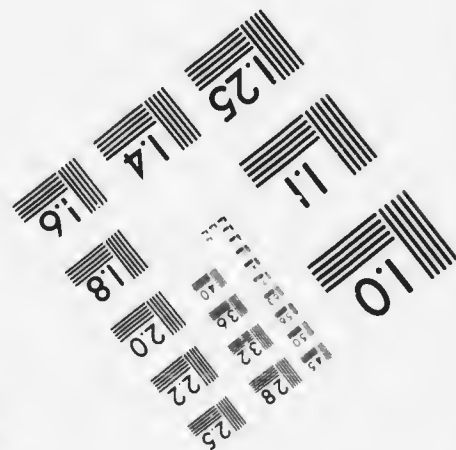
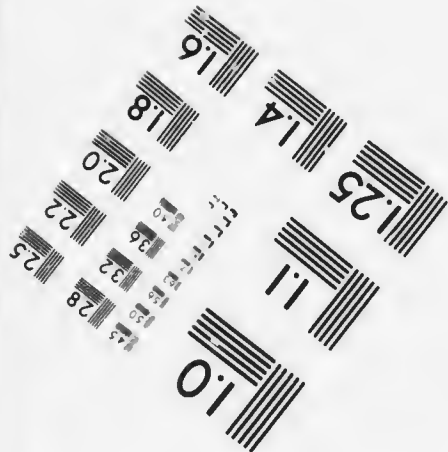
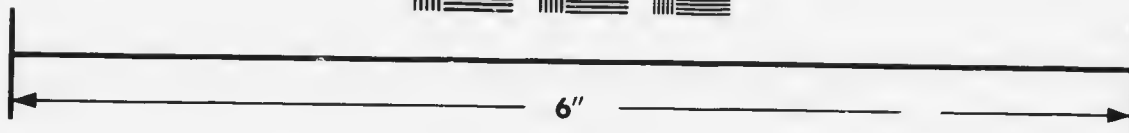
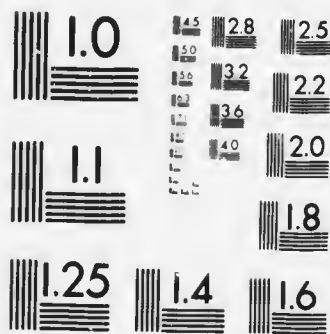


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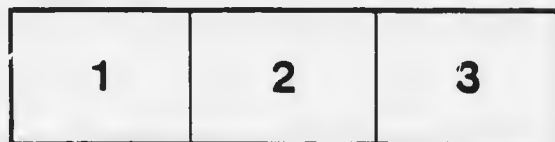
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HARBOUR OF MONTREAL.

The following remarks on the project of extending the Harbour of Montreal in front of the City, were inadvertently omitted by the Engineers, Messrs. W. T. McAlpine, and James P. Kirkwood, in their printed Report, and are now authorised by them to be appended to the same:—

The examination of the plan for enclosing the front of the present harbour by a breakwater, and deepening the harbour itself by dredging, was also made by the late Captain John Child, whose views upon the subject were as follows:

Next in order is the suggested plan of enclosing the present river Harbour by a permanent ice-barrier extending in an easterly direction from Wind-mill Point about 1350 feet, and thence 500 feet in the direction of Menarque Street Wharf, opposite the lower half of St. Helen's Island, and terminating at a point about 100 feet south-easterly from the east end of the Victoria pier. This plan has been presented for consideration with the expectation that it would meet the wants of commerce for many years, and be very much cheaper in construction than a dock-harbour, and would maintain the whole traffic upon the natural river level. But on examination we find this plan will enclose an area of about 110 acres, exclusive of the present wharves and deepest water, and will require to be deepened to 20 feet water by dredging an average of 10 feet, giving 1,777,000 cubic yards of mud, sand and pebbles, which we estimate may be taken out at 2s. per yard, or total cost £177,700. Then a suitable ice-barrier, exposed as this would be to the action of the water and ice, would cost, we estimate, not less than £60 per lineal foot, and for the whole enclosure of ground, 5350 feet,..... £321,000
Dredging, as above, 177,700

