

sectional outline the form of a very acute arch, standing on a cylindrical base of lead, of about its own height, partially hollowed at the bottom to take advantage of the expansion principle, and with four vertical bands on its circumference to fit the grooves of the rifle. Its weight is 56 drs., and with a charge of 3 drs. of powder, it obtains it is said, a range of one mile and a half. The points of these missiles are now made of compressed rod-iron, and Colonel Jacob finds that a 32 gauge shot of this kind of 3 diameters in length—that is, the girth of a spherical leaden bullet 32 to the pound, but three times as long as it is broad—will be perfectly effective at 2,500 yards or more.—These far-flying shot, as they are well called, are converted into shells of a destructive nature by the introduction of a tube charged with gunpowder, and primed with percussion powder, into the centre of the arrow-head; an explosion taking place when the missile is well embedded in the object struck. This would seem to have been practically tested and proved on the 5th of September last at Kurachee by Colonel Jacob and several other officers. A powder-box, consisting of two boards 1½ men thick and 10 feet square, with an interval of 1 inch between the boards, was filled with powder and placed at a range of 1800 yards. This box Colonel Jacob at the 21st round struck with one of his shells and exploded it, causing, as might reasonably be expected with so considerable a quantity of powder, a very violent shock in its vicinity.—At the practice no rest was used; the rifles were always fired from the shoulder, standing up. It would be satisfactory further to know whether the range was measured before or after the practice, as a man taking up his distance and knowing exactly what it is, will much sooner hit a mark than if he has to calculate his own distance, more especially when at these long ranges he cannot have any guide to alter his elevation by seeing where the bullet strikes.

Colonel Jacob, as is usual with geniuses on any subject, is somewhat of an enthusiast. He has in the attainment of the best weapon used up an armory of rifles by the best makers, and expended powder and lead by the ton. One can hardly imagine him in any other position than with one eye closed and the deadly tube at his shoulder. The target walls alone used in the course of his experiments have cost him several hundred pounds. Neither time nor official coldness have had any effect in turning him aside from his object. He has pursued it steadily and unflinchingly, and he now seems to stand, as his perseverance deserves he should do, on the brink of success. His experiments have extended over a long series of years, but he remarks (it is rather a long portion of a man's lifetime) that it is only during the last ten that he has had the means and opportunity of carrying them out upon a scale sufficiently large—a remark which, coupled with the following, rather bears out what has been said at the commencement of this article. He was told, it would appear, on his recommending his four-grooved rifle to the authorities, that as used by the Royal Army was only two-grooved (at the present moment it happens to be three), a similar weapon was quite good enough for the soldier in India; and so it certainly would in reason appear to be.

The official countenance and support withheld in the first instance would appear to be no longer denied, and if Colonel Jacob's inventions are found to be practically as formidable as they appear to be, they seem to have a fair chance of obtaining notice. Whether this rifle will, however,

eventually supersede the present Enfield rifle, hardly and certainly as it is, may hardly be doubted. A very considerable expense has been gone to with the latter, and the army is at present supplied with it, and advanced in its use. There is, moreover, a large quantity of it already adapted to its manufacture, and ready to be used, when would not it be presumed, be substitutable to that of a four-grooved rifle. The possession of the field will be most likely for many a day to come, and a most insurmountable obstacle to any radical change in our small arms. A perfect three-grooved rifle is perhaps the only one that would have any chance of success. If Colonel Jacob would turn his attention solely to the bullet and the shell, and adapt these to the three grooved rifle adopted into the service, his improvements might have a better chance of being listened to at home. Unfortunately for him, there is so much of range in the small arm of the present day. The Enfield rifle reaches all that can possibly be required for practical purposes, as far as range and accuracy are concerned. It is sighted up to 900 yards, and shoots well very considerably beyond that distance.

