

ANNUAL REPORTS
OF THE
HARBOUR COMMISSIONERS
OF MONTREAL
FOR THE YEAR 1889.



Commissioners:

ANDREW ROBERTSON, Esq., CHAIRMAN.

HON. EDWARD MURPHY.

HUGH McLENNAN, Esq.

HENRY BULMER, Esq.

CHARLES H. GOULD, Esq.

VICTOR HUDON, Esq.

JACQUES GRENIER, Esq., MAYOR.

J. O. VILLENEUVE, Esq.

ANDREW ALLAN, Esq.

ALEXANDER ROBERTSON, SECRETARY.
JOHN KENNEDY, M. INST., C.E., CHIEF ENGINEER.
CAPTAIN THOMAS HOWARD, HARBOUR MASTER.
CAPTAIN LOUIS ST. LOUIS, DEPUTY HARBOUR MASTER.
JOHN FERNS, WHARFINGER AND PAYMASTER.

Montreal:

PUBLISHED BY ORDER OF THE HARBOUR COMMISSIONERS OF MONTREAL
1890.

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THE UNIVERSITY OF CHICAGO

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MEMORANDUM.

Owing to the death of Andrew Robertson, Esq., Chairman, on 29th March, 1890, the constitution of the Board for season of navigation 1890, is as follows:—

Commissioners:

HENRY BULMER, Esq., CHAIRMAN.

HON. EDWARD MURPHY.

VICTOR HUDON, Esq.

J. O. VILLENEUVE, Esq.

RICHARD WHITE, Esq.

HUGH MCLENNAN, Esq.

CHARLES H. GOULD, Esq.,

JACQUES GRENIER, Esq., MAYOR.

ANDREW ALLAN, Esq.

ALEXANDER ROBERTSON, *Secretary.*

JOHN KENNEDY, M. INST., C.E., *Chief Engineer.*

CAPTAIN THOMAS HOWARD, *Harbour Master.*

CAPTAIN LOUIS ST. LOUIS, *Deputy Harbour Master.*

JOHN FERNS, *Wharfinger and Paymaster.*

*With the Compliments
of the
Harbour Commissioners of Montreal.*

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Report
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Report
Report
Chief
Tariff

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STATEMENT

PREPARED BY

MR. ANDREW ROBERTSON, CHAIRMAN,
HARBOUR COMMISSIONERS OF MONTREAL,

ON THE

*Business of the Port for the year 1889, and other matters
connected with the Trust.*

READ AT THE MEETING OF THE BOARD HELD ON 26TH MARCH, 1890.

GENTLEMEN,—

The various Reports and statements for the past year having been submitted to you, and being now in the hands of the printer, I would merely direct your attention to them, pointing out that the Harbour Master's and Secretary's show a very satisfactory increase in Tonnage and Revenue, respectively, over 1888, namely about fifteen per cent in each.

Apart from the ordinary repairs, the chief work of the Engineering Department was the construction of the new wharves at Hochelaga and Maisonneuve, which were so far advanced that some 1300 feet frontage is expected to be available for use during the coming summer.

As you are aware, the control and management of the Ship Channel works was assumed by the Department of Public Works at the beginning of the year; and these were carried on during the year at Cap à la Roche, Pouillier Rayer and Cap Charles.

The only direct Government work done by the Trust was the maintenance of the Buoys and Beacons on the Ship Channel between Montreal and Quebec for the

Marine Department, under the new Act, 52 Vic., chap. 34, which made this work a Government one and the Buoys and Beacons Crown property.

Appended to the Harbour Master's Report, a statement will be found which I have had prepared from the books of the Trust. It shows the number of vessels and their tonnage, which arrived annually from 1850 to 1889, and is an interesting commentary on the steady growth of the trade of the Harbour, as also on the change from sailing vessels to steamships.

In 1853, it will be observed, the first steamships came to Montreal, of which there were three, namely, the S.S. "Genova," 350 tons; S.S. "Sarah Sands," 931 tons, and the S.S. "Lady Eglinton," 335 tons, which last came twice, the average tonnage being less than 500 tons.

Last year we had no less than thirty steamers ranging from 2,000 to 3,262 tons. While the total tonnage of ocean vessels of all kinds was 763,783 tons, these thirty steamers in their various arrivals aggregated 317,030 tons.

It will also be seen from the statement that the total tonnage, ocean and inland, for 1889 is larger than that of any year during the last forty years, being 1,892,225 tons, or 219,574 more than that of the previous largest year, which was 1880.

In September Vice-Admiral Watson, commanding the North Atlantic and West Indian Station, visited the harbour with H. M. S. "Pylades" and "Tourmaline" for a week.

A new By-law, No. 97A, to ensure the safer navigation of the dredged ship channel, was put in force during the season, and will, it is believed, be of service in the cases covered by its provisions.

The particulars of the unfortunate collision between the S.S. "Polynesian" and the S.S. "Cynthia" will be found on referring to the Report of the Pilotage District.

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In March last the Hon. J. J. C. Abbott, Q.C., having ceased to be Mayor of Montreal, resigned his position as a member of the Harbour Board, and Jacques Grenier, Esq., the present Mayor, was elected by the City Council to fill his place.

It is with great regret that I have to chronicle the death, towards the end of the year, of Mr. A. B. Savigny, Mechanical Engineer, an old and faithful servant to the Trust.

At the end of November an invitation was sent by the Canadian Pacific Railway Company to the Commissioners and three of their officers to a trip to St. Paul, Minneapolis and Duluth, via the new "Soo" route, which was accepted by His Worship the Mayor, Mr. Villeneuve and the Secretary.

These on their return expressed satisfaction with all that had been shown them to impress the importance of increased harbour facilities for the handling of the new traffic from the Great West.

Towards the close of the year, an agreement was entered into by the Commissioners and the Grand Trunk Railway Company, by which the wharf tracks laid by the latter were sold to the Trust. This will make all railway tracks on the wharves one system, and will enable the Board to offer equal facilities to all Railways which may be in a position to bring cars to the wharves, under certain well defined regulations.

The Government Harbour Police force was finally disbanded at the close of navigation, and it is understood that the City is making arrangements to undertake the protection of the wharves on the opening of navigation.

The question of Harbour enlargement was brought to a practical issue at the close of the year by the passage of the City's By-law ; and the plans, as since approved by the Board, are now under the consideration of the Government.

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STATEMENT
OF
GENERAL RECEIPTS AND DISBURSEMENTS
OF THE
HARBOUR COMMISSIONERS OF MONTREAL,
FOR THE YEAR 1889.

HARBOUR COMMISSIONERS OF MONTREAL,
SECRETARY'S OFFICE,

MONTREAL, 25th March, 1890.

WILLIAM SMITH, Esquire,
Deputy Minister of Marine,
OTTAWA.

SIR,—

I have the honour, by direction of the Harbour Commissioners of Montreal, to forward herewith, for the information of the Honourable the Minister of Marine and Fisheries, Statement of the General Receipts and Disbursements of the Trust for the year ended 31st of December, 1889.

The Ordinary Revenue from Wharfage Dues shows an increase over that of 1888 of about \$33,000, or over 15 per cent.

The following Departmental Reports have already been forwarded you, namely: the Chief Engineer's on the Harbour Works; the Harbour Master's, with Comparative Statements of the Trade of the Port; the Chief Engineer's

on the Maintenance of the Buoys and Beacons on the River; and the Report on matters relating to the Pilotage District under the jurisdiction of the Commissioners.

From the Harbour Master's Report it will be seen that there was a considerable increase in the business of the Harbour during the past year; the increase of Ocean-going vessels being 40 and of tonnage 40,692, while of Inland Vessels there was an increase of 347 and of tonnage 206,695, which gave a total increase in tonnage equal to 15 per cent over 1888.

A Report on the Improvement of the Ship Channel between Montreal and Quebec for the first half of the last fiscal year, ended 31st December, 1888, when the Department of Public Works assumed direction of the said work, was furnished to the said Department in August last.

Under the new Act 52 Vic., chap. 34, the buoys and beacons on the ship channel, between Montreal and Quebec were, by agreement with the Marine Department, maintained by the Commissioners, but at a cost to the latter of over \$3000, as will be seen by reference to the Statement.

I have the honour to be,

Sir,

Your obedient servant,

ALEXANDER ROBERTSON,

Secretary.

HARBOUR COMMISSIONERS OF MONTREAL.

STATEMENT OF GENERAL RECEIPTS AND DISBURSEMENTS FOR THE YEAR ENDED 31st DECEMBER, 1889.

RECEIPTS.			DISBURSEMENTS.		
<i>Balance at 31st December, 1888.</i>			<i>On Capital Account, New Works, Plant, &c.</i>		
Cash in Bank of Montreal and on hand.....	\$ 7,664 14		Harbour Railway, New Siding on Section 31.....	\$ 147 67	
Special Deposits Do. at interest.....	140,000 00		Do. Plant, Diving Suit.....	300 00	
Sundry Accounts due for Wharfage, etc.....	\$4,936 80		New Construction Acct., New Wharves at Hochelaga, (<i>see contra for credit</i>)..	62,479 25	
<i>Less Harbour Coupons outstanding.....</i>	<i>642 50</i>		Harbour Dredging, in connection with New Hochelaga Wharves, (<i>see contra for credit</i>).....	57,073 28	
Macadamizing Stone, Coal and Timber on hand.....	4,294 30				\$120,000 20
	3,191 90	\$155,150 34	New Channel Operations, for Damage to Sorel Buildings (<i>see contra for credit</i>)..		1,000 00
Montreal Decayed Pilot Fund (held in trust for, at 31st December, 1888.)			<i>On Montreal Decayed Pilot Fund Account.</i>		
Montreal Harbour Debentures.....	40,000 00		Pensions to Old Pilots and Widows of Pilots.....	4,172 49	
City Consolidated Fund.....	5,000 00	45,937 69	Audit of Fund for 1888.....	25 00	
City and District Savings Bank (Deposit at Interest).....	937 69	201,088 03	Stationery, Printing and Postage.....	11 19	4,208 68
<i>Balance at 31 December, 1888.....</i>			<i>On Account of Interest, Management and Maintenance-</i>		
Trinity Dues (5 p c. of all Pilotage Dues), account above Fund.....	2,549 37		Harbour Interest, on Debentures and Govt. Demand Loan (<i>see contra for credit</i>)	112,405 00	
Interest on Investments and on Cash in Bank, Do.	2,533 86	5,083 23	Do. Bank of Montreal for paying July Coupons.....	137 50	
<i>Sundry Receipts on Capital Account.</i>			Mrs. John Young, Annuity.....	600 00	
New Construction Account from Hochelaga Cotton Mfg Co. for making drain..	621 38		Refunds of Wharfage Dues.....	147 18	
Harbour Dredging Account, work performed for credit of.....	149 50		Deductions from two 1888 Accounts to effect settlements.....	127 50	
New Channel Operations, Balance of Cash advanced Mr. W. L. Scott, in 1888....	52 64	823 92	Harbour Expenses and Management (Salaries, &c).....	23,469 83	
Marine Department, Grant for Buoys and Beacons for 1888.....		7,000 00	Printing, Advertising and Stationery.....	1,595 92	
<i>Receipts on Ordinary Revenue Account.</i>			Travelling and Incidental Expenses.....	145 63	
<i>From Collector H. M. Customs, Montreal.</i>			Legal and Notarial Expenses.....	101 00	
Wharfage Dues on Goods Inwards.....	141,197 54		Pilotage Expenses (Quebec Agent, Office, &c. (<i>see contra for credit</i>).....	955 57	
Do. Do. Outwards.....	81,347 34		Harbour Dredging, Cleaning out deposit in Sections 15 and 17, Digging sand in Sections 19 and 21.....	646 48	
<i>From Wharfinger (or Local Traffic)</i>			Harbour Survey.....	917 66	
Wharfage Dues on Goods Inwards.....	8,173 22		Electric Lighting.....	4,881 77	
Do. Do. Outwards.....	2,422 93		Harbour Repairs (<i>see contra for credit</i>).....	51,923 88	198,054 92
Tonnage Dues on Barges (incurred in May 1888).....	20 78		<i>On Account of Buoys and Beacons.</i>		
Commutation of Dues on Steamers' Freight.....	10,300 00		Maintenance thereof during 1889 (<i>see contra for credit</i>).....		15,102 16
Rental of Basin for Small Boats.....	50 00		Total Disbursements.....		
Rentals of Spaces for Lumber.....	2,260 00				338,365 96
Do. Do. Coal.....	1,556 70		<i>Balance at 31st December, 1889, made up as follows :</i>		
Do. Do. Small Offices.....	972 75		Cash in Bank of Montreal and on hand.....	63,392 35	
Do. Do. Scales.....	900 00		Wm. L. Scott, Deposit with on account Buoys and Beacons.....	20 23	
Do. Do. Firewood.....	444 25		Louis Paré, Do. Do. Timber.....	34 18	
Revenue from Penalties.....	14 00		Sundry Accounts due for Wharfage, etc.....	\$ 1,652 50	
Canadian Pacific Ry. Co., Rental of Wharf Tracks for 1888 and 1889.....		249,659 51	Canadian Pacific Ry. Co., Rental of Tracks in 1888 and 1889.....	4,344 65	
Department of Railways and Canals, Rental of Offices in Harbour Building....	1,250 00	4,344 65	Marine Department, for Buoy Service in 1889.....	12,000 00	
John Lee & Co., Rental of portion of Harbour Yard.....	250 00	1,500 00	<i>Total of Outstanding Accounts.....</i>	<i>\$17,997 15</i>	
<i>Sundry Receipts on Maintenance Account.</i>			<i>Less, Harbour Coupons Outstanding.....</i>	<i>667 50</i>	
Harbour Interest, from Bank of Montreal on Deposits.....	1,644 12			17,329 65	
Great Eastern Railway Co., on account of Montreal & Sorel Railway's debt.....	50 00		Macadamizing Stone, Coal, Timber, Lumber and Treenails on hand.....	17,394 53	98,170 94
Monies found in Vault (seized wages, never claimed).....	16 75		<i>Montreal Decayed Pilot Fund (In trust for).</i>		
Pilots' Licenses, 4 at \$10 each.....	40 00		Montreal Harbour Debentures.....	40,000 00	
Harbour Repairs, work performed for credit of.....	32 30	1,783 17	Do. City Consolidated Fund.....	5,000 00	
Buoys and Beacons, Do. Do.....	66 63		Do. City and District Savings Bank, Deposit at Interest.....	1,812 24	46,812 24
Marine Department, Contract Price for Buoys and Beacons for 1889 and to 30th March, 1890.....	12,000 00	12,066 63			\$483,349 14
		\$483,349 14			

HARBOUR COMMISSIONERS' OFFICE,
MONTREAL, 15th March, 1890.

Verified, RIDDELL & COMMON, Auditors.
MONTREAL, 25th March, 1890.

