

embarkments for shelter. It had occurred to him that it was possible to combine a light steel scabbard for the bayonet with the trowel fixed at the end of it and so preserve the present bayonet and yet have an efficient intrenching tool. In concluding, he said that in a breechloading gun three things were dependent on each other—the cartridge, the barrel, and the breech action. Having obtained a good cartridge, there were half a dozen plans of rifling and a dozen plans of breech action with which it would perform well. The cartridge depended on the distances they wanted to shoot, and when they had decided which was the best it would be worth while to consider whether it was absolutely necessary that they should have any one form of breech action for the service, and whether the peculiar exigencies of the infantry, cavalry, navy, and artillery might not be easily consulted by the modification of the arm, provided that the same bore and cartridge were employed, but, if necessary, with varying lengths of powder, charge, and bullet. The principles which he thought should guide them in the selection of a military breechloading small arm were these:—For the barrel, take that which would make the best aggregate shooting at 200, 600, and 900 yard; the weight of the gun should not exceed 9 lb., the lightest cartridge should be which used would stand cocking about and throw a bullet of 450 to 50 grains, and for the breech action choose that which was most easily repaired by a skilled workman in a hurry, without resources or machinery, as, for instance, on a road to Coomassie.

Pneumatic Steering Apparatus.

An ingenious and simple steering gear has been patented and presented to the Navy Department by Passed Assistant Engineer and U. S. N. Mr. Baird states, in his letter to the Department, that steam steering gears, being on deck and exposed to the view of an enemy, are dangerous, and should never be used on board unarmed ships at war; that the heat and leakage brought on deck offer serious objections to them, even on board merchant steamers. He has devised a friction gearing, on the old fashioned drum, without disturbing the ordinary wheel or hand wheel, and has arranged it so that the quartermaster may throw the power on or out by simply shifting a lever. The friction gear is worked by a pair of small engines, situated under the drum, on which are quite out of the way. They are reversed by a simple lever, which is placed vertically in front of the hand wheel, which the quartermaster uses in steering. The engines are worked by compressed air, which is supplied from a reservoir in the hull. The line shaft of the main engine works an air pump, by means of an eccentric, which supplies the reservoir. When the propeller is uncoupled, and allowed to revolve freely by the pressure of the water (the ship being under sail), the line shaft revolves with it and works the air pump, the power is supplied under sail as well as under steam. When the ship has not sufficient headway to revolve the propeller, the gear can be worked by hand, in the ordinary way, and as the weather is then calm, the man can steer easily. In order to prevent any waste of power, and also to regulate the pressure in the reservoir, he has devised an automatic instrument for starting and stopping the air pump. The gearing can be worked by steam, and, in fact, he proposes to connect a steam pipe to the

steering engines, to use it as a steam gear in case of accident to the air pump, if it should be desired to do so. He employs a friction gear, as it would "slide over," in case a very heavy sea should strike the rudder, whereas a toothed gear would break. However, as air is highly elastic, a heavy blow upon the rudder would only force the wheel back a few spokes, and compress the air upon the pistons of the little engines, and ease up the helm very nicely; so that his "friction gear" is only an extra precaution. The design which Mr. Baird has prepared for the steering gear of the new *Mohican* is said to be a marvel of lightness, strength and cheapness, while the completeness of his working drawings bear the stamp of elegance that is identified with the Bureau to which he belongs.

CORRESPONDENCE.

The Editor does not hold himself responsible for individual expressions of opinion in communications addressed to the VOLUNTEER REVIEW. The real name of the writer must invariably accompany each communication to insure insertion, but not for publication.

WINNIPEG, Jan. 14th, 1876.

To the Editor of the VOLUNTEER REVIEW.

SIR.—It is said on our streets to-day that the men at present in garrison at this place, are to be discharged on the first of May next, and as this is said by persons who are supposed to know, it is received by most as correct; therefore, I should like to let your readers know what force there is at hand to defend, if necessary, the valuable stores of all kinds which have been accumulating at Fort Osborne from the arrival of the first Red River Expedition on 25th August, 1870, up to the present time.

In the whole province there is I believe only one armed body of Militia, and that a Company mostly composed of English half-breeds under command of John Schultz M.P. It is true that in the town of Winnipeg there is supposed to be a Battery of Field Artillery, but as this corps is only partly uniformed and hardly equipped at all, it, though it is well officered and composed of a fine lot of young men, can hardly be said to be an armed body of Militia; but for fear that it might be thought to be better equipped than it is, I give, what I am credibly informed is the equipment of this corps, upon which the preservation of the peace and the defence of the Capital of Manitoba depend; if our present force is withdrawn. It is as follows:

2 Seven pounder M. L. R. Guns with Mountain Carriage, No Timbers, No Wagons, No Harness of any kind, 75 Serge Blouses, 75 Serge pants, 75 Forge caps, No Great Coats, No Belts, No Swords, No Carbines.

This corps I am informed has been in existence four years and six months and as yet is only equipped as shown above, though the necessary guns and stores complete have been in store at Fort Osborne for more than a year.

I do not wish to be understood to argue for the retaining of the present garrison here, but merely to point out the state of

the Country as regards defence, with the hope that this will meet the eye of the Major General Commanding or some person in Authority who will *compel* the Local Militia Authorities to organize and equip the Provincial Militia *immediately*, so that when the time for discharging our present force comes, we will not be found, as we were in 1871, without the armed and Organized Militia.

EQUIPMENT AND ORGANIZATION.

To the Editor of the VOLUNTEER REVIEW.

DEAR SIR.—In the present very warlike appearance of the times would it not be a grand thing for Canada to show her loyalty by offering material aid to the Mother Country; offering in case of war or threatened invasion of England to send home a strong contingent, say at least two Regiments of Infantry from Ontario; the same from Quebec; and one each from Nova Scotia and New Brunswick? At any rate could not the Canadian Government offer to raise troops sufficient to garrison Halifax, and perhaps even the West India Islands and Bermuda; and so relieve for home service three or four seasoned Regiments of Regulars? It would not be the first time that Canadians have volunteered for foreign service. Let us call to mind the raising of the 100th Regiment; and how many gallant French Canadians joined the Papal Zouaves; and the many thousands of Canadians who served the Northern States in the Civil War. I recollect sometime ago reading in the *Toronto Globe* some observations as to the comparative benefits derived by England from Canada and from India. Now would be the time to test the subject. Let Canadians only read up in history how the Indian Sepoys have fought for England since the very beginning of this century; how they served in Egypt in 1801; at the taking of the Mauritius from the French, a few years later; of Java from the Dutch; and after that in three or four different wars in China, in Arabia, Persia, Afghanistan, Abyssinia, and recently in Malaga. Most of these countries are several thousands of miles distant from India; some of them further from India than England from Canada. In the event of another European war it cannot be doubted that India would most willingly supply a very strong Army to assist England in Egypt or on the shores of the Mediterranean. Why should Canada be behind hand? There must be thousands here now, in those dull times, who would gladly take the Queen's shilling; some for want of work; some for the sake of adventure and to see foreign lands; and some I trust for the sake of striking one blow before they die for the land of their forefathers—the land of their love.

Your obedt. servant.

A LOYAL ENGRANT.

It is stated there is a difficulty just now in obtaining boys for the Royal Navy: there are no fewer than 700 vacancies.