Machine Guns with Cavalry

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LIEUT.-GENERAL J. KEITH FRASER, in the Chair.

MACHINE GUNS WITH CAVALRY.

By Captain W. ANSTRUTHER THOMSON, Royal Horse Guards.

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I. INTRODUCTION.

It has sometimes been suggested that machine-guns should form part of a battery of artillery, but this idea has wisely been ignored, for although they might sometimes be so employed, especially as a safeguard against cavalry attack, the true rôle of the machine-gun is in independent action.

The value of machine-guns for purposes of defence is generally admitted among nations, but, as our cavalry drill book so ably points out, these weapons can do far more than this, and there is now no doubt that, in taking part in a vigorous offence, reliable machine-guns will prove invaluable.

Let them push forward with the first line, if possible, wherever they may find cover, and dash out, as opportunity occurs, and take the enemy by surprise. A hedge, a hayrick, a cottage, a clump of trees, or even a heap of stones, will often furnish a hiding place for the occasion.

The gun presents so small a target, it is so easily concealed, it is so quick, so mobile, and so deadly, that when properly handled it should rarely be captured or put out of action. Now and again, no doubt,

one will be lost, but these dogs bite, and men and horses will think twice before attacking them, except under the most favourable circumstances; and if they serve their purpose it may pay to sacrifice them. It is easy to render them useless to the enemy: to carry away or hide the lock, or feed block, to jamb the bore, or to knock off the sight, would be the work of a moment. It is even possible to unhitch the gun itself and carry it off in one's arms for a few hundred yards, or otherwise to disable it; but a clean pair of heels will generally obviate that necessity.

Except when it is desirable to hide it, the cavalry machine-gun is of no use galloping behind the centre squadron of a regiment; it should be away on the flank, where it can best get a chance of manœuvring with effect; it is only in the way as a serrefile.

The gun commander must keep his eyes open, he must watch the enemy, and watch the ground, and watch his own force too. He must keep his line of retreat secure, if possible, and not allow himself to be taken in flank, or rear, or get too far away from succour. He must choose his positions well, and decide quick and travel quick, for it is one thing to select a position, and quite another thing to get there.

He must ever be pushing on, taking every short cut and advantage possible.

He must always be "there," but never in the way.

Cavalry machine-guns should seize every chance, not only against cavalry but against the other arms, especially artillery; to creep along a hedge, to get within range without exposure, to fire at guns, horses, and escort, at about 1,000 yds., will be a right task for a single gun, and if war has any likeness to manœuvres such golden opportunities will constantly recur.

There would be no waiting for an umpire then, and few would be the arguments urged against the machine-gun when it had played for half a minute at a fair target within that range.

At the same time it must be remembered that one well-directed shell will demolish the machine-gun, and it is only where sufficient cover is forthcoming that this can safely be done.

To illustrate the subject, I will now ask you to follow a machine-gun through the Idstone Manœuvres of 1893, showing the opportunities that may arise for such a weapon with cavalry in the field.

II. IDSTONE MANŒUVRES.

Battle of 4th September.

(Map 1.)

Position 1.—Our cavalry division was formed up south of Bishopstone Downs, north-east of Russley Park, while the enemy's advancing infantry approached to within 1,000 yds. of our entrenchments on Idstone Downs.

The cavalry division swept round and charged the infantry in flank, who at once formed groups, presenting a perfect target for the Maxim gun, as well as the artillery and infantry, on the hill overlooking them. At about the same time a battery of the enemy's horse artillery, appearing at the west of Swinley Copse, came under Maxim fire at 1,000 yds., and would have been destroyed.

Ammunition.—The 3,500 rounds laid down to be carried on the Maxim carriage would have sufficed for all this.

Remarks.—A squadron of our hussars was sent round to the right, east of Ashdown Park, and took a battery in rear.

Two squadrons were sent to the left to threaten the enemy's flank, but their attack was ineffectual.

Machine-guns with both these parties would have been of service.

Battle of 5th September.—First Phase.

Position 1.—Our brigade formed up under Fognam Clump until the order was given to attack the advancing enemy.

When our artillery took up a position to the south, on Bailey Hill, and our cavalry trotted north under cover of Kingston Down, the Maxim gun on their right rear.

Position 2.—Hearing the enemy's artillery firing to our right we galloped our gun to the brow, and opened fire at a range of 800 yds., taking them in enfilade.

The enemy's Nordenfolt, concealed at Half Moon Covert, turning its attention on us, we had to retire beyond the brow, but by this time the enemy's guns had retreated.

Here we were glad of our shield and our power of returning ten shots for every one of the Nordenfolt.

Position 3.—We then hurried after our cavalry, and arrived at the nick of time to catch two squadrons of the enemy in flank as they wheeled to the north to face the charge of one of our regiments round the old Warren Wood.

Here the battle was stopped.

Ammunition.—Ammunition would have sufficed.

Battle of 5th September.—Second Phase.

The brigade halted under cover of Hinton Down.

Position 1.—The Maxim hiding in the fir-tree strip to guard the right and front, while the artillery took up a position on the left.

Position 2.—The enemy's guns appearing at the clump north-west of Russley Park, we galloped to the tumulus on our left front, and there hid.

The hostile cavalry now showed itself north of Russley Park.

Position 3.—One squadron, charging to the south, came under Maxim fire at 600 yds., the gun galloping out and back so rapidly that the enemy's artillery would have had no time to take aim at it, they were besides busily engaged in a duel with our artillery.

Positions 4 and 5.—The main body of the enemy next advanced in

column, the Maxim playing on them from 1,200 to 400 yds. They charged our cavalry and artillery on the north side of the tumulus, but ignored the Maxim gun, which now poured a hail of lead into their flank at 200 yds.

Position 6.—The gun, of course, ran great risk of capture, and in the end a squadron surrounded it, but a moment later cease fire was sounded. The end attainable was worth the risk we ran.

Ammunition.—The ammunition on the gun would have been expended, but our reserve supply would have been close at hand.

Scouts.—On this day we had but one scout, and for some time not even one, as his horse fell head over heels, clipping a piece out of the gun wheel with his hind shoe.

We might easily have been surprised at the tumulus, and we felt most severely the want of proper scouts. Good men, well trained and well mounted are absolutely necessary to a machine-gun with cavalry.

Battle of 6th September.

From Old Warren, where we saw some of the enemy's scouts and a squadron of their hussars about a mile to the north-west, we galloped through Knighton Bushes on to Wellbottom Down.

Our cavalry and guns halting just below the ridge under cover from the enemy's artillery, some 1,800 yds. to the north-east, who now opened fire on the cavalry whom they had just seen.

The Maxim, under cover of the ridge some 400 yds. to the left, opened fire on the guns and escort for a few seconds at 1,800 yds., again withdrawing below the crest to guard our left and front from surprise.

Our brigade then wheeled to the left, trotting north towards Uffington Castle, under cover of Woodstone Down.

Our artillery taking up a position to the north of the clump, the Maxim on their right behind it.

Observing a squadron of the enemy's hussars halted west of the strip, we ran out and opened fire on them at 800 yds.

They at once took cover on the south side of the strip, while we moved so as to cover them if they emerged.

This they did, and were under Maxim fire for the space of 800 yds., within easy range.

Our cavalry had meanwhile charged the rest of the brigade which were drawn up to the right of their enemy's guns, and a furious combat was raging south of Knighton Warren Farm.