ALEXANDER ROBERTSON,
Secretary.

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WESTERN CHAMBERS,

22 St. John Street,

MONTREAL, March 19th, 1890.

*The Chairman**of the Harbour Commissioners of Montreal,*

MONTREAL.

SIR,

We beg to report having completed the audit of your Secretary-Treasurer's books for the year ending 31st December, 1889, and that we have found every thing correct and in good order.

An entry has been made under date 31st December, 1889, transferring the amount \$1450.36 previously standing at debit of "St. Lambert's Channel Account" to the debit of "New Channel Operations."

The balance sheet as at 31st December, 1889, and statement of "General Receipts and Disbursements" for the year, herewith submitted, bearing our certificate, are correctly drawn up from the books of the Trust.

Your obedient servants,

RIDDELL & COMMON,

Auditors.

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REPORT
OF THE
HARBOUR MASTER OF THE PORT OF MONTREAL
FOR THE YEAR 1889.

CAPTAIN THOMAS HOWARD, *Harbour Master.*

HARBOUR COMMISSIONERS OF MONTREAL,
HARBOUR MASTER'S OFFICE,
MONTREAL, January 6th, 1890.

ALEXANDER ROBERTSON, Esq.,
Secretary,
Harbour Commissioners of Montreal.

SIR:—

For the information of the Board of Harbour Commissioners I beg to submit the following as my Annual Report for the year of 1889, with comparative statements, showing the number, tonnage, classification, nationality, greatest number of vessels in port at one time, number and tonnage of sea-going vessels consigned to the different agents, with statements showing the number and tonnage of inland vessels and the greatest number in port at one time during the past ten (10) years:—

Six hundred and ninety-five (695) sea-going vessels arrived in port during the season, of the aggregate tonnage of 823,165 tons; of this tonnage 49,538 passed into

the canal, showing an increase of forty (40) vessels, and 40,692 tons in tonnage as compared with the year 1888; of these vessels, 526 were built of iron, of an aggregate tonnage of 767,654 tons, and 169 of wood, of an aggregate tonnage of 55,511 tons. Of inland vessels there arrived in port 5,847, of an aggregate tonnage of 1,069,709 tons, showing an increase of 347 vessels, and in tonnage 206,695 tons, and a total of 6,542 vessels of all classes and 1,892,876 tons in tonnage, showing an increase of tonnage of vessels of all classes of 247,387 tons.

Some of the principal items of Exports and Imports during the season :—

EXPORTS.

Lumber.—There were shipped to the United Kingdom 113,746,611 feet; to South America, 23,020,663 feet; total shipment, 136,767,274 feet, showing an increase of 15,787,393 feet over the previous year.

Grain.—There were shipped 2,285,930 bushels of wheat, 6,553,950 of corn, 914,162 of peas, 19,920 of oats, 69,213 of rye, making a total of 9,843,175 bushels, and an increase of 4,184,948 bushels over the previous year.

Phosphate.—There were shipped 21,824 tons, showing an increase of 5,691 tons as compared with 1888.

Flour and Cheese.—There were shipped in bags and barrels equal to 519,579 barrels, and of cheese, 1,144,396 boxes.

Apples.—There were shipped during the season 138,020 barrels; during the previous season of 1888, 264,113 barrels, showing a decrease of 126,093 barrels. The crop of 1889 was about one-half of the previous year, which accounts for the great decrease in exportation.

Cattle and Sheep.—Cattle shipped, 85,053 head, and 58,983 sheep, showing an increase of 24,053 head of cattle and 12,983 sheep.

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IMPORTS.

Coal.—We had from Great Britain, 32,481 tons, showing a decrease of 7,908 tons; from the United States, 196,913 tons, showing an increase of 10,897 tons, making a total of 229,394 tons; from the Maritime Provinces, 350,285 tons, showing a decrease of 52,439 tons, and a grand total of 579,679 tons. The Grand Trunk brought nearly all their coal in by rail, which accounts for the decrease by water of soft coal.

Portland and Roman Cement.—We had 115,912 barrels.

Scrap Iron.—Scrap iron has become quite an item of import; we had discharged in the harbour during the season 23,911 tons.

WHARF ACCOMMODATION.

During the past season the extension of the wharves at Hochelaga has been pushed forward. I expect that in the early spring there will be two or three steamship berths available at the new works, and by the fall the work will be so far advanced that the St. Lawrence Sugar Refinery Company will be able to discharge ships opposite to their Refinery.

There has been a good deal of necessary repairs done to the wharves in the harbour during the season, such as replanking nearly all the face of the wharf from Sec. 30 to Sec. 40, rebuilding the wharf at the entrance to No. 1 Lock, repairing the wharf on the island used by the Hansa Steamship Company and White Cross Line, repairs to the pier used by the Montreal & Quebec Line of Steamers; also rebuilding the wharf Sections 33 and 34 at Hochelaga.

A short portion of the roadway opposite the C. P. R. and G. T. R. offices on the wharf was planked, which I consider a great success. I would strongly recommend

that next spring the planking be extended west to the Allan Line and east to Sec. 16, the roadway between these two points being so narrow it is impossible to keep it in repair with macadam. Plank would make a good road, and, in my opinion, taking into consideration the number of men constantly employed trying to keep it in repair, planking would be much the cheapest.

WEATHER REPORT.

January.—1st, dark morning, temp. 30 above zero, sleighing and wheeling both bad, west wind; 2nd, fine and mild, temp. 32, west wind; 3rd, east wind, temp. 20 above; 4th, east wind, temp. 25 above, dark morning; 5th, east wind, temp. 30 above, disagreeable weather; 6th, east wind, temp. 30, rain all day; 7th, rain all last night and continued this morning, east wind, temp. 30; 8th, fine morning, west wind, temp. 32; 9th, fine and mild, temp. 30, east wind, great rainstorm at noon; 10th, west wind, blowing hard, temp. at 8 a.m. 35, snowing; 11th, fine clear morning, west wind, temp. 25 above; 12, fine clear weather, temp. 23, west wind; 13th, temp. 17 above, northeast wind, fine day; 14th, north wind, temp. 12 above, sleighing good; 15th, fine morning, north wind, temp. 12 above; 16th, southeast wind, temp. 23 above; 17th, very mild southwest wind, temp. 42, sleighing bad, wheels out again; 18th, west wind, temp. 35, fine morning; 19th, cold morning, northwest wind, temp. zero; 20th, northwest wind, temp. zero, 9 p.m. snowstorm; 21st, northwest wind, snowstorm all night and this morning, temp. 18 above; 22nd, northwest wind, temp. 8 above, sleighing good, crossing ice on foot at Longue Pointe; 23rd, fine morning, west wind, temp. 8 above; 24th, northeast wind, temp. 18 above; 25th, fine morning, west wind, temp. 30 above, teams crossing from Longueuil to Cotton Factory, road making to St. Lam-

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bert; 26th, southwest wind, temp. 30 above; 27th, temp. 15 above, northeast wind, snowstorm all night; 28th, northeast wind, temp. 17 above, snowing; 29th, northwest wind, temp. 10 above; 30th, temp. 3 above, northwest wind; 31st, east wind, temp. at 9 p.m. 32 above, very mild.

February.—1st, fine weather, west wind, temp. 15 above, crossing on ice at St. Lambert and from Longueuil to St. Lawrence Sugar Refinery; 2nd, west wind, 2 below zero, fine and clear; 3rd, temp. zero, west wind; 4th, east wind, 8 a.m. 18 below zero; 5th, snowstorm, east wind, temp. 9 below zero; 6th, west wind, 3 above zero, blowing hard; 7th, west wind, temp. 2 below, trains all delayed by storm; 8th, fine morning, temp. 7 above, west wind; 9th, east wind, temp. 12 above; 10th, fine weather, west wind, temp. 18 above; 11th southeast wind, temp. 20 above, fine and clear; 12th, temp. 21 above, west wind, snow last night; 13th, northwest wind, temp. 5 above; 14th, temp. 5 above, northwest wind; 15th, west wind, temp. 7 above; 16th, delightful weather, northeast wind, temp. 5 above, 6 p.m. raining, temp. 32, rain all night; 17th, very mild, 8 a.m. rain, temp. 40; 18th, fine morning, temp. 26, northeast wind, 4 p.m. snowstorm; 19th, northwest wind, blowing fresh, temp. 17 above; 20th, fine weather, northwest wind, temp. 5 above zero; 21st, temp. 13 above zero, west wind; 22nd, dark morning, southwest wind, temp. 27 above; 23rd, northwest wind, temp. 10 below zero; 24th, fine and cold, west wind, temp. zero; 25th, east wind, temp. zero; 26th, temp. 5 below zero, east wind; 27th, northeast wind, temp. 9 above zero; 28th, temp. 28 above zero, east wind.

March.—1st, northwest wind, temp. 24 above; 2nd, east wind, temp. 25 above, weather fine; 3rd, temp. 40 above, very mild, west wind; 4th, dark morning, west wind, temp. 24 above; 5th, northwest wind, temp. 27; 6th, temp. 37, west wind; 7th, snowing this morning, temp.

28 above, west wind; 8th, temp. 30, snow last night, west wind; 9th, temp. 20 above, northwest wind, sleighing good; 10th, temp. 22 above, west wind; 11th, west wind, temp. 21 above; 12th, southwest wind, temp. 30; 13th, temp. 30 above, southwest wind; 14th, northwest wind, temp. 15 above; 15th, temp. 25 above, west wind, clear weather; 16th, east wind, temp. 30; 17th, east wind, blowing fresh, temp. 34; 18th, east wind, snow last night, temp. 35; 19th, dark morning, temp. 32, northeast wind; 20th, fine and mild, temp. 35, east wind, sleighing bad; 21st, temp. 30, east wind; 22nd, fine and clear morning, east wind, temp. 30; 23rd, temp. 30, west wind; 24th, rain this morning, west wind, temp. 32; 25th, fine and clear, temp. 25, west wind, road to St. Lambert broken up; 26th, east wind, temp. 16, crossing in boats to St. Helen's Island; 27th, temp. 25, east wind; 28th, temp. 32, west wind; 29th, west wind, temp. 32, City Passenger cars running on track; 30th, temp. 15, west wind; 31st, west wind, temp. 30.

April.—1st, east wind, temp. 29; 2nd, temp. 32, east wind, dark morning; 3rd, west wind, temp. 35; 4th, northeast wind, temp. 35; 5th, fine clear morning, temp. 30, channel open opposite the city, water very low; 6th, temp. 30, east wind; 7th, temp. 35, east wind; 8th, northeast wind, temp. 38, ice passing down, water 34 feet on lock sill; 9th, temp. 44, northwest wind, river blocked with ice; 10th, fine morning, northeast wind, temp. 32; 11th, southwest wind, temp. 44, channel clear opposite the city; 12th, dark morning, west wind, temp. 44, ice all clear; 13th, west wind, temp. 30; 14th, Steamer Longueuil arrived from Boucherville, first arrival of the season, temp. 32, east wind; 15th, northeast wind, temp. 32; 16th, temp. 45, east wind; 17th, fine morning, east wind, temp. 45; 18th, temp. 46, east wind; 19th, fine weather, temp. 48, east wind; 20th, temp. 60, rain last night, west wind; 21st, very warm, temp. 70 at 6 p.m., great change,

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northwest wind, temp. 40; 22nd, temp. 38, Steamship Polino arrived from Quebec, Steamer Quebec left for Quebec 7 p.m., first trip of the season, Lachine Canal open for navigation; 23rd, west wind, temp. 35; 24th, temp. 45, west wind; 25th, temp. 60, Steamship Polino left this morning for Lower Ports; 26th, rain all night, temp. 55, west wind; 27th, temp. 52, northeast wind, Steamship Lake Nepigon arrived this morning, first arrival from sea; 28th, temp. 65, west wind, changeable weather; 29th, rain all last night and this morning, temp. 55, west wind; 30th, northwest wind, temp. 55, dark morning.

May.—1st, northwest wind, temp. 50, cold day; 2nd, west wind, temp. 51; 3rd, west wind, temp. 55, showers this morning; 4th, fine morning, west wind, temp. 55; 5th, fine weather, temp. 60, west wind; 6th, temp. 65, west wind; 7th, southwest wind, temp. at 10 a.m. 74; 8th, temp. 66 at 7 a.m., at 3 p.m. temp. 85; 9th, temp. 74 at 7 a.m., northwest wind; 10th, west wind, temp. 80, at noon thunderstorm and rain; 11th, east wind, fine morning, temp. 58; 12th, delightful day, temp. 65, west wind; 13th, temp. 58, southwest wind; 14th, dark morning, temp. 64, southwest wind; 15th, cold, east wind, temp. 53; 16th, northeast wind, with rain; 17th, temp. 55, east wind; 18th, temp. 88, west wind; 19th, temp. 80, westerly wind; 20th, temp. 70, rain this morning; 21st, southwest wind, temp. 70, rain all last night; 22nd, west wind, blowing hard, temp. 60; 23rd, temp. 60; west wind; 24th, dark morning, temp. 60, west wind; 25th, northwest wind, temp. 50, rain last night; 26th, temp. 60, south wind; 27th, southwest wind, temp. 65; 28th, temp. 56, west wind; 29th, cold, temp. 42, northwest wind; 30th, temp. 55, rain last night; 31st, southwest wind, temp. 68.

June.—1st, southeast wind, temp. 70, rain this morning; 2nd, west wind, temp. 65, fine day; 3rd, north

wind, temp. 64; 4th, temp. 80, northwest wind; 5th, temp. 60, rain last night, west wind; 6th, west wind, temp. 65, rain this morning; 7th, southwest wind, temp. 65, fine day; 8th, east wind, rain all night, temp. 60; 9th, rain all day and night, temp. 60, west wind; 10th, west wind, temp. 62, fine weather; 11th, temp. 65, west wind; 12th, west wind, temp. 70; 13th, temp. 70, west wind; 14th, northwest wind, temp. 60; 15th, southwest wind, temp. 68; 16th, temp. 70, west wind; 17th, east wind, temp. 68; 18th, northeast wind, temp. 58; 19th, southwest wind, temp. 65; 20th, west wind, blowing a gale all night, temp. 75; 21st, southwest wind, temp. 70; 22nd, rainstorm, west wind, temp. 65; 23rd, temp. 65, west wind; 24th, southwest wind, temp. 60; 25th, temp. 63, southwest wind; 26th, southwest wind, temp. 65; 27th, temp. 70, west wind; 28th, temp. 60, northwest wind; 29th, east wind, temp. 70; 30th, fine weather, temp. 80, west wind.