A total of..... £498,700

By this plan the future wants of commerce could be answered, there would be some reason for its adoption; but such a harbour does not, in our judgment, meet the leading requirements before mentioned, to wit: safe and convenient storage at all seasons; convenient accessibility by carts and railroad cars; and the facility of separating the transit from the distributing trade. We think that the risk to property stored upon or contiguous to such a barrier in winter will be greater than at any other point proposed; and that the whole structure, without piers and warehouses, will be out

in the river and inaccessible by carts and cars, except via lower bridge of Laehine Canal or ferry-boats; that the river and coastwise domestic trade being immediately connected with the general population of the city, will continually require all of the present river harbour in front of and below the city, but will not need the deep water or expensive ice-barrier, and warehouses called for by the transit, interior and foreign trade. If the whole domestic and foreign trade were confined for some years to the present harbour by the deep dredging and expensive structure before mentioned, the time will come when more space must be needed; and at any time the transit foreign trade may be more favorably detached to a position contiguous to the present harbour and to the city than can be the domestic, river and coastwise trade. The latter does not now, nor will it probably for fifty years, require more and larger accommodation than the river and its western branch afford; but it is to cheapen, develop and guard the transit and foreign trade that deeper water and larger and better harbour facilities are called for. We therefore advise the construction of those where they will for all time be devoted to the transit and foreign trade, leaving the domestic trade undisturbed where convenience has already placed it, and where it will need but very light expenditures from time to time for its enlargement. By this course the ultimate cost of harbour facilities for all species of trade will be greatly lessened; and for the next three or four years, whilst the work of a permanent and contiguous dock-harbour shall be in progress, no interruption or curtailment will be experienced in the use of the present harbour.

In advising, therefore, against the third scheme, we turn with more confidence to the fourth and last position at Point Saint Charles.

The undersigned are of opinion that this plan of enlarging and partially protecting the present harbour would be inadequate to meet the requirements of the commerce which will be attracted to the St. Lawrence route, when it shall have been improved in the manner herein contemplated. This plan would only accommodate a limited amount of trade, and would be only a Summer harbour, and would not afford sufficient refuge for vessels when the ice is driving in the river.

W. J. McALPINE,
JAS. P. KIRKWOOD.

NOTE.

The following private notes and observations of the late Capt. JOHN CHILDE, in reference to the improvement of the Harbour of Montreal, having been received since the meeting of the Board of Trade on the 21st instant, the Harbour Commissioners deem it important that the same should be communicated in full to the members of that body.

FROM CAPT. CHILDE'S NOTE BOOK.

MONTREAL HARBOUR.

The foregoing considerations bring us to the conclusion that the Harbour Commissioners are right in their views respecting the need of early extension of the Harbour of Montreal. As now situated, it is at best only a summer harbour, suited to the domestic, coastwise and river trade, and affording in all respects very inadequate facilities for the few sea-going vessels of large class which reach Montreal by the improved channel of 18 feet water; and when this channel shall be carried to a depth of 20 feet, as may so readily be done, the deficiency of Harbour accommodation will be more and more seriously felt as the size and number of such vessels increase, as they are sure to do, until they reach the maximum suited to the completed 20 feet channel, and to the vastly extended trade from the west, which the enlargement of the Welland Canal, milling power at Montreal, and other improvements before spoken of, must inevitably draw to Montreal for storage and export to foreign countries, or distribution to the north-eastern states.

The practical question for us now to arrange is therefore, where and how can the Harbour be extended most advantageously, all things considered, to meet the present and future wants of domestic (and foreign) commerce via the St. Lawrence route.

But before proceeding to answer from a comparison of the several proposed sites, we will state:

1st. That any additional Harbour accommodation should be in place and form adapted to the general and particular traffic for which its facilities may be required.

2d. That it should be a Harbour of protection for repair or building of vessels, and for safe and convenient storage in winter as well as in summer.

3d. That it should be a part of or near to the present summer Harbour, and communicate conveniently therewith, and also with the Lachine canal.

4th. That it should be as near as practicable to the commercial portion of the city, for the convenience of the distribution trade which must become very extensive, and has already made Montreal the chief importing city of Canada.