The above-mentioned squadron of hussars, although theoretically slain by Maxim fire, did yeoman service to their side by taking our men in rear.

As soon as they were gone we galloped to Knighton Warren Farm, taking cover under a hayrick, caught the enemy's artillery as they were limbering up at 800 yds.

The battle then ceased.

The position behind the clump was most favourable for the Maxim, and had it not been there, the squadron from behind the strip could

have done all the execution they got credit for, and more than this had they boldly charged our guns instead of halting where they did it is not impossible that they might have rolled the escort up and taken our guns in rear; a machine-gun on the flank will save many a day.

Ammunition would have sufficed, and reserve supply could have been at hand.

Battle of 11th September.

The Maxim took up a position behind a ragged hedge at the cross roads south-west of Uffington Camp.

A few moments later we found a contact squadron of our hussars retiring before a superior force of the enemy's cavalry. Allowing our men to approach to about 300 yds. we darted from our cover and fired down the road. Our squadron drawing off to the east as soon as they observed us.

The enemy retired.

The Maxim, supported by the contact squadron, advanced, and finding a squadron of the enemy halted over the spur of Woodstone Down, greeted them with a rattling fire at 250 yds., causing them to wheel about and retire at a smart pace.

Seeing the enemy's guns on Tower Hill we galloped into the hollow east of Pingoose Covert, the Maxim creeping out of sight to the end of the strip and opening on them at 1,000 yds.; our infantry meanwhile advancing on either side.

Perceiving a lot of dust over the rising ground, about 1,000 yds. south-east, we galloped to the brow anticipating a charge from the enemy's cavalry on the left flank of our line, but only found a squadron.

We opened fire at 800 yds., and caused them to retreat to Knighton Bushes; we now returned to the south of Pingoose Covert, and from thence galloped to Compton Bottom; here the enemy's squadron again came under the Maxim's fire, and two of their troops were put out of action.

Our infantry turning at Compton Bottom attacked the enemy's right flank, and seeing a good place among the old trees 200 yds. to the west, we galloped there and poured a murderous fire on the limbering guns and retreating infantry, who now had to leave their shelter trenches.

The contact squadron had by this time left us. Here we remained until Knighton Bushes were clear, and then galloped through them, checking at the further end till a scout reported all clear beyond. We then emerged, and seeing some squadrons of the enemy halted on the hill 1,000 yds. to the south, we opened fire and they retired.

We were now put out of action, having mistaken the enemy's Rifles for the Cameronians, who were on our side, a mistake which would have curtailed our speedy demolition.

After an enforced halt of 10 minutes we made a fresh start, and climbed on to Kingston Down. Keeping under cover, as far as possible, till we reached the shelter of the Rubbing House; here

finding the enemy's infantry with a Nordenfelt in front of us, we opened fire at 400 yds.

Our infantry advancing as the enemy retired, at length reached the foot of the Down when the guards were attacked by a squadron, and a few moments later the whole line was charged by the enemy's cavalry brigade.

The Maxim and guns on the slope of the hill playing on them from 1,000 to 400 yds. distance.

Few could have escaped the combined fire of artillery, infantry, and machine guns.

Our force then advanced across the valley to attack the guns on Bailey Hill, the Maxim hiding under cover of Fognam Clump till a fresh opportunity should arise.

Here the battle ceased.

Ammunition would have been a difficulty in this battle, as we should have expended our allowance many times over, but there was nothing to prevent a fresh supply following in rear of our army.

Had the contact squadron remained with us we should probably have been saved the blunder that put us out of action, and the Rifles would have afforded a grand opportunity for a cavalry charge from the wood, and an excellent target for the Maxim when they formed square.

Battle of 12th September.

We were escorting a convoy, proceeding to Lambourne, *via* the Icknield way and south to the west of Ashdown.

Our advance guard, a squadron of hussars, accompanied by the Maxim, pushed forward along the Icknield way to within 400 yds. of Ashbury Folly. When a squadron of the enemy was found advancing towards them.

The Maxim at once galloped forward and opened fire at 400 yds., upon which the enemy took shelter under some farm buildings on their left.

We then observed from the cover of the hedge, the whole brigade of the enemy's cavalry advancing at a walk 800 yds. to our left. We at once opened fire and played upon them until they were out of sight, but no notice was taken of us.

The hostile guns now appearing on Tower Hill we retired to a position on the right of our artillery, where we found cover under a hedge and bank alongside of the mounted infantry.

Our cavalry was in rear of the clump and the convoy half a mile to the north under cover of the hill.

The enemy's cavalry charged our guns under fire of the mounted infantry, and the Maxim, from 1 200 to 300 yds., and were then met by our cavalry with the result that some of the enemy were put out of action.

Our cavalry then moved to the left to attack the guns on Tower Hill. The Maxim dashing forward to Odstone Barn to support them, opened fire on the enemy's guns at 1,000 yds. Our mounted infantry following in reserve.

We then galloped to Down Folley, firing again on the guns at 600 yds.

Thus ended the first phase of the battle.

The convoy proceeded along the Icknield way, turning to the south by the track leading to Red Barn. The Maxim being in rear, expecting an attack from that quarter. As we left the Icknield way the enemy's guns opened on us, but on reaching the cover of Red Barn, the Maxim came into action, and returned their fire at 800 yds.

Two squadrons of the enemy's hussars threatened our left from the north of Hayley Wood. We opened fire on them, but observing two of our regiments wheel about unseen by them, we tried to entice them on, trotting a little way and halting, pretending to be in trouble; thinking us an easy prey, they charged round the wood and were caught by our two regiments in front, and the mounted infantry at Red Barn in the rear. They were put out of action.

The attack in rear having been disposed of, the Maxim trotted on in advance, expecting work in front.

Arrived at King Alfred's Camp. We applied for a field troop as escort to help us to secure the road between Ashdown and Upper Wood.

Instead of a troop, two squadrons came with us, and the gun secured the road, but a rumour of an enemy's squadron over the hill to the south took the two squadrons away and the Maxim unwillingly accompanied them.

There was no enemy there and as we hurried back we saw the dust rising on the road we had left, proving that we were too late. The enemy's brigade now emerged.

Hoping that they would attack the convoy and that we should get them in rear we remained out of sight over the brow of the hill, but they discovered and two squadrons attacked us, forming a splendid target for the Maxim gun as they charged up the hill. We should have demolished a lot of them, although we were lost ourselves.

We were put out of action with a field troop of the enemy slain by the Maxim gun.

The ammunition on the gun would have been expended, in the first phase of the battle, but reserve supplies would have accompanied the convoy.

Battle of 13th September.

Arriving at the rendezvous at Fognam Clump we found the enemy holding Idstone Down. Our infantry advanced to the attack on both sides of Bottley Copse. Our artillery opening fire from Bailey Hill, our cavalry remaining under cover of Upper Wood.

The Maxim galloped to a position under cover at the east of Bottley Copse opening fire on two of the enemy's squadrons on the move at about 500 yds.

On our infantry machine-guns coming to this position, we moved lest we should attract artillery fire, and from the wall on the west of the copse opened fire on the enemy's infantry at 800 yds.

So soon as the hill was clear we galloped to the brow and caught the last line of retiring infantry in enfilade at 300 yds. Keeping the gun as much as possible under the hill, the muzzle only showing.

