

whole company allowance of powder and shot, and profitably enough for themselves, improving the shooting and turning out a very respectable company team; men to be encouraged, a healthy leaven, but a leaven that must work and raise the whole company standard. Such men can do much in helping along new shots, giving freely, frankly, and fully of their experience, with a generous desire to have their company stand well as a company, and to be good soldiers for the commonwealth; and surely none would admit wearing the cloth for any other end."

The result of the simultaneous match, fired all over India on September 25, has been most exciting. The 7th Dragoon Guards was first with 913 points; the Seaforth Highlanders next with 905 points; the Musketry School at Changla Galli was third with 897 points; and the Allahabad Station team fourth with 889 points. The winning team will be presented with a miniature shield with an inscription to each member.

At the old shooting ground of the N.R.A. at Wimbledon, there was only one range for both the "running deer" and the "running man" targets, consequently, these had to be shot at on alternate days, much to the inconvenience of those who used hunting rifles. At "Bisley," the new Wimbledon, they are making separate ranges for the "deer" and the "man," which is a great improvement, and will admit of daily shooting for hunting rifles, without being interfered with by having to give way to the Martinis.

The Latest Issued Martini.

An issue of "Mark IV" Martini rifles is now being made to some of the English Volunteers; and, with the natural desire to be possessed of the very latest, others who still have to use the Mark III's or earlier issues are complaining that they will be thereby handicapped. It appears that there are not yet manufactured enough Mark IV's to go round. Noticing a letter embodying this plaint, Bandmaster T. W. Heath, of the 18th Middlesex Regiment, writes to the *Volunteer Record* to show that the superiority of the new issue is perhaps more fancied than real. He says:

"As a member of the first regiment which has been served out with this rifle, and having examined several, for the information of your correspondent I beg to offer the following remarks:—The rifling is the same as Mark 3. The block of the foresight is sloped away to enable it to receive the new sword-bayonet, easier fixing and unfixing. The lever is three inches longer, to give greater purchase in extracting the cartridge cases. It is not near so handy in holding the rifle at the shoulder, as the loop is too far down to allow the fingers to close under. Also, when lying down (extracting) the rifle must be canted on one side, or held higher from the ground, to allow the lever to work. If canted to the left, it throws the cases in the firer's face.

"In rapid firing it is a disadvantage, as the right hand has to travel further, the motion being longer; it takes more time to extract. Another point is open in my mind as doubtful—whether this rifle is as good as Mark 3, as these rifles were the small bores made for the army, and have been *re-bored*. It is a question in boring a tube, whether the metal will stand the boring machine, without, in some cases, bulging slightly, and not producing such accurately made rifles, generally, as we have received hitherto. The grooves do not appear to me to be smooth and perfect as the old rifle. For the above reasons, I do not think those regiments who have them have any advantage over the Mark 3 rifle."

In Canada the Mark III, not long issued here, have become prime favourites; and some of the best known shots are quite content to use them rather than rifles by private makers. Several of the high prizes taken by our men at Wimbledon this year, were won with the Mark III Government issue.

The Lebel Rifle.

Reports continue to come in of the wonderful performance of the Lebel rifle, the new arm now being supplied to the French infantry. What with the smallness of the calibre and the velocity imparted by the smokeless powder, the trajectory is so flat as to make the accuracy of the piece simply phenomenal. The latest achievement to hand is that of Lieut. Malteste of the marines, who succeeded the other day, at Toulon, in transforming a five-franc piece into a veritable ring in three shots at a distance of 200 meters, or 218 yards. Lieut. Malteste always enjoyed the reputation of a crack shot, but he was never able to make such a showing with any other rifle than a Lebel. According to the latest reports furnished to the world, the daily product of the rifle is said to be 1,000. There are 5,000 machines employed in its manufacture at St. Etienne, 2,000 at Châtellerault, and 1,200 at Toul. Up to September of last year 580,000 rifles of the new pattern had been delivered, but in no instance was a single Lebel accepted until 5,000 cartridges were ready for it. In general appearance the Lebel rifle resembles a Hotchkiss repeating arm, such as is in use in the United

States navy, in all but the barrel arrangement. The magazine of the Lebel is under the barrel: in the case of the Hotchkiss it is in the stock. The Lebel carries eight cartridges in its magazine, the Hotchkiss seven cartridges. The Lebel is fitted to receive a sword bayonet of a quadrangular shape. With bayonet fixed the extreme length is 71.8 inches; without the bayonet the piece measures 51.4 inches in length. But it is the calibre of the piece that calls for special note. In this instance a minimum is .3142 and maximum .3228 inch. The total weight of the piece, with magazine full, is 9.713 pounds. The sight is graduated for a range of 2,187 yards, a distance greater than in any service arm in use. It bears strong comparison to the extreme twelve hundred yard range of the Springfield rifle in the United States service.

