

ANNUAL REPORTS  
OF THE  
HARBOUR COMMISSIONERS  
OF MONTREAL  
FOR THE YEAR 1891.



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.

JAMES McSHANE, 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.

Montreal:

PUBLISHED BY ORDER OF THE HARBOUR COMMISSIONERS OF MONTREAL.  
1892.

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THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 230

LECTURE NOTES

BY

ROBERT A. FAY

1962-1963

CHICAGO, ILLINOIS

1963

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NEW YORK

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# STATEMENT

MADE BY

MR. HENRY BULMER, CHAIRMAN,

HARBOUR COMMISSIONERS OF MONTREAL,

ON THE

*Business of the Port for the year 1891, and other matters connected  
with the Trust.*

AT THE MEETING OF THE BOARD, HELD ON 19TH JANUARY, 1892.

---

Most of the reports from the different departments being now ready for publication, I submit the usual resume of the business of the Board for the past year.

Before doing so it would seem fitting to remark that, with the Country at large, the Board has had cause to lament the death of the Right Hon. Sir John A. Macdonald who was so long identified with the government of the Country and its progress, and at whose funeral obsequies the Board was fully represented.

Within the last few days, in common with the whole Empire, we have also cause to mourn the unexpected death of His Royal Highness the Duke of Clarence and Avondale, eldest son of his Royal Highness the Prince of Wales and Heir Presumptive to the British Throne.

Since the last annual statements were published the Board has been changed by the retirement of Ex-Mayor Grenier, and the appointment of Mayor McShane, as the City's representative on the Board. In August last, Mr. C. H. Gould, whose term had expired, was again elected as representative of the Corn Exchange.

All tonnage dues having been taken off shipping by the Act of Parliament relieving this Board from the interest on the Channel debt, a new basis for the constituency, having the right to elect a representative of the Shipping Interest on the Board, was provided for at the last Session of Parliament. The first election under the new Act will be held in August next.

The Harbour Master's statements show an increase of tonnage arriving in the Harbour from sea over the previous year of 17,447 tons in the aggregate. The apparent increase of tonnage in these tables is only 8,325 tons. The discrepancy arises from the change in the method of computing the tonnage in consequence of the removal of all tonnage dues off vessels.

In former years, in order to properly check the time during which vessels were liable for those dues, a clearance from the Harbour into the Canal was required, and another entry made in the Harbour Office on the return to the Harbour. As no tonnage dues are now collected it seems unnecessary to include such vessels in the arrivals. Leaving out all the vessels entering the Canal and deducting the tonnage thus entered in the same tables of last year the total increase of tonnage of sea-going vessels over 1890 is as above, 17,447 tons.

In August last the Harbour was honoured by a visit from the French War Corvette "Bisson," Capt. Peuch, and in September H. M. S. "Tourmaline," Capt. J. H. Rainier, also arrived.

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Both of these ships were welcome visitors and the Officers and Crews appear to have enjoyed their visit.

The Secretary-Treasurer's returns of Revenue show a slight decrease as compared with last year of \$2,330.39, which is accounted for by the almost entire cessation of the exportation of Lumber to South America, owing to the political troubles there.

This is expected to be only temporary, as the Export Lumber Company, which has done the most of that business here in former years, has again applied for the space on which it paid rental last year.

During the past year \$73,000 of four per cent Bonds have been sold at par net.

The Bonded debt now stands at \$2,368,000; the interest on which amounts to \$120,925 annually.

The revenue from all sources last year was \$260,909.20, while the total expenditure, including interest, but apart from that on new work was \$199,680.60.

At last Session of Parliament power was given to issue Bonds to the extent of one million dollars for the Harbour Enlargement.

The expenditure on new works at the eastern end of the Harbour, the commencement on the Guard Pier, and on the plant required for the new plan of Harbour Enlargement, amounted for the year to \$179,976.77.

A large amount of repairs was done in the Harbour during the past season. The condition of the wharves was well attended to and they are now in better order than in previous years.

Considerable damage was done to the Island Wharf during the winter and spring, and the caving in of the upper portion of the Allan's Wharf also caused a large outlay for repairs.

These damages to the wharves are periodical and only when the projected guard pier and the plan of Harbour Improvement are carried into effect can exemption be counted upon.

In this connection it is satisfactory to know that the City Council has passed a By-Law to compel the use of broad tires on heavy traffic vehicles, which will prove of great advantage in conserving the roadways on the wharves.

The Denonville Avenue Ramp was completed early in the season and has been of great advantage especially to the large coal trade in that locality.

The new wharves ordered by the Board to be constructed below the Cotton Factory, and also at Maisonneuve, have been completed and have proved useful in relieving the overcrowded upper portion of the Harbour.

At the request of the Canadian Pacific Railway Company the Harbour railway track was extended as far as the Cotton Factory at Dezery St. and, by arrangement, is next spring to be carried down to the new Maisonneuve Wharf.

A mutually satisfactory arrangement has been made by the Board with the Montreal Warehousing Company and the Grand Trunk Railway Company by which the latter Company will have access to the Windmill Point Wharf by means of the Harbour tracks to be laid next spring.

A judgment has been obtained deciding the long disputed boundary question in Hochelaga in the Robert and Monast cases.

The decision was in favour of the Board's pretensions, and a number of like cases have since been amicably arranged, and it is hoped the remainder will soon be settled in a similar manner.

Owing to the failure of Messrs Craig & Sons the con-

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tract with them for the Harbour Lighting was annulled in conformity with the terms of the contract, and a new contract was entered into with a syndicate of Montreal Citizens, connected with the Edison Company, for four years at a lower rate.

In the last annual statement mention was made that the Government had finally approved the Harbour Enlargement and Flood Protection Plan.

Owing to the Municipal Elections and other causes some time elapsed before arrangements were made for carrying out the joint work.

It was the 11th May before a plan of operations was agreed to and ratified by the City Council. It was then too late to prepare the necessary plant to accomplish much result last season.

In view of that, on the recommendation of the City and Harbour Engineers, the plan of operations was changed. The change was approved by the Board and also by the City Council on the 2nd July, and work on the Guard Pier was commenced on the 21st of July near the lower instead of at the upper end.

According to the Engineer's returns 73,160 cubic yards of dredging was deposited there as a foundation for next year's operations, the cost of which was about \$12,000, and on account of which the City has paid \$4,085 on a progress estimate.

The plant necessary for carrying out the work has been ordered by the Board, to be ready for the opening of navigation, and the work will be proceeded with vigorously in accordance with the plan of operations.

During the past season the shoal of hard clay and boulders bordering on the north side of the Channel in the Current St Mary below the Longueuil Ferry was nearly altogether dredged to the Ship Channel depth. The removal of this

shoal had long been pressed for by the Pilots on account of its danger to vessels leaving the Harbour, and its removal prevented at least one serious stranding last fall.

To enable this work to be done the Board had the use of the Government Ship Channel Dredge No 8 and the necessary attendant plant.

The later part of last season was remarkable for the low water in the St Lawrence. The lowest point reached was 15 inches lower than the datum level from which the 27 ft. 6 in. Channel is based. During the lowest water, however, S. S. "Sarmatian" drawing 25 ft. 6 in. left the Harbour and passed down safely.

On the 18th June the S. S. "Vancouver" passed down drawing 26 ft. 8 in., the deepest draught recorded from the Harbour during the year.

No serious accident occurred in the river between Montreal and Quebec during the last season. The few groundings that did take place were from causes not preventible, or from carelessness on the part of Pilots. The latter cases were promptly dealt with by the Board in accordance with the By-laws.

An official notification just received from the Deputy Minister of Marine that the temporary floating lights at Ste. Croix and Pointe aux Trembles (en bas) would next spring be replaced by gas buoys, will no doubt give great satisfaction to all connected with the shipping interest.

Although not now under the control of the Board the operations towards perfecting the Channel as far as Quebec are an object of interest as affecting the shipping coming to Montreal as well as to the other harbours between here and Quebec.

There is reason to know that the Channel generally is well looked after and the points where improvements can

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be made have been noted by the Officers of the Public Works Department.

The important work at Cap à la Roche is nearly finished. When the deepening there was commenced it was expected that when completed deep draught vessels would be able to proceed at all states of the tide. Since the opening of the 27 ft. 6 in. Channel it has however been found that a few places between Cap à la Roche and Quebec require to be dredged in order that the Trade may realize the full benefit of the expenditure already made.

The attention of the Public Works Department has also been given to this important matter. Some of the obstructions have already been removed and it is hoped that the work will be continued to completion.

The lithographed charts of the Channel and River, ordered by the Board, have been completed. There are seventeen sheets, and the varied information on them has been carefully prepared and the work neatly executed.

These sheets will doubtless be appreciated by all interested in the navigation of the St Lawrence from Montreal to Quebec.

The information given is from the latest surveys and extends as far as the Platon, thirty-five miles from Quebec, beyond which no recent examinations have been completed.

STATEMENT  
OF  
GENERAL RECEIPTS AND DISBURSEMENTS  
OF THE  
HARBOUR COMMISSIONERS OF MONTREAL  
FOR THE YEAR 1891.

HARBOUR COMMISSIONERS OF MONTREAL,  
SECRETARY'S OFFICE,  
MONTREAL, 16th February, 1892.

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 December, 1891.

The revenue from wharfage dues and rentals shows a slight decrease from that of 1890, namely, of \$2,330,39, or less than 1 p. c.

The usual reports for the past year of the Montreal Decayed Pilots' Fund, the Montreal Pilotage District, and

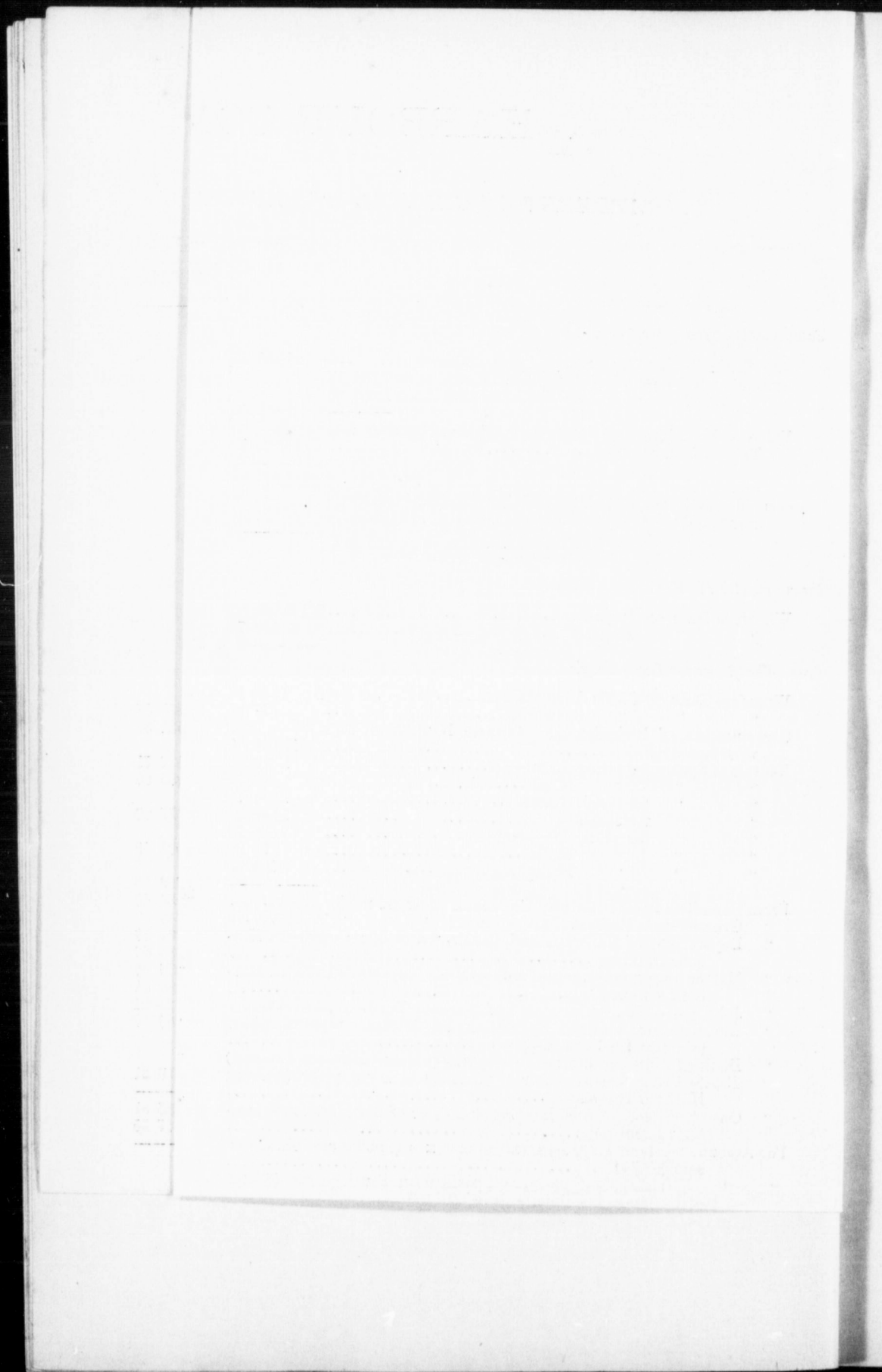
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the Harbour Master, have [already] been forwarded you ; while that of the Chief Engineer on the Works for the Improvement and Maintenance of the Harbour is now in course of preparation and will be transmitted shortly.