It is rather a mistake taken into by most people, but especially by those who lay too great a stress upon an extreme range.—It would be much better if they confined themselves to distances sufficiently near for taking aim to other than the very keenest and sharpest of vision. The most level ground seldom admits of a man being seen at a mile off, and, except in very clear days and under exceptional circumstances, even horses are not very well defined at that distance. In action it should be remembered that there is generally a good deal of smoke to obscure the view, and much that is done in ordinary practice with small arms at measured ranges, and under other favorable circumstances, will only be approached to a very distant degree in practical warfare. Colonel Hay's report from the School of Musketry at Hythe, seems, like most others, to be a good deal carried away by looking only at one side of the question, and apparently forgetting that many a man who has his distance measured for him, and nothing to disturb the steadiness of his aim, will make very different practice when he comes to have shot and shell booming and bursting about him; with sharpshooters on the other side also firing at him; and feeling, after guessing his range as well as may be, that he has no means of knowing, at anything like a long range, or without a distinct object to fire at, and which he can see and know to fall to his own shot only, whether he has guessed it right or not.—There is no doubt that immense strides in improvement have been made of late years.

The Enfield rifle of 1855 is sighted up to 900 yards: the length of the barrel is 3 feet 3 inches; the diameter of the bore .577 or 24 bore. It is three grooved, having a spiral with one turn in 6 feet 6 inches. The musket length is 4 feet 7 inches; weight, 8 lbs. 8 oz. The bayonet length (beyond muzzle), 1 foot 5½ inches; weight 11 oz. The arm, complete with bayonet, is 6 feet 0½ inch in length; its weight is 11 lbs. 3 oz. The ammunition is an elongated ball, with an iron cup or wood plug—the latter making the best shooting; weight, with cup or boxwood plug, 530 grains; diameter, .562 to .569 (introduced in June 1855, in place of Pritchett bullet with expanding agent); charge, 2½ drams; weight of 60 rds. and 75 cups, 5 lbs. 8 oz. Penetration at 50 yards, 1½ half-inch in boards, one inch apart. The swell of the rammer is done away with. The rammer is generally counter throughout, and held in the stock by means of a roller and spring, obviating the necessity of the swell being forced under top band. The workmanship of the arm is perfect.

It is not by such attack, as is supposed, that this improvement will be effected, driving artillery out of the field. It will, on the contrary, tend only to make the more closely than has hitherto been the case the action of the two arms. The rifles will be singly changed, and skinned, as it were, by the improved arm, that some part of this has been long desired. It is a well-known fact of the most vital importance, and one which has long since attracted the attention of continental armies. The French field batteries at the Crimea at ordinary exercise with infantry a times worked entirely with caissons, and had heard of distributed about them. The old theory of not firing over your own men with like many other old theories, soon be exploded.

Colonel Jacob is very properly extremely content with improving the rifle, as another of artillery he carries the improvement into his own arm. He has constructed, or is about to construct, an artillery gun with a projectile on the same principles as those of the small arm. And here the success anticipated is somewhat astounding. With his long gun, he could command a range of a mile, and his projectile, if he could make it, would be a very deadly missile, and he expects to obtain a range, with force and accuracy, of ten miles or more! Perhaps it would be better if he would limit himself to the almost distance at which one might be supposed capable of seeing the largest object usually fired at with the naked eye. If we go on at this rate, there is no knowing where we may stop. Perhaps, by and by, we may go a good deal further; with guns of the largest calibre, we may get to twenty or thirty miles, and in case of a war with our neighbors, we may have the consternation of seeing their fleet with an army advancing to invade us, under cover, from the beginning to the end of their voyage, of these long-ranged rifled guns of stone. A walk on Dover cliffs under such circumstances will be about as peculiarly ever as it is to be advanced to the coast of a town in the open at the siege of Sebastopol. Ships will commence firing at each other just as then was a appearance above the horizon, and if they make good practice may never see each other's hulls at all. There will be a complete revolution in warfare. Invisive armies will combat with each other for days and weeks, and shot and shells of an elongated shape and diabolical character will be thrown in amongst them without the report of their discharge being heard, or a very clear idea existing of where they come from. Seriously is there anything practical or desirable in a ten-mile range? J. W. F.

The name of the Marquis of Westminster has been brought prominently forward for the Order of the Garter in the Official world, now that it is known a second blue ribbon is vacant. The insignia worn by his father the late marquis, was more splendid than that of any other knight. The jewels were of enormous value, and two of the diamonds were, by the will of the late marquis, made heir-looms. Some idea of the value of the whole may be formed from the fact that one of these diamonds cost the marquis £30,000—it was worn on the pomel of the sword.

Accounts have been received from Switzerland of the death there of General Count Ostermann Tolstoy, one of the old veterans of the Russian armies, and who commenced his career under Suwaroff.