Finding further advance on the glaciis impossible, we galloped under cover of the Down to Three Barrows, where we found shelter, and fired on the enemy at 1,000 yds.

We next advanced to a tumulus 500 yds. west of Harley Bushes, firing at retreating infantry and a squadron of cavalry at 600 yds., and then galloping on to One o'Clock Hill Clump we got a good chance at the infantry, on Two o'Clock Hill, at 900 yds.

Finally, on to Two o'Clock Hill, when our advance was stopped, to allow the hard pressed foe to retire to Lamby Down.

The ground did not admit of further advance until Lamby Down was clear, but we had observed a squadron of cavalry on the right flank and they now were halted at Starveall Farm, we were about to make an attack on them when cease fire sounded.

Here we were drawn into the infantry fight right away from our cavalry brigade, who eventually had a combat of its own on Hinton Down.

But we had left them halted at Upper Wood and had been hard at work the whole time. Unless specially ordered, it would have been folly to remain idle, while there was good work and good cover for us at the front.

This day showed me how useful fast machine-guns might be in an infantry fight on suitable ground, keeping under cover, galloping everywhere, popping up at unexpected places, and often securing the flank against attack from cavalry.

Ammunition would have been expended many times over, but reserve supplies could have followed us in rear.

In an infantry fight I believe there would often be time to gallop back and refill the ammunition boxes, but perhaps this manoeuvre would be attributed to cowardice. With cavalry, however, this could seldom be done.

It was on this day that the enemy's cavalry Nordenfelt was captured by three or four of our hussars.

Battle of 14th September.

We were to defend the rear of an army retiring on Uffington Castle.

An infantry and artillery fight was taking place to the west, for the possession of Idstone Hill; our cavalry brigade was in reserve under cover of Red Barn; our horse artillery, with a mounted infantry escort, at King Alfred's Camp, while a party of mounted infantry was sent to Swinley Copse, to line the hedge to the west of them.

The Maxim halted behind a convenient haystack till affairs developed.

After a long wait, we observed that a party of the enemy's horse, about a squadron and a half, had approached to Starveall Farm, and were halted there, under cover from our guns. We at once galloped

to the best position we could find, and opened fire on them at 1,200 yds., and then, as this position was exposed to the enemy's shells, we took cover at King Alfred's Camp.

The enemy's party then emerged from Starveall Farm, making a sweeping charge to the north-east presumably with a view of taking our guns.

The Maxim galloped out from behind King Alfred's Camp, opening on them, from 800 to 400 yds.

The mounted infantry at the same time giving them a succession of volleys; they sought shelter at Parsonagehill Barn, but were put out of action. Cease fire then sounded.

This was the only piece of cavalry work that took place on that day, beyond a few mounted infantry being put out of action; and it was the last affair in which the Maxim took part.

I may add that during these manœuvres we had, on one occasion, six men hauling on to ropes to keep the gun from capsizing, and frequently we had three men pulling behind, as a drag down hill.

The gun never had to turn back from an obstacle during manœuvres, though of course we had to choose our places, and sometimes take the horses out to save the strain on our harness.

The same horses came out every day, and did a 37-mile march to wind up with without being sick or sorry.

The Gun on Service.

The following details from Matabililand I have learned from an eye-witness:—At the battle of 1st November, which took place in the afternoon, the Matabilis charged to within 140 yds. distance of the laager, when the rush was stopped by Maxim fire.

At the battle of the Shangani, 24th October, which was fought in the dusk, the nearest natives killed were but 50 yds. from the Maxim.

Most of the enemy were killed by the machine guns, their fire being steadier than that of the rifles, and the range easier to discern. The killed were mostly struck by bullets in two or three places.

The guns were fired by cool, experienced men, the late Captain Lendy and Lieutenant Llewellyn (late R.N.) were the firers of two of them.

To this point I attach great importance, the firer must be an intelligent and steady man, who knows how to handle his weapon, and what to do if it jams, and the best means of preventing this casualty. Such a man is well worth a shield to protect him.

Lieutenant Llewellyn's gun was driven in a carriage drawn by four mules. Captain Lendy's gun was carried on horseback; he brought his gun into action in 60 seconds.

In the Victoria Column the machine-guns were on carts drawn by six horses, and with drivers.

A pack saddle for bush work proved a tremendous saving.

I have here a letter from an officer who took part in the Matabili campaign, extracts of which may be of interest:—

"With regard to the Maxims, I am perfectly certain that the best

method of carrying them is on galloping carriages with a tripod in the net behind, so that they can be moved to any point *at once*.

"Even with infantry, I should have them on galloping carriages; they are on a higher level, and command a greater frontal fire, and can be brought to any point *at once*, and they could be left on an eminence to fire over the heads of advancing infantry, and *then* brought up again at a gallop.

"You should, I think, have two Maxims on a given face, so that there is no cessation of fire whilst belts are being changed or from other causes.

"They can be used up to a very long range, and were used by us up to 2,000 yds. with deadly effect upon natives retreating along the sky-line, the distance being found by firing two single shells from a 7-pr.

"They are equally deadly at close quarters, and did *great* execution at 400 and 500 yds., and even closer, on any body of natives attempting to mass.

"In fact, it was perfectly *impossible* for them to do so, no matter what bravery they might have shown.

"At the same time you must remember we were also under a hot fire from the enemy.

"I deprecate the large detachment we have in the service; let the men be trained by all means, but three is ample about the gun.

"The gun should be left to the man firing it. Do not let him be harassed by orders. Let him use his own common sense; the gun will be worked better and the men have more confidence.

"We had no one about the guns except three men, and it was extraordinary the way they worked them, ceasing fire when they saw that it had been effectual and turning it on to another point where it was most required.

"Each man was thoroughly up in the mechanism of the gun, and could put it to rights whatever happened.

"We had spare locks and everything ready, but *they never jammed once*.

"We placed the guns a little outside the laager, with a circle of thorn-bush, about 15 ft. broad, round them, so that by slewing round the trail you could flank any side of the laager; it was, in fact, a

square fort with a lunette at each corner.

"The moral effect of the Maxim I consider great, the continuous firing which can be heard above everything, gives the greatest confidence to the men, and you can imagine the effect on troops of a hail of bullets pouring on to them without cessation.

"I think it advisable not to reserve the fire of Maxims until the enemy is at close quarters, but begin at say 1,500 yds.

"The effect would be very striking on advancing troops, especially if you kept the gun working on the traverse. The great thing about them is the continuous stream of bullets.

"Such an amount of lead can be put in during the most rapid advance that it is my own belief not even the best troops in the world could advance against three or four Maxims well served."

I may add that Sir John Willoughby, who was Chief of the Staff, mentions in his despatches that the Maxims did good service at 2,000 yds., and I have it on the authority of the High Commissioner, Sir Henry Loch, that they would never have been able to keep the Matabili at a distance without the Maxim guns.

Mr. Selous, who has just returned, bears witness, also, to the immense utility of the cavalry machine-guns in Matabililand.

III. MATÉRIEL.

A. Transport.

Having followed the gun in manœuvres and in action, let us now turn our attention to the vexed questions of matériel and personnel, upon which such varied opinions are held, avoiding, with your permission, uninteresting mechanical details.

From experience at the above manœuvres and elsewhere, I am led to certain conclusions which I will, with all due deference, put before you.

