

serge trousers, 10,381 pairs; Great coats, 4,448; and forage caps, 6,153.

The following quantities of practice ammunition were issued to the militia during the year, viz.: "Snider" ball 599,730 rounds, and blank 204,920 rounds, an increase of 207,485 rounds of ball and 69,140 rounds of blank, as compared with last year. The repayment issues were as follows, viz.: "Snider" ball, 557,919 rounds; "Martini-Henry," 142,360 rounds; "Colt's" revolver, 100 rounds; "Snider" blank, 220 rounds; "Spencer" rifle ball, 100 rounds—making a total of 715,699 rounds, to Rifle Associations and Militia Corps, for competitions and rifle practice during the year, being a decrease of 116,608 rounds as compared with last year. The decrease in repayment issues of ammunition may be accounted for by the additional annual allowance of 20 rounds per man authorized for issue to the militia for practice this year, and the allowance granted to militia corps taking part in the Rifle League competitions.

The "Snider" ammunition manufactured at the Quebec Cartridge Factory is giving satisfaction to the riflemen of the Dominion; favourable reports of its quality have been received from various quarters.

The manufacture of 9-pounder and 64 pounder R.M.L. common shell at the Quebec factory has been attended with marked success; the experiment, also, of making the tin cups for 40-pounder guns has been most successful, thus doing away with the necessity of importing the annual supply of these stores from England, as hitherto done.

The following supply of small-arm ammunition has been received from the cartridge factory during the year, and added to the reserve in magazine charge, viz.: "Snider" ball, 1,042,500 rounds; blank, 151,000 rounds.

The gunpowder required for artillery practice continues to be supplied by the Hamilton Powder Company, and gives satisfaction; the supply for the armaments at Quebec and Kingston, as well as the reserve, and for the annual practice, is fully maintained in Magazine charge.

During the year a number of articles of historical military interest have been received at the Military Museum, adding largely to the interesting collection already obtained. Further contributions of a like nature are solicited, and will be duly acknowledged as soon as received. As quite a large number of books on military subjects have been received at the Department during the past few years, it is strongly recommended that steps be taken to establish a Military Institute and Library at Ottawa. In such an institution winter courses of lectures on military subjects could be arranged for with benefit to the force.

The Government Cartridge Factory.

Major O. Prevost, the Superintendent, says in his report on this institution:—

There appears to have been no complaints on the quality of the ammunition (Snider) supplied to the several Rifle Associations, while the scores obtained with this year's ammunition and that of 1889 by the Rifle League at their several matches, were truly wonderful.

A large quantity of Martini-Henry ammunition has been used this year at practice and at competitions by the several Rifle Associations of the Dominion. This ammunition is still imported from England. It would tend to diminish the cost of manufacture here if the order was given to supply Martini-Henry cartridges ourselves. There is very little required in the matter of machinery to enable the factory to manufacture the Martini-Henry ammunition used by the several Rifle Associations and at private practice, all of which is paid for by the parties themselves. Most of the component parts of the cartridge can be made with our present plant, and a few additions at a trifling cost is all that is wanted to meet a demand actually existing in this country, and which is sufficiently important to make it worth while adding to the yearly output of this establish-

ment, with a view of reducing as much as possible the general expenses, which must of necessity fall heavily on a limited production. My suggestion, I beg to point out, bears on a point quite distinct from any question of re-armament of the militia with Martini-Henry which may or may not be contemplated. My proposal is merely to supply a demand which can be met by manufacturing here what, until now, has been imported. By this means our output will be increased in a most favourable manner.

The want of tin cups 4" 96 B.L.R. 40-pounder, used to secure proper obturation of the breech during practice with Armstrong guns, having been felt, it was requested that they should be provided from the factory, instead of importing them. Though the order was given at very short notice, as machinery had to be manufactured for this purpose, still the required quantity was provided in time for the annual practice of the Dominion Artillery Association.

A number of fore-sights of an improved pattern for 9-pounder R.M.L. guns have been manufactured in accordance with instructions received last spring; also, tangent sights for field guns have been improved, by adding to the old pattern scales a new head with slide leaf and peep-hole, as well as an adjustment with thumb screw for deflection scale. All this work has been going on satisfactorily so far, and will be completed at an early date, when the whole field artillery of the Dominion will have been provided with these improved sights. Considering the accurate nature of this work, comprising, in some cases, the graduating of the scales to read the elevation in yards, and also the limited number of operatives available, there has been no time lost.

The manufacture of 9-pounder R.M.L. studded shells has been carried on steadily during the year; also, the annual supply of 64-pounder common shells has been provided from the factory. Only a few of these 64-pounder shells were used at the last artillery competition; a large quantity of 9-pounder shells of our manufacture were used for practice this year, and appear to have given satisfactory results.

Experimental practice at the Island of Orleans was carried out under my supervision on the 24th July last, with 9 and 64-pounder shells manufactured with cast-iron from Three Rivers, Que. This iron has always been reputed as pure, homogeneous and of high tenacity. The result of the practice indicated that this metal was quite suitable for the manufacture of artillery projectiles, and could replace special iron imported from England for this purpose. It may appear desirable to make further tests, with a view of eventually adopting it exclusively in the shell foundry.

Shrapnel, 9 and 64 pounder have not as yet been made here in any quantity. The difficulty which seems to exist of obtaining them from the Imperial manufacturing establishments, a difficulty which it may be anticipated will increase (in consequence of changes in the Imperial armaments), points to the advisability of manufacturing the projectiles in this country. Moreover, if this order for both 9 and 64-pounder Shrapnel was given here, apart from securing a prompt supply, it would tend to lessen, as in the case of cartridges, the general expenses of the foundry, allowing larger casts to be made, comparatively less fuel expended and other economical conditions to be fulfilled.

Early in the year two patterns of small-bore magazine rifles were forwarded, with instructions to carry out experiments therewith. These rifles, of .315" and .316" bore, respectively, had both a bolt action and a slot in rear of the breech to contain the additional rounds. The ammunition provided consisted of a solid-drawn brass cartridge case of the ordinary form, filled with a charge of black, small-grain powder of about 62 grains. The bullet of rifle No. 1 was of steel, with a leaden core, and weighed 242.4 grains.

Rifle No. 2 had cartridge of the same description, about, as No. 1, except the bullets, which were of steel and lead