearts of the mass of our soldiers?

To both these questions I will reply decidedly:-No. The

second negation is a consequence of the first.

In fact, if the above mentioned sentiment cannot be suddenly called up but must form part of the very nature of the individual who is to put it into action, how can one rationally assert that twenty or more months of service are sufficient to implant it deeply in the breasts of the majority of our soldiers?

And now a third question and let us go on to conclusion.

3 Is it indispensable that the spirit of sacrifice and selfdenial should find a resting place in the breasts of all those who are called upon to take part in a cavalry action in order that it shall have a probability of success?

For the third time I shall reply:-No.

In a combat, any cavalry action, whether it is a question of a troop alone, or of a division, has its ground for existence in the mind of the commander. Afterwards, it is controlled and carried out essentially by the impulse coming from him. It is difficult to carry out the commander's idea by detachments smaller than the troop: this is the unit upon which, alone or combined with other troops, is based, during the combat, every cavalry action.

In the troop the commander is always, with his officers, in front of the men. When the divisions of the troop have good leaders they will follow these leaders anywhere. A few having been chosen for special duties, the remainder constitutes the mass of the troop in which it is sufficient that the soldier should know how to sit his saddle at the various gaits; it is a mass that has no need to reason about the actions which it is going to carry on; nor would it have time, so rapidly do they develop; it is drawn on after its chiefs through a feeling of personal attachment to them and even because going in any other direction or standing fast would be rather difficult to carry out and often more dangerous: nor would it be a natural feeling, even in the most cowardly of soldiers, to get off his horse and to lie flat in a ditch in order to get away from the fire of the enemy.

Now I limit myself to asserting that while giving due weight to what these subordinate leaders contribute and to the few selected for special duties, the success of almost every cavalry action during combat, as far as its execution is concerned, depends in great part on the officer who is its chief. If he has long been accustomed to look courageously at every danger, if he has accustomed his mind to sacrifice, putting far from him the spirit of self-interest which too often tends to stain modern armies in the long periods of peace, in that case, only in that case, in the moment of need, when he must sacrifice himself and his own detachment for the benefit of the other arms, will his mind not be disconcerted and will he, confident, on his own horse, dash boldly at the enemy followed unhesitatingly by his horse-men one and all.

"Like officer, like man": this saying which, too generalized, may lead to false deductions, may, I think, for our arm be considered to have an almost positive value.

A proper and rational use of the initiative authorized by the new regulations and which has now permeated our regiments, has permitted everyone, in each grade, to display his own individual activities, thus feeling his own dignity raised from his earliest youth; the knowledge that we have through our own merit, found a method of equitation which is the basis of the undoubted progress of our arm, and the awakening which such a method has brought in our love for the horse, which is our real and chief weapon in war; finally, the almost daily habit of confronting danger which this greater love has brought with it; all this, it seems to me, is giving to the mass of our officers that sort of lack of consideration for the little troubles of life, for those ills which are inevitable in a military career during long periods of peace, that serenity of mind which some envy us and which others erroneously mistake for studied affectation.

If sometimes there is a day when one is in a bad humor or his mind is disturbed at the thought of the mass of years weighing on his head while he waits for a promotion that never comes, then a gallop over the field with some fellow-officer, a successful jump over some new obstacle and perhaps even a tumble-headover-heels is sufficient to quiet his mind and bring a smile to his lips. I think too I am not wrong in attributing all the more merit to this awakening in our officers of a love for riding if, today, in spite of so many causes tending to repress it, there is found in them still more of that spirit of self-denial and of sacrifice which I laid down as a basis of every act in war which is demanded of the cavalry.

The cavalry arm is very expensive and it is difficult to supply losses in it; new mechanical means suitable for war are being invented almost every day and it is perfectly natural therefore that we should find ourselves face to face with theories tending to substitute for horses, which have their defects, machines that act perfectly and are subject to less wear and tear. These theories have a sound logical basis when it is a question of substituting for horses other means which can really carry out a given mission with the same resultant efficacy. On the other hand they are erroneous when it is desired in a general way to employ these means even in those actions in war which it is given to the cavalry alone to accomplish.

Therefore I think that we cavalry officers should not become excited or lose our calmness of mind by entertaining doubts of our future if someone asserts that such or such an undertaking, which up to the present has been entrusted to us, can be better attained by other means. It should be discussed objectively and if, after a severe examination the conviction results that, for that special undertaking, we should yield to the last arrival in the list of means for carrying on war, well, let us too give it a rousing welcome. In my opinion a cavalry that is not strong, like our own, in comparison with that of the army against which it may be called upon to act, finds its greatest difficulty in the many missions which it is desired to entrust to it and it seems to me that we should congratulate ourselves the day it is proved, for example, that the service of information in advance of the great units of war, so complex in its execution and the cause of so much waste ' of strength, may be carried out by means other than our own troops.

The new German Cavalry Regulations say "Cavalry masses cannot carry on scouting, which must be done through cumning, by means of small patrols or by offensive reconnaissances by the three arms, and by dirigible balloon."

Cyclists and dirigibles are welcome to our places in this service which is so burdensome, especially for us, for whom it is more difficult to fill up the vacant files than for the others. We shall be better able to carry on, with hope of success, the other missions likewise so important. Let us not lose faith in ourselves and in the future of our arm; it will always have its raison d'etre in the various phases of the combat. Every new means of war, however fatal and murderous it may be, will have among its other effects upon the enemy that of increasing panic among the troops, breaking up their unity; I will repeat here what Lt. Colonel Guerrini had to say with the elegance of expression which is habitual to him:-"When on the battlefield panic darts like lightning through the ranks of the combatants, the cavalry will find in the furrows made by the panic laurels to be reaped for itself, most useful actions to be carried on in order to secure victory for its own side."

I said above that the success of the actions of cavalry in combat depends in a great part upon the officer who conceives them and carries them out: a precept that may be extended to the other arms and be considered of a too generic and too vague value in its meaning, but which I intended to apply to our arm with a more precise meaning since it appears to me that in the rapid and absorbing execution of our actions in war from the moment in which they leave the field of ideas to enter the field of reality the action of the officer predominates over that of the men more than in the other arms and that the men nolena volena are drawn along with the mass to accomplish what, in the mind of the leader, is being gradually developed.

I said first that in the missions in war entrusted to the cavalry there must rise above every other thing the spirit of sacrifice in favor of the other arms, that this feeling, difficult to be called out suddenly in time of need, cannot be deeply implanted in the mass of our soldiers with the present short term of serv-

ice; I added, however, that this was not indispensable to the good execution of these missions since in them the direct action of the officer is more predominant than in the other arms; the officer, however, must be endowed in a high degree with the sentiment of altruism and of self-denial to draw his troops after him to success. I said then that I had faith that our officers would be found upon the right path and I attributed a great part of the merit for it to the sane awakening of a greater love for the horse on which we must fight, conquer, or die. I said finally that on a par with this awakening there was noted in our arm a greater tendency among all, beginning with the 2nd Lieutenant just promoted, to increase their own culture, and that a significant indication of this awakening was the greater number admitted to the War College and to the General Staff Corps.

I intended, in a modest way, to call attention to these things in order to draw from them good omens for the future of our arm in spite of all the difficulties that may appear before it, in spite of the springing up of new and more perfect means of war, since until the outcome of a war is decided upon land and not upon the sea or in the air as some are already prognosticating, and until man enters as the greatest constituent factor of the force that is to bring about a pleasing or a sad decision, whatever may be the means of destruction with which he is provided, he will always have his moments of material or moral weakness on which the cavalry can and must count in order to lend effective aid to the final success or to lessen the consequences of a defeat.

The good wishes which I expressed for our arm are, I feel, artached to a condition without which the difficulties of various sorts which surround us would tend to choke our energies to death.

We must maintain alive within us, without distinction of age or rank, the animating spirit of our arm which in my opinion may be summed up as a perennially youthful spirit united to a boyish enthusiasm, ready for a daily struggle to resist the fatal aging of the body. Perhaps you will laugh at my find; will say that I am poetical; will say that I should like to make of our officers new Fausts. Not at all.

Although years pass and we cannot stop their passing,

we can, I maintain, prevent our spirits growing old at the same rate.

I do not say that there is a lack of logical basis in the well known and time worn expression: "The officers of the cavalry are now too old: without youthful leaders the cavalry will not be able to carry on successfally the missions entrusted to it."

Aside, however, from the fact that it is not possible to send into the next world all the old in order to make place for the young, who in their turn would grow old in service. I maintain that more important than youthfulness in years is youthfulness in spirit, united, be it well understood, to a proportionately vigorous body. How many cavalry officers have we known who left the arm when they were between 30 and '40 years of age and who were already old, even decrepit, speaking from the point of view of a horseman. Perhaps all cannot correctly understand what I mean; I am certain, however, that a great majority of the officers of the arm will understand me.

The youthfulness of spirit of which I am speaking is made up of a goodly portion of poetry, of a certain amount of fatalism, of great calmness in the face of danger, of a habit of mind of grasping an idea and passing rapidly to the consequences of the accomplished act without stopping to consider the various possibilities and the minor details.

This youthfulness of spirit, however, in order to be able to put in action the ideas it is capable of evolving, must have as a basis a reasonable vigor of body such as to allow of riding for entire days at any gait over any sort of ground in which it is suitable for cavalry to act, the mind meanwhile being free from considerations of personal danger and always ready to act unhampered.

The objections which will be raised are easy to be seen. These conditions, especially the physical ones, belong only to youth; how can it be claimed that they may all be found united in a man over fifty years of age?

Well, I am not of that opinion: it is difficult to find these conditions united, in a high degree, either in the younger or in the old. They should be infused into the young officers and be nourished and maintained with jealous care by every one who has

an affection for the arm; however, more than real and actual physical resistance, which with increasing years can only exceptionally be exacted, these conditions demand that the cavalry officer should keep up the constant habit of using his real weapon, the horse, so that he may never consider the hours employed in making use of it as burdensome but filled with pleasure; he must cultivate and maintain, as years fly by, the habit of looking calmly upon danger. That is the youthfulness of spirit that I am setting up as the pre-eminent dowry of the cavalry officer and which I prefer to that of years.