From the Harbour Master's report it will be seen that there was an increase in the tonnage of ocean vessels, as also of inland vessels, over that of 1890, and that the amount of each class, as also of the total tonnage, was larger than in any previous year.

During the last Session of Parliament an Act was passed, which amended the Harbour Commissioners' Acts in respect of the election by the Shipping Interest of their representative on the Commission.

Under this, 54-55 Vict., Chap. 53, the qualification for voting is based on the tonnage consigned to the several owners, or agents, instead of on Tonnage Dues, which were abolished in 1888.

The first election under the new Act will be held on the 1st of August, 1892.

By the same Act the Commissioners were given power to borrow One million dollars for the improvement of the Harbour, in addition to their former powers.

During the year a set of seventeen Charts of the River from Montreal to the Platon, 35 miles above Quebec, was published, which should be of great value to navigators, showing as they do all the Light-houses, Beacons and Buoys, as well as the Shoals, along the Channel.

It has been decided that the set will be sold for the sum of Three dollars.

I have the honor to be,

Sir,

Your obedient servant,

ALEXANDER ROBERTSON,

*Secretary*

WESTERN CHAMBERS,

22 St. John Street,

MONTREAL, February 16th, 1892.

*The Chairman*

*of the Harbour Commissioners of Montreal,*

MONTREAL.

DEAR SIR,—

We beg to report having completed the audit of your Secretary-Treasurer's books for the year ending 31st December, 1891, and that the Balance Sheet and statement of "General Receipts and Disbursements" herewith submitted, bearing our certificate, are correctly drawn up therefrom.

We have found everything correct and in good order.

Your obedient servants,

RIDDELL & COMMON,

*Auditors.*

REPORT  
OF THE  
Pilotage District of Montreal  
FOR THE YEAR 1891.

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HARBOUR COMMISSIONERS OF MONTREAL,  
*Secretary's Office,*  
MONTREAL, January 19th, 1892,

WILLIAM SMITH, Esquire,  
*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, 1891.

Towards the end of April Pilots Hubert A. Belisle, Augustin Naud and Cyrille Belisle having reached the age of sixty-five, were brought before the Commissioners for examination, as required by the Pilotage Act, when it was decided to be inexpedient to renew their licenses, and to superannuate them as from the 1st May.

On 23rd June Pilot Athanase Dufresne, aged fifty-seven, tendered his resignation on account of failing health, and his physician certified that it would not be safe for him to continue piloting vessels, in view of which his name was also placed on the list of Superannuated Pilots, as from 1st August.

The four vacancies thus created were filled by the licensing, as pilots, of Apprentices Arthur Briere, J. S. Labranche, Alexis Perrault and N. Come Dufresne, the first three on 28th April and the last on 23rd June.

Pilot George Dufresne, who, at the close of 1890, was under suspension on account of drinking habits, was reinstated on 28th April with a very special caution, the Commissioners being satisfied that he had reformed.

The accompanying statement gives the names, earnings, 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.		
Steamships .....	\$49,249 66	
Sailing Vessels.....	2,950 94	\$52,200 60
FOREIGN.		
Steamships.....	\$ 2,631 75	
Sailing Vessels.....	978 82	3,610 57
Total .....		\$55,811 17

Mr. Cyrille Belisle, jr., of Deschambault, was granted an Apprentice Pilot's license on 20th October.

The following list shows the name, age, and residence of each apprentice pilot now serving his time under this authority:—

No.	NAME.	AGE.	RESIDENCE.
1	Nadeau, J. B .....	33	Lévis.
2	Naud, Aubert .....	37	Deschambault.
3	Bouillé, Narcisse .....	31	"
4	Léveillé, Joseph .....	28	Batiscan.
5	Sauvageau, Josephat .....	29	Deschambault.
6	Dussault, Napoléon .....	29	"
7	Perron, Sévère .....	33	"
8	Arcand, Barthélemi .....	29	Lachevrotière.
9	Bellisle, Prudent .....	28	Deschambault.
10	Arcand, George .....	27	Lachevrotière.
11	Toupin, Constant .....	25	Three Rivers.
12	Perrault, George .....	25	Deschambault.
13	Belisle, Arthur .....	30	"
14	Bélanger, Charles .....	21	Lotbinière.
15	Pleau, J. E .....	22	St. Anne de la Pérade.
16	Hamelin, Théodule .....	17	Grondines.
17	Perrault, Anthyme .....	23	Deschambault.
18	Raymond, J. N .....	21	"
19	Bélisle, Cyrille .....	23	"

There were during the season several groundings of vessels, but no one of them was of a serious nature.

On 18th May, the Steamship "Athens," while in charge of Pilot Joseph Pleau, went aground just below the new Maisonneuve Pier, within the Harbor of Montreal, when approaching her berth there.

An enquiry was held at Captain Robertson's request, when the Commissioners, after hearing the evidence, decided that the pilot was deserving of censure in that he had not informed himself as to the approach to this new wharf before assuming charge of a vessel for that part of the Harbour, but, in view of the fact that the channel was not as fully buoyed as it will be when the pier is completed, they agreed that the charge be disposed of by a caution and reprimand.

On the 3rd September the Ship "Tobique," in charge of Pilot Gédéon Groleau, and in tow of the Steam Tug "Lord Stanley," also went aground just below the Maisonneuve Pier

Captain McLaren laid a complaint against the Pilot and an investigation was ordered to be held, but owing to the non-attendance of the vessel's officers at the same the case had to be dismissed.

The Captain afterwards, by letter from Bastiscan, explained his non-appearance, but it was then too late under the law to re-open the enquiry.

On the 14th September the Steamship "St. Asaph," in charge of Pilot Jean Arcand, when coming to anchor took a sheer and went aground to the northward of the channel below the Varennes curve.

At the enquiry, the Commissioners, after hearing the evidence, severely reprimanded the Pilot for attempting to anchor in an unsuitable part of the channel and also for unskilful handling of the same steamship a week later, when a large red spar buoy was carried away by the vessel's propeller, as she was leaving the Maisonneuve Pier.

On the 13th October, Pilot Damase Caien was suspended to the end of the year for having gone on board the Steamship "Newminster" early on the morning of the 6th October under the influence of liquor, and thereby caused annoyance to the Agent and Captain and loss of time in looking for another Pilot for the vessel.

The maintenance of the buoys and beacons by the Sincennes-McNaughton Line was carried out during the season to the general satisfaction of the Commissioners.

The tariff of pilotage is the same as has been in force since 5th March, 1877.

The following is an extract from it:—

QUEBEC TO MONTREAL AND VICE VERSA.	UPWARDS.	DOWNWARDS.
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 water.....	2 50	2 50
Pilotage of vessels under sail, for each foot of draft of water.....	4 20	2 80
Moving a vessel from one wharf to another in the Harbour of Montreal, or from the Harbour into the Lachine Canal.....	5 00	5 00

The amounts received and expended by the Harbour Commissioners, as Pilotage Authority of the District, apart from their receipts and disbursements in trust for the Montreal Decayed Pilot Fund, of which the annual report and statements were sent you on 12th instant, certified by Messrs. Riddell & Common, Chartered Accountants, were as follows:—

RECEIVED.

From four Pilots, the fee for their license as Pilots (\$10.00 each.).....	\$40 00
From two Apprentice Pilots, the fee for their license (\$5.00 each.).....	10 00
Total .....	\$50 00

EXPENDED.

To Messrs. Abbotts, Campbell & Meredith for professional services.....	\$32 00
" 20 Copies Pilotage Act.....	2 00
" Theo. Robinson, Printing, Stationery, &c.....	21 62
" Charles Garriepy, services as Pilot Agent at Quebec.	600 00
" " allowance for postage.....	5 00
	————— \$660 62

The deficiency of \$610.62 was made up out of the  
Harbour Revenues.

