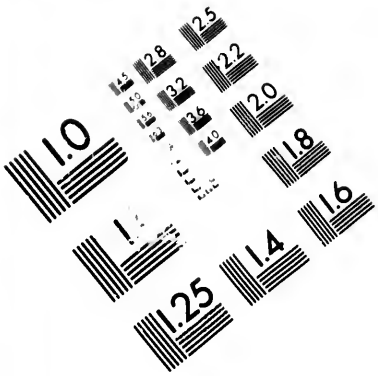

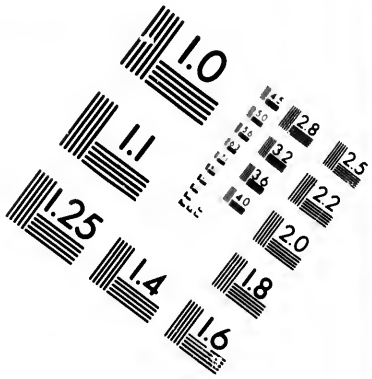

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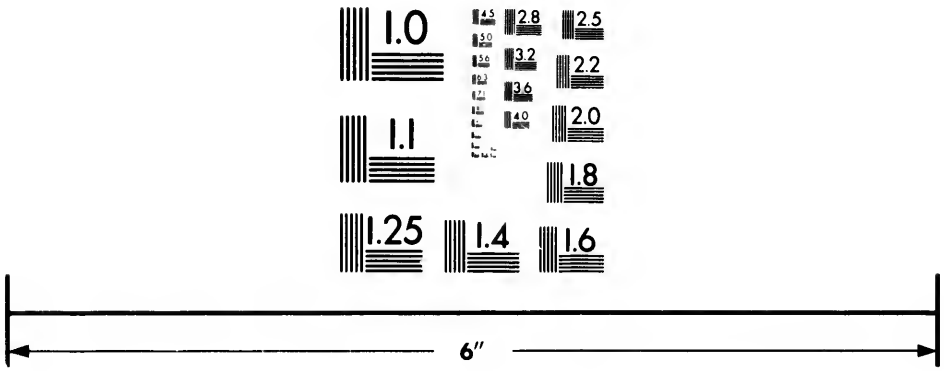

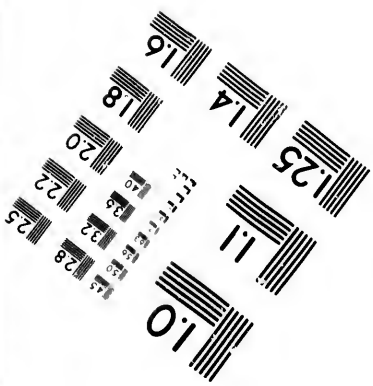

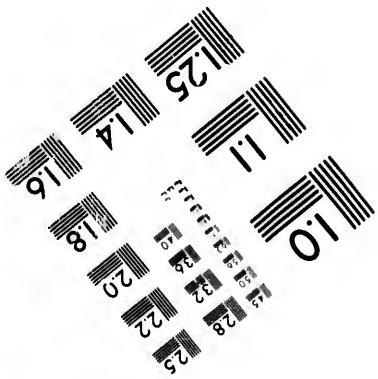

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Correspondence, Etc.,

Relating to the

Montreal, Ottawa and Georgian Bay Canal.

CONTENTS.

Printed by Paynter & Abbott, Ottawa.

An Open Letter.

To the Honorable Clifford Sifton Q.C., M.P., Minister of the Interior of Canada :—

DEAR MR. SIFTON,—I understand you are open to receive and are receiving suggestions and hints in regard to the "needs of Canada," and how best to develop our great North-west, the finest heritage God ever gave to a free people.

I have given this matter great thought and consideration and now beg to submit the following :—

I doubt if the people of the eastern provinces of Canada fully realize the vast extent of fertile lands that stretch away toward the setting sun in our great North-west.

Most of our people have an idea inherited from their school days that over all the "Great Lone Land" an Arctic winter reigns almost through the year, and it is hard for them to believe when I tell them of ripe tomatoes growing in abundance out of doors in the middle of October on the North Saskatchewan.

We have the physical basis for an empire, but for our North-west the vital problem is the problem of transportation. The true commercial measure of distance is not mileage but cost of transportation. It is, of course, a physical impossibility to move the farm lands of the North-west to the sea, but it is possible, in effect to bring the sea to them. The completion of the Montreal, Ottawa and Georgian Bay canal would be commercially equivalent to putting the North-west a thousand miles nearer to the markets of the world. Not even those who have studied the subject most deeply can realize all that this would mean, but some of the results that would follow can be plainly seen.

First of all, it would mean for the settlers already there such an increase in the selling price of their products as will bring them an abounding prosperity, and following close and consequent upon this first result will come an increase of immigration that will people our great North-west as if by magic and make the "Great Lone Land" the home of teeming millions of farmers and gold and coal miners.

The United States' North-west lay all unoccupied until the lock was built that gave the ships free passage at Sault Ste. Marie. When the greater lock was finished in 1881, the greatest in the world, until two more were lately built close by, one on Canadian and one on American soil, to accommodate the business created by the first, there was begun that mighty movement of population which settled the prairies of Minnesota, the Dakotas, and Manitoba, and built up the cities of St. Paul, Minneapolis and Duluth on the American side, and Winnipeg on our side.