Transport of the Gun.—In the paper read in this theatre by Captain Benson, R.A., in November, 1887, and in that read at Aldershot by Captain Stone, R.A., in July, 1888, and in the discussions which followed, this subject was well threshed out; but, although five years have elapsed since then, very little has been practically done towards the solution of the question, which I maintain can only be solved by practice in the field. Personally I would like to see experiments tried with a four-wheeled buggy on hickory wheels, somewhat of the buckboard type. It is important to keep the carriage from being top-heavy, and I should mount the gun with a small shield to protect the firer close to the rear axle, so that it could be fired with the least possible vibration, with the horses in, if necessary, though they should be taken out whenever it is safe to do so; but in cavalry work this can seldom be done, for though it takes but a few seconds to take them out or put them in, it is the seconds that make all the difference.

While on this subject I would like to point out a carriage designed by the Maxim-Nordenfelt Company for a 3-lb. Q.F. gun firing 15 aimed shots a minute.

The horses to be driven three abreast like the Russian troika.

I cannot here enter into the question of quick-firing guns with cavalry, it is beyond the sphere of this lecture, but I think that I may safely say that these are the weapons most to be dreaded by machine guns on service.

I have here two cartridges—common shell and shrapnel—designed for the 3-lb., and carrying 45 bullets, case shot containing 108 bullets, but I think a larger calibre, such as a 6-lb., would be far preferable.

But to return to our subject, I must say that from personal ex-

perience I have great respect for a cart of the buckboard type, having been taken over places in them, in the Australian bush, that I had deemed quite impassable; and I expect that there are many officers here who, having travelled in America and Australia and elsewhere, know how much can be done over rough country, in a four-wheeled buggy heavily laden, and not always with the best broken horses. At the same time it must be remembered that wheels will not go everywhere, and I am strongly in favour of having a pack saddle and tripod handy in case of need.

The Cape Mounted Rifles have adopted this suggestion, and a pack saddle is to accompany every Maxim.

The saddle they have adopted is Captain Newburgh Stewart's, which is fashioned with a hinged tree, somewhat on a similar principle to the Austrian saddle, which has come as a blessing to cavalry, and was introduced into this country by General Keith Fraser.

Another saddle which appears to me well suited to the purpose is that invented by General Bogle; it has the great advantage of counteracting the dead weight of the load by means of a kind of cradle and four springs, the weight being distributed over the whole horse's back, instead of having all the pressure on the top.

I have seen a horse with Gardiner gun tripod and 300 rounds of ammunition jump 4 ft. high in this saddle, and it takes but 10 seconds to come into action and about 20 to replace the gun on horseback.

It is adapted for carrying ammunition and other baggage as well.

Through the courtesy of the above-named gentlemen, both these saddles are here for your inspection.

At least one ammunition horse would, of course, accompany every pack saddle gun with a load of 2,000 rounds.

Light entrenching tools should always be carried with the gun, whether on horseback or on wheels; a few strokes with axe or spade will often enable the carriage to cross an obstacle that otherwise would be impossible, and a hasty entrenchment might sometimes be of use.

As regards harness, I believe that we might get some useful hints from the fire brigades of different countries, but the harness invented by Major Baden-Powell, and adopted by the Government, enables the horses to be taken out or put into the carriage in 10 seconds, and this will be hard to beat.

B. Ammunition.

It is laid down that the Maxim gun should carry 3,500 rounds M.H. bore on the carriage, and 7,200 in the ammunition cart; the whole amount should, of course, be carried in belts, while the Nordenfelt carries 2,000 in boxes. The introduction of the 0.303 bore will enable us to carry about half as much again.

With machine guns it is of the utmost moment that reserve ammunition should be forthcoming when required. The expenditure is so enormous and so rapid that unless fresh supplies are at hand the

guns may find themselves out of action at the very time when they are most required.

The amount of ammunition to be expended during the fight is a matter for careful judgment and anxious thought.

It can only be solved in the field; and no amount of theory will avail, unless the gun commander can keep his wits about him and his reserve ammunition at hand. The amount of ammunition laid down for practice is quite inadequate. An annual allowance of 200 ball and 300 blank for a gun that can fire 600 shots a minute, does not admit of a fair training for either men or horses.

Smokeless powder, so long as it is satisfactory and does not destroy the barrel, is all in favour of machine guns.

We will see our target without being blinded with smoke or our position being revealed by that cause.

The cordite 0.303 bore has not so far proved satisfactory in the Maxim gun, but the powders used abroad appear to answer, and I look on the remedy of these defects as only a matter of time.

C. Range.

This is a most important subject, and one to be thoroughly considered.

At 1,000 yds. it is possible to put nearly every shot on a 12-ft. target, the average being 90 hits out of 100 shots on a 6 x 8-ft. target.

At the same target at 2,000 yds. the average is 15 per cent., but even this would admit of some 100 hits a minute, and at a squadron 9 ft. high by 50 wide the percentage would be much greater.

At 1,800 to 2,000 yds. the Maxim did good service in Mashonaland, and proved itself effective beyond that range.

At distances within 1,000 yds., in the hands of expert and steady marksmen, it is deadly.

Of course, at long ranges, it will be a question whether the execution done will pay for ammunition spent.

Experiments have been made by Major East firing at a particular spot from the reverse slope of a hill. A couple of pegs in line on the brow, and a man with a telescope to signal the result of shots, being all that is necessary to carry this out in a rough and ready fashion.

A bridge or defile where the ground was favourable might be held by an unseen gun in this manner.

A range-finder should always be carried with the gun.

The Mekometre, though requiring two observers I believe, can determine ranges with only 5 yds. error up to 3,000 yds.

D. Sights.

I advocate the introduction of orthoptic sights such as have been adopted by Major East, 1st V.B. Hants Regiment, made by Messrs. Rigby, I believe, and proving most satisfactory.

Telescopic sights might also be carried with advantage.

E. Shield.

The shield should be as light as possible, but big enough to cover the firer and strong enough to withstand the heaviest small arm bullet.

A steel shield of $\frac{3}{8}$ -in. thickness will answer this purpose.

There is no doubt that the average man will shoot better when he is safe, or thinks that he is safe, than when exposed, and a gun with a shield could do a lot of work under fire where an unprotected gun could not live.

Against this, of course, comes the question of weight and whether the advantage of a shield compensates for the extra strain on the horses. Myself, I think it does.

The officers who worked the Maxim in Mashonaland are all in favour of shields.

IV. PERSONNEL.

a. Gun Detachment.

Many are in favour of forming machine-gun detachments into separate units.

How far this might answer I cannot say, but at present the regimental system is far more likely to be adopted because it is the most economical.

It is very improbable just now that money will be diverted from other military objects, to establish machine-gun batteries or troops.

For the present, then, I confine myself to the regimental system, which I think can work very well.

I should like to see three or four machine-guns at least to each cavalry brigade. An officer, a sergeant, and two men to each gun.

An experienced N.C.O. and two men with the spare ammunition, which should be carried in a similar manner to the gun.

Scouts should be permanently told off, both for the gun and spare ammunition.

When several guns accompany a brigade, an officer should be told off in charge of them, lest they should all be on one flank and in each other's way, but a wide latitude as to movements and position must always be conceded to individual gun commanders.

b. Scouts.

