

Table showing available numbers of 1st and 2nd Class Militiamen in Canada, and Numbers of Active Militia Enrolled and Drilled.

Name of Province.	Total male population according to census of 1871.	1st Class Militia according to enumeration in 1873, between 18 and 30.	2nd Class Militia, according to enumeration in 1873, between 30 and 45.	Total unmarried or widowers without children between the ages of 18 and 45 years.	Quota of Active Militia authorized under scheme of distribution in 1870.	Number of active militia, authorized to perform annual drill in 1873.
Ontario	828,690	115,325	18,211	231,738	18,070	9,214
Quebec	596,011	69,020	9,053	78,453	14,382	6,583
New Brunswick	145,888	22,969	1,302	27,271	3,201	1,594
Nova Scotia	193,792	30,241	5,706	35,917	4,281	1,925
Prince Edward Island (1877)	48,363	8,240	1,396	9,636	supplementary	317
Manitoba (1877)	29,280	3,043	981	4,029	Militia	180
British Columbia (1877)	33,240	2,981	1,113	4,124	Acts.	140
Total	1,875,194	251,821	40,792	302,860	45,000	19,569

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It needs only further to draw attention to the Canadian Pacific Railway and the impolicy of removing British naval protection from Vancouver Island. The people of British Columbia are very loyal, and desire to remain closely connected with England, from whom they derive their origin, but they feel that their interests have been sometimes neglected, and there is no knowing how they might act if they found themselves free to act according to their interests.

The large supplies of eastern produce required by Canada would be carried by this route and help to develop trade in a community who draw their manufactures from England, instead of, as now, going through and helping to build up American interests.

Lieut.-Colonel Strange was appointed upon this commission, being the senior, and an officer of acknowledged high professional attainments very desirous to be so employed. It was desirable that both Dominion Inspectors of Artillery should know the defences and the sea coasts of Vancouver and British Columbia. Lt.-Col. Irwin, an excellent young officer of much promise, had already made a long and fatiguing journey across the continent. The manner in which his duty was performed last year having called for my approbation and justified my representing his able report in that sense to the Government and to the Colonial and War Ministers.

In the early part of last year I had the honor to draw attention to the defenceless state of the Atlantic coasts and seaports of the Dominion.

I therefore concur with Lieut.-Colonel Strange, that it is important in view of economy to utilize the large stock of smooth bore guns owned by the Government, amounting to some 400 in all, and to order the conversion of twenty 32-pounders of 68 cwt., to 61-pounder rifled guns, and two 68-pounder and eight 8-inch to 80-pounders and 61-pounders, respectively. As the 61-pounder rifled guns are only available to resist boat attack and to arm steamers for coast service, as well as to arm batteries on the rivers, it is strongly recommended that 12 9-inch long B. L. rifle guns on the Palliser principle be constructed to mount on the harbors of the Atlantic coast. This gun would be about eight tons weight, and throw a projectile of about 200 pounds, capable of piercing heavy armour.

The important question of manufacturing rifled guns and projectiles in Canada, taken in connection with the proposed cartridge factory, the adoption of home-made gunpowder, the making up of military clothing and equipment, with other strides of advance in self-reliant military progress, appears of so much consequence just now, that I am induced to give prominence to the subject. Much of the information has been obtained by correspondence with Sir William Palliser himself, who it may be remembered has generously bestowed on Canada a seven and an eight-inch rifled gun, now at Quebec, and he is, I believe, manufacturing a nine-inch gun as a present, which was offered and accepted by the Dominion Government about two years ago.

The successful attempt to manufacture rifled guns in Canada has been justly mentioned in the English press as "an event of imperial importance," for a nation which depends upon the supply of such weapons from a source 3,000 miles distant must always be in a more or less dependent position.

The ordnance required for coast defence are as the smallest calibre, seven-inch eight and half ton guns and 80 pound rifles, both of which can be made in Canada without difficulty. The 90 pound gun might be the converted eight-inch 65 cwt. gun, as represented in the Appendix, and has a length of bore of 25 calibres, the same length as the Krupp gun, which gave high velocities with charges of mild powder, and consequent low pressures.

In considering the means available at every little outlay for the defence of the coast, it should be remembered that Canada has a good supply of cast iron mortars. It has been under consideration to convert those to rifled mortars for the defence of harbors. An engraving in Appendix No. 9 shows the 8-inch service mortar converted to a 6.3-inch rifled mortar to fire the 61-pounder or 90 pound

shell. The advantages of rifled mortar batteries are that they be concealed from the view of an enemy, and their fire can be directed by signal by the artillery officer commanding.