The decrease in the cost of transportation that will follow the deepening of the channels of the lakes, now practically completed, will have a noticeable effect in the same direction; but to quote the language of the late Congressman Chipman, of Michigan, deep water through the lakes will be but a lame and impotent conclusion unless supplemented by deep water to the sea. It is my deliberate opinion that the Dominion government can afford to guarantee the interest on the capital necessary for the construction of the Montreal, Ottawa and Georgian Bay canal, simply for its effect upon the settlement of the North-west Territories, although that is only one of the many benefits that would accrue.

I desire to emphasize the fact that waterway improvements are not an injury to railway interests, but are always and everywhere a benefit. We are fortunate in having so broad-minded and able a man as Sir William Van Horne at the head of the railway which will be most directly and vitally affected by the

proposed canal. He is already on record, as are also Chauncey Depew, of the New York Central, Mr. Dougalls, of the Chesapeake and Ohio, J. J. Hill of the Great Northern, and John R. Booth, of the Canada Atlantic. Such masters of transportation as those I have named, and others who might be mentioned, are advocates of waterway improvements from the standpoint of enlightened self-interest, but we have too many railroad men who are too narrow to see anything that lies outside of two lines of steel rails. The waggon-way, the railway and the waterway —that trinity of transportation agencies by which the commerce of the world is carried out—while their fields of action overlap somewhat, are, in the last analysis, not antagonistic but complementary. There are conditions, of course, wherein only one form of transportation is available, but put the three alongside each other and it will be found that certain classes of traffic can be carried so much more economically by each form of transportation that neither of the others can afford to carry them when the third is available. As an illustration, a study of the reports of the Great Western Railway of England, made a few years ago, showed that they were using 58 per cent of their equipment in a traffic that produced only 14 per cent of their total revenue. That low grade freight ought to have been turned over to the canal alongside. I regard it as an axiom that railways will always find the greatest profit and prosperity in hauling high-class freights for a dense population, rather than in carrying the low grade traffic of a thinly settled region. Those communities will furnish the greatest proportion of high class freights which have the benefit of water carriage for their raw materials; and inland communities, which are so situated that water transportation can not be brought to their doors, will be best built up in population and prosperity by bringing that cheapest of all known forms of transportation as near as possible. I can only reiterate the opinion I have previously expressed, that the best thing that

could possible happen to a railway would be to have (and I have so advocated it in connection with the Parry Sound road) a waterway paralleling every mile of its track. To turn from a general statement to the special case under consideration, the opening of such a magnificient air-line of water transportation as would be made from Montreal to Port Arthur by the construction of the Montreal, Ottawa and Georgian Bay Canal, would so immediately and enormously benefit the Canadian Pacific Railway, that that great corporation could well afford, if other means should fail, to bond its line and build the canal itself.

The canal cannot be built without creating a series of water powers around every one of which a manufacturing city will spring up, making the beautiful valley of the Ottawa resound from end to end with the whirr of busy wheels, and converting it into a scene of industrial activity unrivalled on the continent. And you will see a splendid illustration of the division of traffic to which I have referred above, for the saw-log would float down the canal to mill and factory, but the railway would carry away the finished product. The peopleing of the great Northwest, to which I have already alluded, would add so greatly to the volume of traffic on its western lines, that, in accordance with a well known law of transportation, the C. P. R. could not only reduce its rates—which would benefit the settlers—but could at the same time increase its dividends which would benefit the shareholders; and the prosperity of both would benefit the country as a whole.

In 1853, when the project of building a lock at Sault Ste. Marie was under discussion in the legislature of Michigan, Mr. E B. Ward, of Detroit, a prominent vessel owner and regarded as one of the most clear-headed and far-seeing business men of his day, wrote to a friend in the legislature that he was jeopardizing the whole project by advocating a lock so large that its full capacity would not be needed for a hundred years, if ever. Yet

that lock was outgrown in a few years, and the lock of 1881 was built alongside. When this was finished all concerned thought that they had solved the problem for all time. But that, too, was outgrown, and the little lock of 1855 (which Mr. Ward thought would not be needed for a hundred years) was blown out with dynamite to make room for the colossal lock just finished, while another of equal capacity has been built just across the river on our side.

In the prospectus, a copy of which I sent you, I spoke of the rapid growth of the commerce at the Sault canal, and I doubt if the rapidity of this development has ever been surpassed. It was 101,458 tons in 1856; 2,029,000 in 1882; and 11,214,333 tons in 1892. The years since 1892 have been years of depression and business disaster, but in spite of this the traffic passing through the Soo in 1896 was 16,239, 161 tons, an increase of nearly 50 per cent. in four years. If the business of one lake has increased half as much in four years of business depression as it had done in the preceding 36 years, do you think the Ottawa canal can accommodate the traffic which will be offered when the commercial pendulum swings in the other direction and activity takes the place of stagnation—when all the cities of the upper lakes send their thronging fleets to Georgian Bay and ocean vessels lie with fretting keels at Montreal? The traffic and commerce of the mighty West will be far beyond the wildest dreams of to-day.