I have the honour to be, Sir,

Your obedient servant,

ALEXANDER ROBERTSON,

*Secretary.*



STATEMENT showing the number of Branch Pilots for and above the Harbour of Quebec, on the Active List, on the 31st December, 1891, 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		No. of Trips		Total No. of Trips.	Earnings to Montreal.	Earnings to intermediate Ports.	Total Earnings.	Employed on Special Service or on Tour-de-Rôle.
						to Montreal.		to intermediate places.						
						IN.	OUT.	IN.	OUT.					
1	Bouillé, Zéphérin...	62	Deschambault	March 1, 1855		14	15			29	\$ 1,667 67	\$	\$ 1,667 67	Allan Line.
2	Dufresne, Athanase.	57	Deschambault	March 2, 1862	{ Superannuated June 23, 1891. }	3	3			6	191 66		191 66	Tour-de-Rôle.
3	Gagnon, Pierre	63	Three Rivers	November 27, 1866	Member P. C. 1891.	12	12	2	1	27	1,244 19	89 67	1,333 86	Allan Line.
4	Naud, Onésime	49	Deschambault	March 16, 1870		14	15			29	1,530 03		1,530 03	Allan Line.
5	Hamelin, J. Octave.	57	Deschambault	March 16, 1870		15	15			30	1,130 01		1,130 01	Intercolonial Coal Co
6	Chandonnet, Jos.	50	{ St. Henri de Lauzon, Lévis. }	August 2, 1870	{ Member Pilots' Committee 1892. }	15	15			30	1,681 24		1,681 24	Beaver Line.
7	Bouillé, Louis A.	54	Deschambault	September 1, 1870		13	13			26	1,463 35		1,463 35	Allan Line.
8	Boudet, Prudent	50	Lotbinière	October 10, 1870		12	12			24	1,360 40		1,360 40	Dominion Line.
9	Bélisle, Elzéar	57	Deschambault	October 10, 1870		15	15			30	661 40		661 40	Thos. Fraser & Co.
10	Pleau, Joseph	54	St. Anne de la Pérade	October 10, 1870	{ Cautioned and reprimanded 2nd June. }	7	5	1	1	14	477 94	53 25	531 19	Tour-de-Rôle.
11	Brunet, Célestin	47	{ 172 Jacques-Cartier St., Montreal. }	February 28, 1872		14	17			31	1,559 33		1,559 33	Donaldson Line.
12	Bélisle, Louis	45	Deschambault	February 28, 1872	Member P. C. 1892..	11	11			22	1,238 94		1,238 94	Dominion Line.
13	Caien, Damase	53	Portneuf	October 1, 1872	{ Suspended from 13th October to end of year. }	6	4	1	1	12	380 22	68 25	448 47	Tour-de-Rôle.
14	Groleau, Ulric	43	Grondines	October 30, 1872	Member P. C. 1891..	8	9		2	19	676 81	64 00	740 81	Tour-de-Rôle.
15	Frenette, Alfred	52	Portneuf	October 30, 1872		11	15			26	1,223 13		1,223 13	McLean, Kennedy.
16	St. Amant, Alfred	47	Deschambault	October 30, 1872		14	15	2	2	33	1,059 79	116 63	1,176 42	J. & R. McLea.
17	Bélangier, Philippe	52	Lotbinière	April 8, 1874		7	7	2	2	18	615 90	123 75	739 65	Tour-de-Rôle.
18	Gagnon, Victor	55	Champlain	April 9, 1874		8	8			16	856 66		856 66	Harling, Ronald & Co
19	Perrault, Narcisse	54	Deschambault	April 10, 1874	{ President P. C. 1891; re-elected for 1892. }	14	14			28	1,448 47		1,448 47	Donaldson Line.
20	Toupin, Trefflé	42	{ Lake Bouchette, Lake St. John. }	September 22, 1874		5	10	5	3	23	500 61	224 66	725 27	{ On SS. "Petunia" to 11th Sept., after on Tour de Rôle.
21	Auger, Cléophas	45	Point Lévis	September 22, 1874		16	15			31	1,699 35		1,699 35	Beaver Line.
22	Desjardy, François	49	Lavaltrie	April 8, 1875		8	6			14	628 13		628 13	Tour-de-Rôle
23	Labranche, Ferdinand	44	Portneuf	April 8, 1875		11	11			22	1,241 22		1,241 22	Dominion Line.
24	Perrault, David	48	Deschambault	April 9, 1875	{ Secretary Pilots' Com. 1892. }	16	16	3	3	38	1,266 80	186 93	1,453 73	F. C. Henshaw.
25	Gauthier, Alexis	43	Deschambault	January 15, 1878		10	11		1	22	1,074 58	21 56	1,096 14	Thomson & Ross line
26	Bouillé, Louis Z.	41	Deschambault	January 16, 1878		14	14			28	1,602 48		1,602 48	Allan Line.
27	Toupin, Joseph	41	Champlain	November 15, 1878		20	19			39	1,529 75		1,529 75	Black Diamond line.
28	Gauthier, Laurent	40	Deschambault	December 10, 1879		11	11			22	1,266 00		1,266 00	Dominion Line.
29	Arcand, Jean	38	Deschambault	December 10, 1879	{ Member P. C. for 1892. Severe reprimanded 29th Sept. }	6	7	2	4	19	558 30	170 83	729 13	Tour-de-Rôle.
30	Nault, Dolvoie	38	Deschambault	December 10, 1879		19	21			40	1,315 62		1,315 62	Black Diamond line.
31	Gauthier, Wilbrod	38	Deschambault	December 10, 1879		14	14	1		29	1,582 05	37 34	1,619 39	Allan Line.
32	Mayrand, Louis	44	St. Anne de la Pérade	December 9, 1880		14	13			27	1,128 96		1,128 96	Black Diamond line.
33	Dufresne, George	42	Deschambault	December 10, 1880	{ Re-instated 28th April with a caution. }	7	7	3	3	20	564 88	157 00	721 88	Tour-de-Rôle.
34	Arcand, Norbert	38	Champlain	December 10, 1880	Member P. C. 1891..	17	15	1	1	34	1,236 01	57 65	1,293 66	H. Dobell & Co.
35	Toupin, Uldoric	36	Champlain	December 11, 1880		7	7	1	2	17	679 73	96 93	776 66	Tour-de-Rôle.
36	Bouillé, Tancrede	37	Deschambault	December 11, 1880	Sec'y Pilots' Com. 1891	10	13			23	1,190 08		1,190 08	Hansa Line.
37	Arcand, Nestor	35	Deschambault	February 20, 1884		16	16			32	1,214 79		1,214 79	Hy Dobell & Co.
38	Nault, John	34	Deschambault	February 20, 1884		9	8			17	904 75		904 75	Thomson & Ross line
39	Dussault, Joseph	35	Deschambault	February 20, 1884		17	16			33	1,267 08		1,267 08	J. & R. McLea.
40	Groleau, Gédéon	39	Grondines	May 20, 1887	{ Complaint dismissed Sept. 29 }	8	6	1	1	16	654 16	56 25	710 41	Tour-de-Rôle.
41	Bélisle, Néré	40	Deschambault	May 20, 1887		17	19			36	1,348 72		1,348 72	Black Diamond line.
42	Perrault, Liboire	45	Deschambault	April 20, 1888		7	8	3	3	21	555 85	168 72	724 57	Tour-de-Rôle.
43	Raymond, Wilfrid	36	Deschambault	April 20, 1888		10	10			20	1,101 84		1,101 84	Thomson & Ross line
44	Hurteau, Joseph	30	Contrecoeur	March 20, 1889		17	16	2	2	37	1,338 30	115 92	1,454 22	F. C. Henshaw.
45	Perrault, Edouard	41	Deschambault	March 20, 1889		8	7	7	6	28	604 16	346 15	950 31	Carbray, Routh & Co
46	Bouillé, Lydoric	34	Deschambault	March 20, 1889		10	9		1	20	988 96	34 68	1,023 64	Hansa Line.
47	Dussault, Honoré	38	St. Petronille	July 16, 1889		11	12	2	1	26	892 90	83 57	976 47	Ross & Co., Qua.
48	Brière, Arthur	34	Portneuf	April 28, 1891		7	7		1	15	659 94	31 50	691 44	Tour-de-Rôle.
49	Labranche, J. S.	37	Portneuf	" 28, 1891		8	9	1	2	20	780 28	80 59	860 87	Tour-de-Rôle.
50	Perrault, Alexis	28	Deschambault	" 28, 1891		10	7		1	18	777 82	42 00	819 82	Tour-de-Rôle.
51	Dufresne, N. C.	30	Deschambault	June 23, 1891		6	7			13	562 10		562 10	Tour-de-Rôle.
Total..											\$53,383 34	\$2,427 83	\$55,811 17	

HARBOUR COMMISSIONERS' OFFICE,  
MONTREAL, 19th January, 1892.

ALEXANDER ROBERTSON,

Secretary

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REPORT AND STATEMENTS  
OF THE  
MONTREAL DECAYED PILOT FUND  
FOR THE YEAR 1891

HARBOUR COMMISSIONERS OF MONTREAL,  
SECRETARY'S OFFICE  
MONTREAL, 12th January, 1892.

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

SIR,—

I have the honour, by direction of the Harbour Commissioners of Montreal, to transmit herewith, for the information of the Honourable the Minister of Marine and Fisheries, the usual statements of (1) Receipts and Disbursements of the Montreal Decayed Pilot Fund for the year ended 31st December, 1891, and (2) Assets belonging to the Fund at 31st December, 1891.

The following is an abstract of the former :

RECEIPTS.		
Trinity Dues collected at Montreal.....	\$2,642 01	
“ “ “ “ Sorel.....	80 00	
“ “ “ “ Three Rivers and at Batis- can .....	29 07	
“ “ “ “ Batiscan in 1890.....	10 14	
Sundry small amounts of poundage.....	15 93	
		2,777 15
Interest on investments and on cash in bank.....		2,589 94
		\$5,367 09

## DISBURSEMENTS.

Pensions to old and infirm Pilots and Widows of Pilots .....	\$4,285 82	
Messrs. Riddell & Common, for audit of Fund.....	25 00	
Postage Stamps and Stationery.....	8 39	
		4,319 21
Showing a net gain for the year of.....		\$1,047 88

During the year three of the pensioners died, namely, Dame L. Narcisse Bouille (née Hortense Proulx), on 21st February, Dame Eusebe Toupin, on 29th May, and Dame L. Narcisse Bouille (née Marie Anne Arcand), on 7th October.

On 21st April Pilots Hubert A. Belisle, Augustin Naud and Cyrille Belisle were superannuated on account of age and infirmity, and their names were placed on the list of pensioners, as from 1st May.

On 23rd June Pilot Athanase Dufresne made application to the Commissioners to be superannuated on account of failing health, and his name was also added to the list of pensioners, as from 1st August

On 28th April the Commissioners decided that the pension of all Superannuated Pilots, who had served about thirty years, should be increased from three hundred to three hundred and sixty dollars per annum, the increase to date from 1st May.

There are now on the list eight old pilots, at three hundred and sixty dollars per annum, and fourteen widows, of whom eleven receive \$149.32, two \$128.00, and one \$117.32 per annum.

I have the honour to be,

Sir,

Your obedient servant,

ALEXANDER ROBERTSON,

*Secretary.*

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SEE NEXT PAGE FOR TREASURER'S STATEMENT.

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R, IN ACCOUNT

## WITH THE DECAYED PILOT FUND.

Cr.

1891.

Feb.	By pensions paid to the following for three months ended 31st January :—		
"	2 Widow Hubert Lemay, Montreal.....	\$	37 33
"	" " " Olivier Abelle, do .....		37 33
"	4 Adolphe Lise, Batiscan.....		37 33
"	" " Old Pilot Joseph Leveille, Montreal.....		75 00
"	5 " " J. B. Dorval, Cap de la Madeline.....		75 00
"	" " " Onesime Naud, Sorel.....		75 00
"	" " " George Raymond, Deschambault.....		75 00
"	" " Widow Isaie Beaudry, Sorel.....		37 33
"	" " " Severe Belleisle, Deschambault.....		37 33
"	" " " Zepherin Boudreau, Three Rivers.....		37 33
"	" " " Edouard Boudreau, do .....		37 33
"	" " " L. David Bouille, Deschambault.....		29 33
"	" " " Narcisse Bouille (née Marie Anne Arcand), Deschambault .....		37 33
"	" " " L. Narcisse Bouille (née Hortense Proulx), Deschambault .....		37 33
"	" " " Jos. Leandre Dussureau, Sorel.....		37 33
"	" " " Placide Gaillardet, St. Gregoire.....		37 33
"	" " " David Mathieu, Grondines .....		32 00
"	" " " Zepherin Mayrand, Contrecoeur.....		37 33
"	" " " Edouard Naud, Sorel.....		32 00
"	" " " Eusebe Toupin, Three Rivers .....		32 00
"	16 " " Olivier Raymond, Montreal.....		37 33
Mar.	6 Riddle & Common for audit of this Fund for the year ended 31st December, 1890.....		25 00
"	24 J. Theo. Robinson, printing pension letters.....		2 00

Forward.. ...\$ 937 62

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IN ACCOUNT

WITH THE DECAYED PILOT FUND.—Continued.

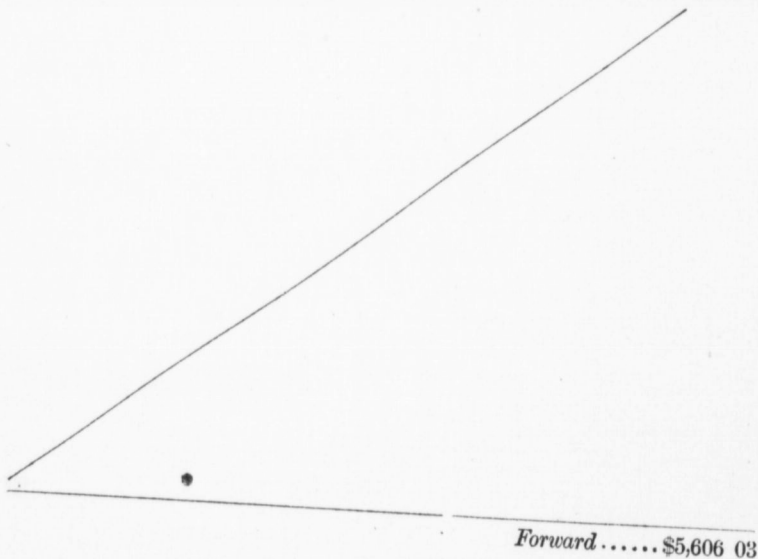
Cr.

1891.