July.—1st, west wind, temp. 84; 2nd, temp. 80, west wind, fine day; 3rd, southwest wind, temp. 80; 4th, rainstorm this morning, temp. 85; 5th, northwest wind, temp. 70; 6th, east wind, temp. 75; 7th, temp. 75, west wind; 8th, northwest wind, temp. 75, fine weather; 9th, east wind, temp. 64; 10th, temp. 68, east wind; 11th, thunderstorm this morning, temp. 70, east wind; 12th, temp. 68, northeast wind; 13th, temp. 75, west wind; 14th, temp. 70, west wind; 15th, temp. 65, east wind; 16th, west wind, temp. 70, 5 p.m. rainstorm; 17th, northwest wind, temp. 70; 18th, temp. 70, west wind; 19th, southwest wind, temp. 75; 20th, north wind, temp. 70, rain all last night; 21st, northwest wind, temp. 75; 22nd, southwest wind, temp. 75; 23rd, temp. 75, west wind; 24th, temp. 65, rain this morning; 25th, temp. 62, northwest wind; 26th, north wind, temp. 64; 27th, temp. 70, southeast wind; 28th, temp. 80, west wind, 6 p.m. rainstorm; 29th, southwest wind, temp. 80, rain continues;

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30th, rain, south wind, temp. 75; 31st, fine morning southwest wind, temp. 80.

August.—1st, temp. 73, west wind, 1 p.m. rainstorm; 2nd, southwest wind, temp. 75, rain last night; 3rd, west wind, temp. 75, rain continues; 4th, fine day, west wind, temp. 75; 5th, northeast wind, temp. 75; 6th, northwest wind, temp. 63; 7th, northeast wind, temp. 65; 8th, fine morning, northwest wind, temp. 63; 9th, southwest wind, temp. 65; 10th, east wind, temp. 65; 11th, northeast wind, temp. 58; 12th, temp. 59, west wind; 13th, southwest wind, temp. 59; 14th, temp. 62, northeast wind; 15th, rain all last night, temp. 62, west wind; 16th, temp. 61, west wind; 17th, northwest wind, temp. 65, rain last night; 18th, temp. 70, west wind; 19th, west wind, temp. 68; 20th, temp. 70, northwest wind; 21st, temp. 70, west wind; 22nd, temp. 70, rain last night, west wind; 23rd, northwest wind, temp. 67; 24th, east wind, temp. 62; 25th, temp. 68, west wind; 26th, temp. 62, northeast wind; 27th, temp. 74, west wind, fine weather; 28th, west wind, temp. 72; 29th, temp. 75, west wind; 30th, west wind, temp. 75; 31st, east wind, temp. 72.

September.—1st, temp. 75, east wind; 2nd, fine morning, southwest wind, temp. 72; 3rd, southwest wind, temp. 75; 4th, temp. 70, southwest wind, fine weather; 5th, temp. 75, southwest wind; 6th, south wind, temp. 72; 7th, north wind, temp. 75; 8th, easterly wind, temp. 70; 9th, northeast wind, temp. 65; 10th, temp. 84, east wind; 11th, temp. 75, east wind; 12th, temp. 68 at 7 a.m., at 4 p.m. temp. 80; 13th, northeast wind, temp. 70; 14th, southwest wind, temp. 75; 15th, temp. 80, west wind; 16th, rain this morning, southwest wind, temp. 75; 17th, east wind, temp. 58, rain continues; 18th, northeast wind, temp. 60; 19th, temp. 54, north wind; 20th, rain all night, west wind, temp. 55; 21st, rain continues, temp. 52, northeast wind; 22nd, west wind, temp. 48; 23rd, west wind, temp. 45, frost last night; 24th, west

wind. temp. 54, fine weather ; 25th, east wind, temp. 55 ; 26th, southwest wind, temp. 64 ; 27th, northwest wind, temp. 55, rain this morning ; 28th, northwest wind, temp. 42 ; 29th, temp. 55, 7 p.m. rain ; 30th, northeast wind, rain, temp. 55.

October.—1st, southwest wind, temp. 52 ; 2nd, northwest wind, temp. 40 ; 3rd, northwest wind, temp. 40 ; 4th, temp. 42, west wind ; 5th, temp. 42, east wind ; 6th, rain all day, temp. 45, east wind ; 7th, east wind, temp. 43, rain continues ; 8th, northwest wind, temp. 40 ; 9th, northwest wind, temp. 40 ; 10th, west wind, temp. 45 ; 11th, northwest wind, temp. 40 ; 12th, northwest wind, temp. 50 ; 13th, west wind, temp. 50 ; 14th, northwest wind, temp. 48 ; 15th, northeast wind, temp. 45 ; 16th, northwest wind, frost last night, temp. 44 ; 17th, temp. 50, west wind ; 18th, west wind, temp. 45 ; 19th, southeast wind, temp. 45, fine weather ; 20th, west wind, temp. 45 ; 21st, temp. 32, west wind ; 22nd, northwest wind, temp. 36 ; 23rd, north wind, temp. 30 ; 24th, east wind, temp. 28 ; 25th, temp. 40, frost last night, south wind ; 26th, south wind, temp. 40 ; 27th, rain all day, north east wind, temp. 45 ; 28th, east wind, rain all night and this morning, temp. 42, 9 p.m. snowing ; 29th, east wind, temp. 42 ; 30th, temp. 38, east wind, fine day ; 31st, east wind, temp. 38.

November.—1st, north wind, temp. 40 ; 2nd, east wind, temp. 40 ; 3rd, west wind, temp. 42 ; 4th, temp. 36, west wind ; 5th, northwest wind, temp. 35, fine weather ; 6th, north wind, temp. 40 ; 7th, west wind, temp. 45 ; 8th, northeast wind, temp. 38 ; 9th, south wind, temp. 40 ; 10th, west wind, temp. 45 ; 11th, temp. 40, southwest wind ; 12th, temp. 43, west wind ; 13th, temp. 43, west wind ; 14th, north wind, temp. 45 ; 15th, north west wind, temp. 24, snow last night ; 16th, north west wind, temp. 22 ; 17th, temp. 34, west wind ; 18th, temp. 32, west wind ; 19th, east wind, temp. 35 ; 20th, rain last night, east wind ; 21st, temp. 40, west wind, rain during the

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night ; 22nd, northeast wind, temp. 38 ; 23rd, north wind, temp. 40, S. S. " Electricque " left port this morning being the last ship for sea this season ; 24th, west wind, temp. 38, rain in the afternoon ; 25th, northwest wind, temp. 38 ; 26th, northwest wind, temp. 28 ; 27th, temp. 26, east wind, 2 p.m. snowstorm and continued all night ; 28th, temp. 24, high wind snowstorm continues, trains all delayed ; 29th, fine morning, southwest wind, temp. 28 ; 30th, northwest wind, temp. 18, good sleighing.

December.—1st, west wind, temp. 33 ; 2nd, temp. 40, west wind ; 3rd, southwest wind, temp. 17 ; 4th, northwest wind, temp. at 8 a.m. 4 below zero ; 5th, temp. zero 3 p.m. snowstorm, northeast wind ; 6th, temp. 30, southwest wind ; 7th, southwest wind, temp. 38 ; 8th, temp. 38, 6 p.m. rain and continued all night ; 9th, southwest wind, temp. 44 ; 10th, west wind, temp. 32 ; 11th, dark morning, southwest wind, temp. 45 ; 12th, northwest wind, temp. 27 ; 13th, northeast wind, temp. 27 ; 14th, temp. 5 above, east wind ; 15th, east wind, temp. 8 above ; 16th, northwest wind, temp. 24 above ; 17th, temp. 33, west wind ; 18th, northeast wind, temp. 30, rain ; 19th, west wind, temp. 42 ; 20th, temp. 40, west wind ; 21st, clear weather, west wind, temp. 31 ; 22nd, easterly wind, temp. 22, snowing ; 23rd, temp. 18, west wind, sleighing good ; 24th, south wind, temp. 32 ; 25th, temp. 40, west wind, sleighing bad ; 26th, east wind, temp. 26, snowing ; 27th, fine weather, northwest wind, temp. 9 above ; 28th, temp. 17 above, northeast wind ; 29th, 8 a.m. west wind, temp. 9 above, 3 p.m. rain, Longueuil Ferry Boat gone to winter quarters, river clear of ice ; 30th, northwest wind, temp. 18 above ; 31st, fine clear morning, west wind, temp. 8 above ; ice making on the river, Steamer " Powerful " still aground, sleighing very bad, snow much needed, water very low for the season, 30 feet 3 inches in harbour.

Yours respectfully,

THOMAS HOWARD,

Harbour Master.

PORT OF MONTREAL.

Statement showing the Nationality and Tonnage of Sea-going Vessels that arrived in Port during the Season of 1889, that were navigated by 20,254 Seamen.

Nationality.	Number of Vessels.	Tonnage.
British	641	766,322
Norwegian	26	17,098
German	16	21,976
French ..	8	13,863
Spanish.	2	3,151
Russian	2	755
Total	695	823,165

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PORT OF MONTREAL.

Comparative Statement, showing the dates of the Opening and Closing of Navigation, first arrival from Sea, and the last Departure for Sea, the past ten years.

YEARS.	Opening of Navigation.	Closing of Navigation.	First Arrival from Sea.	Last Departure for Sea.
1880.....	April 17.	Dec. 3.	May 2.	Nov. 22.
1881.....	" 21.	Jan. 2, '82.	April 29.	" 23.
1882.....	" 11.	Dec. 9	May 6.	" 21.
1883.....	" 27.	" 16.	" 5.	" 20.
1884.....	" 22.	" 18.	" 2.	" 20.
1885.....	May 5.	" 7.	" 8.	" 20.
1886.....	April 24.	" 4.	April 30.	" 25.
1887.....	May 1.	" 23.	May 3,	" 28.
1888.....	April 29	" 14.	" 4.	" 22.
1889.....	" 14.	" 29.	April 27.	" 23.

PORT OF MONTREAL.

Comparative Statement showing the Number and Tonnage of Inland Vessels that arrived in Port the past ten years, with the greatest number in Port at one time.

YEARS.	Number of Vessels.	Tonnage.	Greatest Number in Port at one time.
1880.....	6,489	1,044,380	253.....July 7.
1881.....	6,030	949,380	191.....Nov. 4.
1882.....	5,947	848,780	190.....Sept. 29.
1883.....	5,477	764,721	174....." 5.
1884.....	4,808	726,015	161.....July 9.
1885.....	5,003	724,975	142.....Oct. 1.
1886.....	5,521	809,819	178.....Aug. 25.
1887.....	5,367	791,452	189.....May 31.
1888.....	5,500	863,014	163.....Aug. 14.
1889.....	5,847	1,069,709	187.....Aug 15.

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PORT OF MONTREAL.

COMPARATIVE STATEMENT, showing the Number, Tonnage, and Classification of Sea-going Vessels that arrived in Port from the Maritime Provinces the Past Ten Years.

YEARS.	Steamships.	Tonnage	Ships.	Tonnage.	Barques.	Tonnage.	Brigs.	Tonnage.	Brigantines.	Tonnage.	Schooners.	Tonnage.	Total No. of Vessels.	Total Tonnage.
1880.....	88	62,688	3	2,492	59	36,294	1	413	17	5,001	68	6,562	236	113,450
1881.....	104	80,040	1	734	44	10,666	2	553	13	2,502	48	4,883	212	99,378
1882.....	168	136,036	.....	.....	25	15,574	.....	.....	13	2,364	54	5,993	260	159,967
1883.....	191	164,982	.....	.....	11	8,066	1	307	6	1,015	54	5,620	263	179,990
1884.....	161	124,377	.....	.....	8	5,031	.....	.....	1	456	40	3,825	210	133,689
1885.....	142	117,436	.....	.....	18	11,997	.....	.....	10	2,307	47	4,814	217	133,554
1886.....	175	150,784	.....	.....	4	2,535	3	794	2	466	41	2,902	225	157,481
1887.....	224	194,023	2	2,389	11	8,676	1	313	2	342	36	3,139	276	208,882
1888.....	213	195,598	1	1,199	4	3,079	.....	.....	3	701	35	3,375	256	203,952
1889.....	184	173,076	.....	.....	1	998	.....	.....	3	441	52	4,668	240	179,183

PORT OF MONTREAL.

COMPARATIVE STATEMENT, showing the Number, Tonnage and Classification of Sea-going Vessels that arrived in Port the past ten years, with the dates of the greatest number in Port at one time, each year.

Years.	Steamships.	Tonnage.	Ships.	Tonnage.	Barques.	Tonnage.	Brigs.	Tonnage.	Brigantines.	Tonnage.	Schooners.	Tonnage.	Total number of vessels.	Total tonnage.	Greatest Number in Port at one time.
1880..	354	475,741	42	50,141	143	76,816	11	3,252	41	9,715	119	12,606	710	628,271	67....Aug. 4
1881..	321	446,457	5	4,640	104	60,617	9	2,377	30	6,152	100	11,686	569	531,929	59.... " 14
1882..	379	475,679	4	4,330	93	51,195	10	2,702	37	7,182	125	13,604	648	554,692	53.... " 21
1883..	464	605,805	3	3,356	70	38,547	7	2,417	15	3,012	101	11,126	660	661,263	38....June 27
1884..	444	585,397	2	2,218	83	49,048	3	1,036	13	2,996	81	8,679	626	649,374	44....Aug. 13
1885..	441	619,647	2	2,792	76	45,560	1	338	23	6,141	86	9,376	629	683,854	43....July 15
1886 .	532	736,648	11	13,475	68	47,233	10	3,061	7	1,850	75	7,432	703	809,699	44....Aug. 18
1887..	600	807,471	7	8,684	68	43,275	2	1,118	7	2,031	82	8,194	767	870,773	37....July 21
1888..	532	742,276	7	9,634	32	20,218	.....	.....	10	2,631	74	7,714	655	782,473	36....June 27
1889..	522	763,783	8	11,923	49	33,982	4	1,239	11	2,356	101	9,882	695	823,165	39....Aug. 14

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PORT OF MONTREAL.