Are you aware, sir, that in Northern Ontario there are one million acres of land unoccupied which can grow fruit finer than anything in the Niagara peninsula? Are you cognizant of the fact that in the same region there are one million acres of spruce waiting to be developed into pulp, and that by the opening up of an inland system of water navigation we will command the pulp business of the whole civilized world? Sir, what you want to do is to get the people out to this country and transport them

and their effects as cheaply as possible. Use every means in your power to dispel the ignorance abroad regarding our climate. In the book stores in Ottawa they are selling photographs as souvenirs showing two men driving two dogs harnessed up à la Eskimo. These should be suppressed.

The last time I went across to England it was in the dead of winter. I went over in less than six days. When I reached London my landlady asked me if I had to walk out far on the ice before I caught the ship a la Greenland.

You will be sustained by the public sentiment of the country if you inaugurate a bold, vigorous and energetic immigration policy.

I hope you will receive these suggestions in the same spirit in which they are given, namely, with single eye to do what is for our common country.

Yours faithfully,

McLEOD STEWART.

Ottawa, Feb. 6th, 1897.

An Open Letter.

To the Honorable Andrew George Blair, Minister of Railways and Canals, Ottawa:

DEAR MR. BLAIR.—I, and those associated with me in the promotion of the enterprise of opening the Ottawa river to navigation, believe it to be one of very great value towards the development of Canadian resources and the extension of Canadian commerce, and look upon it as of special importance as a feeder to the St. Lawrence river route, and therefore calculated to build up the trade of Montreal and Quebec, and all the towns in any measure dependent upon those centres.

The opening up of this channel will give the advantage of cheap water transportation through the heart of a country larger than New England, and superior to it in richness and variety of resources. The Ottawa Valley with an area of more than 60,000 square miles, contains the largest depot of white pine timber in existence. It possesses vast quantities of spruce, the basis of the pulp industry. Our forests of hardwood, suitable for house furnishing, furniture and other manufactures, are extensive and valuable. Iron, phosphates, mica, graphite, asbestos, serpentine, galena, silver, copper, nickel, marble and other mineral products are abundant. We have also a large extent of cultivable and grazing lands, fertile and well watered, and so situated with regard to the occurrence of minerals and timber as to enjoy advantageous home markets and afford the best conditions for that species of mixed farming which everywhere proves the most profitable.

The Ottawa Valley, in its thousands of lakes acting as natural reservoirs, and in the grand rapids of the Ottawa river

and its tributaries, possesses water power far surpassing in the aggregate that of New England, and is better located than New England, both for grinding western grain, and for manufacturing for domestic markets. For foreign commerce New England has the advantage of an ocean frontage; for domestic trade the Ottawa Valley is favoured by its situation on the shortest possible route between the Atlantic and the greatest system of internal navigation in the world; and, both by location and resources, is fitted by nature to become, as Mr. Walter Shanly has said, "the workshop of America."

The cheaply available water power may be reckoned by millions of horse power. The utilization of this in manufactures suited to the country, and the consequent growth of population in Northwestern Quebec and Northern Ontario must add materially to the importance of Montreal as an exporting point and as a distributing centre.

With cheap water transportation on every side, the great lakes to the south, and the great ocean channel by the St. Lawrence to the east, and with railways and subsidiary waterways like the Rideau and Trent navigations crossing it in every direction, that portion of Ontario south of the Ottawa river will become the Belgium of this continent. From its geographical position as well as from its healthful climate, natural fertility and timber and mineral wealth, the raw materials for important manufactures, this section is destined to become one of the most densely populated districts on the continent.

With the Ottawa waterway extending her water front nearly five hundred miles west from Montreal, and bringing her rich material resources upon a national highway, the great province of Quebec will find room for development within her own boundaries. Instead of seeking New England her surplus population will find employment in the industries which will spring up along the Valley of the Ottawa.

While the development of new territory, the extension of commerce and increase of the natural activities of the country are of the first importance, for other reasons the project is of national interest. Not least is the creation of a strictly national waterway, free from outside interference or control, wholly within our own territory, and ensuring us under all circumstances an independent means of internal communication.

The need and demand for the canalization of the Ottawa are vastly greater than they were even a few years ago. Since the building of the C. P. R. there is no possible undertaking so broadly national in interest and so important in its bearing upon the welfare and prosperity of the Dominion.

The present is the best time for the undertaking of the work that could be found. Not only is Canada regarded more favorably than ever before as a field for investment, but capital is better disposed towards this particular form of investment than at any time for years.

In England there is the most ardent feeling in favour of closer relations with the colonies, and the strongest disposition to favour any policy or any undertaking which promises to further them.

It is the growth of facilities for transportation, such works as the Suez Canal and others, that have made the existence of the Empire of to-day possible. And such a waterway as the Ottawa will prove a new bond of union among the provinces and a factor in the question of imperial relations.

Everything indicates that NOW is the time for the Ottawa river to be opened for traffic. Then, in addition to developing land resources of great richness, we will have another grand highway of commerce for the building up of our national prosperity.