Every arm has its special characteristics and it is the business of the officer to guard them jealously. So our officers must deeply implant in themselves the animating spirit of their arm and not allow it to become weakened by years as they pass or by circumstances that tend to turn one aside.

The studies that officers have to carry on, the years spent at the War College or in the different grades of the General Staff Corps may cause them to acquire new and useful knowledge by which the arm cannot but profit yet should not diminish in them the characteristic qualities which are inherent in an officer of that arm without serious damage resulting first to our arm, then to the army of which it is a part.

The older we grow, the more the duties of grade or office tend to draw us from the straight path and the more we must struggle; and from that struggle, provided we are impelled by strong desire to conquer, we shall come out victorious. Then will happen a miracle, we shall see our hair turn gray and then white, our skin become furrowed with wrinkles and, serenely watching the years that pass, we shall, vigorous with youth, feel our hearts in our breasts ready, if necessary, to bring to our lips the war cry "Savoia" and with it shall draw after us our troopers to victory.

EDUCATION IN GERMANY.•

By ARTHUR TWINING HADLEY, LLD
President of Yale University.

THE TWO YEARS OF SERVICE.

OR those who do not pass the test—for the great bulk of the people who cannot afford the time and expense incident to a full high school course—the two years of military service teach lessons which are of just as much importance in peace as in war. To begin with, they teach cleanliness and the elements of hygiene. Any one who visits the quarters in which the new recruits have just been housed will appreciate the need for these lessons and the vast opportunities of national improvement which they carry with them.

In the next place, the years in barracks are a valuable means of physical training. They strengthen men where they are weak, they teach them to move efficiently instead of awkwardly, and put them, at the end of the two or three years of service, in a position to be more efficient at almost any kind of physical work than they were at the beginning. In the third place, the life in the barracks produces habits of discipline and good order. This is specially important in a country like Germany, where school discipline is less good than school instruction. The German officers and under-officers are, as a rule, extremely well-qualified disciplinarians.

Of course we hear of many isolated cases of brutality, and even of cruelty; but I am persuaded that these are comparatively rare exceptions, of a kind that must occur occasionally in a large organization. The general treatment of the German recruit, so far as I have observed it, is humane—much more so than it was thirty years ago. Considerations of ordinary prudence dictate

that the average boy who comes homesick into barracks should be treated with rather more than the degree of consideration which the average boy gets in the average boarding-school under similar circumstances.

The result of all these things is seen when we compare the German of today with the German of thirty years ago. His carriage is better, his efficiency as a laborer is better, his power of adapting himself to circumstances is better.

Thirty years ago we were accustomed to pity the Germans for their system of compulsory military service. Two or three years of good working-time were taken out of the life of every young man, in order to train him for the arts of war. During this period he not only earned nothing for himself, but he produced nothing for the nation. These evils induced some of the most ambitious men to emigrate; and they placed upon those who stayed at home the necessity of supporting hundreds of thousands of young men, and getting no industrial product in return.

A CHANGE OF OPINION.

In 1860 most of the Germans regarded compulsory military service as a rather unnecessary evil. In 1870 they spoke of it as a necessary evil. In 1880 they said it was an evil which had a good deal of counterbalancing good. In 1890 many of them said that the good outweighed the evil. In 1900 the balance of opinion regarded it as a positive good, industrially as well as politically. Today you will find it generally said that the military system, originally adopted as a disagreeable necessity, has become the central factor in German public education, and the main cause of Germany's industrial advance.

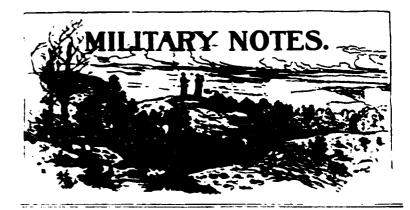
The majority of intelligent and patriotic Germans will today tell you that the German army gives the German nation habits of discipline, cleanliness and efficiency which it never before had; and that two years of withdrawal from active industry is a very cheap price to pay for a training which makes a man a more efficient worker and citizen for many years thereafter.

Situated as we are in America, we cannot expect to introduce a system of compulsory military training like that of Germany. This is an advantage if we can get the same habits of

^{*} Extract from an article in The Youth's Companion of January 6, 1910.

order and discipline without it. It is a disadvantage if it is going to leave us content with an education which gives us knowledge rather than discipline, or which prepares us for the special duties of business rather than the general duties of the citizen. It is necessary for the progress, and even the safety, of the American nation that our years of high school and college education be arranged by the instructors and regarded by the pupils as a training for public service.





THOROUGHBREDS FOR A ROUGH COUNTRY.

The following letter, which appeared in *The Breeders' Gazette* of March 30, 1910, may help to do away with the prejudice that exists in some quarters against the thoroughbred. To The Gazette:

In your issue of March 3, T. B. Carpenter makes inquiry as to what class of horses are the best saddle horses for a rough country. I have been in the cattle-raising business in Colorado for a good many years and of late have had to raise my own horses. We purchased a thoroughbred stallion and crossed him on native mares and find the cross gives us a far better saddle horse than we ever expected. The stallion is of good disposition and weighs 975 pounds in fair flesh. He is by the imported stallion Brutus and was foaled in 1900. He is of good life and one of the best rope or cut horses I ever saw. And although used for nothing but racing until we got him, he can get over-rough ground faster than the majority of horses. His colts are all of good size and bone, weighing from 950 to 1,150 pounds and are top-notch cow horses.

I think your correspondent could not do better than to get a good thoroughbred, one weighing 1,000 pounds or a little more and bred to go over a distance of ground. He will find that in a few years he will have a class of horses that will outlast twice as many short-bred horses, be better cow horses and some credit to the man who raises them. The idea that a thoroughbred is clumsy and hot-headed is all nonsense. The more good blood there is in a horse the better horse he is, no matter what he is used for. A thoroughbred rightly taught and broken is the best kind of a cow horse. He is easily taught and once taught he never forgets. Then his powers of endurance are so much greater than those of a short-bred horse and his ability to carry weight and run at a good rate put him in a class by himself.

Fremont Co., Colo.

W. D. Woodfiff.

THE ARME BLANCHE

From the Broad Arrow of April 1, 1910

The Russian cavalry was not only badly handled during the late war, but it was unable to make the most of the few opportunities given to it. As for the Japanese cavalry, it was so poor that it has received praise from no one. Where, then, is the parallel between Manchuria and South Africa? Japan saw none, and since the war has spared neither energy nor expense in bringing her cavalry up to Western standards, like ourselves learning from military practice on the Continent. Therefore, our own experience, and that of other nations, is against the abo-Aition of the lance. The aim is to make the cavalry equal to every emergency that may arise in connection with its varied duties in war. There is no reason at all why it should not be trained to fight equally as well with the rifle as its own peculiar weapon. For what military opinion appreciates very well is the fact that cavalry which can do both might wipe out cavalry which could not. Hence even those who wish the lance to be abandoned desire cold steel to figure in the armament of the cavalry. Surely it is a matter for high military expert opinion on the subject, and its decision having evidently been given in favor of the arme blanche, there is nothing more to be said.

REGULARS VS. MILITIA.

From the Broad Arrow of April 1, 1910.

A correspondent, "Armiger," writing to the Daily Express last week, drew an effective parallel between the opinions, of Mr. Haldane and one George Washington as to the value of professional and partly-trained troops. The Secretary of State for War, with that cheery optimism for which he is now so well known, lately stated as his opinion that "the notion that nobody can fight who has not devoted his whole life to soldiering has been relegated to the limbo of exploded notions." Washington, on the other hand, whose experience of the real thing was both extensive and varied, held a very different view. According to the soldier-president of the United States, "Regular troops alone are equal to the exigencies of modern war, as well for defence as offence, and when a substitute is attempted it must prove illusory and ruinous. No Militia will ever acquire the habits necessary to resist a Regular force. I have never yet been a witness to a single instance that can justify a different opinion." Such then are the views of one who had the most ample opportunities of judging the relative value of the two systems; and, as "Armiger" points out, it must not be forgotten that our American colonists started with the great advanage of being excellent marksmen.

It is, of course, open to Mr. Haldane to argue that now-a-days no nation engages its professional soldiers for their "whole life," and thus far he may be justified in the mere words he uttered as they stand. We, ourselves, have the longest service with the colors for our professional soldiers. We take the best years of our soldiers' lives, with the handicap to their future career in civil life of which we daily see the results around us. The mil-

lions of trained men on the Continent of Europe are, it is true, no more than a highly-trained Militia, but, none the less, Washington's words are just as true today as the day on which they were uttered. Indeed, the various improvements in the art and science of war make them even more applicable to the present time. The whole point of comparison is as between sufficientlytrained troops and partly-trained citizen soldiers. To suppose for a moment that our Territorial soldiers, or even that proportion of them which has received the full training, could be pitted against trained European troops, appears too ridiculous for serious consideration. We, ourselves, do not hold the view that any of our friends across the water will be sufficiently considerate to give us the desired six months' notice of their intention to commence hostilities. We, therefore, continue to urge that a sufficiently large national army shall be trained for war, and that its training shall be a reality and not a sham.

WANTED—A BETTER BULLET.

From Arms and the Man.

C. R. Anke writes to Arms and the Man as follows:

"If I am right in my belief that the present form of high power bullet is no more adapted to the use to which we put it than a lead bullet would be, it would be a mighty good thing for a few thousand of the bright ballistic cranks who read Arms and the Man to get busy with experiments. If they would do that we ought to reach a solution of the problem in short order.

"The sharp point on the bullet helped us a lot, but we are far from having an ideal combination at this moment. Here we have a little 150 grain, short, sharp-pointed bullet, set up snugly against the lands so that it will center in the barrel, a bullet with a long bearing surface, and a diameter one-half a thousandth greater than the inside of what the barrel would measure if we scooped out the lands and left it a smooth bore.