			Forward ..... \$ 937 62
May		Pensions paid to the following for three months ended 30th April:—	
	1	Widow Olivier Abelle, Montreal .....	37 33
	"	" Hubert Lemay, do .....	37 33
	4	" Isaie Beaudry, Sorel .....	37 33
	"	" Sévère Belleisle, Deschambault .....	37 33
	"	" Zepherin Boudreau, Three Rivers .....	37 33
	"	" Edouard Boudreau, do .....	37 33
	"	" David Bouille, Deschambault .....	29 33
	"	" Narcisse Bouille (née Marie Anne Arcand), Deschambault .....	37 33
	"	" Placide Gaillardet, St. Gregoire .....	37 33
	"	" Adolphe Lisé, Batiscan .....	37 33
	"	" Zepherin Mayrand, Contreccœur .....	37 33
	"	" Edouard Naud, Sorel .....	32 00
	"	" Eusèbe Toupin, Three Rivers .....	32 00
	"	" Old Pilot Onesime Naud, Sorel .....	75 00
	"	" George Raymond, Deschambault .....	75 00
	6	" J. B. Dorval, Cap de la Madeline .....	75 00
	7	Widow David Mathieu, Grondines .....	32 00
	8	" Jos. Léandre Dussureau, Sorel .....	37 33
	19	Old Pilot Joseph Leveille, Montreal .....	75 00
	"	Widow Olivier Raymond, do .....	37 33
June	1	C. Narcisse Bouille, Deschambault, universal legatee and executor of the late Dame Hortense Proulx, widow of Pilot Narcisse Bouille, the three months' pension which would have been due her on the 1st May, she having died on 21st February, 1891. (See Board Minutes of 5th May, 1891.) .....	37 33
	16	Miss Caroline Toupin, Three Rivers, universal legatee of the late Dame Marguerite Marchand, widow of Pilot Eusèbe Toupin, the three months' pension which would have been due her on the 1st August, she having died on the 29th May. (See Board Minutes of the 16th June, 1891.) .....	32 00
			Forward ..... \$1,880 24

Dr. ALEXANDER ROBERTSON, TREASURER, IN ACCOUNT

		<i>Forward</i> .....	\$4,685 81
Aug.			
"	13	Pilot Liboire Perrault, poundage on American yacht "Sagamore," with 12 feet draft, from Quebec and down again.....	3 00
"	18	Pilot C. Brunet, poundage on American SS. "Ontario," from Alexandria Bay to New York, via Quebec, with draft 5 feet.....	62
"	31	Trinity dues for August from Collector H. M. Customs, Montreal.....	454 66
Sept.	17	Pilot Arthur Briere, poundage on pilotage of H. M. S. "Tourmaline," from Quebec to Montreal, 19 feet in draft.....	2 38
"	30	Trinity dues for September from Collector H. M. Customs, Montreal.....	459 56
			\$5,606 03



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## WITH THE DECAYED PILOT FUND.—Continued.

Cr.

1891		
June		<i>Forward</i> . . . \$1,880 24
"	30	Postage stamps supplied by the Harbour Commissioners of Montreal for six months ended 30th June, 1890, in remitting pensions by registered letter.... 2 64
Aug.		Pensions paid to the following for three months ended 31st July :—
"	1	Widow Olivier Abelle, Montreal ..... 37 33
"	"	" " Hubert Lemay do ..... 37 33
"	"	" " Adolphe Lisé, Batiscan ..... 37 33
"	3	" " Edouard Naud, Sorel ..... 32 00
"	"	Old Pilot Joseph Levéillé, Montreal ..... 90 00
"	"	" " Augustin Naud, do ..... 90 00
"	5	Widow Isaie Beaudry, Sorel ..... 37 33
"	"	" " Sévere Belleisle, Deschambault ..... 37 33
"	"	" " Zepherin Boudreau, Three Rivers ..... 37 33
"	"	" " Edouard Boudreau, do ..... 37 33
"	"	" " David Bouille, Deschambault ..... 29 33
"	"	" " Narcisse Bouille, do ..... 37 33
"	"	" " Leandre Dussureau, Sorel ..... 37 33
"	"	" " Placide Gaillardet, St. Gregoire ..... 37 33
"	"	" " David Mathieu, Grondines ..... 32 00
"	"	" " Zepherin Mayrand, Contrecoeur ..... 37 33
"	"	Old Pilot J. B. Dorval, Cap de la Madeline ..... 90 00
"	"	" " Onesime Naud, Sorel ..... 90 00
"	"	" " George Raymond, Deschambault ..... 90 00
"	"	" " Cyrille Belleisle, do ..... 90 00
"	"	" " Hubert A. Belleisle, do ..... 90 00
"	6	Widow Olivier Raymond, Montreal ..... 90 00
		<hr/> <i>Forward</i> ..... \$3,054 17

.....\$5,606 03

Dr. ALEXANDER ROBERTSON, TREASURER, IN ACCOUNT

1891			
Oct.		<i>Forward</i> .....	\$5,606 03
"	19	Poundage on pilotage dues of schooner "White Cloud," from Chicago to New York, draft 8 feet 8 inches.....	1 21
"	31	Trinity dues for October from Collector H. M. Customs, Montreal .....	348 14
Nov.	25	P. B. Vanasse, Esq., Collector H. M. Customs, Three Rivers, amount of poundage collected at Three Rivers and Batiscan during season of 1891. Cheque on Three Rivers.....	\$29 22
		Less bank collection .....	15 29 07
"	30	Trinity dues for November from collector of H. M. Customs, Montreal .....	323 22
Dec.	3	F. L. King, master U. S. steamer "Pentagoet " to Quebec, poundage on 9 feet draft.....	1 12
"	7	Jos. Mathieu, Esq., collector H. M. Customs, Sorel, amount of pilotage collected at Sorel from 30th November, 1890, to 1st December, 1891, as per statement dated 1st December.....	\$80 25
		Less cost of bank draft.....	25 80 00
"	12	Charles Garriepy, Montreal Pilotage Agent at Quebec, poundage on H. M. S. "Tourmaline" down.....	2 38
		Ship "Carin" to Batiscan, up.....	1 13
		Ship "Progress" do .....	1 17
"	31	Interest from Montreal City and District Savings Bank on money at deposit during the year at 3 per cent.....	44 94
Total.....			\$6,438 41

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IN ACCOUNT

WITH THE DECAYED PILOT FUND.—Continued.

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1891			
Oct.		<i>Forward</i> .....	\$3,054 17
"	23	Zepherin Bouille, pilot, universal legatee of the late Dame Louis Narcisse Bouille (nee Marie Anne Arcand) amount of three months' pension which would have been due her on the 1st November, she having died on 7th October. (See Board Minutes of 18th October.).....	37 33
Nov.		Pensions paid to the following for three months ended 1st November:—	
"	2	Widow Olivier Abelle, Montreal.....	37 33
"	"	" Hubert Lemay, do .....	37 33
"	"	" David Mathieu, Grondines .....	32 00
"	"	" Olivier Raymond, Montreal .....	37 33
"	"	Old Pilot Joseph Leveille do .....	90 00
"	"	" Augustin Naud do .....	90 00
"	4	Widow Isaie Beaudry, Sorel.....	37 33
"	"	" Severe Belleisle, Deschambault.....	37 33
"	"	" Zepherin Boudreau, Three Rivers.....	37 33
"	"	" Edouard Boudreau, do .....	37 33
"	"	" David Bouille, Deschambault.....	29 33
"	"	" Leandre Dessureau, Sorel .....	37 33
"	"	" Placide Gaillardet, St. Gregoire.....	37 33
"	"	" Adolphe Lisé, Batiscan.....	37 33
"	"	" Zepherin Mayrand, Contrecoeur.....	37 33
"	"	" Edouard Naud, Sorel.....	32 00
"	"	Old Pilot J. B. Dorval, Cap de la Madeline .....	90 00
"	"	" Onesime Naud, Sorel.....	90 00
"	"	" George Raymond, Deschambault.....	90 00
"	"	" Cyrille Belleisle, do .....	90 00
"	"	" Hubert A. Belleisle, do .....	90 00
"	"	" Athense Dufresne, do .....	90 00
Dec.	31	Postage on pensions for six months, to 31st December, 1891.....	3 75
		By balance to January, 1892 .....	2,119 20
Total.....			\$6,438 41

## HARBOUR COMMISSIONERS OF MONTREAL, TRUSTEES.

## DECAYED PILOT FUND.

## STATEMENT OF THE FUND.

## MONTREAL HARBOUR DEBENTURES.

Nos.	Series.	Due.	Interest.	
154-156	M	5th Jan. 1894	6½ p.c.= 3 × \$1,000....	\$ 3,000 00
36- 43	N	5th July 1894	6½ p.c.= 8 × 2,000....	16,000 00
81	P	5th " 1896	6 p.c.= 1 × 2,000....	2,000 00
20 and 102	R	5th " 1906	6 p.c.= 2 × 500....	1,000 00
117-119	R	5th " 1906	6 p.c.= 6 × 1,000....	3,000 00
21 and 45-49	D	5th " 1915	5 p.c.= 6 × 1,000....	6,000 00
164-172	F	5th " 1917	4 p.c.= 9 × 1,000....	9,000 00
189-190	G	5th " 1918	4 p.c.= 2 × 1,000....	2,000 00
165 City of Montreal Consolidated Fund (due 1st July, 1910), interest 5 p.c. 50 × \$100.00.....				5,000 00
Cash in Montreal City and District Savings Bank at 3 p.c. interest.....				2,119 20
<i>Total</i> .....				\$49,119 20

ALEXANDER ROBERTSON,  
TREASURER,  
MONTREAL, 31st December, 1891. }

We hereby certify that we have examined the entries for the year 1891, as recorded on preceding pages, and have found them to agree with vouchers on file; also, that debentures and certificates covering the sum of \$49,119.20, as enumerated in statement opposite, have this day been submitted for our inspection.

RIDDELL & COMMON,  
Auditors.

MONTREAL, 12th January, 1892.

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SIR:—

For the  
Commissioners  
Report  
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Bank  
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COMMON,  
Auditors.

REPORT  
OF THE  
HARBOUR MASTER OF THE PORT OF MONTREAL

For the Year 1891.

—  
CAPTAIN THOMAS HOWARD, *Harbour Master.*  
—

HARBOUR COMMISSIONERS OF MONTREAL,

HARBOUR MASTER'S OFFICE,

MONTREAL, January 5th, 1892.

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 1891, 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 years.

Seven hundred and twenty-five (725) sea-going vessels arrived in the Harbour during the season of the aggregate

tonnage of 938,657 tons; of this tonnage 60,694 tons passed into the canal as against 69,816 in 1890, showing a decrease of 9,122 tons in tonnage into the canal, but an increase of 17,447 tons into the Harbour from sea as compared with the year 1890. Of these vessels 620 were built of iron of an aggregate tonnage of 898,962 tons, and 105 of wood of an aggregate tonnage of 39,695 tons. Of inland vessels there arrived in port 5,268 of an aggregate tonnage of 1,119,484 tons, showing an increase of 106 vessels and in tonnage 152,525 tons; and a total of 5,993 vessels of all classes, and 2,058,141 tons in tonnage showing an increase of tonnage of vessels of all classes of 160,850 tons. Some of the principal items of exports and imports during the season were:—

#### EXPORTS.

*Lumber.*—There were shipped to the United Kingdom 108,636,320 feet, showing a decrease of 70,670,540 feet from the previous year. Of this lumber 103,781,486 feet were shipped from the Harbour and 4,854,834 feet from the canal. This great decrease is in a great measure due to the scarcity of tonnage in the fall, and the continuance of political troubles in South America has for the present stopped the shipment of lumber to that country.

*Phosphate.*—There were shipped 14,735 tons, showing a decrease of 8,753 tons, as compared with 1890.

*Grain* —There were shipped 6,136,996 bushels of wheat; 2,194,811 of corn; 2,000,468 of peas; 778,920 of oats; 814,382 of barley; 2,253,460 of rye; making a total of 14,179,037 bushels, and an increase of 5,369,098 bushels over the previous year.

*Flour.*—There were shipped in bags and barrels equal to 722,388 barrels, showing an increase of 275,257 barrels over the previous year.

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*Cheese.*—There were shipped 1,349,993 boxes, showing a decrease of 19,375 boxes.

*Apples.*—There were shipped 306,935 barrels, showing an increase of 146,341 barrels over the previous year.

*Cattle and Sheep.*—Cattle shipped 108,947, head and 32,157 sheep, showing a decrease of 10,631 head of cattle, and a decrease of 10,978 sheep.

#### IMPORTS.

*Coal.*—We had from Great Britain 18,713 tons, showing an increase of 1,834 tons; from the United States 184,421 tons, showing an increase of 2,810 tons, making a total of 203,134 tons. From the Maritime Provinces 504,552 tons, showing an increase of 59,102 tons, and a grand total of 707,686 tons, and an increase over the previous year of 53,746 tons. Of this coal, 581,842 tons were discharged in the harbour and 125,844 tons in the canal.