The shortness of the Ottawa route, and the very low rates at which freight can be carried by it, ensure that as soon as

opened it will gain and bring to Montreal and Quebec a share of the through traffic that now goes to New York. Its local traffic will also be important, and far in excess of that of the St. Lawrence canals. And every ton of through freight moving on the Ottawa river, as well as every ton of increased production of the Ottawa Valley seeking export, will necessarily go to Montreal or Quebec for an outlet, not being liable to be diverted at numerous points, like the traffic on the St. Lawrence canals, which experiences exhaustive drains at Buffalo, Oswego and Ogdensburgh.

Work on the Ottawa, as well as on the St. Lawrence, ought to be pushed vigorously and at once. The Americans are keenly alive to the value of handling the enormous traffic, and are making every effort to retain the whole of it for United States carriers to United States ports.

The traffic to which we are fairly entitled by our position is sufficient already to fully employ both the Ottawa and St. Lawrence routes. These latter are really complementary instead of competitive, both having Montreal for their terminus. The true rivalry is with American routes carrying trade to New York.

The whole matter resolves itself into one or two questions: If this waterway, through the heart of our own country, owing to present favorable conditions, can be constructed without interference with other needed public works, and without recourse to the public treasury, except to the extent of a small annual bonus after completion, and can be completed in a short time at comparatively slight cost, is it worth making an effort to obtain? Would such a feeder and alternative through route tend to increase the commerce of Montreal and Quebec and to benefit the great St. Lawrence waterway? Are its prospective effects in developing new territory and increasing production and national wealth, worth trying to secure?

Yours faithfully,

McLEOD STEWART.

Ottawa, June 15th, 1897.

Ottawa Canal Scheme.

The following article, by Mr. A. J. Forward, of Ottawa, which appeared in the Canadian Engineer, on the practicability of the Ottawa and Georgian Bay Canal scheme, will be read with interest :—

In Scribner's Magazine for January, 1896, a New York writer quotes approvingly the proposition of L. E. Cooley that "the line of export must follow the line of domestic transportation," and infers that "whatever merit Canadian routes may have from an engineering standpoint is entirely overbalanced by the fact that they run through a district which can furnish but very little freight in either direction," The fallacy of this statement, so far as regards the Ottawa route, may be readily shown.

During the season of 1895 the traffic of the Erie canal, both eastward and westward, originating in New York state, was in the neighbourhood of 600,000 tons, of which the following were the principal items: Pot and pearl ashes, 11,495 tons; barley malt, 24,698 tons; salt, 66,460 tons; stone, lime and clay, 240,859 tons. The quantity of coal distributed was 469,595 tons. Wheat from Buffalo and Tonawanda to points along the line of the canal amounted to 71,850 tons. From 1890 to 1894, inclusive, the movement of freight was as follows, according to New York Chamber of Commerce reports :

	From Tide-Water. Tons.	From Western States. Tons.	From N.Y. State. Tons.
1890	1,304,274	1,194,017	470,549
1891	1,175,536	1,186,521	502,589
1892	1,120,704	1,329,706	478,380
1893	567,659	1,586,238	675,380
1894	960,320	1,437,293	259,059

The average annual traffic of the Erie canal originating in New York state, or, in other words, "derived from the district through which it passes," was therefore, during that period, only 473,191 tons.

For the period 1883-93, inclusive, the average traffic of the Ottawa canals amounted to 692,173 tons.* Practically the whole of this originated along the Ottawa river, and the bulk of it was lumber. In 1894, out of a total traffic in that year of 562,010 tons, no fewer than 518,747 tons were the produce of the forest** During the same year out of 886,778 tons moved on the St. Lawrence, exclusive of the Welland canal, 537,982 tons were through freight, leaving only 348,796 tons as the traffic of local origin. From these figures it appears that the lumber traffic alone of the present Ottawa canals exceeds the entire traffic of the Erie canal derived from New York state, and is double the local traffic of the St. Lawrence canals. Such being the case when the canals extend westward no further than Ottawa city, it is reasonable to expect that the locally-derived traffic of the completed waterway, passing through the heart of the lumber country, and giving an additional outlet westward to Chicago and other lake markets, as well as better facilities to the east bound trade, will be at least twice or three times as great as that of the Erie canal, without reckoning on anything else but lumber and other products of the forest.

THE LUMBER QUESTION.

The output of sawn lumber from the Ottawa district for 1895 was estimated at 627,000,000 feet. This at 600 feet B.M. to the ton, would amount to 1,045,000 tons. In 1892 the Georgian Bay region exported 184,500,000 feet of saw-logs, or 307,500 tons. Last year 307,000,000 feet (estimated), or 511,666 tons, went to the United States from that quarter. An open waterway from the lakes to the foot of Lake Temiscamingue

*Canadian Stat. Year Book, 1894. **Report Department Railways and Canals.