"Of course the lands have to indent the jacket, and of

course also the bullet material, already highly compressed, has to give way in some direction. It cannot give way to the sides, so the metal of it flows longitudinally along the longer axis of the bullet. That means a higher pressure before we get the bullet started and goodness knows our pressures are high enough now. It means more friction all the way along the barrel. It means a greater chance of rupturing the jacket metal. It means a heavier recoil, and, to tell a long story in a few words, it means a great deal, which if my theory is correct we do not need to mean at all.

"For I believe, first, that we might just as well have a solid copper bullet, something after the manner of the French, with a little white metal in it to stiffen it up, a bullet made by compression in a die, all in one piece, and a bullet that would only touch the bottom of the grooves through that portion of its surface necessary to form an adequate gas check.

"I will not draw a picture of it, but here is about what it looks like in my mind's eye: Longer than the present bullet, considerably longer, sharp in front, even sharper than the present service bullet, and sharp behind, not so sharp maybe as in front, but still tapering aft, the cylindrical portion land diameter, that is, of the same diameter as the circle resting on the top of the lands, a collar, groove diameter, behind the collar a little cannelure to hold the mouth of the shell and to give room for the metal to flow back when forward motion begins."

FREEZING OF TAN BARK IN RIDING HALLS.

FORT SNELLING, MINN., February 23, 1910.

To The Editor, U.S. Cavalry Journal.

Ever since the establishment of riding halls at our posts, more or less difficulty has been experienced in keeping the tan bark in fit condition for use during freezing weather. It has been proposed to lay steam or hot water pipes in the ground, through which sufficient heat could, when necessary, be supplied

from a furnace, to keep the tan bark from freezing. This method, however, has not been introduced.

The common practice has been to set stoves in the corners of the hall, and by closing all ventilating apparatus, to try, by this method, to keep the temperature above freezing. This method has usually failed to keep the wet tan bark from freezing, and has, besides, aided in drying out the top layer, which pulverized to a fine dust, permeated the atmosphere of the hall, already vitiated by the lack of ventilation and the gases escaping from the stoves. The stoves are more a nuisance than a help, and succeeded only partially in keeping the tan bark from freezing, when the weather was not too severe.

The introduction of heating pipes in the ground would probably afford relief, but a much simpler and thoroughly satisfactory method of overcoming the difficulty was used in the riding hall at Fort Snelling and proved so efficient that it is believed that the experiment could be tried to advantage elsewhere.

The remedy consists of mixing salt with the tan bark, using the salt in sufficient quantity to make a mixture, the freezing temperature of which is below the prevailing temperature. Salt is used, for this purpose, on the curved mile track of Mr. Savage at the International Stock Food Farm, not far from St. Paul, where the training of racing stock proceeds during the entire winter.

Captain L. M. Koehler, 4th Cavalry, brought the idea from that track to Fort Snelling, and is responsible for its application to the riding hall at that Post.

When the subject was first mentioned, everyone had his opinion of the scheme, and, as is usual, expressed the opinion, but whatever that may have been, there is only one comment on the subject now, after its trial for the last four months: "Nothing could possibly be better than the track and tan bark has been." And there has been a fair test, for the cold this year has been severe, and at no time even at twenty degrees below zero, has the riding hall been out of commission. The tan bark is soft, moist, dustless and at all times in most excellent shape.

To accomplish this, it has been necessary to use about fifteen barrels, or \$15.00 worth, of common salt, bought from the Post Commissary. The amount of salt to be used will, probably, de-

pend upon the degree of cold, but experiment will soon show the amount to be used in any particular case.

The riding hall at Fort Snelling has been in charge of Lieut. L. W. Prunty, 4th Cavalry, who was acting under the direction of the Squadron Commander, Major J. G. Galbraith, 4th Cavalry.

If the use of salt has any injurious effects, none has been noticed, so far, though all have been interested in the experiment, and are observing carefully. What the action of the salt will be in warm weather is, also, not yet determined, but we do know that the evil of frozen tan bark has been entirely done away with, giving a smooth, soft, moist surface that cannot be improved upon.

The principal and only comment that is heard now is an expression of surprise that such a simple, cheap and efficacious remedy for keeping a riding hall in good condition during cold weather had not been put in use here long ago.

Very respectfully.

L. C. SCHERER, Captain Fourth Cavalry.

RIFLE INSTRUCTION.*

The Provisional Firing Manual, 1909, was received in time to be taken up as a study and the class was put through the entire course of instruction therein prescribed. Such new targets as had not been received were improvised.

Inasmuch as the records made by this class may afford some indication of the effects to be expected upon classification throughout the service under the new scheme of firing, some note is due of the apparent causes which have led to a perceptible reduction in the number of men qualifying as Expert, Sharpshooter and Marksman, compared to former terms and classes.

In the range practice, Marksman's course, the rapid fire

^{*}Extract from the report of the Commandant of the School of Musketry for the term September 15, to December 15, 1909.

feature at 200 and 300 yards is a little bit more of a difficult test owing to the smaller scoring area.

In the range practice, Sharpshooter's course, the rapid fire at 500 yards is more difficult than formerly, and the requirement of an aggregate of 415 points in the Marksman's and Sharpshooter's record courses accounted for some failures to qualify as Sharpshooter.

The Expert test is wholly different in character from the former test and is much more difficult, judging by the number of Experts under the old scheme who have failed to make qualification under the new.

While all the practice is at known ranges and only 50 per cent of hits is required for qualification, the character of the targets used, their slight visibility compared to the bull's-eye targets and their operation as moving targets and as targets which appear in an unexpected place and then quickly disappear, are all elements which tend to lower the percentages which target range shots are accustomed to look for.

In addition to the added difficulties encountered in range practice, the estimating distance test is a very effectual test when carried out as prescribed in paragraph 79. Small Arms Firing Manual, and many qualifications were upset by failure to come up to the prescribed requirements. The restrictions imposed as to time and to posture appear to increase the difficulties of the test. The class had received careful instruction in the estimation of distances by the eye and in matters associated therewith—the finding and designation of obscure targets—and its members may be looked upon as a little above the average of enlisted men generally in these respects.

The failures in the last class cannot therefore be attributed to lack of instruction, but were due to the inherent difficulties of the test.

Proficiency in estimation of distance by the eye is very properly a factor in marksmanship rating, since range finding is an ever present question encountered at every turn. It may be that the standards for the different ratings have been set too high; that a single standard might better serve for all three grades, this standard to be determined by taking as a basis the

average proficiency of successive well instructed classes at the Muskerry School.

The question might be propounded: if a marksman who is a first rate estimator of distance is not as valuable in service as a sharpshooter who is much less proficient in this respect.

The increased difficulties which attend qualifications for extra pay have been pointed out and in consequence of these difficulties it may be expected that a greatly diminished number of qualifications in the various grades will result, especially in the first year.

It may be that the standards for qualifications have been set too high. Whether they shall be lowered so as to admit of a large number of qualifications, as under the former system, or so maintained as to exclude mere mediocrity, is a question which depends upon what policy the War Department may desire to pursue. The exceptional reward that goes with the qualification of Expert Rifleman suggests some exclusiveness for that grade at least.

The justification of the penalty imposed for non-qualification in the gallery test was somewhat strikingly shown in the case of three men of the class, none of whom in the subsequent courses of firing was able to qualify in any of the grades of marksmanship.

The time required for the Expert test will be a little greater owing to the small number of men that may fire at one time in the new test. This may cause some inconvenience at posts with ranges with limited capacity. Where Class B ranges are available it might be advantageous to hold the test on such range, using the targets and apparatus designed for field firing. Some little additional work would be required in constructing suitable cover for the markers.

Attention is called to the advantage that would come from having single scores (5 shots) in the Marksman's and Shaip-shooter's courses instead of double scores (10 shots), sighting shots to be retained as at present. Also, there should be one record skirmish run in the Marksman's Course instead of two. With the same required percentage the soldier would be under no disadvantage—the record thus made would provide just as effectual a test of the soldier's ability, which is what is wanted, and

there would be a material saving in time and ammunition. Fifty (50) rounds would be saved for each man firing the record Marksman's course and fifteen (15) rounds for each man firing the Sharpshooter's course. The ammunition saved in this way may be used to advantage in instruction practice or in rapid firing. This proposed expedient has some pertinence in view of the contemplated reduction in the amount of ammunition to be allotted for small arms target practice.

CONDITION COUNTS.

The Editor:

I have just read an excellent article by Veterinarian Robert VansAgnew, 5th Cavalry, which is to be published. I understand, in the next issue of the Cavalry Journal, and I wish to be among the first to thank him for his attempt to remedy some of the evils from which our cavalry horses suffer. All the ideas expressed by him in the article are based upon sound judgment and are in vogue everywhere where the welfare of the man depends upon the fitness of his horse.

The most necessary change, however, at present, and that which should be brought about as soon as possible, is in our method of feeding. Since serving in the Army of Cuban Pacification, where the Commanding General, Thomas F. Barry, required that all public animals be fed three times a day, I am particularly in favor of it. Here we had actual results which justified the orders requiring it. These orders were not merely published, but were carried out, each officer responsible for public animals being required to report every so often that he was carrying out their provisions.

The results were excellent. It was thought by many, at first, to be a great deal of unnecessary trouble, but when the habit became established, even this could not be urged against it.

When on practice marches I was always able to arrange for feeding in the middle of the day. In the first place the nose bags do not hold half the ration of oats, and fit over the head

properly, and this necessitates taking out a portion of the feed at evening and morning meals. Why not place this surplus in the nose bag always and tie the strap about it so as to prevent wasting the grain, hang it upon the saddle where it will best balance the pack, and at noon be entirely independent of the wagons for a small feed?

The Eleventh Cavalry horses, having been fed three times a day for a long period, were as "fit" as any horses I have ever seen in the service, in fact, I have never seen the Cavalry in as good and efficient condition as the troops which were in Cuba during the last intervention.

The second squadron of the Eleventh Cavalry had been in target camp near Pinar del Rio for a month, the horses lying idle during this time except for being led to water three times a day. At the end of target practice the squadron was called upon to join in maneuvers of rather a strenuous nature, involving night marches and night attacks, day marches with fast advance guard work, requiring the covering of many miles, also requiring that saddles be kept on the horses' backs for twenty-four hours at a time. This was kept up for ten days with an occasional day off for rest. It was thought by many of us that the work would pull the horses down considerably, but they seemed to keep up in flesh and spirits remarkably. Horses in ordinary condition would undoubtedly have shown signs of falling off under the work.