Number and Tonnage of Sea-going Vessels consigned to the following Merchants, during the season of 1889:—

No.	NAME OF FIRM.	STEAM.	TONNAGE.	SAIL.	TONNAGE.	TOTAL No. of Vessels	TOTAL TONNAGE.
1.	H. & A. Allan.....	71	169,702	.....	.....	71	169,702
2.	R. Reford & Co.....	69	108,583	.....	.....	69	108,583
3.	D. Torrance & Co.....	43	95,883	.....	.....	43	95,883
4.	Canada Shipping Co.....	29	71,173	2	1,996	31	73,169
5.	Kingman Brown.....	45	41,587	3	3,248	48	44,835
6.	Carbray, Routh & Co....	16	28,804	1	942	27	29,746
7.	J. G. Sidey.....	19	25,038	1	825	20	25,863
8.	McLean, Kennedy & Co.	15	24,100	2	796	17	24,896
9.	Munderloh & Co.....	18	24,076	.....	.....	18	24,076
10.	Henry Dobell & Co.....	30	19,946	.....	.....	30	19,946
11.	Anderson McKenzie & Co	8	9,746	15	9,672	23	19,418
12.	F. C. Henshaw.....	18	18,041	.....	.....	18	18,041
13.	Wm. Muir & Son.....	16	16,890	.....	.....	16	16,890
14.	J. & R. McLea.....	14	16,476	3	358	17	16,834
15.	Interecolonial Coal Co...	15	15,639	.....	.....	15	15,639
16.	Bossière Frères.....	9	14,632	.....	.....	9	14,632
17.	Falkenberg, Duval & Co.....	.....	.....	15	11,911	15	11,911
18.	H. Dobell & Co (canal)..	15	9,944	.....	.....	15	9,944
19.	Brock & Co.....	15	7,365	15	1,209	30	8,574
20.	Kingman, Brown (canal)	8	6,285	.....	.....	8	6,285
21.	Carbray, Routh & Co. } (canal).....	6	6,068	.....	.....	6	6,068
22.	W. S. Goodhue.....	3	3,190	5	2,872	8	6,062
23.	J. G. Sidey (canal)....	5	5,542	.....	.....	5	5,542
24.	David Shaw.....	3	5,265	.....	.....	3	5,265
25.	Wulff & Co.....	.....	.....	7	4,333	7	4,333
	Twenty-four others.....	22	19,808	104	21,220	126	41,028
		522	763,783	173	59,382	695	823,165

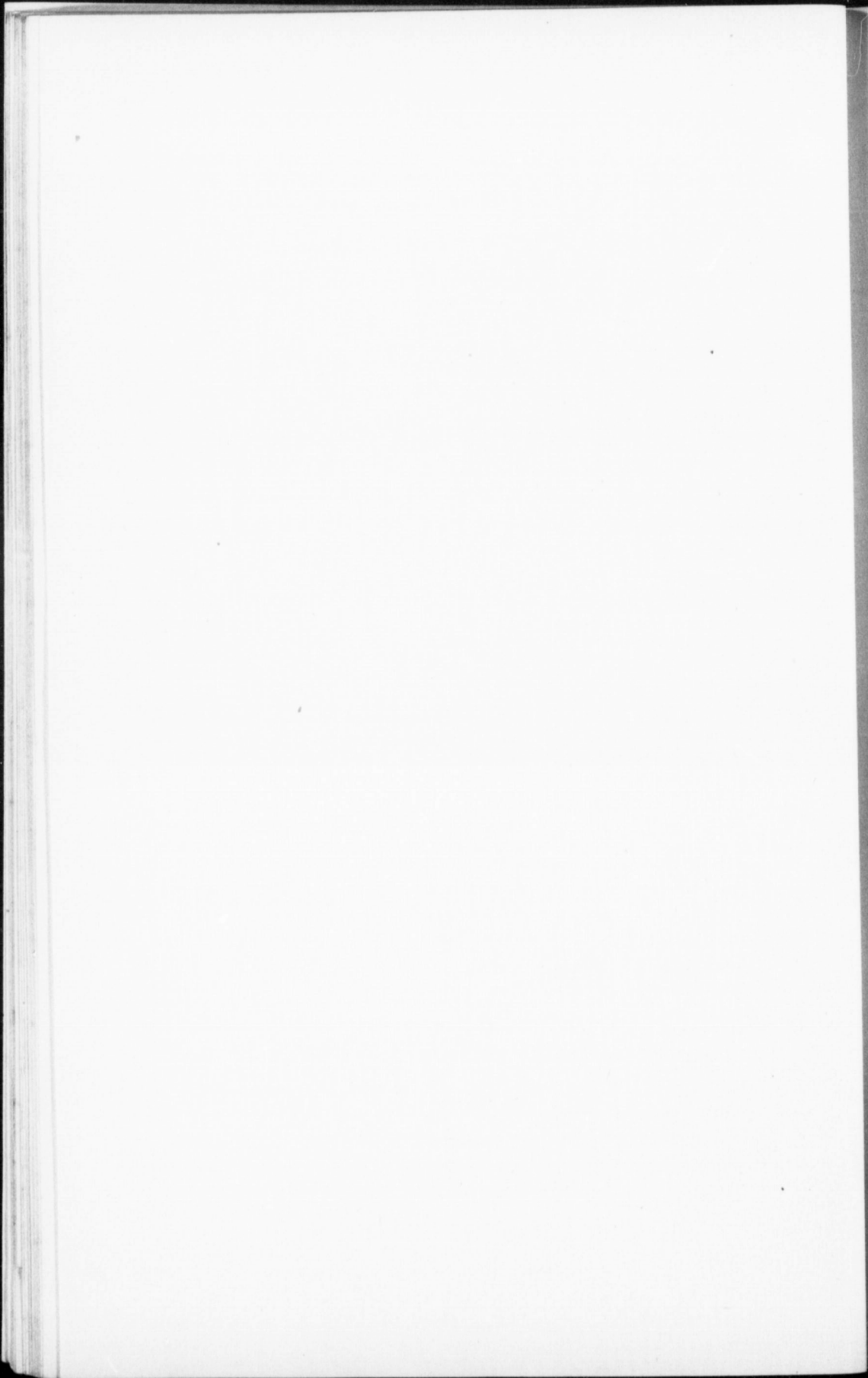
STATEMENT SHOWING THE NUMBER AND TONNAGE OF OCEAN STEAMERS AND SAILING VESSELS also of INLAND VESSELS that ARRIVED in the PORT OF MONTREAL, from 1850 to 1889.

Year.	Ocean Going Steamships.	Tonnage of Ocean Going Steamships.	Ocean Going Sailing Vessels.	Tonnage of Ocean Going Sailing Vessels.	Total Tonnage of Steamships and Sailing Vessels.	Total No. of Steam and Sailing Vessels.	Inland Vessels.	Tonnage of Inland Vessels.	Grand Total of Ocean and Inland Tonnage.
1850	.....	.....	222	46,867	46,867	222	.....	.....	46,867
1851	.....	.....	275	58,605	58,605	175	.....	.....	58,605
1852	.....	.....	185	45,012	45,012	185	.....	.....	45,012
1853	.....	.....	248	57,752	59,703	252	.....	.....	59,703
1854	4	1,951	252	65,365	70,910	258	.....	.....	394,488
1855	6	5,545	197	48,154	48,154	197	4,251	323,578	360,155
1856	16	14,276	231	57,045	71,321	247	3,281	312,001	455,788
1857	9	7,541	218	60,199	67,740	227	3,311	384,467	497,272
1858	16	17,887	209	60,922	78,809	225	4,124	429,532	422,033
1859	35	43,704	195	50,956	94,660	230	4,198	459,065	553,725
1860	32	47,385	222	74,174	121,559	257	4,558	348,652	470,211
1861	40	51,298	534	210,495	261,793	574	5,247	530,224	792,017
1862	52	62,912	519	202,331	265,243	571	4,875	523,991	789,234
1863	54	56,460	450	152,762	209,222	504	4,697	534,740	743,962
1864	51	59,071	327	102,830	161,901	378	4,509	420,694	582,595
1865	63	78,015	295	74,928	152,943	358	4,771	626,550	779,493
1866	70	75,474	446	130,301	205,775	516	5,083	613,679	819,454
1867	106	87,199	358	111,854	199,053	461	5,248	744,477	943,530
1868	105	101,566	373	97,193	198,759	478	5,822	746,927	945,186
1869	117	117,965	440	141,898	259,863	557	5,866	721,324	981,187
1870	144	133,912	536	182,934	316,846	680	6,345	819,476	1,136,322
1871	142	146,927	522	204,794	351,721	664	6,878	824,787	1,176,508
1872	215	217,713	512	181,087	398,800	727	7,150	936,782	1,335,582
1873	242	245,237	460	167,241	412,478	702	6,751	933,462	1,345,934
1874	266	262,096	465	161,327	423,423	731	6,855	956,837	1,380,260

1875	256	255,435	386	130,677	386,112	642	6,178	811,410	1,197,525
1876	240	262,829	362	128,351	391,180	602	6,083	786,083	1,177,263
1877	247	240,219	266	136,640	376,859	513	6,338	847,978	1,224,837
						516	5,509	764,243	1,161,509

1871	1871	146,927	522	204,794	351,721	664	6,878	824,787	1,176,508
1872	1872	217,713	512	181,087	398,800	727	7,150	936,782	1,335,582
1873	1873	245,237	460	167,241	412,478	702	6,751	933,462	1,345,934
1874	1874	262,096	465	161,327	423,423	731	6,855	956,837	1,380,260
		255,435	386	130,677	386,112	642	6,178	811,410	1,197,525
1875	1875	262,829	362	128,351	391,180	602	6,083	786,083	1,177,263
1876	1876	240,219	266	136,640	376,859	513	6,338	847,978	1,224,837
1877	1877	272,878	309	124,388	397,266	516	5,502	764,243	1,161,509
1878	1878	367,463	323	133,506	506,969	612	5,698	817,243	1,324,212
1879	1879	475,741	356	152,530	628,271	710	6,489	1,044,380	1,672,651
1880	1880	446,457	248	85,472	531,929	569	6,030	949,380	1,481,309
1881	1881	466,460	296	88,186	554,646	648	5,947	848,780	1,403,426
1882	1882	605,805	196	58,458	664,263	660	5,477	764,721	1,428,984
1883	1883	585,397	182	63,977	649,374	626	4,808	726,015	1,375,389
1884	1884	619,647	188	64,207	683,854	629	5,003	724,975	1,408,829
1885	1885	736,648	171	73,051	809,699	703	5,521	809,819	1,619,519
1886	1886	807,471	167	63,302	870,773	767	5,367	791,452	1,662,225
1887	1887	742,276	123	40,179	782,473	655	5,500	863,014	1,645,487
1888	1888	763,783	173	59,382	823,165	695	5,847	1,069,709	1,892,225
1889	1889								

In the years 1850, 1851, 1852 and 1855, no Ocean-going Steamships arrived, 1853 being the first to witness such vessels; while for the years 1850-1853 inclusive, the figures for Inland Vessels cannot be given, owing to the records having been destroyed by a fire.



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REPORT ON THE MAINTENANCE
OF THE
BUOYS AND BEACONS
ON THE
SHIP CHANNEL BETWEEN MONTREAL AND QUEBEC
FOR THE YEAR 1889.

JOHN KENNEDY, M. INST. C.E., *Chief Engineer.*

HARBOUR COMMISSIONERS OF MONTREAL,
Chief Engineer's Office,
MONTREAL, March 14th, 1890

ALEXANDER ROBERTSON, Esq.,
Secretary,

HARBOUR COMMISSIONERS OF MONTREAL.

DEAR SIR,—

I beg to report as follows upon the maintenance of the Buoys and Beacons of the Ship Channel between Montreal and Quebec during the navigation season of 1889.

The maintenance of the buoys and beacons in 1889 was carried out for the Government Department of Marine by the Harbour Commissioners under a special agreement for the year. The service was performed by the Commissioners' officers and steamers, and it was done in connection with the Montreal harbour works: that is, the officers, men and boats have been employed in either work as needed, and the expense charged to the proper account.

The placing of the buoys was commenced on 18th April, which was as soon as the clearing away of the ice permitted. Two steamers were sent out from Sorel on that date: one to place the buoys in the Contreccœur Channel and the other to first set a few important buoys at the lower end of Lake St. Peter and at Becancœur and Champ-lain, and afterwards to place those at Cap à la Roche.

All the buoys necessary for the safe navigation of the river at the high water stage, and such as are usually first placed in the spring, were in position by the 23rd, and the greater part of the remaining buoys were placed by the 25th April.

During the summer, the following additions and changes of position were made in the buoying in order to facilitate the navigation of the $27\frac{1}{2}$ foot channel. In the lower Becancœur traverse, the buoys were changed from the north to the south side of the channel. At the Becancour Bend, the large, red iron buoy was moved further down stream in order to guard the point of the shoal. At Ile Delorier, an additional spar buoy was placed on the north side of the channel. On the Varennes curve an additional spar buoy was placed on the south side of the channel. An additional spar buoy was placed on the south side of the channel above Longueuil. An additional large iron buoy was placed on the south side of the channel just below Ile Ronde.

Five new steel buoys, designed to stand in the ice during winter, were made and placed instead of ordinary buoys at the following places:—One at Pointe aux Trembles (en haut); one at Contreccœur; one on Lake St. Peter; one at Nicolet; and one at Becancour. These were not taken up in the fall, but were left to pass the winter under the ice and be available in the Spring.

The usual "balizing" of the spar buoys, to make them more easily seen in time of smoke and fog, was commenced on the 5th August and continued till the close of navigation.

The line of the dredged channel between Champlain and Point Citrouille was slightly changed after its beacons were built, and last summer the beacons were corrected in position so as to range on the exact centre line of the channel as finished.

No public notice of the time for lifting the buoys in the fall was issued by the Commissioners, but immediately after the last ship had passed down the river, on November 25th, the lifting of the buoys was commenced with two steamers, and, by the 27th, everything was lifted and stored for the winter.

No accidents occurred to ships during the season, which are traceable to the buoys.

The number of buoys in use in the channel near the close of navigation was:—

Spar Buoys (wooden).....	202
Can Buoys (cylindrical and tapered of steel or iron).....	29
Total.....	231

Of these, 24 spar buoys and 8 iron and steel buoys were left to winter in their places in the river and the remaining 199 buoys are stored at Montreal, Sorel, Three Rivers, and Batiscan.

Besides these there are in stock as surplus or spares:—

Spar Buoys (wooden).....	160
Can Buoys (steel and iron).....	13
Total.....	173

The cost of the service for the year is \$14,860.53.

The comparison of the cost with former years is as follows:—

1884.....	\$7,595 44
1885.....	9,732 46
1886.....	7,018 42
1887.....	13,723 84
1888.....	6,944 09
1889.....	14,860 53

Appended are abstract tables and details connected with the service.

The placing and maintenance of the buoys and beacons has since the close of the year been given over to the Sincennes-McNaughton Line, under contract from the Department of Marine. This service on behalf of the navigation of the Ship Channel between Montreal and Quebec has therefore passed out of the hands of the Harbour Commissioners after having been performed by them and their predecessors, the Trinity Houses of Quebec and Montreal, since the passage of the Act 45 Geo. 3, cap. 12, in 1805.

Yours respectfully,

JOHN KENNEDY,
Chief Engineer.

TABLE
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th

No. of
Buoy.

10
11
12
13
14
14a
15
16
17
18
18a
18b
18c
19
19a
19b
20
21
22
23
24
25
26
27
28
29
30
31
32
33
33a
33b
34
35
36
37
39
41
42
43
44
45
46
47

TABLE showing in detail the numbers, localities and description of the Buoys on the Ship Channel near the close of Navigation 1889.

