cheapest possible through route for the grain traffic. Average wheat rates for the past eight years from Chicago to New York by the several American lines have been:

1—*Via* lakes and Erie Canal..... 6 19c. per bushel.
2— " " rail ..... 8.96c "
3— " all-rail routes .....14.55c. "

Making all due allowance for lack of return freights at the outset, it is calculated that wheat should be laid down in Montreal by the Ottawa route at a cost for transportation from Chicago not to exceed 3¼ cents per bushel, or at least 2½ cents per bushel less than the lowest prevailing rates. A much less cut should have the effect of diverting a large share of the traffic from those routes, if the statement in a recent report of the New York Produce Exchange, that ⅛ of a cent per bushel will suffice to change the channels of trade, is to be accepted as anywhere near the truth.

Enough has been said at least to indicate the importance of the route in relation to the through carrying trade. The magnitude of the traffic on the lakes is very great and rapidly increasing. The American Sault Canal has for a long time annually passed tonnage exceeding by 25 per cent. that using the Suez Canal. In 1892, 12,580 vessels were locked with an aggregate tonnage of 11,214,333 tons. This affords some measure of Lake Superior's traffic. In 1889 the total freight carried on the lakes was equivalent to 15,518,360,000 ton-miles, or 22.6 per cent. of the total ton-mileage of all the railways in the United States for the year ending June 30th, 1889. In 1886 there were only six steel vessels on the lakes, with a combined tonnage of 6,459 tons and a value of $694,000. In 1890, there were 68 vessels of the same class of 99,457 tons burthen, and valued at $11,964,000.

Considered from a military point of view there is no doubt the proposed waterway would afford a splendid second line of defence to Canada, and would prove a valuable protection to her commerce in case of war. The canals of the St. Lawrence system are peculiarly liable to attack from without, and could be rendered useless in a few hours by a mere party of stragglers. A ship canal on the Ottawa, being protected by its remoteness from the boundary at all points, would serve to maintain undisturbed communication between west and east, and would give control of the lakes. Sir John Michel, to whose mission reference has already been made, in addressing a public meeting in Montreal after his return said: "You are placed in a position held by no other city that I know of in the world, on the only spot on a vast continent which can be made the receiving house of one-third a continent's exterior trade, and able to dispatch that trade to Europe, but you are unsafely situated. The grand route to the sea by the Ottawa and French Rivers should as soon as possible be undertaken, giving you a backbone of military strength, and bringing to your doors the vast trade of the vaster West."

And the late Hon. Alex. Mackenzie, who was a firm believer in the value of the route, said on one occasion:

"I am convinced that the true route for a canal to the Georgian Bay is up the Ottawa, because that would be giving a backbone to the country. If we had a fine canal capable of carrying vessels of war in that direction it would be a splendid means of defence, as well as a great highway for the commercial products of the West."

A more material point, however, and a greater recommendation is that the commercial ties which would be formed with the West consequent upon the opening of this route would tend to knit more firmly the bonds of friendliness that exist between ourselves and our neighbors across the border, and it would thus become a potent factor in the preservation of that mutual good understanding which all true lovers of either country desire.

The opening of this waterway would exert also a great influence upon the development of valuable natural resources within our own borders. Bouchette estimated that the Ottawa valley is capable of supporting 8,000,000 people; but at present it has not more than 400,000 of a population. Portions of the route lie in the midst of rich agricultural land; others pass through or are adjacent to lumber and mineral districts among the richest on the continent. With an open thoroughfare for vessels to Georgian Bay, the lumber of the Ottawa valley would find a western outlet, and a vast and profitable trade would spring up with the timberless western prairie States. Not only would the cheap carriage of grain afforded give an immense impetus to the development of the Canadian North-West Provinces and Territories, but the Algoma, Nipissing and Temiscamingue districts would be still more directly benefited by cheap transportation for bulky products, and the rapidity of their settlement by a desirable class of homesteaders would be greatly augmented.

Doubtless the magnificent water powers of the Ottawa and its tributaries are such as to justify the high encomiums pronounced upon them by various writers. To make a final quotation from Mr. Shanly's report: "Its water power is not only unlimited in capacity, but available to its fullest extent at numberless stages along the route. By the opening of the projected navigation, this great manufacturing agent would be brought into comparative proximity to the granaries of Lake Michigan, and would immediately be turned to account in preparing the cereals of the West for the markets of the East. With such a combination of advantages in possession or prospect, it is surely not difficult of belief that the *valley of the Ottawa is destined to become not only the workshop of Canada, but one of the chief manufacturing districts of America.*"

The recent progress in electrical engineering has greatly enhanced the value of water powers, but it would require the space afforded by a special paper to discuss intelligently the possibilities arising out of the use of the hydraulic force of the Ottawa and its tributaries in the production of electricity for manufacturing lighting purposes, or for the propulsion of vessels, railway trains, etc. On this feature of the project let a single quotation from a letter by Mr. O. Higman, member of the Institute of Electrical Engineers, suffice:—

"It would be difficult," he says, "to find, on this continent, at any rate, a similar succession of waterfalls along a like distance, and through a country so well favored for manufacturing purposes. With the methods of long distribution of the electric current now being perfected by Tesla and others, there is no reason why sufficient energy should not be generated along the Ottawa and its tributaries, not only for local purposes along the route, but for the operation of the Canadian Pacific, Canada Atlantic, and Parry Sound railways between Georgian Bay and Montreal."

It needs no prophetic vision to see the Ottawa valley become, as Mr. Shanly says, "the workshop of Canada," a perfect hive of manufacturing industry,