Upon completion of the maneuvers it was necessary for the squadron to return to its regular station. Camp Columbia, over a distance of about one hundred and fifteen miles. Two of the troop commanders, Captain Frank Tompkins, with Troop G, and Captain Frank Parker, with Troop F, requested permission to make a forced march back to Camp Columbia in thirty hours. Though many officers laughed at the proposition and said that such a march could not be done in the tropics, without injury to the men and horses, permission was given by General Barry.

Many officers predicted that the troops would arrive in Camp Columbia about five strong and that the rest of the men and horses would be scattered along the road from the sixty mile post to the camp.

This was not the case, however, the troops making the

march quite easily and arriving at their destination on time to the minute.

They were met and inspected by the Commanding General, the Inspector General and the Post Commander, who found all the horses in perfect condition. There were no sore backs, no exhaustion and not even any leg-weariness apparent in either troop. The horses were in condition to repeat the march after a twenty-four hour rest. One troop, Troop G, with which I marched, on account of not having a guide, was forced to go about ten miles out of the way, making the total distance marched by that troop about one hundred and twenty-five miles. I had charge of one of the platoons and was continually on the lookout for signs of distress among the horses, but none appeared and every horse went on as though the march were nothing out of the ordinary.

The march was declared an absolute success, and the troops were given great credit for their performance, which showed fitness for service in a very marked degree.

The above incident just goes to show how much good it does to try and keep horses in fit condition, and what a small amount of trouble will do towards increasing the efficiency of the horses.

Cavalry is supposed to be able to do this kind of work without being harmed by it in the least, but it will not be able to make long, fast marches unless the horses have a great deal of attention paid to their physical condition. Therefore let us do some of the things that we know to be advisable for their condition, one of which is to divide the feed so that a suitable amount may be given at noon. If the habit of feeding in the middle of the day be once formed it will be as hard to give up as most habits are.

The fact that the practice cannot always be kept up in a campaign is all the more reason why it should be done now, so that the horse will enter upon the trials of war with a good reserve of energy to call upon.

There is no doubt that the horse gathers more energy from his oats if fed three times than if fed twice, then why waste the energy in the oats, for it is only energy that we wish to get from the feed? General Barry's results in Cuba, with the animals of the command, should be sufficient to make those who are inclined to stick to the old way of feeding change their minds, or at least give the three feed system a trial. When once tried I feel sure that it will not be given up.

RALPH M. PARKER, First Licutement, Fifth Cavalry.

LAST GUIDON RETURNED.

HEADQUARTERS SEVENTH U. S. CAVALRY, Ft. RILEY, KAS., March 9, 1910.

To The Editor.

Some little time ago I received a letter from Mr. Lester Wallace, of New York City, stating that he had one of our guidons that was taken at the Little Big Horn fight and later recaptured from Chief American Horse, at Slim Butte, by 1st Sergt. H. W. Jefferson, Troop "E," 5th Cavalry. Mr. Wallace very kindly offered to present it to the regiment, and his offer was accepted, and the guidon is now being framed and mounted for Regimental Headquarters.

As a proof of the genuineness of the relic, Mr. Wallace sent us a letter—a copy of which is enclosed—which explains itself. Also, as a matter of possible interest, he sent a copy of an account of the outbreak at White River Agency, in which Major Thornburgh was killed.

It occurred to me that this might be of interest to you, being the account of the fight by an enlisted man. Copy is enclosed.

Very truly yours,

T. H. Roberts, Captain and Adjutant, Seventh Cavalry.

126 Franklin Street, New York City, Oct. 13, 1886.

MR. L. WALLACE, Dear Sir:

This flag was taken by myself from the Brule Sioux Chief "American Horse" at the battle of Slim Butte, Mont., Sept. 9, 1876. On the morning of the 9th Sept., a party who had been sent from the main command of the Big Horn & Yellowstone Expedition, then operating under General Geo. Crook against Sitting Bull and the hostiles with him, came across a village of thirty lodges of Sioux; waiting until it was light enough to see the gun sights, they prepared to surprise the Indians, which was done at about 3:45 a. m., the Sioux being driven from their camp in confusion, and (all but the dead) escaping to the hills except a small party who took refuge in a ravine say 200 vards from their camp. Our men, knowing it folly to keep on their march. dug small rifle pits on the brow of hill overlooking camp and sent a courier back to Crook, who started on the jump for the Butte. He arrived about 12 M. and at once went into camp. Forty sharpshooters were picked out of the entire command to kill or capture the party in the ravine. After two hours' fighting this was done. This party of Sioux were under American Horse; they put up a white rag twice; the first time they fired on us as we were respecting their signal and coming to the ravine to receive them. We then made preparation to burn them out and kill all. They a second time called for Crook and we allowed them to surrender. American Horse while on the ground drew a revolver to shoot Crook and was himself shot by Jefferson of "E" Co., 5" Cav. This flag was wound around his body; a locket—Col. Keogh's picture, two gold mounted ivory handled revolvers—a Spencer sporting rifle and full war dress and medicine bag with war bonnet was taken from him by myself. The picture and locket I gave to an officer of the 3d Cav., who claimed them as a relative of the officer killed with Custer, and a revolver I gave to Capt. Rodgers of "A" Co., 5th Cav. The rifle I sold some days later for two loaves of bread and the war dress and flag I kept until we got back from the scout, when they were placed on exhibition in N. Y. & Boston. This is evidently the guidon of either "F" or "M" Co., 7th Cavalry, as a great deal of government property, saddles—blankets—equipments, etc., were found marked with those letters, taken by the Indians at the Custer Massacre. This can be verified by old men of Co. "E" who were in that fight and by the Morning Report of "E" Co., 5th U. S. Cavalry, which noted the events of my career on that day.

Yours truly,

(Signed) HARRY W. SPOONER, late H. W. JEFFERSON—First Sergt. Co. "E," 5th U. S. Cav'y.

THE MONDRAGON AUTOMATIC RIFLE. MEXICO'S NEW NATIONAL ARM.

By EDWARD C. CROSSMAN

From Arms and the Man of March 31, 1910.

THE Mondragon rifle is not an automatic in the strict sense of the word, it requiring a pull of the trigger to fire each shot and being therefore a self-loader, but the word has come to mean an arm of the self-loading class and is used here in this sense. The only true automatic arms are of course those of the Maxim, Colt, Benet-Mercie class, loading and firing themselves as long as the ammunition supply is kept up and the sear is held out of the way of the striker.

In appearance the rifle is not unlike our New Springfield, the barrel being cased in both above and below to a point six inches from the muzzle. A bolt handle sticks straight out from the right side of the breech and a box magazine protrudes about two and a half inches below the receiver. Where the bolt would be on the New Springfield, is a long, fixed cylinder with a milled head, containing a coiled spring and affording a passageway for the bolt when the rifle is fired. The breech is much

longer than the New Springfield, and the rifle, like all automatics, is clumsy appearing.

It is a gas-operated arm, following the essential character of the Colt and the Benet-Mercie in machine guns and the Standard sporting rifle in self-loading arms. At the present status of self-loading arms, the "gas-borrowing" principle—to use the expression of our French friends—seems the most practical to apply to a military automatic arm as it permits the use of almost any form of bolt and a locking device as strong as that used on the ordinary bolt action rifle. The main objection is the fouling deposited in the motor part of the rifle by the powder gas in doing its work.

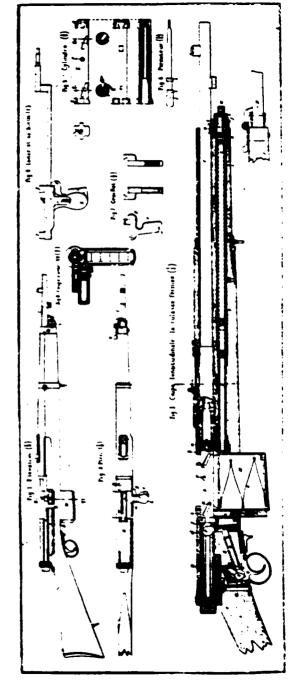
The Mondragon is fitted with a bolt not unlike that of the New Springfield, but locking with a slight turn instead of the full quarter turn necessary to lock rifles of the Mauser type

Extending along the bottom of the barrel from the forwar! end of the stock to the magazine and covered by the wood of the stock is a cylinder, containing the retractor spring, the piston and its connecting rod. The barrel is tapped about six inches from the muzzle and a valve fitted by which the gas is passed to the cylinder.

A lever, to which is fastened the operating handle of the bolt, is fitted to the breech of the rifle, sliding in a greate cut along the breech casing. This is connected with the piston by the connecting rod at the latter's rearward end, and so the backward movement of the piston under the pressure of the gas drives the lever and handle along its grooves in the breech casing.

The bolt proper, against which the lever is fitted, locks by lugs at both its front and rear ends, these lugs disengaging or locking by a twelfth of a turn of the bolt. At either end of the bolt on its right side are cut two short, helicoidal grooves, covering one-twelfth of the circumference of the bolt. The operating-lever is fitted with two lugs that engage in these grooves,

In operation, when the piston is driven back under the gas pressure, the connecting rod drives back the operating lever. Its lugs, engaged in the helicoidal grooves on the bolt, compel



THE AMERICAN PUBLIC.

the bolt to revolve one-twelfth of a turn, disengaging the locking lugs and allowing it to travel back with the operating lever. In its backward travel it extracts the cartridge and ejects it in the fashion common to all bolt action rifles. Passing back over the magazine a cartridge presents itself before the bolt and is pushed into the chamber on the bolt's return trip.

Movement of the bolt in a gyratory direction after being unlocked by the operating lever, is prevented by a lug on the lever, engaging in a recess in the bolt.

The bolt is fitted with the ordinary firing pin running entirely through it. The safety device is afforded by the rear lug of the operating lever, engaging in a shoulder of the firing pin and preventing its forward motion until the bolt is locked on its returning to a closed position.