5th. That it should be accessible by railroad cars, and thus be brought at all seasons, especially in winter, into convenient connection with the west, with Quebec, Portland and Boston, and with the interior manufacturing towns of New England.

6th. That it should afford especial facilities to the transit trade, by bringing the lake and sea-going vessels side by side or to the opposite sides of the same warehouse, that one may discharge directly into the other, or both at pleasure to and from store, without the expense, delay, or waste of cartage.

And 7th. (The preceding conditions of service being fulfilled), it should be so situated as to obtain, with reasonable expense, an ample supply of water for dock uses, and in connection therewith, bring to the Harbour and to its vicinity from the Lachine rapids, a large amount of water for milling wheat into flour and for general manufacturing purposes.

Keeping these important objects and uses in mind, we pass to a particular examination of each scheme presented for Harbour improvement. And first we take up that proposed for Hochelaga Bay.

We find here a sufficient area of farming alluvial land apparently free from rocks, and situated in the depressed portion of the Craig street valley about three miles north from the Exchange and Custom House. A dock Harbour of any needed size and depth can here be excavated some rods, and the bottom of the dock about 17 feet above the river at low water level, giving with 20 feet depth of water, 37 feet lockage to the river, and very good building grounds on all sides of the Harbour.

The connection with the river is suitably proposed at the mouth of the brook, a little north of the New Hochelaga wharf, where a narrow belt of deep and nearly still water is found between the bank and strong river current, favorable for bringing vessels to the entrance of the locks.

The river channel also is deep enough here for any vessel that can come up from tide water, but is much narrower than above or below the island, and consequently the current is very strong. Thus far considered, the Hochelaga site is very practicable, but, to obtain a supply of water for it, is a far more serious matter. The quantity required for one lockage every three-fourths of an hour is 165 cubic feet per second. This cannot be taken from the Lachine canal by pipe through Craig street, the fall being nine feet, with an increasing velocity of the current detrimentally to the navigation, unless the canal is made wider, nor from the tail race of the water works, because the surface of the proposed Hochelaga Harbour must be 10 feet higher than said tail race. It remains then to bring in water by a separate conduit from the head of the Lachine rapids, a distance of $11\frac{1}{2}$ miles, and total fall of $9\frac{1}{2}$ feet, the estimated cost of which is £504,330, or to furnish the required supply from the river at the nearest point to the dock, an average lift of 37 feet, which will cost for fixed pumping machinery £34,560, and the annual expenses for seven months' navigation will be, including interest and depreciation, about £7,000. Either of these modes of supply is objectionable. The first, because of its insuperable cost, and the

second on account of the great annual cost of working, and especially the risk of breakage or explosion to which such machinery is always liable; and we cannot believe it judicious to trust the operations of the very large tide of commerce which moves through the proposed Harbour, to the casualties that may and do often interrupt the working of the best steam machinery.

The most favorable ground for the Hochelaga dock will carry its centre three miles from the Merchants' Exchange, or, by very greatly increasing the amount and cost of excavation, it might be brought half a mile nearer by moving half its length south and keeping the dock entrance from the river as before; but the average distance of 2½ or 3 miles would prove a great inconvenience and expense to the business of the city, equal in cost of cartage alone at 10 cents per barrel to the freight charges inland for 200 miles, or for 500 miles of ocean transit. Nor could there be any connection with the Lachine canal except by locking to and from the river, or any reasonably cheap way of bringing water here from the Lachine rapids for milling or other manufacturing purposes.

We find, therefore, that the scheme for a Dock Harbour near Hochelaga Bay fulfils only the 2d of the seven conditions of service before stated, and is so distant, isolated and expensive (see estimate in the Appendix), that we deem it unworthy of further consideration, and we advise its rejection.

"The extension of the Lachine Canal from the upper level of the St. Paul lock through the city to Viger Square, and the construction *there* or at some other lower portion of the Craig Street valley, of a dock-harbour for sea-going vessels, and a connecting ship-canal thence to Hochelaga Bay, would have been a judicious harbour location and a suitable termination of the canal, had it been undertaken at an early period, before the city population had densely spread improvements through said valley, which now renders such location and connection of canal and harbour, it seems to us, totally impracticable on account of the great destruction of property and other damages that must accrue." This scheme would bring the water fifteen feet deep at the Hay Market, twenty and one half feet deep at St. George's Street, fifteen and a half feet deep at St. Dominique Street, and fifteen and a half feet deep at St. Denis Street: this high level being the only one favorable for a ship-canal to the River at Hochelaga Bay, while the upper level of the St. Gabriel lock being nine and a half feet lower, and too low for a twenty feet depth of lock and canal.