*Cement.*—We had 134,331 barrels showing an increase of 59,102 barrels over the previous year.

*Scrap Iron.*—We had discharged in the harbour 16,153 tons showing a decrease of 11,847 tons from the previous year.

#### HARBOUR IMPROVEMENTS.

The extension of the wharves at Hochelaga was well pushed forward during the season. The new ramp is a great accommodation to those engaged in the coal trade. The wharves and roads were kept in good repair during the season.

Yours respectfully,

THOMAS HOWARD,

*Harbour Master.*

## WEATHER REPORT.

*January*, 1st.—East wind, temp. 4 above zero, good ice and good roads, 7 p.m. rain, temp. 38 above, great change in weather; 2nd, rain this morning, south wind, temp. 40 above; 3rd, delightful morning, north-west wind, temp. 7 a.m. 8 above zero; 4th, fine weather, east wind, temp. zero; 5th, east wind, temp. 10 above; 6th, snow this morning, north wind, temp. 17 above; 7th, fine morning, north wind, temp. 23 above; 8th, north-west wind, temp. 10 above, delightful weather; 9th, west wind, temp. 10 above, fine; 10th, west wind, temp. 20 above, overcast; 11th, temp. 20 above, west wind, 4 p.m. snow storm; 12th, north-west wind, temp. 30, snow and rain, 9 p.m. temp. 10 above zero; 13th, north-west wind, temp. zero, blowing fresh, 8 p.m. 3 below zero; 14th, east wind, snowing, 8 a.m. temp. 7 below zero; 15th, fine morning, south-west wind, 8 a.m. temp. 4 below zero; 16th, fine and clear, east wind, temp. 8 a.m. 7 below zero; 17th, east wind, temp. 8 a.m. 12 below, clear weather; 18th, fine day, temp. 20 above, west wind; 19th, east wind, temp. 16 above; 20th, east wind, temp. 16 above, fine day; 21st, fine weather, temp. 17 above; 22nd, snow and rain, temp. 26 above; 23rd, fine morning, temp. 30 above; 24th, fine weather, temp. 31 above, west wind; 25th, temp. 32 above, south wind; 26th, snowing temp. 20 above, west wind; 27th, west wind, temp. 18 above; 28th, raining, temp. 15, south wind; 29th, cloudy weather, temp. 30, west wind; 30th, weather fine, temp. 25, south-east wind; 31st, fine day, temp. 20, east wind.

*February*.—1st, mild and snowing, temp. 30, east wind; 2nd, fine and cold, temp. 10 above, west wind; 3rd, rain all day, temp 30, west wind; 4th, cold, temp. 6 below, west wind; 5th, very cold, snow in the afternoon, temp.

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14 below, west wind ; 6th, rain and snow, temp. 8 above, west wind ; 7th, fine weather, temp. 20 above, snowing, west wind ; 8th, snow all day, temp. 15 above, east wind ; 9th, cloudy weather, temp. 15 above, east wind ; 10th, thawing to-day, temp. 35, west wind ; 11th, fine weather, temp. 15, west wind ; 12th, temp. 20 above, north-east wind ; 13th, fine weather, temp. 18 above, east wind ; 14th, cold morning, 6 below, north-east wind ; 15th, fine weather, temp. 18, west wind ; 16th, rain, temp. 40, west wind ; 17th, fine morning, temp. 15 above zero, north-east wind ; 18th, temp. 32 above, west wind ; 19th, fine weather, temp. 12 above, west wind ; 20th, north-east wind, temp. 15 above ; 21st, rain, temp. 32 south wind ; 22nd, fine clear morning, west wind, temp. 27 above ; 23rd, temp. 12 above, fine weather ; 24th, south-west wind, temp. 30 above, fine ; 25th, rain, south-west wind, temp. 42 ; 26th, fine weather, temp. 14 above, south wind ; 27th, temp. 20 above, north wind, fine day ; 28th, south wind, temp. 19 above, fine.

*March.*—1st, temp. 6 above, north wind ; 2nd, north wind, temp. 7 above ; 3rd, east wind, temp. 9 above, fine morning ; 4th, temp. 20 above, snow storm, south-east wind ; 5th, temp. 20 above, north-west wind, fine morning, great quantity of snow ; 6th, fine morning, north-west wind, temp. 20 above ; 7th, east wind, temp. 15 above, fine clear morning ; 8th, temp. 27 above, west wind ; 9th, rain all day, south-west wind, temp. 35 above ; 10th, fine clear morning, west wind, temp. 30 above ; 11th, south-west wind, temp. 38, fine morning ; 12th, south-west wind, temp. 40, rain this morning ; 13th, south-east wind, temp. 41, dark and rain ; 14th, west wind blowing a gale, temp. 28 above, snow during the night ; 15th, fine day, west wind, temp. 18 above ; 16th, west wind, temp. 26 above ; 17th, fine clear morning, west wind, temp. 10 above ; 18th, south-west wind, temp. 28 above, snowing ; 19th,

east wind, temp. 8 above, clear and sold, splendid sleighing; 20th, east wind, fine morning, temp. 10 above; 21st, east wind, temp. 28 above, fine; 22nd, fine day, west wind, temp. 40; 23rd, west wind, temp. 45; 24th, west wind, temp. 40, snow going fast, sleighing bad; 25th, fine day, east wind, temp. 28; 26th, east wind, temp. 20; 27th, fine and sunshine, north-east wind, temp. 22 above; 28th, east wind, temp. 30, fine morning; 29th, fine and sunshine, west wind, temp. 29; 30th, east wind, temp. 30, fine; 31st, temp. 30, fine weather, east wind.

*April.*—1st, fine and sunshine, temp. 30, north-east wind; 2nd, dark morning, south-west wind, temp. 34, ice breaking up in the harbour, river clear at Sorel; at 5 p.m. water rose and ice moved in the harbour, water 30 feet 6 inches; 3rd, south-east wind, temp. 40, snow and rain at 2 p.m., snowstorm; 4th, temp. 35, north wind, clearing up; 5th, cold west wind temp. 25 at 7 a.m.; 6th, west wind, temp. 28; 7th, temp. 40, north-west wind, fine morning; 8th, temp. 27, north wind; 9th, temp. 40, fine and clear; 10th, north-east wind, temp. 40, at 1 p.m. ice shoved in the harbour, water 33 feet 7 inches; 11th, south-west wind, temp. 45, rain; 12th, temp. 45, rain during the day; 13th, ice cleared in the harbour last night in front of the city, temp. 46; 14th, temp. 45, east wind, water going down; 15th, rain, cold east wind, temp. 37, water clear of docks; 16th, north-west wind, temp. 40; 17th, fine and bright morning, west wind, temp. 50; 18th, west wind, rain, temp. 50, steamer Laprairie arrived this morning from Boucherville, first arrival; 19th, west wind, temp. 60, very fine; 20th, east wind, temp. 45; 21st, fine day, temp. 45; 22nd, temp. 50, east wind; 23rd, temp. 40, north-east wind, Cape Rouge ice moved at 6 a.m. SS. Polino left for lower provinces this morning 24th, temp. 40, fine day, north-east wind; 25th, snow this morning, temp. 45, steamer Canada first R. & O. N.

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Co. boat for Quebec; 26th, north-west wind, temp. 40, 27th, south wind, temp. 55, at 3.30 p.m. SS. "Charrington" arrived, first arrival from sea this season; 28th, Lachine canal opened for navigation, west wind, temp. 38; 29th, west wind, temp. 35, steamer Filgate arrived 10 a.m., first boat down the Lachine Rapids; 30th, temp. 50, west wind, 5 p.m. first raft of the season from Garden Island passed down.

*May.*—1st, temp. 50, south-west wind, fine clear morning; 2nd, west wind, temp. 50; 3rd, rain this morning, temp. 50, west wind; 4th, west wind, temp. 48, rain; 5th, frost last night, north-west wind; 6th, temp. 45, north-west wind; 7th, fine and clear, temp. 45, north wind; 8th, dark morning, temp. 50, north-west wind; 9th, temp. 50, south wind; 10th, west wind, temp. 82, very warm; 11th, east wind, temp. 48, dark morning; 12th, temp. 50, east wind; 13th, east wind, temp. 50, fine morning; 14th, temp. 50, east wind; 15th, east wind, temp. 50; 16th, south wind, temp. 60, rain this morning; 17th, frost last night, temp. at 10 a.m. 45; 18th, west wind, temp. 50; 19th, temp. 50, west wind; 20th, temp. 50 west wind; 21st, dark morning, temp. 60, west wind, rain storm during the day; 22nd, temp. 60, east wind blowing hard; 23rd, north-east wind, temp. 45; 24th, frost last night, temp. 50 at noon, fine day; 25th, west wind, temp. 55; 26th, rain last night, north-east wind, temp. 47; 27th, north-east wind, temp. at 9 a.m. 44, frost last night; 28th, south-west wind, temp. 60; 29th, fine morning, temp. 60, south-west wind; 30th, temp. 66, south-west wind; 31st, west wind, temp. 70.

*June.*—1st, temp. 70, south wind; 2nd, north-east wind, temp. 55; 3rd, east wind, temp. 53, rain; 4th, north-east wind, temp. 50; 5th, west wind, temp. 55; 6th, east wind, temp. 55; 7th, west wind, temp. 65; 8th, west

wind, temp. 65; 9th, west wind, temp. 68, smoke on the river; 10th, south-west wind, temp. 80; 11th, temp. 80, west wind, 5 p.m. rain storm; 12th, west wind, temp. 70; 13th, temp. 70, west wind; 14th, temp. 75, west wind; 15th, north-west wind, temp. 75; 16th, west wind, temp. 75, at 2 p.m., temp. 88, rain storm; 17th, temp. 68, east wind; 18th, east wind, temp. 68; 19th, temp. 70, west wind; 20th, temp. 70, south-west wind; 21st, south-west wind, temp. at noon 90; 22nd, rain this morning, temp. 73, south wind; 23rd, temp. 75, west wind; 24th, north-west wind, temp. 63; 25th, temp. 70, south-west wind; 26th, north-west wind, temp. 70; 27th, east wind, temp. 65; 28th, temp. 75, east wind; 29th, east wind, temp. 70; 30th, fine weather, temp. 70, east wind.

*July.*—1st, temp. 70, south wind; 2nd, rain all day, temp. 70, south-west wind; 3rd, temp. 65, south-west wind; 4th, rain this morning, temp. 65, south-west wind; 5th, temp. 60, south-west wind; 6th, temp. 55, showers during the night, west wind; 7th, temp. 65, west wind; 8th, north-west wind, temp. 65, rain last night; 9th, east wind, temp. 65; 10th, south-west wind, temp. 75; 11th, north-west wind, temp. 70; 12th, temp. 80, west wind; 13th, west wind, temp. at 4 p.m. 86 in the shade; 14th, south wind, showers this morning, temp. 80; 15th, rain this morning, temp. 82 south-west wind; 16th, temp. 70, west wind, fine weather; 17th, west wind, temp. 69; 18th, temp. 80, west wind; 19th, rain all night, temp. 65, west wind; 20th, south-west wind, temp. 62; 21st, temp. 64, west wind; 22nd, temp. 70, south-west wind; 23rd, temp. 75, south-west wind; 24th, rain this morning, temp. 65; 25th, temp. 65, south-west wind; 26th, temp. 65, north wind; 27th, temp. 62, west wind; 28th, temp. 60, west wind; 29th, rain all afternoon, temp. 70; 30th, south-west wind, temp. 70; 31st, west wind, temp. 52.