The firing pin is not fitted with the customary main spring, but is driven forward by the blow of a hammer pivoted in the rear end of the breech casing. In this respect it follows closely the plan of the Browning automatic shotgun. The backward motion of the bolt drives back the hammer until its plunger is caught and held by the sear. The plunger actuating the hammer is fitted with a spiral main spring and its rear end is notched to engage in the sear. When the trigger is pulled the sear releases the plunger, its main spring drives it forward, and the hammer is driven against the head of the striker, protruding through the rear end of the bolt. The rifle cannot be fired until fully locked on account of the operating lever lug engaging in the recess in the firing pin.

The magazine is of the Mauser staggered type, but fitted with a four-leaved spring instead of the two-leaved type used on the Mauser and New Springfield. Its capacity is ten cartridges. The loading is by means of a clip.

One of the most ingenious devices on the rifle is the arrangement for converting it into a hand operated arm. This is desirable, not only because the automatic loading mechanism might fail, but because it is a good thing to compel troops to use the bolts by hand on some occasions to prevent the waste of ammunition through an over-rapid and under-accurate fire.

The valve by which the gas is taken from the barrel to the

cylinder is of the two-way type and is fitted with a handle by which it can be turned. By means of this handle the gas may be diverted from the cylinder through a different port into the open air. This leaves the gas motor part of the mechanism motionless regardless of the shots that may be fired.

A hook is pivoted on the handle of the operating lever, serving to engage the rear end of the conecting rod with the operating lever. When the user grasps this bolt handle this hook is pressed in, releasing the connecting rod and leaving the gas-motor mechanism—piston, plunger and connecting rod—out of gear. The rifle is thus converted into a straight-pull, bolt action magazine rifle, the backward motion of the operating lever and handle giving to the bolt its gyratory movement that unlocks it as when the operating lever is pushed back by the piston and connecting rod.

The only movement necessary to make the change from a self-loader to a hand functioned rifle is that of turning the valve handle, situated where the forestock ends near the muzzle. The severing of connection between the operating lever and the connecting rod is entirely devoid of extra effort on the part of the soldier, the pressure of his fingers on the handle of the bolt mechanism driving in the hook and uncoupling the connecting rod. A spring presses the hook back into place each time the handle is released, replacing the connection with the automatic mechanism.

By this clever arrangement is is not necessary to drag the gas-motor mechanism through its back and forth motions, with the attendant effort of compressing the heavy retractor spring fitted to the piston rod.

On all self-loading arms now on the market, it is necessary to do all the work performed by the recoil or gases to function the arm by hand, compressing the retractor spring, etc. This is entirely unnecessary and undesirable when the arm is to be used for a long series of shots and operated by hand, while the advantage of having a rifle that can be entirely cut off from the automatic loading mechanism is too obvious to need comment.

The gas taken from the barrel is so little that the difference in velocity is practically nil. The gas is taken from a port not

- six inches from the muzzle and too late to affect the pressure on the bullet.

The fouling experienced on most arms of the gas-operated type is done away with on the Mondragon, the arm cleaning itself and relubricating the piston chamber with each motion.

The arm weighs but 9 pounds 4 ounces, about the same as the New Springfield's average weight—although the latter is listed at 834 pounds. This is worthy of note—that the extra mechanism used on the rifle does not affect the weight of the arm to any appreciable extent.

The rifle has a capacity of 60 shots per minute and has been tested out thoroughly without failing. One of the tests consisted in firing the rifle until the barrel expanded .15 inch in length from the heat and the stock caught fire, without a single balk on the part of the mechanism.



+ Problems. +

HANDLING OF A CAVALRY TROOP.

The Committee of the Executive Council having in charge the preparation of problems and their solutions has received a solution, signed "Busby," from an unexpected source, which is so good that it is accepted as an approved solution. It was submitted by Private Prentice Strong, Troop III, Squadron "A." Cavalry, N. G., N. Y.

SOLUTION.

The following thoughts occur to Captain Jones: "The mounted officer on Grant Avenue has gone for reinforcements. My object is to delay the convoy until the arrival of the other three troops. The enemy probably does not know my strength." He looks at his map and continues: "The head of the convoy is now at Circus Hill. Corral Creek is the nearest natural obstacle to the wagons. Grant Hill commands the bridge at XV, XVI and XVII. I will advance as rapidly as possible through the orchard west of Prison Hill and follow that branch of Corral Creek which has its source at a point due north of the orchard, because by doing so I can probably escape observation by the enemy and get under cover of Grant Hill with my troop before the convoy has reached the bridge at XV and I will probably be able to surprise them as they are beginning to cross the bridge at XVI."

Captain Jones gives the following order: "Corporal Brown, you will tell Sergeant Wilson that, as soon as he finds it getting too hot for him, he is to withdraw and making a detour to the west join me in the rear of Grant Hill."

The route Captain Jones selects in his mind he takes, and on the way he gives the following order: "Lieutenant X, when we cross Grant Avenue you will take a patrol of four men and will get in touch with and observe the enemy who are to the north of Grant Hill. They are probably a company of infantry."

Having reached the shelter of Grant Hill Captain Jones gives the order: "Fight on foot, action left," and having the led horses under cover of the hill posts his men along the crest and opens fire on the convoy as the first wagons are crossing bridge at XVI.

NON-COMMISSIONED OFFICERS' PROBLEM NO 1.

The Editor:

The Committee appointed to decide on the relative value of the solutions submitted to Problem No. 1 for non-commissioned officers have received and examined fourteen solutions all of which were remarkably good.

One particular solution, signed W. F. Cunningham,* was the best written of any submitted. This solution showed wide reading on the subject, but lacked an appreciation of practical conditions by trying to be too complete. For instance, by prescribing too many signals for a patrol of that character to remember under excitement.

All the solutions submitted were better than any were expected to be on this first problem, and the Committee would cheerfully have awarded a prize to any one of them had not other and better solutions been submitted.

The Committee recommends that the prize be awarded to the solution signed "William Hawkins," and that the same be published in the CAVALRY JOURNAL. The solution signed "Bud" was a close second.

STUART HEINTZELMAN,
Captain Sixth Cavalry.
R. S. FITCH,
Captain Second Cavalry.
Committee.

In accordance with the above decision, the prize for the best solution to Non-commissioned Officers' Problem No. 1 has been awarded to Corporal William Hubbard, Troop "E," Fifteenth Cavalry, who submitted the solution signed "William Hawkins." The solution signed "Bud" was submitted by Sergeant James G. Smyth, Troop "E," Fifteenth Cavalry.—EDITOR.

SOLUTION.

- 1. The instructions given me are not sufficient. I should have further instructions as to where I should send any messages. Where the main body would be likely to move to, if they moved while I was away. What information is chiefly desired. What features are of special importance. What is already known about the enemy, as to their probable strength and intentions. If necessary, as to the time for the patrol to return.
- 2. I should need four men besides myself, as that would be sufficient to send back messages, it would not be so likely to be seen by the enemy, could be easily concealed, and would be able to move around quicker than a larger patrol and would not draw so heavily on the fighting strength.
- 3. I would inspect my patrol before starting out, to see that all the men and horses were in proper condition, that the men were intelligent and properly equipped, that they thoroughly understood the different signals to be used, to see that none of the horses were of a conspicuous color and that they would all travel alone without neighing, that there were no equipments that would rattle or glitter, that the men fully understood the plans and instructions in detail, I would appoint a next in command, and arrange a place to reassemble in case the patrol became scattered.

C

^{*}The solution signed W. F. Cummingham was submitted by Corporal Francis Ware, Troop "D," N. G., N. Y.

- 4. My personal equipment as a patrol leader should consist of a map of the surrounding country; a watch so as to be able to put the time on messages when sent, and if necessary to find out the strength of a body of troops on the march by seeing how long it took them to pass a given point; good field glass, so that I could observe the more distant country and objects that were too far away to be seen clearly with the naked eye; a reliable compass with which to orient myself, and plenty of paper (message blanks preferred), and pencils.
- 5. I should require my patrol to use the following signals in addition to those prescribed in the Drill Regulations: Enemy in sight in small numbers, hold the rifle horizontally above the head; enemy in large numbers, same as preceding, raising and lowering the rifle several times; take cover, a downward motion of the hand. I would tell my patrol about these signals just after I inspected them.

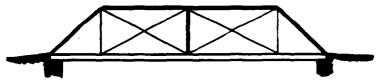
WILLIAM HAWKINS.

NON-COMMISSIONED OFFICERS' PROBLEM NO. 2.

SITUATION.

Your troop has arrived at Fort Leavenworth from the east, with instructions to interfere with a hostile advance expected from the west.

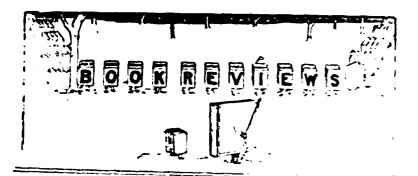
You have been ordered to take a patrol of four men and to proceed to The Frenchman and destroy the bridge there. You are told that a similar patrol will destroy the Millwood Road bridge.



The bridge is a steel Pratt truss wagon bridge (see sketch), 40 feet span, of the kind ordinarily seen in the country and called "tin bridges." You are furnished the necessary dynamite for its destruction.

REQUIRED.

- 1. How are you going to carry the dynamite and deto-
- 2. Assuming that your route is Pope Avenue—National Cemetery—Target Range, describe how you would lead your patrol as far as the Target Range.
- 3. As you reach the top of the saddle just west of the Target Range you see hostile troopers in about the same numbers as your own patrol coming up the west slope and who apparently have not discovered you.
 - (a) What do you do now?
 - (b) Do you intend to carry out your original order?
 - 4. Assume that you have arrived at the bridge.
- (a) How do you dispose of your patrol while working on the bridge?
- (b) How much dynamite is necessary to destroy the bridge and where and how will you place the charge?
- 5. If at any time on your route you would have sent a message, write out the message.



Tactical Principles and Problems.* The author thus states in the preface: "This book has been written in the hope that it may help the junior officers of the regular service and militia who are be-

ginning the study of tactics" and "may be of special value to the student who is working without assistance."