would result in the establishment of mills on the route to saw lumber for export to lake markets. A largely increased cut of timber would result, and the provincial revenues be correspondingly augmented without any injurious drain on our forest resources. Henry O'Sullivan, inspector of surveys for the province of Quebec, in his report of surveys on the Upper Ottawa in 1895, says: "If there were mills on the spot, or if easy access could be had to this region, a great deal of good timber that is now left to rot could be utilized; but when we consider the distance, some seven hundred miles, that this timber has to be driven to the Quebec market, the second quality stuff cannot pay." Hardwoods, which cannot be floated for long distances, and inferior sorts of timber, would at once become merchantable and go to swell the annual output, which it may be safely asserted, might be doubled without trenching to any greater degree on the stock of pine of the better class. Where there is cheap transportation, such as the waterways would afford, the by-products of the forest are in the aggregate of greater value than the lumber and timber annually cut. Pulp and pulp-wood alone will furnish a large carrying trade. The market is extensive and rapidly growing. European countries import over 500,000 tons of pulp annually. The report of the New York forest commission, 1891, states: "In the last eight years the amount of timber used for this purpose has increased 500 per cent. In 1891 the timber cut for pulp-wood in the great forests of Northern New York was equal to one-third the amount cut by the lumbermen. Already the cry of scarcity of pulp-wood is being raised in the United States, and they must soon come to Canada for almost their entire supply. On the head waters of the Ottawa, and northward over the height of land, are inexhaustible stores of spruce and poplar of the best quality. The conditions for its local manufacture are also of the best. Three things are necessary to success, suitable wood, extensive water power, and

cheap labour. All these, as well as cheap transportation, will be found along the Ottawa river. Firewood to the extent of 1,064,812 tons was carried on Canadian railroads in 1893, and would furnish considerable traffic on the Ottawa. Tan bark, hop poles, telegraph poles, railway sleepers and ties, stave bolts, posts, pot and pearl ashes, manufactures of wood, etc., along with various minor products of the forests, would each afford a material addition to the traffic.

Without counting, however, on any increased output from any of these sources, there would be an annual traffic of 1,800,000 to 2,000,000 tons of products of the forest alone to draw from, and all "furnished by the district through which the canals run."

THE PHOSPHATE OUTPUT.

The opening of this waterway will aid to revive phosphate mining, and will eventually, by giving access to markets, and reducing the cost of transportation, swell it to an industry of very large proportions.

There are two principal districts in Canada where apatite or phosphate of lime occurs. Both these are in the Ottawa Valley. The first, on the north shore of the river, consists of a belt from 12 to 25 miles wide, stretching northward through Ottawa county. Though of limited area, extending about 30 miles, so far as exploited, it is notable for the richness of its deposits, both as to quantity and quality of product. The second district is in Ontario, having been developed principally in the counties of Leeds and Lanark, in the vicinity of the Rideau canal, and covers a larger area than that on the north side of the Ottawa. Hitherto the impression has prevailed that the deposits are smaller and of poorer quality than those in Quebec. However, the report of the Royal Commission on the Mineral Resources of Ontario states: "Larger deposits have been opened up, particularly in one district, on the Quebec side thus far, but as regards similarity of occurrence and variation in quality (dependent largely upon

intelligent dressing of the rock) identical conditions appear to prevail on both sides of the Ottawa. The quality of the higher grades of phosphate shipped from some of the mines along the Kingston and Pembroke railway is as high as any produced in Canada." The depth to which the apatite extends is probably for all practical purposes unlimited. Shafts over 600 feet deep still continue in good phosphate, and the vein matter, though irregular, is continuous. Mr. H. J. Wigglesworth, of New York, in addressing the Canadian Mining Engineers in 1895 said:

These phosphates are practically unlimited. Those who have studied their occurrence most carefully see no possibility of exhausting them. If all the population of Canada were employed there mining for ten years, the extent of the deposits would not be laid bare."

MARKET FOR PHOSPHATES.

Here is evidently the basis of an extensive future industry. It is estimated that every year 1,500,000 tons of phosphate are taken out of the soil of the United States by its food crops. This must be returned to the soil in some form. For want of it many farms in the Eastern States have been abandoned as worthless, and whole States that could grow 30 bushels of wheat to the acre do not now average 15. Large areas in the older portions of Quebec and Ontario have been exhausted by continuous cropping. A judicious use of fertilizers would restore vitality to the soil. The wornout cotton lands of Georgia, by the use of artificial manures, were raised in 20 years from a value of $3 per acre to $30. The same transformation might take place in Quebec. An almost unlimited home market for this valuable product will be developed in time. If the Ottawa waterway is to carry eastward the grain of the west, there must be return cargoes for the vessels employed in the traffic. What more beneficial occupation than to convey back to the soil the fertilizing elements of which it has just been depleted by the crops exported? Chicago,

Cleveland and other lake ports will afford markets every year more extensive. The only competition in those markets would be with the South Carolina product, which is handicapped by the long and expensive railway haul across the Alleghanies and westward. Vessels by the Ottawa waterway looking for return cargoes would carry very cheaply. Buckingham, Que., would be about the same distance from Chicago by water as Buffalo.

The adverse influences affecting Canadian phosphates are chiefly: 1. Low prices in the European markets, owing to cheapness of production in South Carolina and Florida; 2. General depression of the agricultural interests and low prices for farm produce; 3. High cost of apatite mining, owing to the uncertainty of its occurrence, and the expense of selection of "cobbing;" 4. Frequent rejection of shipments that fail to analyze up to required quality; 5. Excessive cost of transportation; 6. Lack of home market.

THE EUROPEAN MARKET.