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*August.*—1st, south wind, temp. 65; 2nd, temp. 66, north-west wind; 3rd, temp. 70, north-west wind; 4th, temp. 65, east wind; 5th, west wind, temp. 70; 6th, temp. 75, west wind; 7th, west wind, temp. 75; 8th, south wind, temp. 75; 9th, temp. 80, west wind; 10th, west wind, temp. 80; 11th, temp. 80 to 92, rain all night; 12th, north-west wind temp. 76; 13th, rain last night; 14th, temp. 70; 15th, north-west wind, temp. 70; 16th, south-east wind temp. 70; 17th, temp. 80 west wind, fine weather; 18th, west wind, temp. 75; 19th, temp. 80, west wind; 20th, temp. 65, east wind; 21st, temp. 70, south-west wind temp. 70; 22nd, temp. 64, west wind; 23rd, temp. 70, south-west wind; 24th, temp. 75, south-west wind; 25th, rain this morning, temp. 65; 26th, temp. 65, south-west wind; 27th, temp. 62, west wind; 28th, temp. 73, west wind; 29th, south-west wind, temp. 55; 30th, rain all afternoon, temp. 70, west wind; 31st, west wind, temp. 63.

*September.*—1st, at 7 a.m. rain storm, 9 a.m. fine, temp. 65, west wind; 2nd, temp. 65, west wind, fine; 3rd, south-west wind, temp. 70; 4th, rain, temp. 70, north-west wind; 5th, east wind, temp. 58; 6th, south-west wind, temp. 65; 7th, north-east wind, temp. 65; 8th, temp. 60, north wind; 9th, temp. 49, west wind; 10th, temp. 65, west wind; 11th, west wind, temp. 65; 12th, temp. 68, west wind; 13th, temp. 72, west wind; 14th, north-west wind, temp. 72; 15th, temp. 50, north-west wind; 16th, north-west wind, temp. 60; 17th, south-west wind, temp. 70; 18th, temp. 74, west wind; 19th, temp. 60, west wind; 20th, temp. 70, west wind; 21st, south-west wind, temp. 65; 22nd, east wind, temp. 60; 23rd, temp. 70, north-west wind; 24th, west wind, temp. 70 to 80; 25th, temp. 80, west wind; 26th, north-west wind, temp. 70; 27th, west wind, temp. 75; 28th, south-

west wind. temp. 70; 29th, west wind, temp. 75; 30th, north wind, temp. 78.

*October.*—1st, temp. 51, west wind; 2nd, west wind, temp. 60, fine weather; 3rd, west wind, temp. 66; 4th, west wind, temp. 75, at 3 p.m. temp. 82; 5th, temp. 63, west wind; 6th, north-west wind, temp. 45, 7th, rain, north-east wind, temp. 45; 8th, temp. 45, frost last night; 9th, frost last night, temp. 50 at 8 a.m.; 10th, west wind, temp. 55; 11th, frost last night, north wind, temp. 40, snow this morning; 12th, frost, temp. this morning 44, north wind; 13th, temp. 40, north-east wind; 14th, rain, temp. 50, south-west wind, 15th, temp. 55, south wind; 16th, north-west wind, temp. 55; 17th, temp. 45, north-west wind; 18th, temp. 55, west wind; 19th, temp. 45, west wind; 20th, temp. 44, east wind, rain storm; 21st, west wind, temp. 48; 22nd, temp. 45, west wind; 23rd, frost last night, temp. 40, 24th, north-east wind temp. 42; 25th, temp. 30, frost last night, west wind; 26th, south wind, temp. 45; 27th, north-west wind, temp. 45, rain; 28th, frost last night, temp. 30, north wind; 29th, west wind temp. 37; 30th, frost last night, at 9 a.m. temp. 40, at 10 p.m. thunderstorm; 31st, west wind, temp. 50.

*November.*—1st, rain this morning, west wind, temp. 40; 2nd, frost last night, temp. 35; 3rd, north-west wind, temp. 32; 4th, temp. 30, west wind; 5th, east wind, temp. 30; 6th, temp. 30, east wind; 7th, temp. 28, east wind; 8th, west wind, temp. 50; 9th, south wind, temp. 37; 10th, west wind, temp. 47; 11th, rain, south-west wind temp. 55; 12th, temp. 48, south-west wind; 13th, west wind, temp. 48; 14th, north-west wind temp. 35; 15th, temp. 32, west wind; 16th, south-west wind temp. 42; 17th, rain last night, temp. 55, south wind; 18th, north wind, temp. 28; 19th, temp. 27, south-west wind; 20th, temp. 25, south wind; 21st, temp. 44, south west wind; 22nd, temp. 50, south west wind; 23rd, temp.

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52, south-west wind ; 24th, rain all night, temp. 45 ; 25th, temp. 38, south-west wind ; 26th, temp. 27, "SS. Greetlands" left port this morning, last sea going vessel of the season ; 27th, temp. 42 west wind ; 28th, north-east wind, temp. 20, snow last night ; 29th, temp. at 8 a.m. 8 above zero.

*December.*—1st, west wind, temp. 30 above ; 2nd, west wind, temp. 34 ; 3rd, temp. 40, west wind ; 4th, south-west wind, temp. 42 ; 5th, temp. 42, west wind ; 6th, south-west wind, temp. 30 ; 7th, temp. 30, west wind ; 8th, snow all gone, west wind, temp. 38 ; 9th, west wind, temp. 36 ; 10th, temp. 30, west wind ; 11th, temp. 38, west wind ; 12th, south-west wind, temp. 40 ; 13th, west wind ; temp. 40 ; 14th, north-west wind, temp. 35 ; 15th, east wind, temp. 22, at 2 p.m. snow storm ; 16th, temp. 26, snow and rain sleighing this morning ; 17th, temp. at 8 a.m. 4 below zero, good sleighing, steamer Hochelaga went to winter quarters, close of navigation ; 18th, temp. 10 above zero, west wind ; 19th, temp. 30, fine day ; 20th, fine morning, temp. 25, east wind ; 21st, temp. 25, east wind ; 22nd, west wind, temp. 33, dark morning ; 23rd, dark morning, west wind, temp. 45, sleighing all gone, rain this morning ; 24th, temp. 32, dark and foggy, west wind ; 25th, Xmas day, east wind ; temp. 36, dark weather ; 26th, south-west wind, temp. 45, rain ; 27th, fine clear morning, temp. 30, west wind, 28th, north-east wind, temp. 15, clear morning ; 29th, south-west wind, temp. 33, blowing hard ; 30th, west wind, dark morning, temp. 36, blowing hard, at 2 p.m. much colder ; 31st, north-west wind, temp. at 7 a.m. zero, fine, clear and sunshiny morning, no appearance of snow, roads as dry as in midsummer, no ice on the river.

(Signed,)

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 1891, that were navigated by 23,907 Seamen.*

Nationality.	Number of Vessels.	Tonnage.
British .....	684	887,092
American .....	11	6,445
German .....	20	34,409
Norwegian .....	5	4,814
Dutch .....	2	2,834
French ..	1	900
Spanish .....	1	1,291
Italian .....	1	872
Total .....	725	938,657

THOMAS HOWARD,  
*Harbour Master.*

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## 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.
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.
1890.....	5,162	966,959	167.....Oct. 20.
1891.....	5,268	1,119,484	151.....Sept. 7.

THOMAS HOWARD,  
*Harbour Master.*

## 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.
1882.....	April 11.	Dec. 9	May 6.	Nov. 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.
1890.....	" 14.	" 3.	" 30.	" 24.
1891.....	" 17.	" 17.	" 27.	" 21.

THOMAS HOWARD,  
*Harbour Master.*

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.
1882..	379	475,679	4	4,339	93	51,195	10	2,702	57	7,182	125	13,604	648	554,692	53.....Aug. 21
1883..	464	605,805	3	3,356	70	38,547	7	2,417	15	3,012	101	11,126	660	664,263	38.....June 27
1884..	444	585,397	2	2,218	83	49,047	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	807,491	7	8,648	68	43,275	2	1,118	7	2,031	82	8,194	767	807,773	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
1890..	624	889,189	9	13,127	33	19,442	2	590	8	1,323	70	6,671	746	930,332	37.....Sept. 3
1891..	631	903,043	11	16,113	15	11,054	1	149	9	2,127	58	6,171	725	938,657	46.....Aug. 19

THOMAS HOWARD, Harbour Master.

**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.
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	194,028	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
1890.....	252	235,722	.....	.....	.....	.....	.....	.....	1	170	42	3,714	295	329,606
1891.....	272	261,702	.....	.....	2	1,462	.....	.....	2	520	29	3,067	305	266,751

THOMAS HOWARD, Harbour Master.

**PORT OF MONTREAL.**  
*Number and Tonnage of Sea-going Vessels that were consigned to the following merchants during the season of 1891:*

1891.....	272	261,702	.....	2	1,462	.....	2	520	29	3,067	305	266,751
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THOMAS HOWARD, Harbour Master.

PORT OF MONTREAL.  
 Number and Tonnage of Sea-going Vessels that were consigned to the following merchants during the season of 1891:

No.	Name of Firms.	Steam.	Tonnage.	Sail.	Tonnage.	Total Vessels	Total Tonnage.
1	H. & A. Allan.....	82	191,168	.....	.....	82	191,168
2	R. Reford & Co.....	63	110,312	.....	.....	63	110,312
3	D. Torrance & Co.....	45	102,767	.....	.....	45	102,767
4	The Canada Shipping Co.....	30	72,891	.....	.....	30	72,891
5	Kingman, Brown & Co.....	69	69,374	1	1,132	70	70,506
6	McLean, Kennedy & Co.....	23	36,776	5	1,683	28	38,459
7	F. C. Henshaw.....	33	36,093	.....	.....	33	36,093
8	Hy. Dohell & Co.....	44	34,479	.....	.....	44	34,479
9	Munderloh & Co.....	20	34,409	.....	.....	20	34,409
10	Harling, Ronald & Co.....	17	28,556	3	4,400	20	32,959
11	J. & R. McLea.....	29	31,038	.....	.....	29	31,038
12	Anderson, McKenzie & Co.....	18	20,465	11	7,001	29	27,466
13	Carbray, Routh & Co.....	25	26,516	1	872	26	27,388
14	J. G. Sidey.....	14	20,272	.....	.....	14	20,272
15	Intercolonial Coal Co.....	15	15,390	.....	.....	15	15,390
16	Thos. Fraser & Co.....	30	8,851	4	568	34	9,419
17	David Shaw.....	4	7,020	.....	.....	4	7,020
18	Masters.....	6	1,853	2	1,644	8	3,497
19	C. A. Boucher.....	.....	.....	23	2,720	23	2,720
20	Imperial Government.....	1	2,120	.....	.....	1	2,120
*	Six others less than 2,000 tons each.....	3	3,710	13	3,883	16	7,593
*	Sixteen others from Canal.....	60	48,983	31	11,711	91	60,694
	Total.....	631	903,043	94	35,614	725	938,657

\* This tonnage (60 694 tons) passed into the Canal and returned to the Harbour. This has been kept for the purpose of checking tonnage dues, which is now abolished.

THOMAS HOWARD, Harbour Master.

REPORT  
ON THE  
WORKS FOR THE IMPROVEMENT AND MAINTENANCE  
OF THE  
HARBOUR OF MONTREAL  
FOR THE YEAR 1891.

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

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HARBOUR COMMISSIONERS OF MONTREAL,  
*Chief Engineer's Office,*  
MONTREAL, March 5th, 1892,

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 1891.

NEW WORKS.

*Sections 45 and 46 (Maisonneuve)*—The construction of the new pier which was commenced in 1889 was practically finished last Autumn. Last summer there was added 286 lineal feet of crib work below water level on

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the downstream side of the pier, and 900 lineal feet above water, mainly on the outer end and downstream side. The earth filling and macadamizing of the pier were completed, and the shore filling was also completed as far as at present needed.

The dredging of a basin, on the upper side of the pier, 200 feet wide and  $27\frac{1}{2}$  feet in depth at low water, was finished, and a basin on the lower side, of irregular shape and of the same depth, was so far dredged as to be ready for use. The quantity dredged in the two basins last summer is 155,932 cubic yards.

The new pier is 641 feet in length on the upstream side and 480 feet on the lower side with a breadth of 180 feet. The total frontage for vessels at the pier and adjoining short pieces of shore wharf is 1550 lineal feet.

*Sections 42 and 43 (Hochelaga).*--Work was resumed early in the spring for the extension of the shore wharf and a length of 365 feet was added to the crib work under water, and 700 lineal feet to the superstructure. The earth filling behind was also made up to finished level and carried back to connect with the filling made in former years.

This addition to the wharf extends it to the point where the proposed second pier is to commence and completes the shore wharf as far as at present ordered.

