licly shown at the meeting of the N.R.A. in May, the Duke of Cambridge being in the chair.

3. The half-cock appeared open to several objections; it is very apt to wear out the soldier's coat. The new pattern Francotte indicator might be substituted with advatage.

4. In common with every pattern of military rifle in Her Majesty's service, the stock is too straight, and, especially at short ranges, the soldier often gets a blow in the face from the recoil. It should be made with the same bend as the Springfield rifle, or else hollowed out to make room for the soldier's cheek bone, as some muskets were hollowed out by the authorities, and as some of the Enfields and Sniders were found to have been hollowed out by the volunteers.

5. To prevent slipping at the shoulder the heel plate should be corrugated, like that of the Sharp's rifle; it would not wear out the soldier's coat and can be stamped at one blow into a mould.

6. The grip is not improved; it is too much of a handful.

7. The fore end has been made flat, so that the lower side of part of the barrel can be cleaned to prevent rust; but the double fore part behind the lower band forms a most perfect trough for water, and if the arm is carried at the slope there is a gutter on either side of the band leading down underneath the wooden grip, which cannot be removed except by the armorer. Having exposed part of the barrel in front of the band, and thus weakened the weapon when used as a pike, they have carefully locked up the rear part of it, so that rusting to any extent may go on unchecked. There is a very simple remedy in the shape of a touch of lacquer on all parts of the barrel covered up.

8. The authorities have adopted the "ratchet grooving," originally invented by the late Mr. Ingram, about 1851, and more recently adopted by Mr. Webley, but they have cut the ratchet the reverse way, so that the long slope, and not the short, is the driving edge; it would be interesting to learn whether this is by accident or design, and if by design, why?

If there is sufficient driving power in the long slope of the ratchet, why do they put the short slope on the other side, and thus form a regular "catch pit" for the fouling? Why do they not adopt the pattern of grooving which has been again and again proved to gather the smallest degree of fouling—viz., the segmental cut of Mr. Metford?

9. The sights on the rifle were flimsy of construction and badly made, and bore the marks of the machine. The short range leaves are too near the eye and must produce an excessive degree of "blurr." I commend to the notice of the authorities and thepublic the foresight and backsight of the Springfield rifle, model 1884; the latter is a most ingenious and beautifully-finished piece of mechanism, combining various advantages, and infinitely superior to any military sight seen on Wimbledon common, where, strange to say, it was this year forbidden in M.B.L. competitions, although "regulation" in America. A specimen rifle so fitted was produced at the last meeting of the N.R.A., and can be seen at the United Service Institution.

I contend that the rifles to be carried by the marksmen and skilled shots in Her Majesty's service should be fitted with sights of this description, with the addition of a spirit level let into the sight itself, according to the designs of Mr. Rigby, and an Italian gentleman, M. Dalumi, of Milan, and, moreover, that for accurate target shooting there should be a vernier scale on the sight itself, and that for the very select marksmen there should be telescope sights, as were used on both sides in the American civil war.

10. The so-called trial at Wimbledon was little better than a farce, the rifles were put into our hands at 1,000 yards firing point, and when we had expended 20 rounds of ammunition they were at once taken away again, and we were not allowed to fire a shot at any shorter distance to try the short range sights. The only result of the shot was to prove that, owing to the lightness of its bullet, the E. M. rifle requires an abnormal degree of wind allowance as compared with any ordinary M.B.L. used at Wimbledon.

If the authorities want a real trial and not a sham one let a supply of rifles and ammunition be issued to the "skilled volunteers" who represented Great Britain in the two M.B.L. long range matches against the Americans, or to members of the North London rifle club, of which Lord Wolseley is president and Col. Arbuthnot a vice-president.

And before sanctioning any further expenditure of public money on this new rifle, let the House of Commons have before them the reports of the "skilled regulars" who form the school of musketry at Hythe.

I remain, sir, your obedient servant,

C. FREDERICK LOWE,

Queen's Westminster R.V.C.

11, Torrington-Square,
Sept. 9.