"The difficulty, then, (apart from the destruction and damage to city improvements,) is that the ground south of Viger Square is much too low for the Canal extension at the required level as compared with the higher ground at and north of that square where deep-water accommodation is required."

Next in order is the suggested plan of enclosing the present River Harbour by a permanent ice barrier extending in an Easterly direction from Windmill Point about 1350 feet, and thence 4000 feet in the direction of Monarque Street Wharf, opposite the lower half of St. Helen's Island and terminating at a point about 650 feet south-easterly from the east end of the Victoria pier. This plan has been presented for consideration with the expectation that it would meet the wants of commerce for many years, be very much cheaper in construction than a dock-harbour, and retain the whole traffic upon the natural river level. But on examination we find this plan will enclose an area of about 110

acres, exclusive of the present wharves and deepest water, and will require to be deepened to 20 feet water by dredging an average of 10 feet, giving 1,777,000 cubic yards of mud, sand and pebbles, which we estimate may be taken out at 2s. per yard, or total cost of £177,700. Then a suitable ice-barrier, exposed as this would be to the action of the water and ice, would cost, as we estimate, not less than £60 per lineal foot, and for the whole

enclosure of ground, 5350 feet,	£321,000
Dredging, as above,	177,700

A total of

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If by this plan the future wants of commerce could be answered, there would be some reason for its adoption; but such a harbour does not, in our judgment, meet the leading requirements before stated, to wit: safe and convenient storage at all seasons; convenient accessibility by carts and railroad cars; and the facility of separating the transit from the distributing trade. We think that the risk to property stored upon or contiguous to such a barrier in winter will be greater than at any other point proposed; that the whole structure, without piers and warehouses, will be in the river and inaccessible by carts and cars, except via Island Wharf or ferry-boats; that the river and coastwise domestic trade being immediately connected with the general population of the city, will continually require all of the present river harbour in front of and below the City, but will not need the deep water or expensive ice-barrier, and warehouses called for by the transit, interior and foreign trade. If the whole domestic and foreign trade were confined for some years to the present harbour by the deep dredging and expensive structure before mentioned, the time will come when more space must be needed; and at any time the transit foreign trade may be more favorably detached to a position contiguous to the present harbour and to the City than can be the domestic, river and coastwise trade. The latter does not now, nor will it probably for fifty years, require more and larger accommodation than the river and its western branch afford; but it is to cheapen, develop and guard the transit and foreign trade that deeper water and larger and better harbour facilities are called for. We therefore advise the construction of those where they will for all time be devoted to the transit and foreign trade, leaving the domestic trade undisturbed where convenience has already placed it, and where it will need but very light expenditures from time to time for its enlargement. By this course the *ultimate* cost of harbour facilities for all species of trade will be greatly lessened; and for the next three or four years, whilst the work of a permanent and contiguous harbour shall be in progress, no interruption or curtailment will be experienced in the use of the present harbour.

In advising therefore, against the third scheme, we turn with more confidence to the *fourth* and last position at Point Saint Charles.

Here we found a large and naturally unavoidable area of shallow water, well protected by the abutment and bank of the Grand Trunk Railway from the swift currents and downward flow of river ice; and by enclosing it on two sides, beginning at the Victoria Bridge abutment, and running parallel with the high-water current about 4000 feet to a point east of the Windmill Point, thence to the same point about 1100 feet, an area of about 130 acres will be conveniently secured for harbour purposes. The en-