A sufficient area in front of the wharf was dredged away to give access to the wharf for vessels, but a good deal yet remains to be done to clear it entirely away to deep water in the Ship Channel. Quantity dredged in 1891, 45,855 cubic yards.

The aggregate expenditures on the new work at Sections 41 to 43 Hochelaga and 44 to 46 Maisonneuve during 1891 and from the commencement are \$102,697.99 and \$335,497.35 respectively.

The new wharves at the two places form parts of a general plan for utilizing the space occupied by the shoals at Hochelaga, and together give an increase of two thousand nine hundred and twenty feet of wharf frontage now available.

*Sections 35 and 36.*—A new double ramp with crib work retaining wall was built at Denonville Avenue to afford access to the wharves from Notre Dame Street, and neighbouring streets. The roadways of the ramp are thirty feet wide with a gradient of one in fifteen and one in twelve feet eight inches on the up and down stream ends respectively, and of one in sixteen on the transverse portion. The gradients except at the downstream end are materially easier than those of any other ramp in the Harbour, and the ramp has proved of great benefit in the carting of coal cargoes to the Canadian Pacific Railway and other large consumers in the vicinity. The cost, which was much enhanced by disadvantages in making and carrying on of the work subserviently to the traffic on the wharves, is: for timber work \$12,104.58 and for earth work and sundries \$7,220.26: total \$19,324.84. The land for the site of the ramp was expropriated and paid for by the City and the cost of construction was paid by the Harbour Commissioners.

*Sections. 36, 37 and 38.*—A part of the wharves which was formerly used for lumber shipments was regraded and macadamized to fit it for general purposes. Cost \$4,985.51.

*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 a way as also to contribute towards the enlargement of the Basin. Expenditure \$631.37.

*Ship Channel in the Harbour.*—Two shoals which formed

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the north side of the Ship Channel, opposite sections 34 to 37 and which were dangerous to any vessels leaving the Harbour and not fully under control, were nearly all dredged away to a depth of  $27\frac{1}{2}$  feet at low water by an elevator dredge of the ship channel dredging fleet, which was loaned by Government. Some small portions and detached lumps yet remain to be dredged and that already done requires to be tested in order to complete the work. Cost in 1891 \$11,875.54.

*Harbour Enlargement and Flood Protection.*—Upon the conclusion of negotiations between the Dominion Government, the City of Montreal and the Harbour Commissioners for the carrying out of the scheme of Harbour Enlargement and Flood Protection, known as plan No 6, work was commenced upon it. The beginning was made upon the guard pier on the 21st July by placing the Harbour Commissioners' dredge No 1, and subsequently Government dredge No. 8, on the north or inner side of the pier and dumping the dredgings mainly on the underwater portion of the pier near its lower end. Later on such dredgings as could be spared and were found suitable were sent from other places, and by the close of the season 73,160 cubic yards had been placed on the site of the Pier. Cost in working expenses chargeable to Harbour Enlargement Account, and exclusive of charges for plant and general expenses, \$12,063.53.

#### HARBOUR REPAIRS.

Upon the clearing away of the ice in the spring it was found that the cribwork of that part of the Island wharf, section 15, which faces St. Helen's Island had slipped into deep water, and the top of the crib work at section 29

had been raised. Beyond this the wharves sustained no serious damage during winter.

The total cost of maintenance and repairs for the year was \$49,109, 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
1890.....	56,380
1891.....	49,109

The following are the principal items of repairs in 1891 :—

*Section 10 (Windmill Point).*—About twenty feet of the lower end of Windmill Point wharf was repaired with new stringers, and new top planking, and the mooring posts were reset.

*Sections 12 and 13 (Allan Line Berths).*—About 200 lineal feet of old crib work in section 12, which was built about 1889 and had been in bad condition for several years, gave way in September last. The broken part was dredged out and replaced by a new pile wharf which involved a close row of piles at parts of the rear, and land ties 55 feet long at ten feet centres. The adjoining crib work downstream was strengthened by piling in front. Cost \$2,610.11, in addition to dredging.

In section 14 about 100 lineal feet received new stringers and top plank and four new countersunk mooring posts were put in.

*Section 15 (Island Wharf &c.).*—The repair to the pile work of the shore wharf which was begun in the fall of 1890 was completed as soon as possible after the clearing away of the ice last spring. The wharf and railway tracks in the rear being low were raised to the general wharf level at the same time. Cost in 1890 and 1891 \$2,755.16.

For several years past the crib work of the outer or downstream side of the Island wharf, which was built about 1859, and founded on sloping bottom, has been sinking and slipping outward, and on the clearing away of the ice in spring it was found that it had failed entirely and that the back filling to an average breadth of thirty feet had gone with it. Early in the summer the cribwork was replaced by pilework, with sheet piling and land ties to support the earth filling in rear, and the whole wharf made good.

Parts of the outer side of the Island wharf facing St. Lambert were reinforced by a close row of piles and otherwise repaired. On the inshore side of the Island wharf, on the downstream side of the pier connecting it with the shore, and on the shore wharf itself, the pile work extension which was built in 1878 and 1879 had become so much decayed above water as to be unfit for heavy loads. After the close of navigation this was all strengthened and repaired and a waling piece and fender braces added. Seven new iron countersunk mooring posts were placed in the section. Cost of pilework and repairs \$7,850.78.

*Sections 16 to 19, (Dominion Line Berths, and Richelieu Companies Berths).*—The piece of plank road near the revetment wall was renewed, 150 feet of new coping was put on, seven new iron countersunk mooring posts and two new

fender posts were put in. At section 18 a slip was cut in the wharf for river steamers, and three new fender posts were put in. On section 19 three new fender posts were put in.

*Section 20 (Victoria Pier).*—On the upper side of the pier a length of 150 feet was repaired with new stringers, two courses of face timber and new top planking. The lower outer corner damaged by ice was repaired. Six new iron countersunk mooring posts and one ordinary fixed cast iron mooring post were placed. Cost \$823.32

*Section 21 (Beaver Line).*—Two countersunk iron mooring posts were put in.

*Sections 22, 23 and 24.*—All the long cast iron mooring posts were taken up, inspected and reset.

*Section 29.*—About 150 lineal feet of cribwork broken by ice was repaired with four courses of face timber, new cross ties, back coping, and top planking. Cost \$376.97.

*Sections 36 and 37.*—Eight new countersunk mooring posts were placed instead of the former oak posts. A new footpath crossing of block stone was laid at the new ramp.

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

Section.	No. of Toises.	Section.	No. of Toises.
9.....	22	21.....	4
10.....	9	22.....	23
11.....	14	23.....	13
14.....	23	24.....	5
15.....	31	25.....	19
16.....	24	26.....	21
18.....	7	28.....	21
19.....	11	30.....	14
20.....	3	31.....	11

Total Toises spread for maintenance of the roadways, as above 275.

Several of the footpath crossings throughout the Harbour have been repaired and raised.

Little ice was left lodged on the wharves above section 18, but below that there was somewhat more than the average quantity. Expenditure in clearing off ice \$3,196.18.

#### HARBOUR DREDGING PLANT AND DREDGING.

The Harbour Dredging plant in use in 1891 was composed of three spoon, or dipper dredges, three derricks and two tugs, with coal barge, scows and a floating shop as detailed in the appended table. Besides these, elevator dredge No. 8, two tugs and six dumping scows were borrowed from the ship channel dredging plant and used during the greater part of the summer.

Dredge No 6, Derrick No. 2 and the two tugs were wintered in Cantin's dry dock, Montreal; the other dredges and two derricks were wintered in the Lachine Canal, on the south side of the Island at St. Gabriel Locks; the coal barge and all the scows were wintered in the canal below the Wellington Bridge.

All repairs were made by the Commissioners' own men with exception of work on some heavy pieces of machinery which was done in neighbouring shops.

The tug St. Peter was rebuilt in the more important parts. All below deck was renewed with exception of part of the outside planking. Part of the deck and deck beams, most of the stanchions of the railing and the housing on deck were also renewed. Cost \$2,760.82.

The tug St. Louis was mainly rebuilt also. Nearly everything below deck was also renewed, except part of the outside planking. Some of the deck beams, deck planking and stanchions for the rail were renewed. The boiler furnace was repaired with new spouting and part new side plates. Cost \$2,211.18.

Derrick No 2 had the slides for the forward spuds and the A frame renewed.

Dredge No. 6, the hull of which had become too weak for further service was merely caulked so as to keep it afloat, and was not fitted up for work during summer.

The other dredges and vessels received ordinary repairs.

No. 1 Dipper dredge, the building of which was commenced in 1890, was finished last spring and was set to work in the Harbour on May 18th. Cost \$39,009.84.

Two flat scows Nos. 21 and 22 of 85 ft. by 25 ft. by 7 ft. 5 ins. over all and of 150 cubic yards carrying capacity were built last spring for attending the dredges. Cost \$2,594.18 each.

Two others Nos. 23 and 24 of 85ft. by 25 ft. by 6 ft. 9 ins. and of 150 yards carrying capacity, were built during the summer. Cost \$2,374.29 each.

The hull of the Government elevator dredge No. 3, which was purchased for a floating shop, was fitted up as such last winter and was equipped with the machinery of the old floating shop and some new in addition.

The hull of the old floating shop was sold in the early part of the summer and was subsequently broken up by the purchaser.

The building of new dredging and other plant for carrying out the Harbour Enlargement works was ordered by the Commissioners in 1891, as follows:—

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A large dipper dredge similar to No. 1, by Messrs. Carrier, Lainé & Company, Levis, Que.

The machinery for three floating derricks, by Mr. John McDougall, Montreal. Hulls for the same by the Harbour Commissioners Engineer's Department.

The machinery and framing of two land derricks by John McDougall, Montreal.

Six flat deck scows of 150 cubic yards carrying capacity by the Harbour Commissioners Engineer's Department.

The construction of all of these, as also of other plant ordered since the close of the year is now in an advanced state.

A steam launch 30½ ft. long with engine of 6 ins. by 8 ins. was purchased by the Harbour Commissioners last autumn.

The Harbour dredging fleet was brought into the Harbour on the 30th April when released by the opening of the Lachine Canal. No. 4 dredge commenced work on the 5th, No. 7 commenced on the 8th and No. 1, which was somewhat delayed in completion, commenced on the 18th of May.

The elevator dredge which was borrowed from Government, was brought up from Sorel on 26th May and commenced work on the 29th of May.

All worked until November 21st when the elevator dredge was stopped, and returned to Sorel. Dredges Nos. 4 and 7 were stopped on the 27th and No. 1 was stopped on the 28th November. The Harbour Commissioners' dredging fleet was sent to winter quarters in the Lachine Canal, and the balance of the Government plant was returned to Sorel.

The Harbour dredges, derricks, tugs and four scows were laid up in the Lachine Canal about a quarter of a mile below the St. Gabriel locks, the Floating Shop and two scows were laid up at the Island above St. Gabriel Locks, the Coal barge and remaining vessels were laid up in Basin No. 3 near the dredges, and Dredge No. 6, which had not been in service during the summer, was hauled out on the Island above St. Gabriel Locks, in October, to be rebuilt.

The number of days during which the spoon dredges were on duty, reckoning every day except Sundays, from commencing in spring to leaving off in fall, was 167½ days for No. 1, 178 days for No. 4, and 175 days for No. 7, making an aggregate of 520½ days for the season.

The nominal working time is ten hours per day, which gives a total of 5,205 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 4,455 hours, or an average of 85.58 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 \$49,570.78, 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. It also includes the cost of rebuilding the tugs St Peter and St Louis.

The cost of working the borrowed elevator dredge and of tug and scow service for same was \$14,231.79, making a total outlay of \$63,802.57.

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The following are the comparative costs and quantities of dredging for 1891, 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...	173,499	45,103	26	
1878...	211,731	48,748	23	
1879...	189,609	41,006	21 $\frac{63}{100}$	
1880...	186,430	46,914	25 $\frac{10}{100}$	
1881...	170,764	54,128	31 $\frac{80}{100}$	
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 $\frac{98}{100}$	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 $\frac{10}{100}$	" " "
1886...	57,728	25,772	44	" " "
1887...	36,993	23,259	62	" " "
1888	73,150	36,690	50 $\frac{10}{100}$	" " "
	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	31 $\frac{80}{100}$	
	214,703	57,570	26 $\frac{81}{100}$	Totals and average.
1890...	186,670	\$53,674	28 $\frac{60}{100}$	Spoon Dredges and Stone-lifter.
1891	259,267	49,571	19 $\frac{12}{100}$	Spoon Dredges. Elevator Dredge.
	43,290	14,232	32 $\frac{87}{100}$	
	302,557	63,803	21 $\frac{8}{100}$	Totals and average.