And now we come to a subject that has not been touched upon so far as I can learn in previous discussions. I refer to scouts.

As with cavalry so with machine guns, the great chance of success is in surprise, and the chief risk of failure lies in being surprised. It is therefore of the utmost importance to have good scouts, four at least for each gun and two for each ammunition cart.

Cavalry leaders are naturally adverse to weakening their squadrons, but I ask you, is it not worth while to take a man out of the rear rank of each squadron, rather than to cripple the whole offensive advan-

tage of a weapon which, if properly handled, may decimate a whole brigade?

Though it would be folly to gallop blindly forward, in an unknown country, without scouts, for ground or enemy, it is by pushing forward, not foolishly but boldly, that the gun will make its name.

γ. Escort.

Except under certain conditions an escort is a great advantage. It makes a man bold; the knowledge that it will follow and look after the detachment takes away half the anxiety of the machine-gun commander.

Without an escort he has to be ever looking round.

Where is the main body?

What is their object?

How can we get there?

Shall we be in the way?

are questions that constantly crop up, and though, of course, they must be borne in mind, they should not be allowed to bar the road to enterprise, and a field troop, as escort, would solve the question.

Again, the presence of a troop will tend to keep the enemy's cavalry from scattering, and so offer a better target to the gun; this would also apply to infantry, besides preventing the risk of capture from single horsemen galloping in from opposite directions.

On occasions, when the escort is not required, it could rejoin its squadron.

V. FOREIGN PROGRESS.

The following notes I have obtained from foreign military journals:—

In Switzerland there is to be a Mitrailleuse section incorporated in each cavalry regiment consisting of—

1 officer,	} to 3 Maxim.guns;
1 sergeant,	
1 armourer sergeant,	
3 corporals,	
12 men,	
2 drivers,	
4 horses to draw the ammunition wagon on which the guns are carried on the march;	
19 riding horses;	
6 pack-saddle horses, <i>i.e.</i> , 3 for the guns and 3 for the ammunition, the latter carrying 2,000 rounds apiece.	

These pack-horses are led by mounted men, who have a stick instead of a leading-rein to prevent their knees being crushed by ammunition boxes or gun.

They are never to be used singly but to support one another.

Before taking the field the gun commander will obtain his chief's instructions, and will conform to the best of his ability.

The gun detachment will, as a rule, follow in the rear of the regiment, but in the attack will take up a position in rear that the cavalry, if beaten, may rally round them. (While we examine these tactics we must remember the mountainous nature of the country.)

These guns will be most useful in enabling cavalry to hold an extensive line of front along a river or mountain range, a few machine guns being placed at the points of passage accompanied by weak cavalry detachments quite independent of the remainder of the cavalry.

At night machine-guns will be allotted to outposts and pickets.

My authority proceeds to say that no cavalry leader is to be influenced by the machine-guns, nor is a single trooper's life to be sacrificed for them.

They are to be looked upon only as a welcome auxiliary to cavalry, never as the principal arm.

Whenever it is necessary, in order to rescue troops, the machine guns are to be sacrificed.

The moment that cavalry has to cover machine-guns it ceases to be cavalry.

There are 24 Mitrailleuses or Maxims required for the Swiss cavalry, and 8 wagons.

The Maxim is carried with the tripod on one horse and 2,000 rounds on another, its calibre is 7.5 m.m. or 0.295 bore.

8,000 rounds are carried in the wagon for every gun.

10,000*l.* has been voted for this purpose, 4,000*l.* of which is to be spent this year.

The Austrians, though they have not as yet adopted machine guns for field service, admit the necessity of supporting cavalry regiments with infantry fire, since in their last manoeuvres, 1893, they attached two battalions of rifles to each cavalry division, which, in spite of brilliant marching, necessitated to some degree the subordination of the movements of the cavalry to the riflemen.

I may mention that one battalion marched 67 miles in two days, and only 11 men fell out.

VI. CONCLUSION.

In all the above suggestions I would ask you to bear in mind that I claim nothing for theory; practice and experience are alone the true and proper tests, and unless experiments are made all argument is in vain.

To sum up the whole matter, whether the gun is carried on horse-back or on wheels, whether the detachments belong to regiments or are a unit of themselves, the same tactics will apply, and rapidity of movement is the great desideratum.

Tell the gun commander the general idea, give him as free a hand as possible, and I predict that these guns, so far from being an impediment, will be a welcome aid to cavalry. They are suitable alike for attack and defence, a useful auxiliary to every arm, and will prove themselves of value hitherto undreamt of.

As the improvement in modern firearms continues, so does the importance of supporting our cavalry with fire increase.

Here is a chance of carrying, so to speak, a battalion in our pocket.

We have proved that it can travel, we know that it can shoot. It is but a few weeks ago that it saved a British column from defeat. One of the enemy has described its effect. In his own words he says, "It mowed us down." What is there to prevent these ominous words from being applied to the battles of the future?

Major BEAUCHAMP, 20th Hussars: We have listened with great interest to the advantages of machine-guns with cavalry, but I would ask cavalrymen to be careful in accepting machine-guns as part of their equipment too hastily. I am touching a delicate point when I refer to mounted infantry, but I think that arguments have been raised against the present system, by officers commanding battalions, because their best men are taken from the battalion. The Cavalry Regulations lay down that 50 men per cavalry regiment should be trained for machine-guns. As a cavalryman I would like to see the all-important duty of scouting practised and perfected (if possible), which would be a considerable gain to our cavalry. Our gallant lecturer enumerates the difficulties of the officer commanding the gun detachment, by the circumstances he has to consider—without scouts—viz., Where is the main body? What is their object? How can we get there? Shall we be in the way? Those are the anxieties of the officer commanding the machine-gun. Those advocating the machine-gun worked by cavalrymen must not forget that the anxieties of the brigadier are as enumerated above with innumerable additions, and would not these anxieties be lessened if he was aware that there were in the ranks of the regiment 50 good men trained to scouting and how to report, than that he had 50 men in each regiment trained to the use of the machine-gun? I am an advocate for, and do not wish to say a word against machine-guns working with cavalry, provided they are worked by proper men and remain in their proper places. Let us follow the Idstone Manœuvres. Captain Anstruther Thomson is alive to tell us the whole story of the extraordinary deeds he performed, and there is no doubt that great deeds can be performed by machine-guns if opportunities occur. The all-important point is find the opportunities. I think on several occasions the machine-guns would have been captured or disabled had it been reality. During the manœuvres I observed that we did not play the game with machine-guns, because, for my part, they seemed too insignificant, and I do not think anyone really knows how many or how few men are required to capture an unsupported machine-gun. Our lecturer refers to a Nordenfolt having been captured by two or three detached men, I think the Maxim might have been captured in the same manner on several occasions.

Colonel DICKSON: It never was.