closing bank will be made water tight by a vertical puddle wall, and covered on the outside slope by the rock excavated from the inside and bottom. At the centre of the north side a ship-lock, 75 by 400 feet chamber, will connect the enclosed space with the present harbour and river channel. Thus by a lock-lift of 20 feet, and the shelter afforded by the railway, you will acquire for first-class sea-going vessels as much useful area as is now furnished by the unprotected river harbour for river and coastwise transports. We believe that a dock-harbour thus situated, will be perfectly safe from water and ice floods, and meet fully and substantially all of the requirements before stated:—1st. As a depository for grain, flour, and prepared lumber from the west and north, and for cargoes of foreign merchandise; 2nd. As a safe place for storage, for ship-building, repairs, and for milling or manufacturing purposes; 3rd. As most convenient for communication with both the River, Harbour and Lachine Canal; 4th. As near as practicable to the city (the centre being $\frac{3}{4}$ ths of a mile from the Merchants' Exchange), and of more convenient access by carts and cars than any erections could be, for enclosing the present harbour; and 6th. As peculiarly well adapted by absence of currents for bringing the lake and sea-going vessels side by side for the cheapest transhipment of rolling freights and lumber, or to the same warehouse for grain. All these objects and uses unite to make Point St. Charles the most suitable place for your harbour improvement; while the 7th and last consideration, for bringing here a large quantity of water for dock and milling purposes, cannot be applied to any of other locations without costing more than it is worth.

Three modes of supplying water for dock purposes at this point are suggested. First, from the Lachine Canal, by increasing the section of said canal every where to its full width, which would afford enough surplus water to supply the dock, and with less current probably to obstruct navigation than is now experienced in the narrow rocky reaches above.

Second, from the tail-race of the Water-Works, which would give an ample supply as long as the pumps shall be worked by water-power, the bottom of the wheels being four feet above the surface of water in the proposed dock; and the distance being $1\frac{1}{2}$ miles, gives fall sufficient to prevent back water upon the wheels.

But neither of these sources will be as constantly reliable as is desired. At best, both are but secondary to other and prior uses; while the regular working of the harbour locks is of the utmost importance, and should not be subject to adverse control or accidents, which might at times cut off the supply. An independent source therefore will be greatly preferable, and this is happily at hand, forming the third mode of supply, which is to take water from the head of the Lower Lachine Rapids above Knox's mill by an open canal $5\frac{1}{2}$ miles long with a mean width of 20 feet and depth of 7 feet, and a fall of $13\frac{1}{2}$ feet, which will deliver at Point St. Charles three times as much water as the dock will require, for the estimated cost of £80,125, including right of way for a canal three times wider and ten feet deep, which may be made to bring down a very large amount of water for manufacturing purposes, beyond what will be needed for the dock.

In fact there is a legitimate relation between the manufacture of flour and the very extensive traffic in wheat and flour which the new dock is designed to accommodate; and when joined to the cheap freights of seven to nine hundred ton vessels west from

Montreal, and with one thousand to twenty-five hundred tons sea-going vessels east from the same port, and with Railways from the dock *via* Victoria Bridge to all parts of the Eastern States, it is very clear that the milling power so easily brought from the rapids to the proposed dock and its vicinity will serve to render Montreal one of the largest wheat and flour markets in North America; and secondarily, for general manufacturing purposes, the Harbour Commissioners, statesmen and capitalists can confer no greater benefit upon the Province of Canada and industrial population of Montreal than by developing this water power, and leasing it to enterprising individuals who will thereby create a diversity of labor and furnish employment to thousands who would otherwise be idle.

Water for the dock for milling and other manufactures, can all be passed through the same canal by carrying it over the St. Pierre River and the Water-Works tail-race at one and the same point, and under the Grand Trunk Railway by a very shallow syphon.

Montreal will then enjoy the advantage not possessed by any other sea-port within our knowledge, of delivering wheat from the lake vessels to the mills on one side, and of rolling the flour from the other side into sea-going vessels for export, or into cars for consumption in New-England. The surplus water will pay interest upon three times its cost.

From all these considerations, and from the vast amount of Western trade likely to take the St. Lawrence route, we are united in opinion that a dock harbour of one hundred and ten, to one hundred and thirty acres, is the best form for a permanent increase of accommodation, and that Point St. Charles is very much the best site therefore.

The cost of construction, including the £80,125 for an independent supply of water, as before explained, is estimated by the engineer, Mr. Forsyth at £510,000.