The demands of the European market have been confined to the highest obtainable grades. These are used for mixing with low grade, cheap material from South Carolina and elsewhere. The necessity of obtaining an 80 per cent. grade immensely increases the cost of production, and leaves a very large part of the product at the mines as waste material. If the United States and Canadian markets were available to the fullest extent, so that a 60 per cent. grade could be shipped, the output of each mine would be nearly doubled with the same labor, and the cost of mining and handling materially reduced. The present cost per ton laid down in the English market, ranges from $7 to $14, while it is probable that if markets on this continent were to take the low grade paoduct, it would be loaded on vessels at Buckingham at from $2.50 to $5 per ton. It may be shipped either after simply grinding the rock, or after manufacture into superphosphates. Magnificent water-power for grinding is avail-

able at the mouth of the Du Lievre. Iron pyrites for the manufacture of sulphuric acid can be conveniently obtained. To estimate the prospective tonnage to be afforded is, of course, out of the question; but there is every reason to believe it would be large eventually. About 6,000,000 tons have been shipped from the South Carolina deposits to date. European markets import 500,000 tons a year.

Another feature to be taken into account is that mica and other minerals occur very frequently associated with phosphate, where neither alone will repay working. So that whatever helps the phosphate industry will stimulate their production as well. Mica, graphite, asbestos, serpentine, pyrites, iron, and other mineral products of economic importance occur throughout the phosphate region, and would be extensively developed by the opening of this waterway.

THE MINES NEAR OTTAWA.

The principal ores of the Ottawa region are magnetic. Hematite occurs very generally associated with magnetite, but usually in small quantities comparatively. From the well-known South Crosby deposits on the Rideau lake northward to Arnprior, and extending across the river into Pontiac county, is a region described by mining experts as a hematite and magnetic belt whence valuable ores may be obtained in large quantities. Five miles from Ottawa, four miles from excellent water power on the Gatineau river, and only two miles from a shipping wharf, is the Baldwin mine. Ore from this has been pronounced "the best car wheel iron ever used." The vein has been traced upwards of one and a half miles on the surface, there being at one place a solid hill of ore 100 feet in height. The amount of exposed or easily accessible mineral has been estimated at 100,000,000 tons. Ten miles northeast of Ottawa is the Haycock mine, from which very large quantities of ore may be obtained. Thirty-five miles west of Ottawa and about four miles from the Ottawa

river, are the Bristol mines, where there is an available supply of ore calculated by their mining superintendent, Mr. Symons, at over 30,000,000 tons. A report made for the owners in 1889 by John Birkenbine, a mining engineer of Philadelphia, among other things states:

"The extent of the ore body would appear ample to encourage the installation of a plant for smelting the ore, and personal investigations impress me with the belief that the Bristol mines should become as large a producer of iron ore as any of the ore bodies which I have examined either in the province of Quebec or Ontario. Should mining operations be carried on upon an extensive scale, the location offers some peculiar advantages, owing to the fact that four miles southeast of the mines the Ottawa river encounters a limestone ledge over which it falls in picturesque rapids and cascades about 40 feet. This water power, known as the Chats Rapids, could be utilized to advantage for producing power and compressing air, which might be carried as at Quinisee Falls and Michigammee River, Michigan, to operate machines at the mines, or by converting it into electric force, it may be conveyed so as to produce power. Inspection and analysis would indicate an ore obtainable for smelting purposes approximating 60 per cent. iron, 2 per cent. sulphur, with phosphorus very much below the Bessemer limit: and when roasted this ore should exceed 60 per cent. of iron, with sulphur below one per cent. Taking into consideration the facilities now existing in the city of Ottawa, it appears to be the most advantageous location for utilizing the ores from the Bristol mines. An examination of the vicinity of Ottawa developed four very satisfactory points where blast furnaces could be located to advantage, and where facilities are offered for adding other manufacturing industries in the future. Some of these points possess special merit as to certain features, but all are convenient to transportation, and have ample cinder room, water, etc.

On the line of the Rideau canal is the celebrated South Crosby ore deposit. Conveniently located along this waterway are also numerous deposits throughout the county of Lanark, as yet altogether undeveloped.

CENTRAL ONTARIO MINES.

The numerous and rich mines of the Renfrew district and Central Ontario, and along the lines of the Kingston and Pembroke, Ottawa, Arnprior and Parry Sound, and Irondale, Bancroft and Ottawa railways, would also be very accessible from this point. Bog iron ores for mixing might be obtained from Vaudreuil, the present source of supply of the Drummondville forges. They also occur (in unknown quantities, the deposits being undeveloped) in Templeton township; in Hull township, only a few miles north of the city of Ottawa; near the river in Eardly township, 20 miles to the west; at various places along the Rideau, and throughout Lanark and Renfrew counties. Iron deposits are known to exist also in the vicinity of Lake Nipissing, on Lake Temiscaming, and elsewhere in the county of Pontiac. By means of the opening of the waterway the distance from the iron regions of Lake Huron to Ottawa would be the same as to Cleveland.

The supply of ore which may be cheaply centered at Ottawa by the various waterways and railways is practically unlimited. A writer in the *Field Naturalist* several years ago asserted that—

"We have in the Hull, South Crosby, South Sherbrooke, McNab and Marmora deposits alone, in round numbers, 1,000,000,000 of tons, a quantity sufficient to yield 1,000 tons of ore a day for 3,000 years."