Major BEAUCHAMP: That is quite true, because we were doing peace manœuvres, but we will fight together and not against one another in war. The lecturer talks of the amount of damage done with his gun, citing instances of catching cavalry asleep, or unprotected; as I said before, we want more cavalry training proper before we can go in for machine-gun training. Had there been proper scouting the gun should never have been allowed to get so near. Captain Anstruther Thomson frequently urged his lack of good scouts, and appealed for escorts at times. Can we spare men for such duties when attacking an enemy? He also quotes the incident on the road through Andover Park, when he applied for an escort of a field troop, he got two squadrons. Were the two squadrons sent to support him, or was he sent to support the two squadrons? If the latter, the machine-gun was assisting cavalry in carrying out its functions as cavalry proper. Would it not be better if, instead of dashing about on an independent duty, the machine-gun remained in a position where the brigadier could send for it and send it to the most deadly position, which position through the information gained by scouting, &c., should be known to the brigadier better than anyone else? Eventually we find

Captain Thomson leaving the cavalry in his independent *rôle*, and mixing with the infantry and mounted infantry, which is the right place for the machine-gun. Perhaps there are not many who will back me up on that point. Have we any experience of the effect of machine-guns on moving targets? We have heard a great deal of the deadly effect of machine-guns on stationary or slow moving masses, but on rapidly moving targets it would be different. What damage would a machine-gun inflict on a charging regiment of cavalry in front of it, especially if the target had an element of danger to the firer. Captain Anstruther Thomson claims to have destroyed a whole battery of artillery at one time, which is rather rough on the artillery; and at another time he mentions the destruction of a whole brigade of cavalry with his gun. If a machine-gun is really so deadly, so destructive, have them everywhere, and manned by the best men to be found anywhere. I would like to raise the question whether the machine-gun if used with cavalry and worked by cavalry, is in its proper place, viz., "in the front line," when cavalry are charging. Also whether the time expended in training men as machine-gunners would not be better spent working with their own regiments learning the innumerable duties of cavalry proper.

Captain EAST: I know nothing about cavalry whatever, but I have had a little experience with the Maxim gun, not with the cavalry carriage but with the infantry carriage, and there are some few words I might say. With regard to the question of moving targets, I have shot at a moving target. We fired at a barrel going along with an 8-knot current at an unknown range off Warden Point. The D.R.F. was to give the ranges. At the beginning I said "Let us see if the gun cannot find the range for itself." The result was I found we could pick up the range with the gun quite as fast as the range finder could give it to us, the ranges being between 1,100 and 1,400 yds. It is the simplest thing in the world to hit a moving target; you have only to lay your gun well in front of it, and then the target goes through the stream of bullets. There is no question about making good shots, and judging so many degrees of right or left deflection; you simply get the stream of bullets in front, let the gun run, and your target has to go through it. You cannot miss; it is almost impossible in that way, provided you can see where your bullets strike. That is the one thing about this gun, and the one great advantage, I take it, that this Maxim has over all other guns that I have seen, that it makes such a close pattern, to use a sporting gun phrase; and you really can see the strike of the bullets at ranges where you cannot see either a single bullet or recognise the ground beaten by controlled fire, that is, volleys. Say at 1,000 yds., 50 per cent. of your volley will be in a space 100 yds. long by 10 yds. wide, the whole volley will cover 200 yds. long, but the bullets from the Maxim at 1,000 yds. will be within 8 ft. in breadth and 27 yds. in length; you will see them easily dropping in as they do at the rate of over 600 a minute, 11 a second. It very much depends upon the state of the ground and the state of the atmosphere, but you have a very much better chance with that weapon of seeing where your bullets fall, and you can regulate your fire by that. You do not want to take a fresh sight. The look-out man will say, "You are a little too low or too high," and you get your elevation in that way. With regard to indirect firing, I rather expected to hear some one say it cannot be done. I only tried it on one occasion; I tried two experiments, Colonel Hale saw what happened, and the amount of time it took to get the range. I did not use at that time any instrument for the purpose of getting the range or the vertical elevation. It was simply a case of tipping the bullets over the crest of the hill, and seeing where they were falling. I was watching the fire; it began low, and I waved my handkerchief up until they got on the target. It was a very simple matter. Then I may mention the question of mounting, I am convinced that the mountings of this gun should be made as light as possible. I went to the manœuvres, of which we have heard, and looked on a good deal; in fact, I was really hunting the machine-guns all the time, but I was trying to study the infantry not the cavalry gun. As a matter of fact, I ultimately found myself hunting the cavalry guns for this reason: the weight of mounting of the infantry gun was such that on those contours that we had at Idstone the infantry gun could not get up at all; it was always in the rear. The Nordenfolt gun carriage weighs 10 cwt., and the service Maxim gun 9 cwt. If you come to a big hedge you cannot

get these heavy carriages over, and we got some places where the slopes were one in four and one in three, there they simply could not get up at all. Then again the service carriage is loaded up with 4,000 rounds of ammunition. It appears to me you want a very much lighter load. No doubt we should like to have 4,000 rounds with us on the gun, and we should like to have 10,000, but we had better get with 2,000 rounds where we can use it, and trust to more ammunition coming up before we have run out, than not get into action at all. I attended the manoeuvres near Petersfield with the infantry carriage that I have carrying 3,000 rounds, and there the whole weight is 11 cwt. It is a little miniature limber and gun carriage, but it splits into two parts of 5 and 6 cwt. respectively, and there is all the difference in the world between getting one of 5 and one of 6 cwt. over a hedge and getting 10 cwt. over in one lump. You cannot get the 10 cwt. on the one pair of wheels over at all. On one occasion I got into a wood, and we had either to go through or round; with my little light carriage and 12 men I scrambled through the wood and got to the other side, and I had some very good fun afterwards. The Nordenfolt that was with me, and started from the same place in the wood, never came into action for 45 minutes after I left it. It came in just as the cease fire sounded. It was so heavy that it had to go back, down the road, and all round the wood, it could not possibly get through. I am glad that Captain Thomson has mentioned the tripod. It is absolutely necessary, whatever kind of mounting you are on, to carry a tripod. Of course it does not so much apply to cavalry, but even cavalry will occasionally find themselves where they will want to do a little village defence, and then the tripod comes in. You can get it anywhere you like, up a church tower, and in all sorts of places where no wheeled carriage could go by any possibility. It only weighs 47 lbs., and it is a most important thing to have. From my little experience I must thoroughly concur with Captain Thomson in everything that he has said, and really most of the remarks made with regard to cavalry guns would apply, with but slight modification, to the infantry working of these guns as well.¹

Major G. STONE: The lecturer has so accurately expressed my own views on the subject that I have very little to say. He has alluded to the formation or organization of machine-gun sections regimentally, that is to say, in connection with the regiment or battalion as opposed to the system which some have advocated of making them into batteries or troops, or whatever you like to call them, in fact, making them independent units. I think the conditions now are somewhat changed to what they were four or five years ago. Four or five years ago the machine-gun was essentially nobody's child, and as we are a very conservative nation, we naturally look very suspiciously at any new weapon. Four or five years ago the machine-gun was not likely to get used to much advantage so long as it was attached to regiments of infantry or cavalry, for the simple reason that the commander of a cavalry regiment would, as Major Beauchamp has already said, look somewhat jealously at it, saying that his best men were being taken to manipulate the guns, and so on. Possibly a similar feeling might exist in infantry. For this reason I think the views expressed some years ago as to the advisability of forcing the machine-gun sections into separate units were very sound, but since the subject has been more warmly taken up by many officers, the lecturer, and others, who have gone into it very keenly, judging not by theory but by practical proof of what the gun can do when properly handled by men who understand its practical working; the conditions, I think, have been rather changed, and I am inclined to give up the view I once held, and think perhaps it is better that the