No one can even casually examine this book without being convinced that the writer has accomplished his purpose, for it arouses such interest that a determination is formed to devote to it the study that it deserves and is necessary to derive full benefit from it.

The well known applicatory method is used of presenting military situations followed by tactical solutions, one to each chapter. In its twenty-six chapters, the "More usual operations of small forces of infantry and of cavalry, and of these two arms united" are illustrated and the tactical principles involved discussed. "Artillery has not been dealt with because it is believed that the student will make better progress if he becomes familiar with the tactics of infantry and cavalry before undertaking the

much more difficult subject of the three arms combined." Thus the author outlines the scope of the book.

The forces considered are American organizations and the situations and solutions are worked out on the two inch and four inch maps of Fort Leavenworth and vicinity. At least two chapters are devoted to each subject discussed. The first might be called a study since the solution and discussion which follows is not limited to the situation in hand, but discusses other points that are pertinent to the subject. The next chapter contains a problem followed by its solution and that in turn by comments. This last contains remarks as to alternative solutions and on questions that pertain to the subject, frequently the action taken in the two solutions are compared, and the questions that must be answered before coming to a decision are given.

It is contemplated that the reader will thoroughly study and digest the first chapter on each subject and will then solve in writing the problem given in the following chapter, subsequently comparing his work with the solution given, assisted by the comments. This method of studying applied tactics has been tried and proved sound.

The following is a brief summary of the chapters and subjects discussed: Chapters I and II. "Leading of an Infantry Patrol." Chapters III and IV. "Leading of a Cavalry Patrol." In these four chapters the initial situation is supplemented by several additional situations that might naturally arise during the progress of the patrol, calling for decisions, each being immediately followed by the solution and discussion pertaining to it.

In the following chapters an estimate of the situation with decisions and orders are required.

Chapters V and VI pertain to the advance of a regiment of infantry with a troop attached.

Chapters VII, VIII and IX, the advance guards of Chapters V and VI are taken up and also an additional problem in advance guard.

Chapters X and XI consider the conduct of a retreat, Chapter X being a continuation of the situations given in Chapters V and VII.

Cavalry, U. S. Army, Instructor Department of Military Art. Army Service Schools. Two maps and three sketches. Published by the author Price \$2.50, postpaid. For sale by the U. S. Cavalry Association.

Chapters XII and XIII consider rear guard actions. Chapter XII continuing Chapters V, VII and X.

Chapters XIV and XV take up the pursuit. The first being the opposing side in Chapter X.

Chapters XVI and XVII consider an attack. The first with an infantry battalion, the second with an infantry regiment and two troops.

Chapters XVIII and XIX take up the defense. The first with two infantry battalions, the second with an infantry regiment and two troops.

Chapters XX and XXI illustrate cavalry combat (one squadron), mounted and dismounted.

Chapter XXII (one of the most interesting and exciting series of situations in a book containing a wealth of happy selections) considers the attack of cavalry against infantry.

Chapters XXIII and XXIV, a halt for the night, followed by Chapters XXV and XXVI, which continue the previous situations in discussing the outpost arrangements.

It would seem that there were five points that the author particularly desired to emphasize, at least they are frequently dwelt upon, not only in the discussions, but also in the tactical dispositions and orders which are recommended, namely:

1st. Initiative. Few take to it naturally under grave responsibility and unnecessary or harsh adverse criticism will quickly kill it. It must be fostered in peace if it is to appear in time of war. And an army whose officers lack initiative eannot meet the everchanging conditions of war. The author thus refers to it on page 245: "It may be well to repeat here what has been said in other chapters concerning undue interference with subordinates, not only in the wording of the order, but also after the order is issued and is being executed. Once the commander has reached his decision, made his dispositions, and put his troops into the fight, his proper task is to retain supervision and control over the whole command. This he cannot do if he bothers himself with details that should be regulated by his subordinates. Each of them must be allowed to lead his command in his own way, so long as he does not jeopardize the success of the attack; not because his way may be the best or even good, but because it is better for him to do it, although it may be done badly, than for the commander to do the work of a subordinate and neglect his proper work which is vastly more important."

- 2d. Concentration, not only of strength but of effort; that is, not only keeping the available force well in hand, but also to unite the efforts of its various parts with a view to the accomplishment of the main mission, rather than to fritter away the strength and effort of the command on several enterprises, however desirable they may be in themselves. This of course brings out the necessity of determining what is the main mission to which all else is subsidiary and of keeping it constantly in mind.
 - 3d. Flank protection on each and every occasion.
- 4th. Superiority of fire. The author states in discussing the attack on page 254 "Superiority of fire must be attained before there can be great probability of the attack succeeding; any failure to appreciate this principle will lead to such losses that even if the attacker were to succeed in closing with the enemy, he probably would be too weak to obtain the victory" and in discussing the defense, page 314, "The object is to stop the attacker's advance and this can be done only by gaining and keeping fire superiority."

5th. Mounted vs. Dismounted action of cavalry against cavalry the writer states, page 342, "This discussion is limited to the statement of a single proposition, supported we believe by the bulk of reliable authority, that mounted combat on favorable terrain should be the rule for the side that takes the offensive, when cavalry meets cavalry under conditions demanding that both shall fight." In the following chapter a situation is taken to illustrate an occasion calling for dismounted action and the conduct of such an action is discussed.

Lack of space forbids more detailed remarks on the many interesting points brought out and discussed in these chapters. Moreover the very essence of the applicatory methods is that each decision taken shall be based on the situation presented on the terrain as represented by the map; therefore to discuss any point without reference to the situation and map would be profitless and lead to confusion.

The standing of the author in our service is known or can

be easily ascertained, but in these days of renaissance of military study in the United States, when the military opinions and judgment of even the highest and oldest are more or less questioned, the value of a book such as this must rest on the general reasonableness of the solutions and discussions presented.

It is believed that this essential element is evident throughout this book and that the book's value not only to beginners, but to all concerned in tactics, will be great for that very reason.

There is no attempt to give "rules of thumb," on the contrary the writer, in a most interesting and clear manner, brings out the points that must be considered in each situation presented before arriving at a decision and is so free from bias in favor of his particular solution as to make it clear to the student that if he has but given thought to the pros and cons of a particular line of action and has arranged to take advantage of the favorable circumstances and to minimize or guard against the unfavorable, his solution cannot be far wrong. In other words, the book evidently aims at inculcating a process of thought or reasoning, rather than any set of principles. It is again and again pointed out "that circumstances alter cases" and "there is no rule without its exceptions." It is believed that this "open-mindedness" will be evident to every reader and that therein lies the great value of this book.

It should not be thought from the above that the author dodges any issue presented, quite the contrary. The solutions conclude in particularly clear cut and definite decisions further expressed in precise order. These are given in two forms: First, verbally as they would probably be issued under the circumstances, and Second, in formal written form. In this connection the point is brought out that the telegraphic form of order as a rule takes longer to write and that the desire for conciseness may cause ambiguity.

It is hoped that these general remarks may indicate to the readers of the Journal the nature of this book and its excellence—an excellence which attracts at first and is confirmed by thorough study. While intended primarily for beginners it is believed that it will pay any officer to study it and that having once examined it

be will desire to own this book on applied tactics by an American officer concerning American organizations on American terrain.

STUART HEINTZELMAN,

Captain Sixth Cavalry.

This well printed and well bound book may be said to mark an entirely new departure in verb books. Heretofore authors of verb books, particularly of French and Spanish, have been content usually to extract from grammars and dictionaries the paradigms of all the verbs and present them to the student without other matter pertaining to the language. Such a method is nothing more than an attempt to teach the verb as something entirely separate and distinct from the rest of the language. Comment upon such a method is superfluous.

The properties of the verb (person, number, tense, voice, transitivity, etc.), are all dependent upon or closely related to something outside the verb itself; to teach that these various and numerous properties concern only the verb is to give a false, erroneous idea of this part of speech that is the backbone of the sentence—this part of speech that must agree with its subject, that must show accordance in time with some other part of the sentence or with something in the idea expressed, that must assume one form when the subject acts and another when the subject is acted upon, that sometimes represents an action as affecting some object other than the subject and sometimes not, etc. Is it possible to believe that a part of speech, having such a multiplicity of relations with other parts of the sentence, can be proporly taught by itself? Some persons may hold that the grammar and its exercises should and do supply the shortcomings of the very book; this is only partially true, for the reason that the two books are rarely co-ordinated; the consequence is that the student usually studies and learns an exercise illustrating a given lot of

THE FRENCH VERS. Its CONTUGATION AND IDIOMATIC USE." By C. F. Martin, First Lieutenant Fifth Cavalry, Late Instructor of Modern Languages, U. S. Military Academy. 359 pages. American Book Co., New York, Chicago and Cincinnati, 1910. Price \$1.25.

constructions and then goes to his verb book and learns the complete dry conjugation of some verb that has no connection with his exercise of that day; and, as his verb book tells him nothing of the use of the verb whose conjugation he has just learned, he is in the same position as a child who is given a multiplication table to learn, and then, as practical application of his multiplication table, is given a series of practical problems in addition and subtraction.

Lieut. Martin's work includes not only the paradigms that constitute the entire contents of the usual verb book, but under the paradigm of each verb are found sentences illustrating the use of the verb in its various constructions. Not only are examples of the ordinary uses of the verb given, but also examples of its commonest idiomatic uses, and, in addition, in all cases where a preposition is required with a verb in any of its uses, sentences containing the verb and the preposition are supplied, in order to show the exact use and meaning.

The book is divided into two parts. Part I gives the paradigms of regular, irregular and defective verbs, with illustrative sentences of the ordinary uses of the verb that is used as a model and of its most important idiomatic uses. Part II gives lists of verbs which require no preposition before a following infinitive, and lists of those which require a or de; these lists are alphabetically arranged, give the meaning of the verb with its preposition, and give one or more English sentences in which verb with its preposition will be used. These lists are followed by the "Verb Dictionary." Referring to this part of the book, the author says: "This dictionary is intended to explain only the difficulties or peculiarities of French verbs. Therefore, not all the meanings of the verbs are given. It is meant, primarily, to tell the student what he cannot find or understand about verbs in his grammar or dictionary." The "Verb Dictionary" is alphabetically arranged and contains the same information with reference to prepositions, use, and meaning as is given under the paradigms of Part I with reference to the model verbs. Not an unimportant feature of the "Dictionary" is that of cross reference to verbs of related meanings.