No. of Buoy.	Locality.	Colour.	Description.
10	Pointe-aux-Trembles, en bas...	Red	Steel Cylinder.
11	St. Croix.....	Black...	" "
12	Pointe Platon, below wharf....	" ...	Large cedar spar.
13	Portneuf, Lagargendière.....	Red	" "
14	Grondine, Batture Simon.....	" ...	Iron taper.
14a	" Horseback Shoal...	Black...	Steel cylinder.
15	Cadieux Shoal.....	" ...	" "
16	Cap Charles, lower end.....	" ...	" "
17	"	Red	" "
18	"	Black...	" "
18a	" upper end.....	Red ...	" "
18b	Pouillier Rayer.....	Black...	" "
18c	"	Red ...	" "
19	Oposite Pouillier Rayer.....	Black...	Large cedar spar.
19a	Pouillier Rayer.....	" ...	Steel cylinder.
19b	Cap à la Roche, curve.....	Red ...	" "
20	Cap à la Roche.....	Black...	" "
21	"	Red ...	Iron, bottle-shaped.
22	" middle.....	Black...	Steel cylinder.
23	"	Red ...	Wood barrel.
24	" upper.....	Black...	Steel cylinder.
25	" north channel ..	Red ...	Large cedar spar.
26	Cap Levrant, Bellefeuille.....	Black...	Steel cylinder.
27	" Bend.....	Red ...	Large cedar spar.
28	Batiscan Traverse.....	Black...	" "
29	" "	Red ...	" "
30	" "	Black...	" "
31	" "	Red ...	" "
32	" "	Black...	" "
33	" "	Red ...	" "
33a	" "	Black...	" "
33b	St. Pierre les Becquets.....	" ...	" "
34	Batiscan Anchorage.....	" ...	" "
35	" "	Red ...	" "
36	" "	Black...	" "
37	" "	Red ...	" "
39	" "	Black...	" "
41	" "	Red ...	" "
42	Champlain.....	" ...	" "
43	"	Black...	" "
44	Champlain, Dubord Shoal.....	" ...	" "
45	Bécancour, lower traverse.....	" ...	" "
46	" "	" ...	" "
47	" "	" ...	" "

TABLE showing in detail Buoys, etc.—Continued.

No. of Buoy.	Locality.	Colour.	Description.
48	Bécancour, lower traverse.	Black . . .	Large cedar spar.
49	Bécancour Bend.	" . . .	Steel taper.
51	" "	Red . . .	Large cedar spar.
52	Bécancour, upper traverse.	Black . . .	" "
53	" "	" . . .	" "
54	" "	" . . .	" "
55	" "	" . . .	" "
56	Cap Madeleine.	" . . .	" "
57	" "	" . . .	" "
57a	Three Rivers.	" . . .	" "
57b	" "	" . . .	" "
57c	" "	Red . . .	" "
58	" "	Black . . .	" "
59	Pt. St. Francis, Force shoal	Red . . .	" "
59a	Nicolet.	Black . . .	" "
60	Nicolet, Iron Shoal.	Red . . .	Steel taper.
60a	Nicolet Bank	Black . . .	Large cedar spar.
61	English Bank	" . . .	Steel cylinder.
61b	Nicolet Traverse.	" . . .	Cedar spar.
62	Curve at Lightship No. 3	" . . .	" "
63	" "	" . . .	" "
64	" "	Red . . .	" "
65	" "	Black . . .	" "
66	" "	" . . .	" "
66a	" "	Red . . .	" "
67	Lightship No. 3 to White Buoy.	Black . . .	" "
68	" "	" . . .	" "
69	" "	Red . . .	" "
70	" "	Black . . .	" "
71	" "	" . . .	" "
71a	" "	Red . . .	" "
72	" "	Black . . .	" "
73	" "	" . . .	" "
74	" "	Red . . .	" "
75	" "	Black . . .	" "
76	" "	" . . .	" "
76a	" "	Red . . .	" "
77	" "	Black . . .	" "
78	" "	" . . .	" "
79	" "	Red . . .	" "
80	" "	Black . . .	" "
81	" "	" . . .	" "
81a	" "	Red . . .	" "
82	" "	Black . . .	" "
83	" "	" . . .	" "
84	" "	Red . . .	" "
85	" "	Black . . .	" "

No. of Buoy.

86 Wh

86a

87 Wh

88 Oph

89 Wh

89a Wh

90

91

92

93

94

94a

95

96

97

98

99

99a

100

101 Cu

101a

102

103

103a

104

105 Li

106

107

108

109

109a

110

111 Cu

111a

112

113

114

115 Il

116

117

118

119

120

120a Il

TABLE showing in detail Buoys, etc.—Continued.

No. of Buoy.	Locality.	Colour.	Description.
86	White Buoy curve.....	Black....	Cedar spar.
86a	" "	Red	" "
87	White Buoy.....	White & Black...	Iron taper.
88	Opposite White Buoy.....	Red	Cedar spar.
89	White Buoy, curve.....	Black...	" "
89a	White Buoy to No. 2 Lightship.	Red	" "
90	" "	Black...	" "
91	" "	"	" "
92	" "	Red	" "
93	" "	Black...	" "
94	" "	"	" "
94a	" "	Red	" "
95	" "	Black...	" "
96	" "	"	" "
97	" "	Red	" "
98	" "	Black...	" "
99	" "	"	" "
99a	" "	Red	" "
100	" "	Black...	" "
101	Curve at Lightship No. 2.....	"	" "
101a	" "	Red	" "
102	" "	Black...	" "
103	" "	"	" "
103a	" "	Red	" "
104	" "	Black...	" "
	Lightship No. 2 to Lightship No 1.....	"	" "
105	" "	"	" "
106	" "	"	" "
107	" "	Red	" "
108	" "	Black...	" "
109	" "	"	" "
109a	" "	Red	" "
110	" "	Black...	" "
111	Curve at Lightship No. 1.....	"	" "
111a	" "	Red	" "
112	" "	Black...	" "
113	" "	"	" "
114	" "	"	Steel taper.
115	Ile au Raisin Traverse.....	"	Cedar spar.
116	" "	Red	" "
117	" "	Black...	" "
118	" "	"	" "
119	" "	Red	" "
120	" "	Black...	Iron, irregular shape.
120a	Ile au Raisin to Stone Island..	"	Large cedar spar.

TABLE showing in detail Buoys, etc.—Continued.

No. of Buoy.	Locality.	Colour.	Description.
120b	Ile au Raisin to Stone Island..	Black....	Large cedar spar.
122	Ile de Grace.....	"....	" "
122a	".....	Red....	" "
122b	".....	"....	" "
122c	".....	Black....	" "
123	Pouillier Nepigon, Sorel.....	"....	" "
	St. Ours Traverse, Contrecoeur		
124	Channel.....	"....	Steel cylinder.
125	".....	"....	Cedar Spar.
126	".....	Red....	" "
127	".....	Black....	" "
128	".....	Red....	" "
129	".....	Black....	" "
130	".....	Red....	" "
131	".....	"....	" "
	Bellmouth Curve, Contrecoeur		
132	Channel.....	"....	" "
133	".....	"....	" "
134	".....	Black....	" "
135	".....	Red....	" "
136	".....	Black....	" "
137	".....	Red....	" "
138	".....	Black....	" "
139	".....	Red....	" "
140	Bellmouth to Bend.....	Black....	" "
141	".....	Red....	" "
142	".....	Black....	" "
143	".....	Red....	" "
144	Bend, Contrecoeur Channel....	Black....	" "
145	".....	Red....	" "
146	".....	Black....	" "
147	".....	Red....	" "
148	".....	Black....	" "
149	".....	Red....	" "
150	Bend to Junction.....	Black....	" "
151	".....	"....	" "
152	".....	"....	" "
153	".....	"....	" "
154	".....	"....	" "
	Junction, Contrecoeur and La-	White &	
	valtrie Channels.....	Black....	Steel taper.
156	Junction Curve, Contrecoeur...	Black....	Cedar Spar.
157	Lavaltrie Channel.....	"....	Large cedar spar.
158	".....	"....	Cedar spar.
159	".....	"....	" "
160	".....	"....	" "

TABLE

No. of Buoy.	
161	Lavaltrie
162	"
163	"
164	Bend,
165	Contrecoeur
176	"
167	"
168	"
169	"
170	Ile Bo
171	Ile au
171a	Verch
171b	"
172	"
173	Pouill
174	Point
175	"
176	"
176a	"
177	Ile B
178	Cap S
179	"
179a	Ile d
180	"
181	Varen
182	"
182a	"
183	"
184	Pouill
186	"
187	"
188	"
189	"
190	"
191	"
192	"
193	"
194	"
195	"
196	"
197	"
197a	Long
198	"
199	Pouill
200	Long
200a	"
201	Hoc

TABLE showing in detail Buoys, etc.—Continued.

No. of Buoy.	Locality.	Colour.	Description.
161	Lavaltrie Channel	Black ...	Cedar Spar.
162	"	" ...	Iron taper.
163	"	" ...	Cedar Spar.
164	Bend, Lavaltrie Channel	" ...	" "
165	Contrecœur Traverse	" ...	" "
176	"	" ...	" "
167	"	" ...	" "
168	"	" ...	" "
169	"	" ...	Large cedar spar.
170	Ile Bouchard	Red ...	" "
171	Ile au Bœuf, Plum Island.	Black ...	" "
171a	Verchères Point	" ...	" "
171b	"	" ...	" "
172	"	Red ...	" "
173	Pouillier Mayrand, Verchères ..	" ...	" "
174	Pointe Marie	" ...	" "
175	"	Black ...	" "
176	"	Red ...	" "
176a	"	" ...	" "
177	Ile Bellegarde	" ...	" "
178	Cap St. Michel	Black ...	" "
179	"	Red ...	" "
179a	Ile de Laurier	" ...	" "
180	"	" ...	" "
181	Varenes Curve, lower end.	Black ...	" "
182	" middle.	" ...	" "
182a	" "	" ...	" "
183	" upper.	" ...	" "
184	Pouillier Varenes	" ...	" "
186	"	" ...	" "
187	"	Red ...	" "
188	"	Black ...	Steel taper.
189	"	" ...	Large cedar spar.
190	"	Red ...	" "
191	"	Black ...	" "
192	"	" ...	" "
193	"	Red ...	" "
194	"	Black ...	" "
195	"	" ...	" "
196	"	" ...	" "
197	"	Red ...	" "
197a	Longue Pointe	Black ...	" "
198	"	Red ...	" "
199	Pouillier Gagnon, Longue Point	" ...	" "
200	Longueuil	" ...	" "
200a	"	" ...	" "
201	Hoch laga	" ...	" "

TABLE showing in detail Buoys, etc.—Continued.

No. of Buoy.	Locality.	Colour.	Description.
201a	Ile Ronde	Black...	Steel cylinder.
202	Montreal Harbour	" ...	Large cedar spar.
203	" "	" ...	" "
205	" "	" ...	" "
205a	" "	" ...	" "
206	" "	" ...	" "

TABLE showing number of Buoys on Ship Channel near the close of Navigation and summary of work of maintenance for season of 1889 :—

LOCALITY.	No. of buoys.			NUMBER OF TIMES WORKED AT.						
	Wood.	Iron or Steel.	Total.	Entirely lost and replaced by another buoy.	Found lying flat and replaced by another buoy.	Found too low and replaced by another buoy.	Ballast adjusted.	Other defects corrected.	Balized.	Total number of times worked at.
Pointe aux Trembles (Enbas) to Three Rivers	38	19	57	3	1	6	31	54	55	260
Three Rivers to Sorel	80	5	85	9	1	46	55	43	164	467
Sorel to Montreal (including Harbour of Montreal)	84	5	89	14	2	34	66	90	140	501
Totals	202	29	231	26	4	86	152	187	359	1228

TABLE showing additional Buoys, placed in entirely new positions during season of 1889.

Date.	LOCALITY.	No. of buoys.	Color.	Description.	REMARKS.
1889.					
June 21	Ile Delorier	1	Red	Wood.	Temporary Buoy.
" "	Varenes	1	Black	"	
July 22	Pointe Marie	1	Red	"	
Aug. 7	Montreal	1	Black	Steel.	
" "	"	1	"	"	

ABSTRACT of Buoy

MONTHS.

April

May

June

July

August

September

October

November

Total

STEAMERS & Beacons each.

NAME OF STEAMERS

McNaughton.

St. Peter

St. Louis

Total

ABSTRACT of Steamers' time employed in the Maintenance of Buoys and Beacons during season of 1889.

MONTHS.	TIME OF SERVICE.			REMARKS.
	Buoys. Days.	Beacons. Days.	Total Days.	
April	17	17	Commenced placing buoys April 18th.
May.....	19	2	21	
June.....	10 $\frac{1}{4}$	3	13 $\frac{1}{4}$	
July.....	9 $\frac{1}{4}$	6	15 $\frac{1}{4}$	
August.....	11 $\frac{1}{4}$	1	12 $\frac{1}{4}$	
September.....	11	1 $\frac{1}{2}$	12 $\frac{1}{2}$	Finished taking up buoys Nov. 27.
October.....	4	$\frac{1}{2}$	4 $\frac{1}{2}$	
November.....	18 $\frac{3}{4}$	.....	18 $\frac{3}{4}$
Total	100 $\frac{1}{2}$	14	114 $\frac{1}{2}$	

STEAMERS employed in the Maintenance of Buoys and Beacons during season of 1889, and time of service of each.

NAME OF STEAMER.	TIME OF SERVICE.			REMARKS.
	Buoys. Days.	Beacons. Days.	Total Days.	
McNaughton.....	90	14	104	Working season from April 18th to Novem. 30th, 195 days, not including Sundays.
St. Peter.....	4 $\frac{3}{4}$	.....	4 $\frac{3}{4}$	
St. Louis.....	5 $\frac{3}{4}$	.....	5 $\frac{3}{4}$	
Total	100 $\frac{1}{2}$	14	114 $\frac{1}{2}$	

TABLE showing the number and localities of the beacons for marking the Ship Channel at the close of navigation, 1889.

LOCALITY.	No.	Description.	REMARKS.
St. Antoine.....	1	Square.....	{ Left in position throughout the year.
Richelieu Rapids.....	.....	Bushes	{ Maintained during season of navigation.
Horseback Shoal.....	2	Diamond...	{ Left in position throughout the year.
Grondines Pointe	2	Blind lights.	“ “
Grondines.....	2	Square	“ “
Champlain.....	2	“ ...	“ “
Cap de la Madeline, } old channel..... }	2	Cylindrical..	“ “
Cap de la Madeline, } new channel..... }	2	Square.....	“ “
Nicolet Traverse.....	2	“	“ “
Ste. Anne de Sorel ...	1	Diamond...	“ “
Contrecoeur, lower pair	2	Square	“ “
“ upper pair	2	Diamond...	“ “
“ Ile St. Ours	2	“ ...	“ “
Ile de Laurier	2	“ ...	Removed every fall.
Ile à l'Aigle.....	2	“ ...	“
Total Number...	26		

PILO

Wm. S

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SIR:—

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REPORT
OF THE
PILOTAGE DISTRICT OF MONTREAL
FOR THE YEAR 1889.