A statement so purely speculative must be taken for what it is worth. What is certain is, that deposits undeniably very large are already known, that the occurrence of iron is very general over a large part of the Laurentian area in the Ottawa Valley, and that the development work and exploration thus far

done amount to very little more than scratching the surface here and there.

Besides ore, however, there must be taken into account flux fuel, labor and transportation facilities. The city of Ottawa is built on limestone. On this point Mr. Birkenbine's report says :—

"Limestone is abundant in the territory about Ottawa, and the Geological Survey officers state that both limestone and dolomite, as well as intermediate qualities of magnesian limestone, are obtainable. It is therefore possible to find either near the mines or near the furnace location an abundance of limestone for flux."

Facilities for obtaining and cost of fuel are, perhaps, the two most important elements. To quote Mr. Birkenbine again :—

OTTAWA'S FUEL SUPPLY.

"To appreciate the position of Ottawa to a fuel supply, we may first consider its position in relation to the anthracite coal region of Pennsylvania. Taking Scranton as a centre, the circumference of a circle which passes through Ottawa, would also pass through or close to Cleveland, Ohio; London, Ont., and Rouse's Point, N.Y. As the railroad connections between Scranton and Ottawa are nearly direct, and as there is no duty on anthracite coal, this fuel should be delivered in Ottawa at approximately the same all-rail rates that prevail to the other points named. Very satisfactory coke for furnace use is now being produced in Pennsylvania, 100 miles nearer Ottawa than Connellsville, and the use of such fuel would give Ottawa an advantage of fully 100 miles over Chicago in distance."

Pennsylvania coal can be brought in by direct all-rail routes as stated, or via the Rideau canal. Nova Scotia coal comes as far as Montreal in considerable quantity, there entering into competition with American coal. It could be brought to Ottawa at very slightly increased cost. Within 8 or 10 miles of the city are extensive peat bogs, which might be successfully used for

coking purposes. Peat also occurs along the line of the Rideau canal, and in the vicinity of Caledonia Springs, close to the Ottawa river. And in case of the location of furnaces here it would be worth while to enquire into the value of refuse from the various sawmills, which now is allowed to pollute the river. This might be used as a fuel when converted into gas, as is at present practiced in Norway and Sweden in the manufacture of iron of the highest quality. The location is also one of the most favorable in Canada for the manufacture of charcoal iron, for from the forests of the great Laurentian area might be obtained supplies of charcoal for years to come. Labor is plentiful, cheap, and of good quality. With waterways south, east and west, and railways radiating in all directions, and located near the convergence of all the great trunk lines of Canada which have been or may be built. Ottawa would be in an ideal situation to distribute the manufactured product. To the eastern market she would be as near by water as Hamilton, and 250 miles nearer to Montreal. The Canadian Pacific and Ontario railroads running north to the Ottawa river, could be supplied to the best advantage. With cheap iron, cheap lumber, cheap waterpower, cheap electricity, and cheap transportation, manufactures would spring up in the Ottawa Valley, and would create markets. And clearly, all development of mineral and forest resources to the northward, as well as all settlement in that direction, will have the Ottawa river as their base of supplies in the future as in the past.

TRAFFIC OF THE GREAT LAKES.

In these days of deep-waterways conventions we hear much said of the enormous traffic of the great lakes. It is interesting to note that nearly 75 per cent. of that is composed of lumber and iron. In view of that fact and considering that these two products constitute our most abundant and valuable resources, residents of the Ottawa Valley may be permitted to question the

sweeping assertion that all Canadian routes to the seaboard are disqualified "because they run through a district that can furnish but very little freight in either direction." We have iron enough to supply the continent. Mr. W. C. Edwards, M.P., one of the most prominent lumbermen in Canada, referring to the extensive forest area, and commenting on the methods of Canadian lumbermen, recently expressed the opinion, from his seat in the House of Commons, that a very large output of lumber from this region might be continued indefinitely, if proper measures for forest conservation are adopted. Unless there is some material error as to the extent and nature of our resources, or as to the functions and effect of waterways in developing these, there appears to be ground for asserting that the opening of the navigation of the Ottawa river to the great lakes will accomplish more for the advancement of Eastern Canada than any public work in our history, not excepting the Canadian Pacific Railway. Its beneficial effects in aiding the settlement of the Northwest, as well as the northern districts of Ontario and Western Quebec, are beyond the scope of this paper.

Ottawa Lumber Interests.

Their Connection With the Georgian Bay and Ottawa Canal.

Editor Journal :—In the *Montreal Star* of the 8th inst., I read with much interest a letter from C. C. Fair entitled "The Market for Lumber," and touching also on the future prospects of our country. Mr. Fair says :

"Unfortunately the very industry that so materially assists in the development of these places—the backwoods—is handicapped to such an extent that, to make money by it has become almost impossible, and in most cases men are ruined in the attempt. I mean the local saw-mill. He has no chance of being able to place his lumber to the best advantage, simply from the fact that he has no capital and cannot reach foreign markets. Canada needs population. Give us twenty millions of inhabitants, and we could dictate where now we are dictated to, and we want these millions soon. * * * Why should not the government take this matter in hand and by a bit of clever legislation reach the masses of the people, upon whose votes they really depend."

