

asks, "But suppose they cost fifty millions, where among the hundreds of millions expended on public works could you select the expenditure of fifty millions to such advantage?" Of course this route is the pet of the Toronto and Simcoe districts.

In opposition, or as an antagonistic route, comes that of the Ottawa section. The western entrance to this project is at French River in Georgian Bay, and it is proposed to continue along the valley of the Ottawa to Montreal. Mr. Shanley's estimate for the construction of this canal is in the neighborhood of twenty-four millions, and requiring no improvements on the St. Lawrence or in its canals, that sum stands as against the forty odd millions for the other route. But there are other advantages besides cheaper cost. The distance to Montreal is shortened by four to six hundred miles of very nasty navigation. As to the building canals for sea-going vessels loading in the West we neither see the expediency nor the wisdom. If grain can be brought through to Montreal from Chicago, the sooner it is there moved the better for its condition. And looking to it as a remunerative trade to Canada it is impossible to discover what the Province could gain by ships passing down our waters, to the ocean, already laden. The *Trade Review* has some very pertinent observations upon this matter, an extract from which we subjoin:—

The fact is patent to any person, that even a lake schooner will not take to canal navigation; and how can any person believe for a moment that costly, sea-rigged ships are going to waste their time in tedious canal and river navigation? Schooners loading in Chicago for this city invariably discharge their cargo at the foot of lake navigation (Kingston) into barges, in which they come through the river and canals to this city—the cost of a barge carrying the same quantity being only one third that of a lake schooner, and can be worked much more cheaply; whereas the cost of transshipment is only about $\frac{1}{2}$ cent per bushel; besides which the grain is benefitted to more than that value—a fact which our author seems to doubt. But any person must indeed have a small knowledge of the grain trade, who is under that impression, and who argues that because grain goes from Montreal to Britain without damage, it could also do so, without transshipment, from Chicago to Britain. Grain does not go from Montreal across the ocean without damage. A great deal of the grain shipped from this port is damaged considerably by heating, before reaching its destination. Neither can grain be shipped from Chicago to Kingston without risk of heating; nor can it lie in a perfectly dry warehouse during the summer months in this city without heating, unless attended to.

We are far from thinking that, because the St. Lawrence Canals do not pay interest on the capital employed in their construction, they are therefore a failure. The principle is universally adopted, that works may confer advantage on a country greatly superior to their cost, and still be in themselves unremunerative. This principle has been so frequently acted upon in the United States, that no company proposing to build a railroad through any undeveloped State, would think of commencing it without a large grant of land from the General Government; and that Government has admitted the principle by granting land in such cases, to replace to the company any capital which they have expended more than that of which the probable revenue would represent the interest.

Taking the figures as given by Mr. Tully, how would it be possible to remove 48,000,000 cubic yards of earthwork at an average price of 25 cents per yard? A calculation for any section of this canal would be as follows: Depth, 90 feet; bottom width, 60 feet; side slopes, one foot perpendicular to one foot horizontal. This would give the top width as 240 feet, and would be equal to 500 cubic yards of earthwork to every lineal foot of distance. Now, allowing the spoil to be deposited at a reasonable distance from the edge of the cutting, the proportion of surface required to contain it one foot deep, would be 13,500 square feet or 16,500 acres, or nearly 26 square miles; but no one acquainted with earthwork or excavation of any material to a depth of 90 feet will credit the fact of the sides standing at an angle of 45 degrees; it would be more likely 3 to 1 or double the amount calculated: so that every mile in length of the canal would require 24 miles in depth on each side to deposit the spoil from excavation.

Now for the three miles of excavation averaging 197.6. This, at side slopes of 3 to 1, would be 1,185 feet wide at top, out of which 4,552 cubic yards per lineal foot would be taken to make the canal, and would require 15,000 acres per mile to deposit the spoil, equal to 23 square miles per mile, or 63 square miles, making a total of about 112 square miles for the whole length of cutting, or the area of an ordinary township. So much for feasibility. As respects cost, the possibility of constructing the work at all with any reasonable or possible outlay is more than doubtful from the great depth to be excavated, and the corresponding dimensions of the cutting. As a work of utility it would only shorten the distance between Chicago and Oswego; but a cargo at that point would have to take the Erie Canal, and would be in no wise furthered on the voyage. If sent down the St. Lawrence a transshipment would be necessary, as the St. Lawrence canals are not of the capacity as proposed for the Huron and Ontario Canals.

The Ottawa route leaves Lake Huron at French River. It has neither the length of artificial channel nor depth of cutting as that proposed by Lake Simcoe. The former would not exceed thirty miles, the latter fifteen feet, and in no place would there be three continuous miles of canal. It should join the St. Lawrence sixteen miles below Montreal, where the port of that city will be eventually located. It also joins the same river 21 miles above that city; so that there would be no necessity to adapt the St. Lawrence canals to the capacity of those on the Ottawa. It would shorten the distance some 400 miles between Chicago and the seaboard, and facilitate communication between Fort William and Lake Superior and the commercial capital of Canada, a matter of some importance truly in the event of the acquisition by Canada of the

Red River, British Columbia, and Vancouver's Island. Locally its value as a commercial highway would be felt by an increase of trade and manufacturing industry; it would open another market for the lumber trade, and enable the Canadian millowner to manufacture Southern cotton on every one of its numerous falls. It is valuable also as the true line of military defence, unassailable at any point. Once this line of navigation was opened, the price of grain would be lowered in the British markets, an impetus given to settlement in the western States by a corresponding rise in the price of breadstuffs, the farmer being enabled to realise a portion of the value now monopolised by the forwarder.

The *Mail* appreciates the true state of the question as affecting Canadian interests. If the projectors of the Huron and Ontario Canal could secure the waste lands thereby inducing English capitalists to embark in an enterprise of such an impracticable character, and fail, as they assuredly would, in its execution, the effects would be most disastrous to the financial interests of Canada. Wanting to borrow largely in the English market for works necessary to develop the country, the greatest possible calamity that could happen would be the success of Mr. Capreol's speculation.

Such Legislation as granted charters of a similar character to that which called the Huron and Ontario Canal into existence, cannot be too highly condemned, and it shows how much our politicians have yet to learn in that respect.

The period is at hand when the new militia law comes into operation, and a thorough organization of the military force of the Dominion is to be effected. A good deal of anxiety will be doubtless felt as to what particular form the details of this measure will assume—whether the present staff of the volunteer militia will be continued in office, with additional duties assigned, or whether entirely new appointments will be made.

Prepared as the VOLUNTEER REVIEW has always been to give full credit where it has been deserved, and persuaded that the present staff has been very efficient, it is evident that something more is wanted to complete the intended organisation. To render the Canadian militia really efficient, care must be taken that in the selection of officers are combined the requisite qualifications with personal popularity. Neither favoritism nor mere qualifications alone should be the means of advancement. The reasons are obvious: the soldiers serve without intending to make arms their sole profession, and will not willingly follow officers who are unpopular or unknown. Moreover, officers selected for their local popularity have sufficient influence over their men to prevent gross infractions of discipline, such as would be sure to occur