HARBOUR COMMISSIONERS OF MONTREAL,
Secretary's Office,

MONTREAL, March 17th, 1890.

WM. SMITH, ESQ.,
Deputy Minister of Marine,

OTTAWA.

SIR:—

I have the honour, by direction of the Harbour Commissioners of Montreal, as the Pilotage Authority, to transmit, for the information of the Honourable the Minister of Marine and Fisheries, the following Report of the Pilotage District of Montreal for the year ended 31st December, 1889.

On the 20th of March, the number of Branch Pilots was increased to fifty by resolution of the Commissioners in accordance with Article 141 of their By-Laws, whereupon apprentices Joseph Hurteau, of Contrecœur; Edouard Perrault and Lydoric Bouille, both of Deschambault, were granted their Branches as Pilots.

On the superannuation of Pilot George Raymond, of Deschambault, on account of failing health on the 16th July, apprentice Honoré Dussault of Ste. Pétronille, was given his licence.

The accompanying statement gives the names, earnings, etc., etc., of all the Pilots for the past season.

The total amount of Pilotage Dues therein shown was received from the following services, viz :—

BRITISH :—

Steamers	\$43,228 00	
Sailing Vessels.....	4,268 33	
	<hr/>	\$47,496 33

FOREIGN :—

Steamers	\$ 2,244 75	
Sailing Vessels.....	942 17	
	<hr/>	\$ 3,186 92
		<hr/>
		\$50,683 25

During March, an examination was held for those apprentice Pilots, who had been licensed five years and had fulfilled all the preliminary requirements of the By-Laws, at which four presented themselves.

Mr. N. Comé Dufresne passed creditably and having served during the past season under different pilots, as required by By-Law 138, has been placed fourth in order for his Branch.

Two apprentices who have been on the list for many years, have been struck off, under Article 139 of the By-Laws, having reached the age of forty years without having passed their examination.

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The following list shown the name, age and residence of each apprentice Pilot now serving his time under this Authority :

No.	NAME.	AGE.	RESIDENCE.
1	Brière, Arthur	32	Portneuf.
2	Labranche, J. S	33	"
3	Perrault, Alexis	27	Deschambault.
4	Dufresne, N. C	29	"
5	Angers, N. E	39	St. Anne de la Pérade.
6	Nadeau, J. B	31	Lévis.
7	Naud, Aubert	35	Deschambault.
8	Bouillé, Narcisse	29	"
9	Léveillé, Joseph	26	Batiscan.
10	Sauvageau, Josephat	27	Deschambault.
11	Dussault, Napoléon	27	"
12	Perron, Sévère	31	"
13	Arcand, Barthélemi	27	Lachevrotière.
14	Bellisle, Prudent	26	Deschambault.
15	Arcand, George	25	Lachevrotière.
16	Toupin, Constant	23	Three Rivers.
17	Perrault, George	23	Deschambault.
18	Belisle, Arthur	28	"
19	Bélanger, Charles	19	Lotbinière.

There were unfortunately two serious casualties to steamships which were fully investigated.

In the early morning of the 22nd May a most disastrous collision took place off Long Point, six miles below Montreal, between the SS. "Polynesian" while on her way outward, and the SS. "Cynthia" coming inward by which seven lives were lost, the "Cynthia" sunk and the "Polynesian" greatly damaged.

The two Pilots, L. Z. Bouillé and C. Brunet were "ipso facto" suspended, the former from the time of arriving at Québec with his damaged vessel.

Five of the Commissioners heard the whole of the evidence adduced at many sittings, and the Pilots were represented by counsel.

On the 5th July it was adjudged that both Pilots be

reinstated, the Commissioners finding it impossible to say that either Pilot was guilty of any dereliction of duty.

On the night of 20th May, the SS. "Escalona" while ascending the river struck the ground near St. Croix Light so hard that she had to be beached, and eventually docked at Quebec for repairs.

Pilot George Raymond was summoned before the Commissioners and after a careful enquiry into all the circumstances was found to blame for the disaster.

While the case was still under consideration as to the punishment due the Pilot, he made application to be placed on the Retired List, which was granted in view of the fact that his health was evidently failing, which was established by a Doctor's certificate.

A new By-Law, No. 97A, to ensure the safer navigation of the dredged channel was put in force early in the summer.

At the 1889 Session of Parliament, an Act 52 Vict., chap. 34, was passed, repealing Section 19 of 36 Vict., chap. 61, which provided that "The Buoys and Beacons within the Port of Montreal shall be placed and maintained by the Harbour Commissioners of Montreal; and the expenses of so doing shall be paid out of the funds of the Corporation."

The new Act made this service a Government one and vested the Buoy-property in the Crown.

Under it the Commissioners, while asking \$15,000, agreed with the Marine Department to perform the service during 1889 for \$12,000 (or whatever smaller sum it should cost) believing it in the public interest that they, as the Pilotage Authority, should continue to have charge of the Service, rather than that it should be let by contract.

The expenditure for the year was \$2,861, more than

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the \$12,000 agreed upon, showing that the estimate of \$15,000 was well based.

The Tariff of Pilotage at present in force is the same as was transmitted in the Report for 1888 ; and has been in force since 5th March, 1877.

The following is an extract from it :

Quebec to Montreal and vice versa.	Downwards	Upwards.
Pilotage of vessels in tow of Steamers for each foot of draft of water	\$2 00	\$2 00
Pilotage of vessels propelled by Steam for each foot of draft of water	2 50	2 50
Pilotage of vessels under sail, for each foot of draft of water	2 80	4 20
Moving a vessel from one Wharf to another in the Harbour of Montreal, or from foot of Current of St. Mary into the Harbour	5 00	5 00

The amount received by the Harbour Commissioners as the Pilotage Authority of the district, was as follows :

From Poundage, 5 per cent on the earnings of Pilots.....	\$2,407 28
“ “ “ collected at Three Rivers.....	46 14
“ “ “ “ Sorel.....	62 82
“ Sundry Poundage.....	33 13
“ Interest on Investments and on Cash in Bank.....	2,533 86
	<u>\$5,083 23</u>

The disbursements or Pensions to old and infirm Pilots and Widows were.....	\$4,172 49
Messrs. Riddell & Common for audit of Fund	25 00
Printing, Postage and Stationery	11 19
	<u>\$4,208 68</u>

The above receipts and disbursements were in trust for the Montreal Decayed Pilot Fund, of which the Annual Report and Statements were sent you on 31st December, certified by Messrs. Riddell & Common, Chartered Accountants.

In addition the Commissioners received in respect of pilots and pilotage, as follows :

License Fees under By-Law No. 71, from four Pilots (\$10.00 each) \$ 40 00

and they disbursed the following :

Messrs. Abbotts, Campbell & Meredith account for attendance at investigation in June.	\$ 25 80
On examination of Apprentices.....	138 75
Stenographer at examination.....	10 00
Postage on letters to Pilots	8 00
12 copies of Pilotage Act.....	2 22
Stationery	8 30
Stenographer at "Cynthia" "Polynesian" investigation	47 50
Abbotts, Campbell & Meredith, legal advice and attendance in re Pilotage matters.....	90 00
Gazette Printing Co, By-Laws and circulars to Pilots.	20 00
Expenses of Quebec Agent and office	605 00
	----- 955 57

The deficiency of \$915.57 was made up out of the Harbour Revenues.

I have the honour to be, Sir,

Your obedient servant,

ALEXANDER ROBERTSON,
Secretary.

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STATEMENT showing the Number of Branch Pilots for and above the Harbour of Quebec, on the Active List, on the 31st December, 1889, their Age, Residence, Number of Pilotages, Earnings, and whether employed on Special Service or on Tour-de-Rôle.

No.	NAMES.	AGE.	RESIDENCE.	DATE OF BRANCH.	REMARKS.	No. of Trips to Montreal.		No. of Trips to intermediate places.		Total No. of Trips.	Earnings to Montreal.	Earnings to intermediate Ports.	Total Earnings.	Employed on Special Service or on Tour-de-Rôle.
						IN	OUT,	IN,	OUT,					
1	Bouillé, Zéphérin....	61	Deschambault	March 1, 1855..		11	11			22	\$1,250 18		\$1,250 18	Allan Line.
2	Bélisle, Cyrille	62	Deschambault	November 15, 1860..		10	8			18	722 11		722 11	Tour-de-Rôle.
3	Naud, Augustin.....	63	Montreal	December 4, 1861..		11	9	9		29	754 56	\$ 249 21	1,003 77	H. Dobell & Co.
4	Bélisle, Hubert A....	59	Deschambault	May 23, 1862..		10	7			17	670 24		670 24	Tour-de-Rôle.
5	Dufresne, Athanase...	56	Deschambault	March 2, 1862..		10	13	2		25	841 19	63 27	904 46	Ross & Co., Que.
6	Gagnon, Pierre.....	62	Three Rivers.....	November 27, 1866..		10	11	1		21	1,226 63		1,226 63	Allan Line.
7	Naud, Onésime.....	49	Deschambault	March 16, 1870..		10	11			21	1,086 85	235 08	1,311 93	Inter-colonial Co.
8	Hamelin, J. Octave...	56	Deschambault	March 16, 1870..		15	16	9		40	1,699 80		1,699 80	Beaver Line.
9	Chandonnet, Jos.....	49	{ St. Henri de Lau- zon, Lévis..... }	August 2, 1870..		15	15			30	1,162 68		1,162 68	Allan Line.
10	Bouillé, Louis A....	50	Deschambault	September 1, 1870..		11	10			21	1,288 32		1,288 32	Dominion Line.
11	Boudet, Prudent....	48	{ St. Anselme, Dor- chester County. }	October 10, 1870..	{ Member of Pilots' Comm. for 1889, re-elect. for 1890. }	10	12			22	658 10		658 10	Quebec S. S. Co.
12	Bélisle, Elzéar.....	55	Deschambault	October 10, 1870..		15	15			30	941 28	117 91	1,059 19	Wm. Muir & Son
13	Pleau, Joseph.....	52	St. Anne de la Pêrade.	October 10, 1870..		12	15	4		31	1,101 64		1,101 64	Donaldson Line.
14	Brunet, Célestin....	47	Montreal	February 28, 1872..		11	10			21	1,317 71	23 44	1,341 15	Dominion Line.
15	Bélisle, Louis.....	44	Deschambault	February 28, 1872..	{ Member of Pilots' Comm. for 1889 }	10	14	1		25	472 36	58 22	530 58	Tour-de-Rôle.
16	Caien, Damase.....	49	Portneuf	October 1, 1872..		6	6	2		14	727 82		727 82	Tour-de-Rôle.
17	Groleau, Ulric.....	42	Grondines.....	October 30, 1872..		11	6			17	713 32	43 13	756 45	Black Diamond.
18	Frenette, Alfred....	50	Portneuf	October 30, 1872..		7	10	2		19	661 09	52 87	713 96	J. & R. McLea.
19	St. Amant, Alfred....	46	Deschambault	October 30, 1872..		9	8	2		19	491 89	31 87	523 76	Tour-de-Rôle.
20	Bélangier, Philippe..	51	Lotbinière	April 8, 1874..		7	7		1	15	681 90	22 50	704 40	Tour-de-Rôle.
21	Gagnon, Victor.....	51	Champlain	April 9, 1874..		8	7		1	16	1,488 13		1,488 13	Donaldson Line.
22	Perrault, Narcisse...	52	Deschambault	April 10, 1874..	{ Member of Pilots' Comm. for 1890. }	14	14			28	762 26	96 21	858 47	Tour-de-Rôle.
23	Toupin, Trefflé.....	42	{ Lake Bouchette, Lake St. John. }	September 22, 1874..		9	11		3	23	1,575 76		1,575 76	Beaver Line.
24	Auger, Cléophas....	43	Point Lévis	September 22, 1874..	{ President of Pilots' for 1889, and re- elected for 1890. }	14	14			28	567 08	63 17	630 25	Dominion Line.
25	Desjordi, François..	45	Lavaltrie	April 8, 1875..		8	5		2	15	1,180 66		1,180 66	Thompson Line.
26	Labranche, Ferdin'd.	44	Portneuf	April 8, 1875..		11	11			22	1,611 10		1,611 01	Allan Line.
27	Perrault, David.....	48	Deschambault	April 9, 1875..		15	16			31	1,115 81		1,115 81	Allan Line.
28	Gauthier, Alexis....	43	Deschambault	January 15, 1878..		10	11			21	1,241 01		1,241 01	Allan Line.
29	Bouillé, Louis Z....	41	Deschambault	January 16, 1878..	{ Secretary of Pilots' Comm. for 1889, re-elected for 1890 }	9	13			22	1,600 36		1,600 36	Black Diamond.
30	Toupin, Joseph.....	40	Champlain	November 15, 1878..		19	21			40	1,147 32		1,147 32	Dominion Line.
31	Gauthier, Laurent...	40	Deschambault	December 10, 1879..		10	10			20	1,090 49		1,090 49	Bossiere Line.
32	Arcand, Jean.....	37	Deschambault	December 10, 1879..		9	12			21	1,592 61	20 13	1,612 74	Black Diamond.
33	Nault, Deloivoie....	38	Deschambault	December 10, 1879..		21	19		1	41	1,164 88		1,164 88	Allan Line.
34	Gauthier, Wilbrod...	38	Deschambault	December 10, 1879..	{ Member of Pilots' Comm. for 1889, re-elected for 1890 }	10	10			20	1,088 93	151 40	1,240 33	F. C. Henshaw.
35	Mayrand, Louis.....	42	St. Anne de la Pêrade.	December 9, 1880..		13	13		5	31	548 34	126 75	675 09	Ross & Co., Que.
36	Dufresne, George....	41	Deschambault	December 10, 1880..		7	7		5	19	959 57		959 57	Ross & Co., Que.
37	Arcand, Norbert....	37	Champlain	December 10, 1880..		14	10			24	500 37	141 81	642 18	Tour-de-Rôle.
38	Toupin, Uldoric.....	35	Champlain	December 11, 1880..		7	6		5	18	1,382 91		1,382 91	Munderloh & Co.
39	Bouillé, Tancrede...	36	Deschambault	December 11, 1880..		15	13			28	1,091 61	93 67	1,185 28	Carbray Routh & Co.
40	Arcand, Nestor.....	34	Deschambault	February 20, 1884..		13	14		3	30	1,550 01		1,550 01	Thompson Line.
41	Nault, John.....	33	Deschambault	February 20, 1884..		13	17			30	588 97	228 08	817 05	J. & R. McLea.
42	Dussault, Joseph....	34	Deschambault	February 20, 1884..		8	8		8	24	471 35	162 42	633 77	Tour-de-Rôle.
43	Groleau, Gédéon....	36	Grondines.....	May 20, 1887..		5	5		6	16	609 38		609 38	Tour-de-Rôle.
44	Bellisle, Néré.....	37	Deschambault	May 20, 1887..		8	8		3	17	580 18	90 17	670 35	Tour-de-Rôle.
45	Perrault, Liboire....	40	Deschambault	April 20, 1888..		8	6			14	1,102 18		1,102 18	Thompson Line.
46	Raymond, Wilfrid...	35	Deschambault	April 20, 1888..		11	11			22	634 53	23 43	657 96	Tour-de-Rôle.
47	Hurteau, Joseph....	29	Contrecoeur	March 20, 1889..		7	7		1	15	513 73	142 02	655 75	Tour-de-Rôle.
48	Perrault, Edouard...	38	Deschambault	March 20, 1889..		9	6		5	18	607 12		607 12	Tour-de-Rôle.
49	Bouillé, Lydoric....	33	Deschambault	March 20, 1889..		7	6			15	360 04	59 25	419 29	Tour-de-Rôle.
50	Dussault, Honoré...	36	St. Petronille	July 16, 1889..		4	4		2	10				
											\$48,360 28	\$2,322 97	\$50,683 25	

HARBOUR COMMISSIONERS' OFFICE,
MONTREAL, 17th March, 1890.