The reviewer, not being a Frenchman and not having had the advantages of a residence in France, does not consider himself well enough posted on idiomatic French to pass judgment on the ultimate accuracy of the "Verb Dictionary." However, having served for three years with Mr. LaMeslee (a native Frenchman of thorough education) and Lieut. Martin, in the same department under Prof. E. E. Wood the reviewer knows the painstaking accuracy of all three; whatever of French has been prepared by Lieut. Martin and been criticised by Mr. LaMeslee and Prof. Wood may be accepted by the student as correct.

The work is a valuable addition to English text-books on the French language; it fulfills the double purpose of a text-book for regular lessons and of a reference book for general use, and will be found very useful to every English speaking person engaged in the serious study of French.

A. T.

Relations of the United States and Spain. The author of this book needs no introduction to military readers, nor is this his first venture, as he is also the author of "Causes of the Civil War."

Diplomacy.* One is impressed from the beginning to the end of the work under review with the accuracy of statement and with the impartiality of spirit in which the book is written.

Incidentally the book contains a plea for an efficient navy. It does not pretend to deal directly with military situations, as such, but, on the contrary, by a splendid grouping of political facts, brings into bold relief the inevitable result of racial strife between Spain and her American colonies on the one hand, and the American Republic on the other, culminating in the American-Spanish War of 1898.

While the lack of this book in the library of an army officer would not be a serious omission, yet its presence would be an ornament to any library. To the senior officers who may exercise high command, to those interested in or charged with guid-

**THE RELATIONS OF THE UNITED STATES AND SPAIN. DIPLOMACY." By F. E. Chadwick, Rear-Admiral, U. S. Navy. Charles Scribner's Sons, New York, 1999.

ing the destines of our country, to statesmen in particular, the reading of this very interesting and reliable book could not but be of the greatest benefit. As junior officers some day expect to be senior ones, and as nations now rub elbows with our own on every hand, the careful reader can not but absorb lessons from this intimate survey, of more than a century's duration, of the relations of the United States and Spain that might be of inestimable value in carrying out the policies of the United States under similar conditions.

S. X.

Field

This, the sixth edition, has been brought up to the date of February, 1910. It deals, as its title suggests, with subjects embraced in our service in two manuals, viz.: Engineer Field Manual (parts II-V), Professional Papers, No. 29, Corps of Engineers and Manual of Field Engineering, Beach. It is a handy little volume of 252 pages, twenty of which are devoted to examination questions (with additional examples, solved), on the subject matter of the text.

It contains fifteen chapters, discussing the following subheads: Arms and Projectiles; General Principles of Hasty Entrenchments; Details of Trenches: Revetments: Execution of Earthworks; Field of Fire; Improvised Field Defences: Stockades and Blockhouses; Obstacles; Defense of Villages, Houses, and Woods; Redoubts and Posts; Application of Field Fortifications to Tactical Schemes: Military Bridging: Hasty Demolition; Camping Arrangements; Examination Questions for Practice.

What impresses one most vividly with this book is the eminently practical nature of the treatment of the subjects. Rules are not merely stated in cold black print, but concrete examples are placed before the student, and are followed by solutions worked out step by step. Too often the writer or compiler of our service manuals with full knowledge of subjects technical in their nature fails to realize that the beginner is not always favored with his knowledge, nor has he had his opportunity to acquire certain technical information, which have to him become self-evident facts. How often has the beginner found the phrase, "From this, it is now evident that, etc.," a very step that was not evident to him, and fully agreed with the cynic that language is not infrequently used to conceal thought.

The necessity for confining the manuals to within reasonable limits, tend to render them, through condensation of the subject, a little obscure, and difficult to the student. With evident object of removing this difficulty from the path of the military student, this book had its inception.

The chapters dealing with Hasty Entrenchments and Field Fortifications, contain the results of digested experience of the subject, and developments brought about during the late wars in South Africa and Manchuria, and are worthy of careful consideration.

The prime importance of concealment and invisibility of such works in view of advancement in Field Artillery and accompaniment of heavier ordnance than formerly used in campaign, are dwelt upon.

The entire book is full of useful hints to the line officer.

That this work has filled a long felt want in the British service is attested by its long survival and run through six editions, revised as preface notes at intervals of some six years.

That it would be very useful as a supplement to, and elucidation to the manuals on the subject in our service cannot be questioned. It has been brought up to date, and while many of the problems of field defenses, etc., confronting the line officer can be solved on broad and well fixed general principles, all are not assunchangeable as the laws of the Medes and Persians.

S. G. J.

^{**}FIELD FORTIFICATIONS. NOTES ON THE TEXT BOOKS." By Lieut. Gen. H. D. Hutchison, C. S. I. Corrected to date by Col. A. C. Macdonnell, late R. E. 6th edition. Revised to date. Gale and Polden, London and Aldershot. Price 6a, net.

BOOK REVIEWS.

My Friend the Indian.* Those of our officers who were stationed in the Dakotas in the earlier days were undoubtedly acquainted, by reputation at least, with the author of this book. He was then, as he has

been ever since, well known as the Indian's friend and, what wass a rarity in those days, an honest Indian Agent.

His long and faithful service as Agent for the Sioux Indians at Standing Rock and Devils Lake, particularly at the former agency and later as Indian Inspector—a total service in the Indian Department of nearly forty years—gave him an opportunity to study the Indian character such as has been enjoyed by but few men and has made him an authority on the subject of which he writes.

The book is well written and beautifully illustrated with half-tone cuts of famous Indian Chiefs and views; the type is large and the paper good.

In the preface the author states: "My friends in a fficial and private life have been good enough to assume that what I know of the Indian, of his losing struggle for an existence according to his own ideals, of his manner of living, mode of thought, habit in action and in repose, and of the things that have happened to him on the long trail he has traveled in the process of evolution since I first became intimate with him on the plains of Dakota in 1871, might be worth setting down for the information of my contemporaries and the correction of some errors which are, unfortunately, but too common."

"The things that I have related of my own knowledge may be depended upon as being as nearly correct as may be, allowing for human defects; those other—and perhaps more important—matters which are given on the relation of the participants, tell the Indian's side of many a disputed event. I have exercised due care to accept no statement of fact, unless the person responsible for it was known to me to be worthy of credence."

He describes fully the Indian of those former days, his habits, sports, manner of living, their love-making and home life.

Many interesting and historical events are related of their hunts and wars and finally, in the last chapter, he draws a sorry picture of the present status of the Indian as compared with that of the days when he wandered over the plains, rich in lands, in means of sustenance and health.

Of particular interest to the army officer, especially to the few remaining ones who served on the plains in those days, will be those chapters in which the author gives the Indians' accounts of the campaigns discussed.

He devotes three chapters to the battle of the Little Big Horn, one to the Modoc campaign and one to the Nez Perce campaign, wherein he gives detailed accounts of those celebrated campaigns, compiled from the knowledge that he has obtained direct from the leading chiefs who were participants and leaders in them.

It is but natural that, in some respects, these accounts are inaccurate, first, on account of the time that elapsed between their occurrence and the time when the Indians could be induced to talk of them.

For many years after the battle of the Little Big Horn, and presumably after the others as well, the Indian participants were suspicious of any attempts made to obtain their side of the story as they feared that the information sought was to be used against them and also as the Indian naturally exaggerates when relating the parts be took in a campaign.

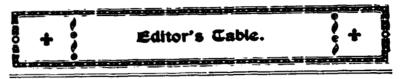
No officer now living, and for that matter no officer at any time, knew the events of that battle as does General Godfrey, and it is hoped that he may be induced to write a review of this book as regards this and the Nez Perce campaign in which he was also a participant and who was wounded in the last battle of it, for a future number of the Journal. Of him and his account of that famous battle, the author, in his introductory remarks to the chapters on it, writes as follows:

"I have had much to do, in the ordinary affairs of life at an Indian agency, with the men who fought Custer to the death at the battle of the Little Big Horn, and socially and officially with many of those who were members of the Seventh Horse on that disastrous day in June, 1876, when the flower of the American

Inspector and formerly Agent for the Sioux at Devil's Lake and Standing Rock Agencies, North Dakota. Houghton Mifflin Company, Boston and New York. Price \$2.50, net. Postage 20 cents.

cavalry was shattered by the war-power of the Sioux Nation, that I have no compunctions to consider or apologies to offer for telling the Indian side of that fight, which story is not a new one, except in the point of view. I knew very well Captain E. S. Godfrey, of the Seventh Cavalry, now brigadier general, retired, who wrote the article that is given the place in military history. I was even able to assist him to the extent of supplying him with the names of the Indians who were prominent in the battle. He has covered the whole bloody field with the exactitude of a man devoted to military science; he knew—as I could not possibly know, except on hearsay—the disposition of the troops that day. He has given to the world a very even-tempered and dispassionate story, which has been universally indorsed by persons familiar with the campaign of 1876. The unfortunate circumstances that involved the action of some members of Custer's command, and which led to such bitter criticism and comment for years after the battle, are now being lost sight of, or talked about only when grizzled veterans, who were subalterns thirty years ago, get together to fight over their battles." E. B. F.





VOLUNTEER CAVALRY: THE LESSONS OF A DECADE.

In the second part of the article under the above title which appeared in the March number of the CAVALRY JOURNAL, there is a paragraph to which General James H. Wilson very properly takes exception. This objectionable paragraph was noticed by the Editor when he first read the article and it was then his intention to insert a footnote calling attention to the inaccuracies of the statement in question, but later when sending the copy to the printer, this was overlooked.

Under the sub-title of "Raids," the writer comments on the manner in which General Sheridan conducted his raids and contrasts the results of the same with those made by Wilson, Kautz, Stoneman and Kilpatrick. In these comments, the paragraph in question appears.

