verted into Martini-Henry machinery and then into Snider again, by changing a few parts and substituting other parts suitable for Martini-Henry work. The squirting of the alloy for Martini bullets was successfully performed by the same press that squirts lead for Snider bullets. Some bullets for Martini ammunition were turned out, answering closely to specification. I had the pleasure of submitting those bullets to the Department.

The bullet is certainly the more difficult part of the Martini-Henry cartridge to produce; and, having succeeded in this, it would be a small matter to manufacture the remaining parts which are in great measure similar to the Snider, caps, disc caps, anvils and cap chambers being in fact identical.

Solid drawn Martini-Henry cartridges are now manufactured in the Imperial Service for special purposes. These cartridges have not, however, superceded the coiled case such as our own plant, with slight additions, could produce—the solid case being issued for particular requirements, and the coiled case retained for general use.

Martini-Henry rifles have been issued to the auxiliary forces of Great Britain and India, and their abandonment has been so little thought of, that new issues of mark IV. have been lately made, which embodied certain improvements in that arm. It is not believed to have been replaced yet by a more modern weapon in the regular service, and it may be that a considerable lapse of time will occur before Martini-Henrys are discarded as a military arm. It is still the most efficient on this continent. Coupled with this are the advantages which it possesses over the Snider in a ballistic point of view, and the facility with which its ammunition can be manufactured here to meet any sudden emergency. These are inducements which have much in their favor.

The recoil with the Martini rifle has always been found objectionable by riflemen in Canada and elsewhere, and previous to lengthening the butt to reduce the effect of recoil, it was sought to obtain a lighter recoil by using a special pattern of ammunition, known as mark IV. This ammunition had a lighter bullet, and contained a charge of 80 grains of R.F.G., instead of 85 grains of R.F.G.^{2}, as the other marks. The recoil was thus reduced to about the same as the Snider. The shooting of mark IV at 500 yards is very nearly as good as mark III now in use, and the trajectories practically identical. At 500 yards the penetration into wood deals was 10 inches, instead of 12 inches obtained with other marks, a difference which might be disregarded on service.

I had to carry out tests of R.L.G.^{4} gunpowder this summer on the Cove Field Gun Butt. As these tests were with a 64-pr. M.L.R. gun, I beg to draw attention to the fact that, for future tests, it will be necessary to strengthen considerably the present gun butts, as it would be dangerous to fire into them in their present state. They were originally intended for use with lighter guns. If these tests were carried out at the practice grounds on the Island of Orleans, no gun butt would be required; only a platform would have to be laid down in a position suitable to allow wire screens for a chronograph to be placed at proper distance. This would be the more satisfactory course.

Though the staff of machinists has been kept so as to barely meet the present manufacturing requirements, all the machinery has been kept in fair order. The engines, boilers, heating apparatus, &c., are in a good state. A few apprentices, at a low rate, would be a great help, specially in manufacturing artillery projectiles, particularly in the foundry.

The operatives at cartridge manufacture have been kept at the same reduced number as last year. If the manufacture of Martini ammunition was sanctioned the additional amount to the out-put would tend to reduce the general expenditure and consequent cost of production.

The clerical staff of the factory is insufficient to carry out office work properly.

A quantity of raw material was received this year. Two items were not according to specification, viz: disc iron and tissue paper, these were rejected and the contractors called upon to replace them.