It is not necessary that the whole work should be executed at once and before any part could be brought into use. The enclosing banks need with stone upon the top and river side, puddle walls, lock and two or three piers will be the extent of the first constructions. Afterwards, as the commerce of the port increases, the work of excavation, inner facing with crib-work and masonry, and other piers, may be carried on from time to time without interfering with the use of all parts previously completed.

It is unnecessary for us in this report to enter upon the details of construction. We simply advise that the largest area, sheltered by the railway works from drifting ice, be enclosed; that one lock 400 feet by 75 in the clear, with an intermediate pair of gates 150 feet from the head gates be adopted; also that solid crib work be used for inside walls from the bottom of the dock to within three feet of water surface, and surmounted by 8 or 9 feet of well-dressed stone work.

The preceding considerations bring us to the conclusion that the Harbour commissioners are right in their views respecting the need of an early extension of the Harbour of Montreal. In its present condition it is at best only a summer harbour devoted to the domestic, coastwise and river trade, and affording in all respects very inadequate facilities for the few sea-going vessels of large class which now reach Montreal, by the improved channel of 17 feet water; and where this channel shall be carried to the depth of 20 feet as may so readily be done within the next two

years by the moderate additional expenditure of £2,000, the deficiency of labour accommodation will be more and more seriously felt as the size and number of such vessels increase as they are able to do, until they reach the maximum suited to the complete 24 ft. channel and to the vastly extended trade with the west which the enlargement of the Welland Canal, the railings power of the Lachine rapids, and the railways must inevitably draw to Montreal.

"It has been already shown that the shortest and cheapest route from Chicago to the water is via the St. Lawrence, and it is admitted by all commercial men that an obstructed transport trade will always take the shortest and cheapest route. As a question of practical economy, it must also be admitted, without the necessity of argument, that vessels properly constructed for the lake and river traffic west of Montreal, will be neither safe nor profitable for the gulf and ocean; nor, on the other hand, would the deeper build of sea-going vessels be suitable for the canals and shallow parts of the river and lakes. It follows, then, that a port of transhipment must be provided. The natural course of Canadian trade and population has from an early period made Quebec and Montreal prominent centres of both upon the river. These cities divide the river trade, and are together capable of affording all the facilities that the future commerce of the river may require. The differences peculiar to each, seem to spring solely from natural causes, to wit: at Quebec the river harbour is deep and broad, the channel from thence to the ocean has always been unobstructed, and sufficient for the largest class of vessels. The changes of tidal level (13 and 18 feet respectively for summer and spring) would be detrimental to general traffic, but are of very great advantage in the landing, preparation, and shipment of timber, which is chiefly transported in rafts from the upper country to Quebec. For such reasons the immense timber and furs trade of the provinces will doubtless continue to be transacted at Quebec.

"Quebec and Montreal must enjoy a very large increase of general traffic by the increase of population in their respective districts, and also by all public works which serve to expedite and cheapen the collection, transportation and distribution of produce and merchandise whether inward or outward bound via the St. Lawrence route.

"It is apparent that the position of Montreal, at the head of ocean navigation and at the foot of the lowest rapids, possesses certain advantages peculiar to itself. It is surrounded by a more populous and fertile region of country, at the confluence of the St. Lawrence, Ottawa and Lake Champlain routes of trade, and the focus towards which the continuous influences of railways and the natural and artificial water-ways of the West and North-west will more and more concentrate the trade of the lake countries. These countries now number eight millions of people; at the close of another century they will probably come up to twenty millions.

"We notice also, as a proof of the eligible commercial position of Montreal, that in the years preceding 1856, during which the commercial laws of England and all differential duties favoring the direct export and import trade with the Canadas had been repealed, and the bonding system of the United States and the reciprocity treaty with that country established, the ports of the United States became virtually *pro* to Canadian trade, thereby diverting from the St. Lawrence route $\frac{1}{4}$ of the Canadian cereal exports and $\frac{1}{2}$

of all imports. Yet the same time fifty per cent accrued on the first year of the reciprocity treaty."

"In 1855 the total imports from the United States ports stated at.....

Making total imports of which Montreal absorbed and \$878,552 more than

Thus showing Montreal standing the diversion via Portland, Boston and New-York.