¹ The infantry gun equipment I use and advocate consists of gun on field carriage, with shield carrying 1,000 rounds. Ammunition, weight 5 cwt. Limber drawn by cob carrying 2,000 rounds, rifles, tools, &c., and to which the gun carriage is limbered up on the line of route, weight 6 cwt. Ammunition cart drawn by horse, carrying tripod, entrenching tools, forage, &c., and 7,000 rounds ammunition, with limber hook in rear, to which gun carriage can hook on if necessary. Total weight 12 cwt. Special arrangements are made for conveyance of ammunition from one to the other by hand in action.

gun should remain part and parcel of the regiment or battalion. Then, with regard to another point, the lecturer says he thinks we should have at least three or four guns with each cavalry brigade. Our field force for service abroad, by which I mean the special field force to be employed in our colonial expeditions, includes a cavalry brigade with one regiment having a machine-gun section as well as a company of mounted infantry having also one machine-gun section. I am not including the infantry machine-gun section, as that belongs to the infantry division. I think this proportion is very small, and as it is clear that the authorities who were responsible for drawing up the organization of our field force must have felt at the time that they required to treat it in a somewhat exceptional manner as regards the cavalry brigade, in view of the fact that two batteries of horse artillery instead of one have been allotted to it, I think that further experience of what the machine-gun can do with cavalry might lead them to see the advantage of having perhaps one machine-gun section with each cavalry regiment, that is, three sections for a brigade, these to be brigaded together when necessary in the same way as the regiments themselves, sometimes with the whole brigade and sometimes separately. This suggestion refers only to the organization of the cavalry brigade allotted to the field force for service abroad.¹

Colonel J. B. B. Dickson: I had no intention of saying anything this afternoon, because I agree with almost everything the lecturer has said. On one point I do not agree. He says he would like to have an escort. Well, every little party you send out would like to have an escort—everybody wants an escort. I have had a little experience on different occasions with cavalry brigades and cavalry regiments, and my opinion is that you should send out as few and as good scouts as possible; escorts should be very seldom given, even to horse artillery. Of course, when you send batteries away to some distance they must have an escort, but, as a rule, the nearest body of cavalry to where the battery or machine-gun is placed is generally a sufficient protection. Major Beauchamp made an observation to the effect that he was prejudiced against machine-guns for cavalry, for the very natural reason that he does not like parting with his men; but he seems under the impression that it is necessary to have 50 men. I think five men is the limit.

Captain Thomson: Three men I ask for.

Colonel Dickson: And scouts. I should give the three men, and I should give possibly five men, but certainly not more than that. The gun commander would have to make the best of the five men. I should also be rather afraid of his scouting too much. I should like to see the guns near the brigade, and all the scouting done by the brigade. I think, of course, the machine-guns should have a perfectly free hand, so as to help the cavalry as much as possible, but that the cavalry should not subordinate itself to the guns. Reference has been made to the two squadrons that went to the lecturer's assistance when he applied, I think it was for a field troop as escort. During the manœuvres quoted I think this was the only occasion when two squadrons acted of their own accord. As I had frequently said, "Never mind individual squadrons, but leave them alone; we want to act as a brigade." They, however, saw what they thought a good opportunity, but which, I am sorry to say, turned out unfortunately for them.

Colonel Lonsdale Hale: The Council, at my suggestion, wrote to all the commanding officers of cavalry regiments who had been engaged in these manœuvres, in the hope that some of them or their officers would come and take part in this discussion. According to the lecturer and military historian of Colonel Dickson's cavalry brigade at these manœuvres, Colonel Dickson's machine-gun carried everything before it, and so far as I saw it, it did so. But there are always two sides to a question, and it would have been well to have had the opinion of Colonel Wardrop

¹ The experience of the majority of our small wars tends to show that in many cases there should be an unusual proportion of cavalry, mounted infantry, and mounted machine-gun sections. The Boer War is, perhaps, the most striking instance of the unsuitability of infantry for the operations which had to be undertaken.

as to what the other brigade thought about the effect produced by the hostile machine-gun. I was rather surprised at some of the remarks that fell from Major Beauchamp. The lecturer did not exactly claim that that cavalry brigade were swept away on the convoy day. I should like to have asked Colonel Wardrop how was it that he went in front of this machine-gun at 800 yds. and took no notice of it at all? As that brigade acted, they must absolutely have suffered most enormous loss, as Major Beauchamp says you do not look after it. There is this little machine-gun, a sort of cavalry flea, hopping about from one place to another, as Captain Thomson did make it hop about most admirably during the whole of the manoeuvres. It was here, there, and everywhere, and gone before you could catch it. That is just the point of the machine-gun. Of that cavalry squadron that the gun caught 200 yds. away, Major Beauchamp says that if the scouting had been properly done, it would not have happened, but somehow or other from my recollection of military history, cavalry do not always scout properly.

Major BEAUCHAMP: Not our cavalry.

Colonel LONSDALE HALE: You do catch cavalry not scouting, and as regards opportunities, the opportunities for the use of machine-guns will be simply innumerable if manœuvring is anything like war. With regard to escorts, Colonel Dickson has spoken against them, and, if I were Captain Thomson, I would leave the question of escorts to itself. I am a firm believer in the machine-guns, and I am perfectly certain the first time they are used on service with regiments of cavalry the cavalry commanders will believe in them too, and, rather than sacrifice their machine-guns, if they think the machine-gun is in danger they will give the escort. The escort question will settle itself simply by the experience of war. Major East has referred to me with regard to what took place. Major East is unknown, perhaps, to some gentlemen here present, and I may say he has a private range of his own, and a private Maxim gun. He kindly invited me to his home, and I went down under the impression that a machine-gun was a weapon which was constantly jamming and liable to get useless. He showed me the mechanism of the gun, and the jamming, I am informed, happens because when the machine-guns are issued to our troops it is forbidden to allow the barrel to be removed from the water casing; the regiments are never allowed to do that. The consequence is, the glands on which the barrel works get stiff and hard, and after they are kept six months in store the gun jams. Major East laughed at the idea of the gun ever jamming. He took the barrel out in my presence, and in about 10 minutes put it back again. The failures of the gun which occur at manœuvres arise from the gun not being properly taken care of, and the men in charge not being properly instructed in it. I can corroborate what Major East says about firing at unseen objects. You can get behind a hill, and, as he says, and as I saw, you render the bridge almost untenable by this flea hopping about, and pouring this stream of bullets upon the bridge.

Captain ANSTETTER THOMSON (in reply): I think almost all the questions have practically been answered for me. Major Beauchamp speaks of 50 men being trained to the machine-gun as if the 50 men would be taken away from the cavalry work of the regiment. But this was not what I meant. I know in the book it does say that five officers and 50 men should be trained. I think that is very right, but it does not entail that these 50 men should be taken away from their regiment. Now I only ask for three men to work my gun. I ask for scouts; but the scouting is all-important for cavalry as well as for machine-guns, and scouts may just as well be employed in scouting for a gun as for their own body. With regard to mentioning the capture of the enemy's Nordenfolt, it is a detail, and an insignificant one. I merely mentioned it to point out what can be done if you have not got scouts. As a matter of fact, all the scouts, the escort, or the several men who accompanied the Nordenfolt left it for some reason, and our hussars popped down upon it when it was unprotected and unwatched. With regard to the shooting of the brigade at 800 yds. at a walk, I only mentioned it as an instance of what possibly, most improbably no doubt, might happen in war. I take no credit for what the Maxim did. There happened to be opportunities, and I made the most of them as best I might. I have no doubt, if a brigade was within 800 yds. of a gun properly served at a walk, it would be annihilated. Major Stone, I think,

requires no answer, as he agrees with me. With regard to Colonel Dickson, of course, I take the view of the man with the gun; Colonel Dickson takes the view of the brigadier, and, of course, I bow to his view. With regard to Colonel Hale, I now know that it was very wicked of me to leave the cavalry, and I offered an apology for it you will notice. The fact was, I was enticed from one position to another hotly engaged with the enemy. There were cavalry in front of me. I did not know where the rest of the enemy's cavalry were. I thought I had them in front of me the whole time, and I left my own body of cavalry at a halt doing nothing. I saw opportunities of cover, and I took them. At any rate, the important thing to my mind was to win the victory, and I believe we did so.