SIR,—The letter of your correspondent, C. Frederick Lowe, of 11th inst., should awaken the British taxpayer to a true sense of our blundering in departments which should give an example of practical scientific knowledge, but which exhibit a lamentable and costly dificiency. The new rifle for the British army is pronounced to be an agglomeration of defects. This verdict is the opinion of unquestionable experts. With war-clouds gathering on the horizon, England is discovered in the pitiable position of nervousness resulting from a general want of confidence; we cannot even rely upon our weapons. We have naval guns that burst, swords and bayonets that would fail a cheese-monger, cartridges that jam, and rifles that fail to keep a horde of savages from penetrating a British square. I will not follow your correspondent into the details of his criticism, but I would draw the attention of the public to one particular defect in the construction of our military rifles, which by itself renders accurate shooting impossible during the heat, excitement and the smoke of action. This is the absurd straightness of the stock. Every person is aware that a rifle, to be handy, should come up to shoulder almost instinctively. It would be impossible to produce a rifle that would suit everybody, as people differ in their build, length of neck, arms, &c; but there can be no question that, to obtain fair shooting when firing rapidly, the stock should be well bent, otherwise the shots will be invariably too high. Our Martini-Henry rifles are ridiculously straight, as remarked by your correspondent in charge 4 of his interesting letter. This fault accounts for the extraordinary failure of our infantry fire in face of the enemy, which at close range should be swept off the face of the ground if the rifles came up instinctively to the shoulder. All sportsmen are well aware of the recoil inseparable from a straight stock, where the cheek must be depressed upon the butt when taking aim; but with a well-bent stock a heavy charge of powder may be fired with impunity. When the Martini-Henry was first introduced the recoil was a serious cause of complaint, owing to this cause. In a tour round the world I added a Martini-Henry government rifle to my ordinary battery; this was eased in the trigger to a pull of three pounds, and was delicately sighted. The result of three years' shooting proved that I seldom failed to hit a standing object, but I constantly missed all running shots with the Martini. Owing to the straightness of the stock, it was impossible to fire quickly with any accuracy. Some months ago I took the liberty of offering the results of my experience to the proper authorities, as government were about to produce a new rifle for the army. The reply from the Small Arms department acknowledged the old defect of a straight stock, but declared the intended remedy to be a slightly reduced angle of the shoulder-plate from 88° to 85°. I confess I was amazed and incredulous, but I said no more. I submit this fact for the consideration of sportsmen, soldiers, gun-makers and British taxpayers. No practical sportsman would order a rifle with the Martini breech action, which is the worst in existence, being a mere trap for dust or rain, while the extractor is useless should a cartridge jam, and the danger is intensified from the absence of a half-cock.

Your obedient servant,

SAMUEL W. BAKER.

## Arming the Personnel of Horse and Field Artillery.

BY CAPT. E. A. LAMBART, R.A.

AS the short note I wrote on the above subject in the *Proceedings* a year ago seems to have had the result of raising some discussion and exciting some interest in it, I should like to add a few remarks to what I then said.

The opinions that have been expressed vary considerably. One officer says it would be desperately dangerous to arm the drivers with any firearm at all. Another says, "Give them pistols, but not revolvers;" while in No. 10, Vol. XIV, of the *Proceedings*, Capt. Ind advocates taking the swords from horse artillery gunners when in action, and giving them always to the drivers. The opinion of each of these officers represents, no doubt, that of many others in the regiment, and it is interesting to note the arguments adduced in support of each. My own object in writing originally was to point out what seemed the anomaly of giving the driver a weapon he had not been trained to use, not to advocate the revolver as a weapon. No doubt it is, as Capt. Lloyd says, too complicated and unsatisfactory even in the skilled hands of officers. But in support of the principle of arming the *personnel*—gunners and drivers of horse and field artillery with some sort of firearm—I think there is very much to be said, and there seems to be no record of any practical experience to be quoted against it; that the revolvers issued lately to batteries in Egypt and the Soudan were returned by the commanding officers into store or rendered harmless by withholding the ammunition, only shows that they were thought dangerous in the hands of men not