The cost and character of the dredging done in the different parts of the Harbour last year are as follows:— All the quantities are scow measurements, and the cost includes towing and unloading the material.

*Section 6. (Windmill Point).*—A little dredging was done in the basin where the deepening will be useful, but for the immediate purpose of obtaining stone for the road foundations and other wharf repairs: depth of water 25 feet: quantity dredged 1,170 cubic yards: material shale rock: cost 54 cents per yard.

*Sections 12 to 14 (Allan Line Berths).*—The part of the crib work wharf in Section 12 which gave way was, with its stone filling, dredged out and the place prepared for repairs. Depth of water about 29 feet; quantity dredged 3,454 cubic yards, exclusive of timber, material crib work, stones and earth; cost 52 cents per yard.

Several shallow places close to the wharves and throughout the basin which had become shallow by the filling in of rubbish and by scour from elsewhere, as also some places which had never been brought to full depth because of extreme hardness, were dredged out to  $27\frac{1}{2}$  feet or over at low water. Quantity dredged 3,874 cubic yards; material sand, mud and hard pan with many boulders; cost  $31\frac{1}{2}$  cents per yard.

*Sections 14 and 15 (Elgin Basin).*—The basin which had become choked with sewage deposit was dredged out to  $27\frac{1}{2}$  feet at low water, the city paying the cost. Some places which were shallow from other deposit, as also from the existence of large boulders, were also cleaned down to full depth. Depth of water 29 feet; total quantity dredged 11,497 cubic yards; material sewage deposit and mud, with some hard pan and large boulders; cost  $11\frac{4}{10}$  cents per yard.

*Section 15.*—The crib work which fell away at the lower end of the Island wharf, as also its filling and back-

filling, were dredged out and the place prepared for repairs. Quantity dredged, exclusive of timber, 360 cubic yards; material crib work and stone filling; cost \$1.45 per cubic yard.

The basin between the Island wharf and the shore wharf had become shallow in several places, principally alongside the wharves, and was dredged out to 27½ feet at low water. Depth of water 29 feet; quantity dredged 2700 yards; material, sand, silt and mud; cost 28 cents per yard.

*Section 22.*—A number of small shallow spots, chiefly about the lower end of the Victoria Pier, were cleaned down to standard depth. Depth of water 30 feet, very strong current in some places; quantity dredged 4,320 cubic yards; material sand and gravel; cost 19 cents per yard.

*Section 23.*—(*Commissioners Wharf*).—A small quantity of dredging was done in deepening a shallow place in strong current near the wharf. Depth of water 30 feet; material, sand and gravel; quantity dredged 855 cubic yards; cost 42 cents per yard.

*Sections 41, 42 and 43 (Hochelaga).*—Dredging was done in clearing away the shoals in front of the new wharves and a small quantity was also done in preparing foundations for crib work. Depth of water 29 to 35 feet, quantity dredged 45,855 cubic yards; material, sand, gravel, very hard silt and some boulders; cost 21¼ cents per yard.

*Sections 45 and 46 (Maisonneuve).*—Dredging for the formation of basins on both sides of the new pier and also for preparing foundations for crib work. The material dredged was very varied; on the upper side of the basin it was mostly very tough silt with some boulders, on the lower side it was mostly loose dark grey sand very easy

to work; depth of water 29 to 35 feet; quantity dredged 155,932 cubic yards; cost  $18\frac{7}{10}$  cents per yard.

*Ship Channel through the Harbour.*—Two shoals with some small spots on the north side of the main channel, opposite sections 34 to 37 were nearly all cut down to  $27\frac{1}{2}$  feet at low water by the Government elevator dredge No. 8. Depth of water 28 to 32 feet, rapid current, material almost wholly clean boulders, mostly under a cubic foot in size; quantity dredged 33,673 cubic yards; cost  $35\frac{1}{4}$  cents per yard.

*Harbour Enlargement.*—Dredging on the Island shoal alongside the site of the new guard pier (opposite stations 56 to 63) by a dipper dredge, and at the lower end of the shoal by the elevator dredge. Depth of water 30 to 32 feet; material hard pan, and tough silt with boulders of all sizes; quantity by dipper dredge 29,250 cubic yards; cost  $11\frac{1}{10}$  cents per yard; quantity by elevator dredge 9,620 cubic yards; costing  $24\frac{1}{2}$  cents 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 1891.

DESCRIPTION OF VESSEL	HULL.			ENGINES.					REMARKS.
	Length	Breadth	Depth	When Built.	Kind of Engine.	No. of Cylinders.	Diameter of Cylinders.	Length of Stroke.	
	Ft. In. over all.	Ft. in. Beam.	Ft. in. over all.				Inches.	Inches.	Lbs.
<b>DREDGES.</b>									
Boom Spoon Dredge, No. 1	90.0	36.0	9.6	1890	Horizontal,	2	16	13	110
Boom " " No. 4	77.3	27.0	6.6	1872	non-condensing.	1	14	16	90
Crane " " No. 7	77.3	27.0	7.0	1874		1	14	16	85
<b>DERRICKS.</b>									
Clam Shell Derrick, No. 1	56.8	23.9	5.9	1872	Horizontal,	1	8	12	85
" " No. 2	57.0	23.6	5.9	1875	non-condensing.	2	7	12	85
" " No. 3	61.9	24.0	5.9	1875		1	10	12	85
<b>TUG BOATS.</b>									
Tug St. Louis	67.0	15.0	8.7	1875	Vertical,	1	16	20	85
Tug St. Peter	71.6	16.6	8.6	1875	non-condensing.	1	21	22	90
<b>BARGES.</b>									
Floating shop	135.0	29.0	10.0	1873					
A. G. Nish (coal barge)	100.8	22.6	6.4						
<b>SCOWS.</b>									
Sounding Scow	70.6	18.0	5.0		Capacity,				
Fiat Scow (old)	70.6	18.0	5.0		Cube Yards.				
Fiat Scow	70.5	18.3	5.4	1873	45				All wood.
" " No. 5	70.5	18.0	5.0	1873	45				" "
" " No. 6	70.5	18.0	5.0	1873	45				" "
" " No. 7	70.4	18.0	5.4	1873	45				" "
" " No. 8	70.4	18.1	5.4	1874	45				" "
" " No. 9	70.5	18.3	5.1	1874	45				" "
" " No. 10	69.5	18.4	5.0	1875	45				" "
" " No. 11	70.4	18.2	5.0	1875	45				" "
" " No. 12	70.4	18.3	5.6	1875	45				" "
" " No. 13	70.4	20.2	6.0	1876	67.1				" "
" " No. 14	75.0	20.4	6.3	1876	67.1				" "
" " No. 15	75.4	20.3	6.5	1878	67.1				" "
" " No. 16	75.6	20.3	6.3	1878	67.1				" "
" " No. 17	75.6	20.3	6.3	1878	67.1				" "
" " No. 18	85.0	25.0	7.5	1891	150				" "
" " Nos. 19 & 20	85.0	25.0	7.5	1891	150				" "
" " Nos. 21 & 22	85.0	25.0	7.5	1891	150				" "
" " Nos. 23 & 24	85.0	25.0	6.9	1891	150				" "

In addition to the above there were borrowed from the Government, One Elevator Dredge, two tugs and six large dumping scows, for use in 1891.

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**HARBOUR DREDGING—Abstract of work done by each Dredge in the Harbour of Montreal in 1891.**

VESSELS.	PLACES AT WHICH DREDGES WORKED.	Time of Service.		Quantities Dredged.			CHARACTER OF SOIL.
		Days.	Total	Spoon Dredges.	Elevator Dredge.	Totals.	
Spoon Dredge No. 1.	Section 13 & 14, Allans Basin.....	10½		3,049			Hard pan & stones, sewage, hard pan and boulders, sand and gravel, Hard pan, silt and boulders, Sand, gravel, silt and boulders. Sand, tough silt and boulders.
	" 14 & 15, Edgin Basin.....	18½		11,497			
	" 21 & 22, Military Basin.....	11½		4,320			
	Station 56 to 63, Guard Pier.....	45		29,250			
	Section 41 to 43, Hochelaga.....	41½		24,244			
Spoon Dredge No. 4.	45 and 46, Maisonneuve.....	41	167½	18,362		90,922	
	Section 5, Windmill Point.....	5		990			Shale Rock Hard pan and mud, Sand, silt and mud, Sand and clay, Sand, tough silt and boulders.
	" 12, Allans Basin.....	6½		825			
	" 15, Kings Basin.....	6½		1,950			
	" 41 to 43, Hochelaga.....	15½		7,875			
" 45 and 46, Maisonneuve.....	14½		103,080				
Spoon Dredge No. 7.	Section 5 & 6, Windmill Point.....	2	178	180		114,750	
	" 12, Allans Basin.....	25		3,454			Shale Rock. Tearing up old wharf, do do do Sand silt and mud, Sand and gravel, Sand, gravel, silt and boulders, Sand, tough silt and boulders.
	" 15, Island Wharf.....	5		360			
	" 15, Kings Basin.....	4		730			
	" 23, at Commissioners' Wharf.....	5		855			
" 41 to 43, Hochelaga.....	41		13,796				
Elevator Dredge No. 8	45 and 46, Maisonneuve.....	93	175	34,250		53,585	
	Lower end of Guard Pier.....	25	151		9,620		
	Current St. Mary, opp. Sec. 31 to 37.....	126			33,670	43,290	
Totals.....			671½	259,267	43,290	312,557	

HARBOUR DREDGING—Statement showing the number of days worked by each vessel.



67½ 259,267 43,280 312,547

**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 1891.**

PLACES AT WHICH DREDGES WORKED.	VESSELS.		Time of Service.		QUANTITIES DREDGED.			CHARACTER OF SOIL.
	Spoon Dredge	No.	Days.	Total Days.	Spoon Dredges.	Elevator Dredge.	Total Cubic Yards.	
Section 5 & 6, Windmill Point	Spoon Dredge	No. 4	5	7	900	.....	1,179	{ Shale Rock.
" 12, Allans Basin	"	No. 7	25	25	180	.....	3,454	{ Tearing up cribwork.
" 13 & 14, Allans Basin	"	No. 1	10½	17	3,454	.....	3,874	{ Hard pan and stones.
" 14 & 15, Elgin Basin	"	No. 4	6½	18½	3,049	.....	11,497	{ Sewage, hard pan and boulders.
" 15, Island Wharf	"	No. 1	18½	5	855	.....	396	{ Tearing up cribwork.
" 15, Kings Basin	"	No. 7	5	6½	1,361	.....	2,700	{ Sand, Silt and mud.
" 21 & 22, Military Basin	"	No. 4	4	10½	1,380	.....	4,330	{ Sand and gravel.
" 23, at Commissioners Wharf	"	No. 1	11½	5	4,330	.....	855	{ Sand and gravel.
" 41 to 43, Hochelaga	"	No. 7	41½	97½	21,241	.....	45,855	{ Sand, gravel, silt and boulders.
" 45 and 46, Maisonneuve	"	No. 1	15½	41	7,255	.....	15,932	{ Sand, tough silt and boulders.
Harbour Enlargement at Guard Pier	"	No. 4	144	278½	18,735	.....	38,870	{ Hard pan, silt and boulders.
Current St. Mary	"	No. 1	45	70	103,080	.....	33,670	{ Boulders and stones.
	Elevator	No. 8	25	126	29,250	.....		
	"	No. 8	126		.....	9,650		
	"	No. 8			.....	33,670		
Totals			671½		259,267	43,280	302,557	

**TARIFF.**

**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, 1888.

**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 " "

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,*

HARBOUR COMMISSIONERS' OFFICE,  
MONTREAL, 23rd May, 1888. }

ALEXANDER ROBERTSON,  
Secretary.