The CHAIRMAN (Lieutenant-General J. Keith Fraser): Gentlemen, before asking you to give a vote of thanks to the lecturer I would like to make a few remarks on what he has told us and on what some other officers have said. In the first place, we have to thank very much gentlemen who have taken part in the discussion, some of whom do not belong to the cavalry. I think Major East's observations are of great value to us as coming from a man who has tested the working of machine-guns so thoroughly. I am in a neutral position with regard to the last manœuvres, because, although I commanded the cavalry division, the brigades were separated, and therefore I looked on almost as a spectator, and I am not so biased in favour of one side or the other as naturally people who take part are. From all I saw of the way the gun was worked, both in 1890 and 1893, I can only say that if I went on service with a brigade or division there is nobody I should like to have in charge of machine-guns better than our lecturer. Everybody who saw him shared my opinion; he was always in the right place, and worked the gun wonderfully. As a cavalry officer, I am greatly in favour of machine-guns accompanying the cavalry, and I have the greatest possible opinion of their future. I think the rapidity with which they can come into action is the main point. Of course, we should all like to have the horse artillery guns up, but that is impossible, even with lighter guns than we have now. Machine-guns ought to go as fast as cavalry, and they should have carriages which will get over every spot of ground with equal rapidity as the cavalry. I am afraid I differ with the lecturer on one or two points. Colonel Dickson has done so also, and I must say I agree thoroughly with Colonel Dickson, from the cavalry commander's point of view; and not as Captain Thomson looks upon it, viz., from the point of view of the officer in charge of the guns. I do not think they ought to be independent of cavalry. We have enough branches of the Service already, if not too many; the less of them the better. We had better stick to our old cavalry, infantry, and guns. If we have these independent specialist branches I am always afraid of their not being at the right moment where we want them. I think the great thing is to have the machine-guns sticking to their regiments and brigades as near as they can. Horse artillery has to go a long way off to take up advanced positions or to go to the flank; it has to go right away, but the machine-gun should stay with the cavalry, ready to take part at once in the action if the cavalry are advancing to attack.¹ With regard to the attack on the artillery which the lecturer spoke of. It would be effective, no doubt, as long as there are a good many men about the guns loading and firing; but I fancy at some future day we shall have Q.F. guns, where the men will be behind the gun—one man on the trail, another man firing—two men or three men, and they would be well covered by the gun, and also, I suppose, by shields from musketry fire. I doubt, therefore, whether the machine-guns would have very much effect upon artillery. I think the danger to artillery is cavalry; I would rather attack artillery with cavalry than with the machine-gun. With regard to infantry and cavalry, we know from what we heard in the late war the effect has been something marvellous. This morning I saw the original of a letter that appeared in the "Pall Mall Gazette" of last night from Captain Lendy as to the effects of the gun, in which he described its terrible effects, and stated that the Matabele said that they would "fight us again if we left our Maxims at home." I think there is no doubt, both

¹ The machine-gun fire would have the same effect as case-shot, and would relieve the artillery from the necessity of making use of the latter.

against cavalry and infantry, its effects will be most marvellous as a weapon of offence, but the cavalry will have the advantage of being able to move out of its fire very quickly. I must say a word about Captain Lendy. I daresay a good many of us know Captain Lendy's father, and I think we all must have heard with the greatest regret of the death of his two gallant sons, one in West Africa and one in East Africa, who both died by unfortunate accidents, both being most distinguished men who had already made their mark. As to escort and scouts, the demand is much too often made for an escort, or to send some more scouts. If you only knew how weak our cavalry is on all occasions, how weak our squadrons are for foreign service! A squadron in England is only two-thirds the strength of any squadron in Europe. I know it is a great compliment to us, and I have no doubt the people who framed that Regulation meant it as a great compliment to Englishmen, but if you begin to take away escorts and scouts and all these kind of things when foreign armies are provided with separate sections, troops, and half squadrons for this purpose we shall be in great difficulty. Every regiment abroad has a quarter of the squadron used for this purpose, and kept separate. If we have to take them from the ranks you will come down to having nobody at all with your squadron. If you send a troop here and a troop there you end by having nothing, and we cannot afford that. I am all for sending out as few scouts as possible. I am sure a few scouts are of much more service than many scouts—you cannot have too few. I think the guns remaining near the cavalry, and trusting to the cavalry scouts do not want any special scouts. Of course, if you send them away you must have one or two. If there are only three men with a gun possibly you can send a scout or two, but otherwise there should be no escorts and no scouts. I had a letter from Major Baden-Powell, whose name has been here mentioned. I think most of the points he makes have been already raised, but he has taken great interest in the machine-guns, in harnessing the horses, putting three horses abreast, &c., and there are one or two points he wishes me to mention. He thinks there is a habit, from what he has seen, of looking upon the safety of a machine-gun as a matter of honour, and that you must stick to it and not lose it on any account. I think that idea has gone out, even with the horse artillery; they are now quite willing to stand by their guns in action to the last, and lose the guns if necessary. It is not a point of honour now not to lose the gun, but it is a point of honour to do the best you can to the last, and even to lose your gun. He points out, further, that he thinks that machine-guns ought to be as low down as the axle; that a tripod should always be carried; that the gun should be easily detachable to be placed on it. He also thinks the idea that horses can go rapidly over broken ground and every sort of ground drawing 6 cwt. is wrong. He thinks it should be 5 cwt. at the outside, and that 4 cwt. is about what is right. It depends a great deal upon the horses; taking an average 4 cwt. is sufficient, and I fully agree with him. He also says he has heard Mr. Selous attach the greatest possible value to what the machine-gun has done in the late campaign. My own opinion is that what we want for the cavalry are light Q.F. guns, 6-prs. or 9-prs., that can keep up with us and go everywhere, and get into action quickly. At the same time, I am all for having a machine-gun to every regiment of cavalry; I think it would be of the greatest possible value. The lecturer says he would have it on the flank. I would have it behind the centre, or wherever it could get out quickly when it was wanted to the front or either flank. Although there are greater dangers, as everybody sees, to cavalry owing to the improvements in firearms, my own idea is that the improvement will give us also immensely increased power. I think we shall have a great advantage myself over other arms. We can move away from fire, we can make flank movements rapidly, whereas the infantry, when they come under fire, cannot get out of it quickly. I think with these guns our day is getting better and better. I have only now to ask you to give a vote of thanks to the lecturer. I am sure we are all greatly obliged to him, and I think the number of officers present shows the interest that is taken in this subject.