ALEXANDER ROBERTSON,
Secretary.

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REPORT
ON THE
WORKS FOR THE IMPROVEMENT AND MAINTENANCE
OF THE
HARBOUR OF MONTREAL
FOR THE YEAR 1889.

JOHN KENNEDY, M. INST., C.E., *Chief Engineer.*

HARBOUR COMMISSIONERS OF MONTREAL,
Chief Engineer's Office,

MONTREAL, February, 28th, 1890.

ALEXANDER ROBERTSON, Esq.,

Secretary,

Harbour Commissioners of Montreal.

DEAR SIR:—

I beg to submit, for the information of the Board of Harbour Commissioners, the following report upon the works in the Harbour of Montreal, for the year ended 31st December 1889.

The following are the chief details of the work done:—

NEW WORKS.

Sections 5 and 6, (Windmill Point).—A little rock dredging was done in spring for the immediate purpose of

obtaining stone to repair wharves, but in such way as also to contribute toward the enlargement of the basin. Expenditure, \$600.31.

Sections 24 and 25.—About 77 toises of macadamizing stone were spread at the new piece of wharf made in 1888. Expenditure \$939.40.

Section 31.—A new railway siding 515 feet in length was laid from the front of the wharf to the main track in rear. The new track gives 200 feet of standing room for cars close to the front, and was laid mainly to afford better facilities for the transshipment of phosphate of lime from cars to barges. The cross-over part of the track was laid on ordinary ties and planked flush. In the part on the wharf the rails were laid on specially prepared timbers and the rails made flush with the wharf planking. Expenditure for laying of track, \$147.67.

Sections 34 to 36.—A large part of the wharf which has hitherto been used for the lumber business and had never been macadamized was last year covered with 191½ toises of macadamizing stone costing, \$1,340.50.

Section 44.—A timber culvert 5 feet 6 inches high, and 6 feet wide inside which was begun at section 44 last year, to carry the Ruisseau Migeon through the new earth filling, has been continued 63 feet further towards the river making its present length 175 feet. Cost, \$547.96 exclusive of former expenditure.

Additional large iron fixed mooring posts have been put in the following places :—

Section 8.....	1	Mooring post.
Section 22.....	1	do
Section 23.....	2	do
Section 24.....	2	do
Section 25.....	3	do
Total.....	9	

A new latrine was built and set up on concrete foundation, complete, on section 40. Cost, \$169.31.

Sections 40 to 42, 45 and 46.—In the beginning of January 1889, contracts for the supply of timber were made with a view to building the upper and lower parts of the system of projected new wharves at Hochelaga and Maisonneuve, and the prosecution of the work was determined upon in the spring.

Dredging for the foundations of cribwork for the wharves was begun on the opening of navigation and the building of cribs was commenced on 6th June, and carried on as fast as the delivery of timber permitted.

In the upper division, that is the extension of the wharf downwards from the Hudon wharf, section 40, the first crib was sunk on July 18th, and by the close of navigation six others were sunk, making a total length of 796 lineal feet. Of this length 451 feet were brought up to full height and finished, and the remaining, 345 feet were brought up to 2 or 3 feet above low water and filled to that height with a view to being completed early in the coming summer. In the lower division sections 45 and 46, Maisonneuve, the first crib was sunk on August 15th, and by the close of navigation, four others were sunk, built up and filled to about three feet above low water line, with a view to being completed early in the summer. The crib work now built extends 104 feet up stream from the junction of the lowermost pier with the shore wharf, and 439 feet from the junction along the upper side of the pier, making 543 feet length in all.

On both divisions of the work the basins in front of the new wharves were partly dredged, and the dredgings from these, as well as from the beds for the crib work were used in filling the cribs and in making ground behind them.

On sections 40 to 42 the quantity dredged was 64,222 cubic yards, and the filling made was about 103,800 cubic yards.

On sections 45 and 46 the quantity dredged was 147,945 cubic yards and the filling made was about 108,800 cubic yards.

The expenditures were ; for crib work at both places.....\$ 61,857.87
And for dredging and filling..... 52,637.68

Making a total of.....\$114,495.55

SHIP CHANNEL THROUGH HARBOUR.

In the current St. Mary, and mainly opposite Ile Ronde there are in the Channel some shoal places consisting of boulders which project above the line of $27\frac{1}{2}$ feet depth. These were partly removed in 1888, and in order to continue their removal, a Stone-lifter was last year borrowed from the Department of Public Works and was engaged in the work from July 16th, till the close of navigation. During this time most of the shoals were cleared off, but part of one of the larger ones and some small ones yet remain. Expenditure \$3,494.75.

In the Ship Channel, opposite and just below the lower end of Victoria Pier, there were a few isolated boulders which were also taken up with the stone-lifter. Expenditure, \$190.64.

Electric Lighting.—In order to improve the lighting of the part of the Harbour below the entrance of the Lachine Canal, and also to better utilize the two dynamos, a new double line of wire was run from the lighting station to the cables below the lower locks. By means of this and proper switches, the lamps on each side of the canal may be worked on separate circuits, and each section from its own dynamo, or both circuits may be coupled and worked together as before.

HARBOUR REPAIRS.

The River, at the breaking up of the ice last spring, rose to 34 feet 1 inch on the lower locksill, which was

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about 9 inches below the average, and the ice moved off without unusual shoves. The wharves escaped damage, except in Sections 33 and 34, and were left comparatively free from ice. Between the Longueuil Ferry and the Hudon Cotton Mill, there was less left lodged than for several years past.

No very large items of repair were needed during the year, but the ordinary and smaller repairs were fully carried out and the general condition of the wharves was improved.

The total cost of maintenance and repairs for the year was \$51,892, which compares with the cost of previous years as follows :—

1875.....	\$16,499
1876.....	35,711
1877.....	26,077
1878.....	18,974
1879.....	18,819
1880.....	17,330
1881.....	16,159
1882.....	27,962
1883.....	35,768
1884.....	44,869
1885.....	42,158
1886.....	64,989
1887.....	64,984
1888.....	49,520
1889.....	51,892

The following are the principal items of repair in 1889 :

Section 6, Windmill Point.—About 40 feet of the wooden covering of the raceway through the wharf, at Peck, Benny & Co.'s mills, failed, and had to be opened up and renewed. A new timber crib, 6 feet wide by 31 feet long, of square hemlock, was sunk in the middle of the culvert ; two covering courses of large round hemlock were put on and the excavation filled up to the wharf level. Expenditure, \$1,022.

Section 11.—The piece of wharf facing the city and

extending from the lower gate of old Lock No. 1, Lachine Canal, to the lower end of Windmill Point wharf, a distance of 230 feet, having become very much dilapidated, was taken down nearly to low water line and rebuilt with three to four courses of new face timber, new cross ties and rear longitudinals; top planking and hemlock face planking. Expenditure, \$1,067.

Section 15 (Island Wharf).—The pile-work wharf on the inshore side of the island had become sunken and damaged at its junction with the land, from the failure of the original piling put down about 1831. A length of 220 feet of the wharf was stripped and repaired with 30 new piles, a quantity of blocking, part new beams, new planking and minor parts. Other parts of the wharf were also repaired and the whole put in good order. Expenditure, \$1481.40.

Some deposit was dredged out of the basin alongside the above described piece of wharf. Expenditure, \$184.71.

Section 17 (Richelieu Pier).—The old sheet piling on the upstream side gave way for a distance of 35 feet out from the shore wharf, and was replaced by new piles of 45 to 50 feet long, driven 20 feet into the ground and secured at their heads to the old and new timber work in rear. The top timber and planking were also renewed. Expenditure, \$508.22.

Some deposit was dredged out from alongside the piece of wharf repaired, Expenditure, \$138.53.

On the lower side of the same pier there was placed 145 lineal feet of guard rail for the protection of passengers and vehicles. New sidewalks and hand rails were placed on both ramps leading from the wharf to the street at Jacques Cartier Square, and new stone crossings were laid across both Richelieu and Jacques Cartier piers, on line of shore wharves.

Expenditure for sidewalks and repairs.....	\$136.22
Expenditure for stone crossings.....	169.92

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Section 20.—About 100 lineal feet of new pine face planking was put on the outer side of Victoria Pier, besides 30 feet at the outer lower corner where the face timbers had been torn by the ice. This was repaired with new coping and face planking and part new top planking. A new block stone crossing was laid across the shore wharf from the Beaver Line shed to the ramp in the rear. On the part of Victoria Pier leading from the shore wharf an area of 783 square yards of granite block paving which had become damaged was relaid in cement on a concrete foundation.

Cost of relaying granite block paving.....	\$1,640.71
Cost of block stone crossing.....	84.96
Cost of other repairs.....	528.77

Section 19 (Bonsecours Basin).—Some dredging was done, mainly for the purpose of obtaining sand for road repairing. Expenditure, \$184.71.

Section 21 (Military Basin).—Some sand for road making was dredged up. Expenditure, \$138.53.

Section 24.—About 100 lineal feet of the top of the wharf was entirely renewed and supplied with new land ties and anchorage timbers. Expenditure, \$890.

Section 31.—About 260 lineal feet of the top of the wharf was entirely renewed and made suitable for receiving the new railway track, described among the new works. Expenditure, \$969.73.

Sections 33 and 34.—About 480 lineal feet of crib work was badly damaged by the ice and received heavy repairs, consisting of three to six courses of new face timbers, new cross ties and longitudinals, and a complete set of new cross sleepers, three feet centres, for longitudinal planking and new top planking. Expenditure, \$3,499.64.

General Repairs.—Minor general repairs to the wood-work of the wharves have been made throughout the Harbour where needed during the season. Some of the larger items are as follows:—

About 100 lineal feet of face planking was put on section 29; 150 feet of square pine coping and 350 feet of four-inch plank coping was put on section 30; 60 feet of new coping and 50 lineal feet new face planking was put on section 40. From section 30 to 37 inclusive, except about 200 feet on section 33 and 350 on section 35, the face of the wharf, about 3,800 lineal feet in extent, received new pine face planking.

Roadways.—Macadamizing stone has been spread on the wharves as follows:—

Section.	No. of Toises.	Section.	No. of Toises.
6	2	19	20
7	2	20	43
8	4	21	15
9	10	23	12
10	35	24	} In addition to } 40 } new work... }
13	28	25	
14	24	26	16
15	44	27	20
16	29	31	16
17	78	32	24
18	8	33	24

Total toises spread for maintenance of roadways, 494.

The footpath crossings throughout the Harbour have nearly all been raised and repaired.

Electric Lighting.—The cables under the two entrances of the Lachine Canal, which were put down in 1887, and had hitherto worked well, failed during the past summer and had to be renewed during the working season, involving rather serious cost, mainly on account of the difficulty in doing the work in the time of navigation and the necessity for making temporary provision for maintaining light while the cables were being made and replaced. Heavy repairs to the 50 light dynamo, which failed in the end of 1888, and changes in the wiring of the circuits also helped to swell the maintenance expenses.

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The cost of lighting for the season was \$4,541.45, which is at the rate of $50\frac{1}{4}$ cents per lamp per night, or $5\frac{1}{100}$ cts. per lamp per hour, including all charges for working and maintenance, but exclusive of interest and depreciation of plant.

HARBOUR DREDGES AND DREDGING.

The Harbour dredging plant was composed of three spoon or dipper dredges, three derricks and two screw tugs with barge, scows and a floating shop, as detailed in the appended table. Besides this there were borrowed from the Government Ship Channel fleet, for part of the summer, a stone-lifter, an elevator dredge, a tug and three scows.

The Harbour dredging fleet was wintered in the Richelieu River, at the Government Ship Yard, Sorel, and the necessary repairs were made at the Government works, but by the Harbour Commissioners' men.

No. 7 Dredge had heavy repairs. The frames and side and stern planking were all renewed, and mostly in larger sizes than before; the spud slides and overhead framing between the forward spuds were all renewed and strengthened; part of the deck plank and minor parts were also renewed, and the dredge put in first rate order generally.

The other dredges and vessels received ordinary repairs.

No. 1 Derrick, which had been fitted out as a pile-driver and used as such for some years, was last summer refitted as a derrick and commenced working July 15th.

The Harbour Commissioners' three dipper dredges were brought up from Sorel on 18th and 20th April, and by the 25th all had got to work in the Harbor. They continued at work throughout the season and until the fleet was sent to winter quarters on the 27th November.

Two of the dredges were sent to winter in Cantin's Dry Dock, Montreal; the other dredge with two derricks,

one tug, the floating shop and two scows, were sent to the Lachine Canal, near the dry dock. One derrick, a tug, a coal barge and the remainder of the scows were sent to the Boucherville Islands.

Besides the Harbour dredging fleet proper, Elevator dredge No. 10, a tug and three scows, belonging to the Government Ship Channel fleet, were borrowed from the Department of Public Works to expedite the dredging at Hochelaga and Maisonneuve. The dredge and scows reached Montreal on 13th September and worked till November 12th, when they were returned to Government.

Stone-lifter No. 2, of the Ship Channel fleet, was also borrowed from the Government, for clearing boulders out of the Current St. Mary, as previously mentioned, and worked from her arrival on 16th July till she was returned on 26th November.

The number of days during which the spoon dredges were on duty, including all except Sundays, from commencing in spring to leaving off in the fall, was 183 days for No. 4, 185 days for No. 6, and 183 days for No. 7, making an aggregate of 551 days for the season.

The nominal working time is ten hours per day, which gives a total of 5,510 hours service; but the actual dredging time, after deducting that lost for repairs, changing position, detention by vessels, short days in autumn, and all other causes, was reduced to 4,507, or an average of 81.8 per cent of the gross time of service.