Now, Sir, I firmly believe there is a remedy for this, and that these twenty millions are within our reach.

In the summer of 1859 the writer went down on a raft of square timber from the upper Ottawa to Quebec. On the river St. Lawrence, from Little river to Quebec, the vessels met with (with the exception of a few "pin plats") could be counted on the fingers of one hand. Now on the same trip these waters are found teeming with craft of all dimensions from the stately ocean greyhound to the humble barge loaded with valuable lumber. Why is this? For the simple reason that lumber and other

bulky freights had access to the foreign markets by the ocean, and to the States by way of canal at Sorel, and were not handicapped by paying heavy land freights by a grasping monopoly. Again at the same time, 1859, what was Ottawa? A small backwoods town (Bytown), that could only boast of one short railway, the Ottawa and Prescott road. What made her what she is to-day? Was it Her Majesty's decision in making Ottawa the capital of this Dominion? (All honour to her for it.) Well, certainly it helped greatly. But the commercial prosperity of Ottawa to-day is due to her central position, to the great water power when the first mills were established, by the enterprise and energy of a few far-seeing business men, whose eyes were open to the fact that Ottawa had canal communication with the outer world, and domestic and foreign markets, without being burdened by heavy land freights.

Now sir, what do we find to-day on the Ottawa river, from the capital up to the beautiful Temiscamingue Lake? Not one saw mill shipping lumber by water, for the simple reason that there is no canal connection with any market, and the two or three mills that we have, (for I think there are not over three in this whole length) have to compete with other mills, and at the same time pay excessive railway charges.

Where is the remedy for all this? Well, sir, I think it is to be found in the "Ottawa, Georgian Bay and Lake Huron Canal." Open this canal and an immediate benefit will be conferred on all the provinces of this Dominion, east of the Rocky Mountains. Immediately that locks are completed at the Deschene, Chats, Snows, Calumet and other rapids, saw mills will spring up like magic all along the Ottawa in both provinces of Quebec and Ontario, for the water power is unlimited, and farmers who are seeking out a precarious livelihood, will find a market for coarser grades of lumber, such as hop poles, ties, etc., etc., that cannot possibly pay railroad freight, and this will confer an immense benefit on the farmers, and cause such an influx of population, that will be simply wonderful, and will take up all

the vacant lands along this route. We need not speak of the immense benefit this canal will be to the North-west provinces, in opening up cheap transport for their wheat and other products to the sea board, and at the same time adding to the trade and prosperity of Montreal, which will be the virtual terminus of this great project.

In conclusion, sir, if you will just trace the route of this canal on the map up the Ottawa and Mattawa rivers, you will be struck with the central nature and directness of the line, conferring its favors on both provinces of Quebec and Ontario. Now, why should not our present administration look with favor on this undertaking, and here is the very opportunity that Mr. Fair alludes to when he says "the government should, by a bit of clever legislation, reach the masses of the people upon whose votes they really depend." This is the opportunity of our present Liberal government, to confer this greatest boon on our country in this time of depression in trade.

MATTAWA.

Ottawa, June 12, 1897.

ALMONTE, ONT., 12th April, 1897.

MCLEOD STEWART, ESQ.,
Ottawa.

DEAR SIR,—Referring to our conversation last week about the water power available from the Ottawa River, the following information may be of some use :—

When I was instructed in 1872 to make the survey for the construction of the Carillon dam and new canal there it was necessary to ascertain the flow of the river. Mr. T. C. Clark, in his report of his survey for the Ottawa Ship Canal, gave the flow at Carillon in high water as 130,000 cubic feet per second, and low at 30,000 cubic feet per second. I was not satisfied with that, knowing that Mr. Clark had not time to extend his observations and measurements through more than one or two years. I at once began measurements of the flow, and continued them during ten years. I made extreme high water 200,000 cubic feet per second, and extreme low water 25,000 cubic feet per second—ordinary low water 30,000 to 35,000 cubic feet per second.

That would give for extreme low water, allowing 20 per cent. off for loss, friction, &c , a power, when the river was at its lowest, of 2,270 horse power per foot fall—and in ordinary low water from 2,700 to 3,300 horse power per foot fall.

When the Ottawa and Georgian Bay Canal is constructed, as it must be in the near future, it will be necessary to regulate the flow of the river, that is to retain some of the surplus water of flood time for use during low water seasons.

It is certainly a low estimate and well within the possibilities, to say that the flow of the river will then be maintained at such a height that it will never be lower at its very lowest stage than will give 42,000 cubic feet per second at any place between Ottawa and Mattawa. That would give, allowing 20 per cent for waste, &c., 4,000 horse power per foot fall to be depended upon all the year round.

I do not remember the fall at each rapid between Ottawa and Mattawa, but you will either know or can find out. Multiply the fall in feet by 4,000 and you will get the available power at any fall.

Again, besides the main river, there are a dozen or more rivers emptying into it in that direction, averaging at least 100 horse power each per foot fall before they reach the Ottawa.

Yours very truly,

(Signed) ANDREW BELL.