

hazardous; besides such a system would necessitate keeping a large stock on hand, which, with so perishable an article as ammunition, would be unadvisable, to say nothing of the constant changes in war material. The Militia of Canada without an arsenal to rely on, not only for ammunition, but for the manufacture and repair of gun-carriages, harness, camp equipage, without transport, commissariat, or ambulances, &c., would not be in an enviable position. The subject has been well treated in the Dominion Artillery Association Prize Essays for 1878, by Colonel Montizambert and Captain Prevost, of the Canadian Artillery.

The essay of the former has been printed in the proceedings of this Institution, and those wishing for details cannot do better than refer to it (Vol. XXII, No. XCIV). I shall not therefore enlarge on the subject, but simply remark that Halifax, Quebec, Kingston, and Ottawa are suitable localities for the establishment of arsenals and depots for supply. The first three are fortified, and contain suitable government buildings and lands, while the latter is far removed from the frontier. Both Toronto and Montreal, though centres of industry, are exposed, and have been captured in previous invasions by the Americans. The rate of labour is quite as cheap and probably more reliable as regards strikes than it appears to be in England, while the raw materials, iron, wood, leather, &c., are abundant, and of the best quality. Coals are not, of course, as cheap as in great English manufacturing centres, but the water power is unrivalled, and wood fuel (which is so abundant), when used as charcoal in the production of the finest ironwork, produces the most reliable kinds, free from the sulphur and phosphorus which it is so difficult to eliminate from coal-worked iron. That produced at the Londonderry Steel Company of Canada, as reported on by Messrs. Gilbert and Son, Montreal, "is said to have a tensile strength of 65,000 lbs. per square inch, "being more than 23 per cent. greater than that of the Ridsdale iron "used for gun tubes in Britain. . . . This iron in working "also showed remarkable properties of welding." This subject of manufacture of war materials in Canada is of the greatest importance to the Empire, as rendering us self-reliant at a time when such self-reliance would be essential to the successful resistance of attack.

That most vital question, an organized system for the supply of infantry ammunition in the field, does not seem to have been considered.

Artillery Armament.

It is not necessary for me to describe the magnificent armament of the Halifax forts, nor to detail the armament of some 400 smooth-bore guns, scattered over the Dominion, but of little use in modern war, except against boat attack. I can best, perhaps, render service by pointing out the importance of converting this obsolete armament into serviceable rifled guns, in accordance with the requirements of modern war. The task is neither so difficult nor expensive as may be imagined.

In addition to the rifled guns already detailed as mounted, in Van-