The total outlay for working the Commissioners' own fleet, consisting of three spoon dredges, three unloading derricks, two screw tugs and the scows, was \$50,888.35; and this, as usual, represents the entire cost of working the plant and machinery, repairs, outfit, fuel, wages, salaries, insurance and all other outlays, except interest on capital and depreciation of plant.

The cost of working the borrowed plant was \$6,681.51, making a total outlay of \$57,569.86.

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The following are the comparative costs and quantities of dredging for 1889, and for previous years :—

YEARS.	CUBIC YARDS DREDGED.	TOTAL COST.	COST PER CUBIC YARD, CENTS.	REMARKS.
1875...	151,719	\$68,979	45	
1876...	156,082	55,462	35 $\frac{50}{100}$	
1877...	173,449	45,103	26	
1878...	211,731	48,748	23	
1879...	189,609	41,006	21 $\frac{63}{100}$	
1880...	186,430	46,914	25 $\frac{16}{100}$	
1881...	170,764	54,128	31 $\frac{60}{100}$	
1882	187,339	53,598	28 $\frac{60}{100}$	Spoon Dredges and Stone-lifters. Elevator Dredges.
	9,429	13,254	\$1.40 $\frac{00}{100}$	
	196,768	66,852	33 $\frac{26}{100}$	Totals and average.
1883	36,358	17,956	49 $\frac{38}{100}$	Spoon Dredges and Stone-lifters. Elevator Dredges—lifting rock and boulders and clearing up.
	6,990	19,385	\$2.77 $\frac{30}{100}$	
	43,348	37,341	86 $\frac{14}{100}$	Totals and average.
1884...	125,648	49,468	39 $\frac{37}{100}$	Spoon Dredges and Stone-lifters.
1885...	69,494	28,563	41 $\frac{19}{100}$	" " "
1886...	57,728	25,772	44	" " "
1887...	36,993	23,259	62	" " "
1888	73,150	36,690	50 $\frac{16}{100}$	" " "
	2,077	1,333	64 $\frac{18}{100}$	
	75,227	38,023	50 $\frac{54}{100}$	Totals and average.
1889	205,283	54,574	26 $\frac{58}{100}$	Spoon Dredges and Stone-lifter. Elevator Dredge.
	9,420	2,996	30 $\frac{00}{100}$	
	214,703	\$57,570	26 $\frac{81}{100}$	Totals and average.

The cost and character of the dredging done in the different parts of the Harbour are as follows. All not otherwise mentioned was done by spoon dredges and all the quantities are scow measurements.

Sections 5 and 6 (Windmill Point).—A few days' work was done in a place which needs deepening, but for the immediate purpose of obtaining rock for road-making; material, shale; depth of water at time of dredging, 22 feet; quantity dredged, 810 cubic yards, costing 74 cents per yard.

Section 15 (King's Basin).—Some cleaning out of deposit was done alongside the inshore side of the Island wharf; mud and stones; quantity dredged, 585 cubic yards, costing $31\frac{1}{2}$ cents per yard.

Section 17.—Some deposit was cleared out of the lower corner of the basin; sand and stones; quantity dredged, 214 cubic yards, costing $64\frac{3}{4}$ cents per yard.

Section 19 (Bonsecours Basin).—Two days were spent in dredging for sand for road-making, but the water was too deep for effective work; quantity dredged, 337 cubic yards, costing $54\frac{3}{4}$ cents per yard.

Section 21 (Military Basin).—A trial was also made here for sand, but very little was obtainable.

Sections 40, 41 and 42 (Hochelaga).—A large quantity of dredging was done for the new wharf, as already described under the head of New Works. Part was done by the spoon dredges, and of this 92 per cent was deposited in and behind the crib work by clam shell derricks, and the remainder was dropped in deep places behind the crib work from self-dumping scows. The whole of that dredged by the elevator dredge was also dropped behind the crib work from dumping scows.

Quantity dredged by spoon dredges, 61,852 cubic yards; depth of water at time of dredging, 29 to 34 feet; sand, gravel, hardpan and stones. Cost, including derrick work, $28\frac{3}{4}$ cents per yard. Quantity dredged by elevator dredge, 2,370 cubic yards; depth of water, 28 feet; sand and stones; cost $38\frac{9}{10}$ cents per yard.

Section 45 and 46 (Maisonneuve).—The dredging at

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Maisonneuve is for the formation of the new wharf and basin, already described under the head of New Works, and it is by far the largest block of dredging done last year. As at Hochelaga, part was done by spoon dredges and part by the elevator dredge. Of that raised by the spoon dredges, about 76 per cent. was deposited by derricks for wharf filling, and all the remainder, as well as that raised by the elevator, was deposited from dumping scows. Quantity dredged by spoon dredges, 140,895 cubic yards; sand, clay, hardpan and stones; depth of water, 29 to 34 feet; cost, including derrick work, $22\frac{6}{10}$ cents per yard. Quantity by elevator dredge, 7,050 cubic yards; sand, clay and stones; depth, 29 to 32 feet; cost, $29\frac{4}{10}$ cents per yard.

Ship Channel through Harbour.—The work consisted of picking boulders off some shoal places in the Current St. Mary and at Victoria Pier, by means of a stone-lifter. Several causes conspired to make the work tedious and costly in proportion to the area covered, and still more so when measured by the cubic yards of boulders lifted. The principal part of the work was in the swiftest part of the Current, where it runs at about seven miles per hour. The equipment of the stone-lifter, which was a borrowed one, was at first of inadequate strength and often broke; and the stones were few, of a small size, and scattered over a considerable area. Quantity of boulders lifted in Current St. Mary, 481 cubic yards; at Victoria Pier, 19 yards. Total, 500 yards, costing an average of \$9.37 per yard.

Appended are tables giving further particulars as to the dredging plant and work done.

Yours respectfully,

JOHN KENNEDY,

Chief Engineer.

HARBOUR COMMISSIONERS' DREDGING PLANT EMPLOYED IN THE HARBOUR OF MONTREAL IN 1889.

DESCRIPTION OF VESSEL	HULL			ENGINES.				Capacity of Bucket.	Depth to which Dredge can work.	REMARKS.			
	Length over all.	Breadth of Beam.	Depth of Hold.	When Built.	Kind of Engine.	No. of Cylinders.	Diameter of Cylinders.				Length of Stroke.	Pressure of Steam.	
													Inches.
DREDGES.	Ft. in.	Ft. in.	Ft. in.										
Crane Spoon Dredge, No. 4	27.3	27.0	6.6	1872	} Horizontal, non-condensing.	1	14	16	60	40	32	Wooden Hull. Altered in 1881.	
Room " " No. 6	27.0	27.0	7.6	1874		1	14	16	90	40	35		
Crane " " No. 7	27.3	27.0	7.0	1874		1	14	16	60	70	32		Wooden Hull.
DERRICKS.													
Clam Shell Derrick, No. 1	55.8	23.9	5.9	1872	} Horizontal, non-condensing.	1	8	12	75	...	...	Wooden hull.
" " " No. 2	57.0	23.6	5.9	1875		2	7	12	75		" "
" " " No. 3	61.9	24.0	5.9	1875	1	10	12	75	...	...	" "	" "
TUG BOATS.													
Tug St. Louis	67.0	15.0	8.7	1875	} Vertical, non-condensing.	1	16	20	90	...	...	Wooden hull.
" St. Peter	71.6	16.6	8.6	1875		1	29	22	93		" "
BARGES.													
Staghound, (floating shop).	103.4	21.5	7.6	1869	} .....	...	...	...	...	...	...	Wooden hull.
A. G. Nish (coal barge)....	100.8	22.6	6.4	1873	
SCOWS.													
4 Dumping Scows.....	80.0	16.0	7.6	1876	} .....	...	...	...	...	...	...	All wood.
2 Flat Scows.....	75.0	20.0	5.9	1876			" "
2 " " various sizes	75.0	20.0	6.0	1878			" "
6 " " and ages.....

In addition to the above there were borrowed from the Department of Public Works, for use in the Harbour in 1889, Stone-lifter No. 2, Elevator Dredge No. 10, three large dumping scows and the tug "Delisle."

HARBOUR DREDGING—Statement showing the number of days worked by each Dredge and the quantity dredged at each place for the Harbour of Montreal in 1889.

HARBOUR DREDGING—Statement showing the number of days worked by each Dredge and the quantity dredged at each place for the Harbour of Montreal in 1889.

PLACE WHERE DREDGES WORKED.	VESSEL.	Time of Service.		QUANTITIES DREDGED.			CHARACTER OF SOIL.
		Days.	Total Days.	Spoon Dredges.	Stone Lifters & Elevators.	Totals. Cubic yds.	
Sections 5 & 6, Windmill Point....	Spoon Dredge No. 6.	6½	6½	810	.....	810	Shale rock.
" 15, King's Basin.....	" " No. 6.	2	2	585	.....	585	Mud and stones.
" 17, Dominion Berth.....	" " No. 6.	1½	1½	214	.....	214	Sand and stones.
" 19, Bonsecours Basin.....	" " No. 4.	2	2	337	.....	337	Sand.
" 21, Military Basin.....	" " No. 6.	1½	1½	90	.....	90	Sand.
" 40 to 42, Hochelaga.....	" " No. 6.	11	.....	3,282	.....	.....	Sand, gravel, hard pan and stones.
	" " No. 7.	13½	.....	58,590	.....	.....
	" " No. 10.	16	208½	.....	2,970	64,222	Sand and stones.
" 45 to 47, Maisonneuve.....	Spoon Dredge No. 4.	181	.....	68,006	.....	.....	Sand, clay, hard pan and stones.
	" " No. 6.	162	.....	72,529	.....	.....
	" " No. 7.	1½	.....	360	.....	.....	Sand, clay and stones.
	" " No. 10.	36	380½	.....	7,050	147,945	
Ship Channel opp. Victoria Pier.	Stone Lifter No. 2.	6	.....	.....	19	.....	Boulders.
Do. Current St. Mary...	" " No. 2.	110	116	.....	481	500	
Totals.....	.....	719	719	204,783	9,920	214,703	

HARBOUR DREDGING—Abstract of work done by each Dredge for the Harbour of Montreal in 1889.

VESSELS.	PLACES AT WHICH DREDGES WORKED.	Time of Service.		Quantities Dredged. Cubic Yards.			CHARACTER OF SOIL.
		Days.	Total Days.	Spoon Dredges.	Elevator and Stone Lifter.	Total.	
Spoon Dredge No. 4.	Section 19, Bousseours' Basin.....	2	.....	337	.....	.....	Sand.
Do. do No. 6.	" " 45 to 47, Maisonneuve	181	183	68,006	.....	68,343	Sand, clay, hard pan and stones.
	" " 5 and 6, Windmill Point.....	64	.....	810	.....	.....	Shale rock.
	" " 15, King's Basin.....	2	.....	385	.....	.....	Mud and stones.
	" " 17, Dominion Line Berth.....	1 1/2	.....	214	.....	.....	Sand and stones.
	" " 21, Military Basin.....	1 1/2	.....	90	.....	.....	Sand.
	" " 40 to 42, Hochelaga.....	11 1/2	.....	3,282	.....	.....	Sand, gravel, hard pan and stones.
	" " 45 to 47, Maisonneuve.....	162 1/2	185	72,529	.....	77,430	Sand, clay, hard pan and stones.
Do. do No. 7.	" " 40 to 42, Hochelaga.....	18 1/2	.....	58,590	.....	.....	Sand, gravel, hard pan and stones.
	" " 47, Scow ways, Maisonneuve.....	1 1/2	.....	360	.....	.....	Sand, clay, hard pan and stones.
Elevator do No. 10.	" " 40 to 42, Hochelaga.....	16	183	.....	2,370	58,950	Sand, gravel, hard pan and stones.
	" " 45 to 47, Maisonneuve.....	36	52	.....	7,059	9,429	Sand, clay, hard pan and stones.
Stone-Lifter, No. 2.....	Ship Channel, opposite Victoria Pier.....	6	.....	.....	19	.....	} Boulders.
	Current St. Mary.....	110	116	.....	481	500	
Total.....			719	204,783	9,920	214,703	

In addition to the above No. 7 Dredge worked 1 1/2 days on charter, raising a sunken coal barge at Dominion Line berth.

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Rates & Dues to be levied in the Harbour of Montreal,

*Under and by virtue of the Acts, 40 Vic., Cap. 53, 42 Vic., Cap. 28,
and 51 Vic., Cap. 5.*

ON AND AFTER THE TWENTY-THIRD DAY OF MAY, 1889.

Wharfage Dues

*To be levied on all Merchandise, Animals and Things whatsoever
Landed or shipped in the Harbour.*

- 25c. per Ton—All Goods, Wares and Merchandise not elsewhere specified.
 20c. " " —Hay, Straw, Pig and Scrap Iron, Pot and Pearl Ashes.
 15c. " " —Apples, Crates and their contents, Flour and Meal, Fish, Meats,
 Pitch, Potatoes, Tar, Horses, Neat Cattle, Sheep, Swine.
 10c. " " —Ballast, Clay, Fire-Bricks, Gypsum, Lime, Marble, Phosphates,
 Sand, Salt.
 7½c. " " —Coal and Coke, Grain and Seeds of all kinds.
 Special Bricks, 10c. per 1,000; Cordwood, 5c. per cord; Lumber, 10c.
 per 1,000 feet, board measure.
 Free Bullion, Specie.

On all Goods, Wares and Merchandise whatsoever, the quantity of which by weight, measurement or other mode of estimate provided for in the Tariff, cannot be conveniently ascertained, it shall be lawful for the Harbour Commissioners to levy a rate of ¼ of 1 per cent. on the value thereof.

Each entry shall pay not less than 5 cents.

All property landed on the wharves for re-shipment, shall only pay one wharfage.

*The Ton mentioned in the Tariff of Wharfage dues shall be 2,000 lbs. weight,
or 40 cubic feet measurement, according to the Bill of Lading.*

STANDARD FOR ESTIMATING WEIGHTS.

Ashes, Pot or Pearl.	3 brls. to one Ton.		Horses	2 to one Ton.
Apples, Flour, Meal, Potatoes	9 " "		Neat Cattle.	3 " "
Fish, Meats, Pitch, Tar.	7 " "		Sheep.	15 " "
			Swine	10 " "

Certified,

H. D. WHITNEY,

Secretary.

HARBOUR COMMISSIONERS OFFICE,
MONTREAL, 26th March, 1881. }

PRIVY COUNCIL OFFICE,
OTTAWA, 1st April, 1881.

I hereby certify that the foregoing Tariff has been approved by His Excellency the Governor-General in Council on this 1st day of April, 1881.

J. O. COTÉ, Clerk, Privy Council.

Certified,

ALEXANDER ROBERTSON,

Secretary.

HARBOUR COMMISSIONERS OFFICE,
MONTREAL, 23rd May, 1889. }