General Wilson writes regarding it as follows:

"I have read the last number of your journal as I always do with great interest, but I am surprised to find on page 876 the following statements:

"'Wilson and Kautz were so roughly handled on their return to the army after a successful raid, that they lost all their guns and their commands only escaped by scattering and coming in individually as luck brought them, while more than half were captured. The difference between the commanders present and Sheridan lay in one word, vigilance.'

"It is rarely that in a journal like yours so many mis-statements could be found in a single paragraph. "First: 'Their commands only escaped by scattering and coming in individually.'

"There is not a word of truth in this statement. Kautz found his way through the woods from the right of our line, into camp the same night without any loss except a few stragglers.

"Second: My division did not scatter and I lost only the dismounted men whose horses had given out from fatigue. The whole division as an organization reached camp at Chipsak in perfect order, at the end of two days.

"The entire loss of both commands as first reported, did not exceed 1,100 men, about half of whom afterwards turned up as stragglers.

"Third: As to vigilance, we were nowhere taken by surprise. Having reached Reams' Station within five miles of army headquarters, we found the ground occupied and further progress cut off by the enemy instead of, as we had been assured, by Meade's infantry and Sheridan's cavalry.

"I do not know who the volunteer cavalryman is who write the article but he certainly omitted to read the reports. If he had been much of a soldier he would have seen that the failure of Sheridan's expedition to Trevilian Station and the return of name from the Danville and Southside roads, were two very different affairs in which the failures, if any, were due solely to the fact that Sheridan and I were operating in separate columns on divergent lines instead of operating on masse, first against the railroad and then against the others. A close scrutiny of the reports would show that Sheridan should have been on the left of our army to let us in when we approached."

It goes without saying that the Editor would not knowingly and intentionally publish anything in the CAVALRY JOURNAL that is historically incorrect or that would injure the reputation of any person, particularly the well-earned reputation of the great cavalry leaders of the Civil War and more particularly of General Wilson, who has been such a persistent and valuable friend of our cavalry and its Journal.

Regarding this same article, another member of our association writes as follows:

"The interesting articles that have appeared in the CAVALRY JOURNAL recently, under your editorship, have certainly increased its value many times over, and no one feature, in my opinion, has tended more to make it a success than the bi-monthly issue of the JOURNAL.

"The articles upon Volunteer Cavalry," written by an actual participant of our Great Conflict, contains some of the most valuable lessens and data upon the proper management and handling of an efficient cavalry force that it has ever been my good fortune to read. The writer has handled all the phases of the cavalryman, his weapons, mount, equipment, character of fighting, etc., in such a brief, while at the same time an instructive manner that the authorities might to great advantage issue a pamphlet containing these observations, which by the way, notwithstanding the great lapse of time since the Civil War, are just as applicable t slay as they then were.

"Incidentally, his views upon the value of the saher as a weapon are particularly appropriate, and furnishes the best argument thus far advanced as to the feasibility of retention of the saher in the discussion of the subject—saher versus revolver; the results of his experience as stated in this article are the best answers that could be given the opponents of the saher.

"He states (page 626, January No.), 'So far as the author's observation gies, he never remembers an instance in which a saber charge, resolutely pushed, failed to drive the pistols.'

"True, the sabers should be such and the practice such as he advocates, but the fact that the 'saber was always loaded' appears manifest from careful reading of his views, which the opponents of this pre-eminently cavalry weapon would do well to thoroughly ponder over and digest. The entire article is a masterpiece, which every cavalryman should carefully study and profit by.

"Congratulating you upon the character of the articles now published in the JOURNAL, and wishing you all the success possible. I remain."

BOOKS.

Many of our officers have commended the scheme adopted of publishing from time to time a list of the best books for cavalry officers and commenced in the November, 1909, of the CAVALRY JOURNAL. While this list was primarily intended for cavalry officers, yet if three or four books be stricken from that list, it will answer for all line officers and even those not of the cavalry service could read those three or four to advantage.

To that list should now be added the following:

Tactical Principles and Problems by Captain M. E. Hanna, Third Cavalry, which is just off the press. This book is reviewed in this number of the JOURNAL. From the review, it will be seen that this book is intended for the beginner in the study of tactics.

Modern European Tactics by Balck, a new edition of which is out and which is being translated by Lieutenant Kreuger who is adapting it to American methods and organization.

All cavalry officers should obtain, if possible, a copy of the recent translation by Major Cameron on the Saumur methods of equitation, etc. This work has recently been printed at Fort Riley and distributed to the field officers and captains of cavalry.

Of this idea of publishing the list of the latest and best military works, a member writes:

"I notice that the Council has adopted the scheme that I was urging last year while I was at the school, that is publishing a list of books that officers should have. I do not know of anything better calculated to encourage correct professional study than just this thing. With my own experience as a guide and knowing what others have done in like cases, I am firmly of the opinion that more than half of the money and time spent heretofore on books has been wasted. This has been due entirely to the lack of some reliable guide to the purchase of books, not to mention the discouragement that results when a man buys an expensive book and finds it not at all what he expected or needs. I would feel disposed to urge that you go even further than you are now doing and publish the list in each issue, keeping it up to date, classifying the books and papers under their proper headings.

"Also, give the publisher's name and the price of the book and note the number and page of the CAVALRY JOURNAL in which the book was reviewed.

"This might take two or three, possibly four, pages of the JOURNAL, but I believe it would not be long before most officers would go to the list as a matter of course when they wanted any book on any particular military subject."

It is just possible that the above idea may be adopted in the near future.

INSTRUCTION OF NON-COMMISSIONED OFFICERS.

Since the idea was suggested of interesting our non-commissioned officers in the CAVALRY JOURNAL and of devoting a part of it to the subject of their instruction, several of our members have expressed themselves upon this subject. Some of these comments are given below:

"I contend that there should be no theoretical training of the private soldier and for the non-commissioned officers, only so much as will fit them for the duties of squad leaders.

"The course laid down for them by the War Department, for the winter months, is ample. Drill Regulations, Army Regulations, Hippology and Minor Tactics of the most minor sort is all there is time for.

"If we can teach our men to ride and shoot well; to be clean, obedient and respectful; to know how to take care of themselves and their horses in camp and garrison, and, for the non-commissioned officers, the duties of patrols and the art of scouting, we will have exhausted our time and earned our money. I want my non-commissioned officers to train their squads."

"There are several reasons why more advanced instruction can not be given to our non-commissioned officers. One is that the stress of routine duties in a large garrison seems to crowd such things into the background, and they get neglected. The present conditions and the most urgent present needs of a troop

must be considered. Since I have been stationed at this post I have had several non-commissioned officers whose length of service was but a few months when they were appointed. They were appointed because I thought them the best material available. It is hardly necessary to say that tactics was not the only important thing about cavalry service that they did not know. It is not known how well they will assimilate tactics until they can properly care for their horses, arms, equipments and clothing and have learned something about the ordinary duties of camp and garrison.

"Three summer months are almost wholly given up to target practice. Practice marches take up more fractions of the year, although I have never seen one that I considered very instructive, except as a march, which I admit is in itself a worthy subject of cavalry instruction.

"Enthusiasm for all kinds of schools is now, as we all know, at a very high point in the service. I do not wish to make any criticism on them as they exist, but will say that I would not be surprised to see the day when they will absorb less of our time, thought and energy than they are doing now. Perhaps then we will accomplish more in some other lines of activity."

On this subject of the instruction of non-commissioned officers, it was a source of great gratification to the Executive Council to receive fourteen solutions to Non-commissioned Officers' Problems, No. 1, all of which were good, as reported by the committee and that two of them were from members of the cavalry of the National Guard.

OUR MODEST COLONELS.

It has been the custom for several years to insert in the CAVALRY JOURNAL, as a frontispiece, the portrait of some general officer that had served in the cavalry.

Recently, as the available photographs of such general officers became exhausted, it was determined to use those of our colonels of cavalry for this purpose. Accordingly they were requested, either through our regimental representatives or by direct correspondence, to furnish their photographs.

Up-to-date, none of them have complied with this request although two or three have offered excuses for not

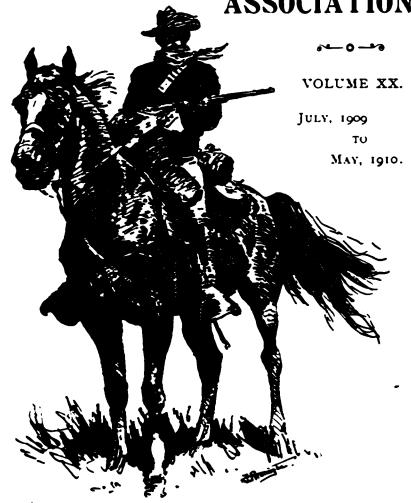
furnishing them.

A photograph of one of our colonels was surreptitiously obtained for use with the March number of the CAVALRY JOURNAL. It is hoped that others will be obtained for future numbers.

In the meantime, it is proposed to use cuts of horses, either those owned and ridden by our officers or those of typical officers chargers.



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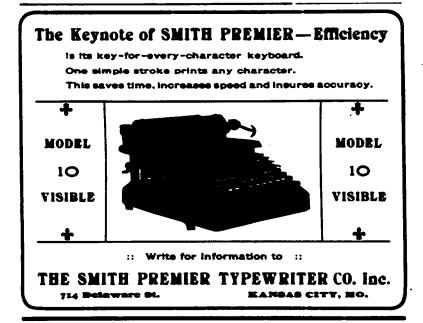
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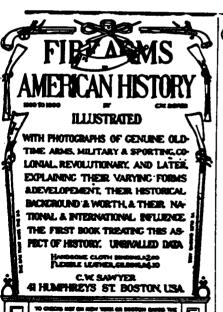
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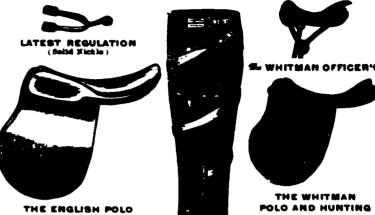
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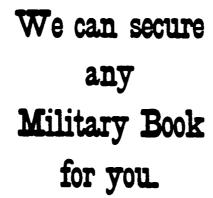
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