The bullet is necessarily very small in diameter, but it makes up in weight by reason of its length. The latter 1.181 inches, with a weight of 231.48 grains. Some idea of the tremendous muzzle velocity of this small projectile can be had when it is known that it will pierce over 15 inches of solid oak at a distance of nearly 220 yards from the muzzle of the gun. When performing this feat, the muzzle velocity is no less than 2,194 foot-seconds. Of course, it must not be understood that black powder gives this result. The Lebel bullet is propelled by the mysterious smokeless powder, a secret compound known to have for its principal ingredients gun cotton and collodion. Besides being smokeless, the powder creates but little noise on explosion and gives only slight recoil. So far the only objection which has been raised against the new compound, is the strong stifling stench it causes. This is said to be little short of suffocating in its effect when a battalion is firing on a comparatively still day. What the effect would be on troops firing from houses and behind barricades can be in a measure imagined. The Lebel bullet, in order to render it the more efficient in penetration, is coated with nickel, the rifle's grooves being taken by soft metal ridges. It has been reported recently that a new cartridge has been invented which is superior to the regulation 86 M. The new explosive, it is said, requires no metallic case, which, in consequence, reduces the weight 277 grains. At a distance of 107 yards from the gun the Lebel bullet is said to traverse .433 inches of iron. Last year a comparative test was made between the Lebel rifle and the old Gras rifle. The test was conducted at St. Cyr and was to determine the relative merits of the two arms in target practice. A company of infantry was armed with the Lebel rifle and another infantry company with the Gras rifle. At 400 meters (437 yards) the former made 180 hits in 200 shots, and the latter only 80 hits under the same conditions. The firing with the Lebel was completed in forty seconds, without noise and without smoke. The firing with the Gras produced a dense cloud of smoke, which interfered with the accuracy of aim.

Experiments were made lately by the French Academy of Medicine to determine the wounding effects of the bullet from the Lebel rifle. Twenty corpses were placed standing at ranges of 218, 434, 656, 1,993, 1,531, 1,749 and 2,187 yards. The apertures were very small, and the cure of the wounds would have been difficult. At less than 328 yards the bullet made very large flesh wounds which would have proved almost incurable. The Lebel bullet was found to pass through the bone when it struck full, and produced fracture only when the impact was tangential. It was liable to deformation only at long ranges; the bullet did not flatten entirely, the lead formed in small points on the surface, and the points remained in the wound, rendering its treatment more complicated.—*Exchange*.

A useful practical application of the telephone to military, railway, and other purposes has been effected by Messrs. Mix & Genest, telegraph engineers, of Berlin. This apparatus is contained in a case 12 in. long by 6 in. wide and 8 in. deep, which, for general purposes, is slung by a strap in front of the user. This case contains a dry cell battery, a magneto bell, and an induction coil. In some instances, where it is desirable that the sound of the bell should not be heard, the Neef hammer is substituted for it, and is used as a means of calling attention between the communicating parties. The case also contains a combined receiving and transmitting apparatus, which is fixed with Mix & Genest's microphone as a transmitter, the apparatus being conveniently made for application to the ear and mouth. For field purposes an outpost equipped with the apparatus proceeds to the front, his telephone being in communication by a wire with that of the field watch, the latter being again in telephonic communication with headquarters to the rear. A number of outposts, either infantry or cavalry, may be on duty at the same time and in communication with the field watch, who will transmit to headquarters the reports received from the outposts. At the trials the apparatus worked clearly and well. It is also applicable to railway, mining and other similar purposes. It is suggested that a portable telephone might be carried with every train, so that in the event of accident the guard should be able to communicate with the nearest station by making a connection with the conductor of his instrument and a wire carried along the line.