The batteries being distributed in the most suitable position the harbor to be defended marked out in zones, diagram in Appendix No. 8, and a supply of powder charges made up to reach each zone, would enable the officer commanding the artillery concentrate, by signal, a vertical rain of shell fire on the ship an enemy entering the zones to bombard the town. The distance of one shell descending upon the deck of a ship would be so great that only the most dashing and adventurous sailors would be exposed for any length of time. Admiral Gran lately ran the "Huscar" within 600 yards of the batteries of Antofagasta, where she was armed with the best European rifled guns, one of them a 10-pounder. The "Huscar" lay with her bow to the town and she was shelled, suffering no damage. It would have been impossible for her to have remained an hour under the fire of 30 6.3 rifled mortar at a range of 600 yards, on which they had frequently practised. Yet these rifled mortars altogether would hardly cost more than the 80-pounder, dismounted at the first round with its wretched iron carriage and slides.

The idea is illustrated in the drawing in diagram Appendix 9. On a declaration of war, the officer commanding the artillery could mark out the harbour in his charge roughly into zones or sections with buoys, each section, say 600 yards square, the powder charges to reach each section from the various rifled mortar batteries could thus be prepared. The charges should be kept in separate canisters in the magazines, each canister being marked with the letter of its section; a few rounds from each rifled mortar, which should be able to traverse each section would determine the range of section, and a little practice might be made concentrating the fire of 30 rifled mortars on sections selected and telegraphed by the artillery officer from a central position.

On the approach of the enemy's fleet, and should the leading steamer continue her course towards section A shown in the drawing, the officer could telegraph to load for another concentrate on section B, the steamer moving through the water of ten miles an hour, takes ten minutes to 350 yards, so that all would be ready by the time she reached the position of letter B, when at the signal "fire," a vertical shower of 30 shells would descend into that section, and the gunners would send another shower upon her into section C.

It would require skill and judgment on the part of the artillery officer commanding to continue this practice during the bombardment, or to decide whether it would be more advantageous the independent firing of the mortar batteries under their own officers. In either case the buoying of the harbour would be an advantage, and this could be done with casks colored for zone and anchors. An enemy would, no doubt, try to remove buoys by boats at night, but they could be kept off by launches armed with Gatling guns.

It should be remembered that the subject of numerous batteries of cheap rifled mortars is probably insignificant in the eyes of those who manufacture ponderous rifled ordnance, which costs large sums of money, giving large profits, and therefore little concern is made of them in Europe; but it must not be forgotten that Germany, with her usual forethought and prudence, discovered their value, and numerous rifled mortars now in German service constitute not the least powerful portion of her armament.

Russia would also appear to be alive to the use of vertical fire. The late Consul at Sebastopol was in that port when a small steam steamer returned, having just escaped capture by a Russian iron-clad of superior speed and heavy armament of 12 ton guns. This steamer had been struck by a 250 pound shell almost every portion of her hull except the engine room, and men and some officers had been killed and wounded, in fact the steamer was almost a wreck; nevertheless she escaped, and was taken to the wreck by the crew of Her Majesty's 65th Regiment, and the Consul at Sebastopol, that her escape was solely due to vertical fire from the mortar battery. It appeared she had 6 guns and that her armament consisted of six smooth-bore mortars, three in her bow and three in her stern. When the iron-clad gave chase she rapidly overhauled the Russian steamer, and in all the time and making great havoc among the crew; although two of the mortars were dismounted, the iron-clad continued the fire at the huge iron-clad within 600 yards. The Russian captain told the Consul he was about to give up as hopeless when one of the 6-inch shells fell upon the deck and burst near the funnel. A jet of steam issued from the funnel, and the iron-clad was forced to stop. The Russian ships after the explosion, confusion appeared among the crew, the Russian ceased fire, her engines stopped. Soon she stopped, sheared off to some port, and the Russian escaped. No better illustration could be given of the value of vertical fire.

Converted rifled mortars are very cheap, and it is certain would be very formidable in sufficient number. Six mortars of five rifled mortars each, as shown in the drawing, their fire directed by signal, would be a cheap and useful armament to the batteries of rifled guns. The efficiency of the rifled mortar would depend very much upon the number employed, so that the chances of a lucky shell might be increased. Combined with efficiency is what Canada seeks, especially the work can be done in her own shops. Sir William Palliser's marks on ordnance are annexed to the drawings in Appendix No. 9.

A converted rifle mortar on the Palliser plan has been fired with success at Shoeburyness. The success of the mortar has thus been established: the shells all descended point blank, firing the service projectiles of that weight. A great advantage is in the use of the service projectile of the rifled mortar can be no confusion of stores. Thus the 13-inch smooth mortar converts into a 9-inch rifled mortar, the 10-inch 7-inch, and the 8-inch smooth bore into the 6.3-inch mortar, the weight of the shell for the 9-inch rifled mortar is 250 lbs. 7-inch, 120 lbs. and of the 6.3-inch, 61 lbs., or 90 lbs. If Messrs. Gilbert & Son could cast mortars for conversion those in store are finished. The proper mixture would be three strong grey pig, and one-third white iron. This gives a strong "mottled" iron suitable for gun castings. No doubt, it is a surprise that advantage should not have been taken in England of this cheap and vast supply of formidable mortar when converted, but it must be remembered that the eyes were not dropped because it was a bad one, but because all the votes were devoted to the manufacture of Woolwich guns.