"But the true interests of Canada, and of the North-western Lake States, require that that trade and its future increase shall be restored to the St. Lawrence, not by restrictive governmental enactments, but by perfected canals, deepened channels, numerous light-houses and well instructed pilots.

"Other local considerations point to Montreal as the superior point of transhipment between the West, and as the proper point of transhipment between the larger sea-going vessels.

"1st. Because the voyage from Quebec to Montreal, one hundred and eighty miles, at less cost per ton than would attend running the smaller interior vessels from Montreal to Quebec; for with the completion of twenty feet channel, and corresponding harbour extension at Montreal, there is no reason to apprehend extra risk or detention.

"For instance, a steamer of medium size arrives at Quebec fully loaded with 1200 tons of goods, 250 for Quebec and 950 for Montreal and the West, with an average of 100 passengers. After discharging the Quebec freights, her actual expenses to Montreal and back will be as follows, exclusive of lake dues, which ought to be rescinded on the completion of the new channel, if not before:

Pilotage up and down.....	\$107
Wharfage at Montreal 12 days.....	100
Coals consumed, average 70 tons (\$280).....	280
Sums expended in running up and mooring at wharves which the pay and subsistence of officers and men will be.....	110
Interest and insurance (2 days) on cost of ship.....	128
Total disbursements Quebec to Montreal and back.....	755
Add contingent expenses.....	75
	<hr/> \$830

"If we count each passenger as equal in rate and measurement to two tons, and that the ships take at Montreal for cargo twenty five passengers and 100 tons, the total movement up and down will be equivalent to 2200 tons, nett cost per ton 38 $\frac{1}{2}$ cents, which is 2 $\frac{1}{2}$ mills per ton per mile, or 3 $\frac{1}{2}$ cents per barrel for flour from Montreal to Quebec. To perform this account of transportation by two medium-sized interior steamers fully loaded with 500 tons each, with passenger accommodations, will be as follows:

Pilotage for both, up and down.....	\$112
Wharfage at Quebec 5 days, $\frac{1}{2}$ etc.....	50
Coal consumed 40 tons to each=80.....	320
	<hr/> \$482

imports into Montreal increased at the same time fifty per cent, but $\frac{1}{4}$ of this increase appears to have accrued on the first year of the reciprocity trade with the United States."

imports by the river are

.....	\$11,301,028
.....	20,825,132

..... \$32,319,460

..... \$12,372,580, or over $\frac{1}{2}$ of the whole;

..... in the total imports that year by the river.

..... to be largely on the increase, notwithstanding the diversion of the trade from the river to other routes, and New-York.

..... interests of Canada, and of the North-western Lake States, require that that trade and its future increase shall be restored to the shorter and cheaper route via the St. Lawrence, not by restrictive governmental enactments, but by perfected canals, numerous light-houses and well instructed pilots.

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..... Coals consumed, average 70 tons (\$280)..... 280

..... Sums expended in running up and mooring at wharves which the pay and subsistence of officers and men will be..... 110

..... Interest and insurance (2 days) on cost of ship..... 128

..... Total disbursements Quebec to Montreal and back..... 755

..... Add contingent expenses..... 75

.....

\$830

..... If we count each passenger as equal in rate and measurement to two tons, and that the ships take at Montreal for cargo twenty five passengers and 100 tons, the total movement up and down will be equivalent to 2200 tons, nett cost per ton 38 $\frac{1}{2}$ cents, which is 2 $\frac{1}{2}$ mills per ton per mile, or 3 $\frac{1}{2}$ cents per barrel for flour from Montreal to Quebec. To perform this account of transportation by two medium-sized interior steamers fully loaded with 500 tons each, with passenger accommodations, will be as follows:

..... Pilotage for both, up and down..... \$112

..... Wharfage at Quebec 5 days, $\frac{1}{2}$ etc..... 50

..... Coal consumed 40 tons to each=80..... 320

.....

\$482

..... \$402

 115
 100
 100
 \$309
 gives 15 cents per
 cost per barrel of flour.
 steamships of
 Steamships of 2400 tons
 of transport by which, com-
 would show a sail-
 steamships to Montreal.
 and inland sailing vessel
 of sailing ocean vessels

HARBOUR OFFICE
 MONTREAL, 24th April, 1875.

