

DOMINION OF CANADA

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ANNUAL REPORT  
OF THE  
DEPARTMENT OF RAILWAYS  
AND CANALS

For the Fiscal Year from April 1, 1930,  
to March 31, 1931

Submitted in accordance with the provisions of the Revised Statutes of Canada,  
Chapter 35, Section 33



OTTAWA  
F. A. ACLAND  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1931

*To His Excellency Captain the Right Honourable the Earl of Bessborough,  
P.C., G.C.M.G., Governor General and Commander-in-Chief of the  
Dominion of Canada.*

**MAY IT PLEASE YOUR EXCELLENCY:**

The undersigned has the honour to present to Your Excellency the Annual Report of the Department of Railways and Canals, of the Dominion of Canada, for the fiscal year ending March 31, 1931.

**R. J. MANION,**  
*Minister of Railways and Canals.*

35098—A4

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# REPORT OF THE DEPUTY MINISTER OF RAILWAYS AND CANALS

FOR THE FISCAL YEAR ENDED MARCH 31, 1931

To the Hon. R. J. MANION,  
Minister of Railways and Canals.

SIR,—I have the honour to submit herewith the 52nd annual report of the Department of Railways and Canals covering the fiscal year ended March 31, 1931. As a measure of economy the reproduction with the departmental report of the annual report of the Canadian National Railways is dispensed with. This practice of including the report of the Canadian National Railways management with the departmental report dates from the reorganization of the Canadian National Railways in 1923. At that time the printed report of the Canadian National Railways was laid on the table of the House annually, and a general statement concerning it was made by the Minister of Railways and Canals. Subsequently, a select standing committee of the House of Commons was set up to receive and consider the report and the estimates of the Canadian National Railways and of government-owned and operated shipping. This committee has been continued from year to year and deals very fully with these several matters each session. The proceedings of the committee are reported and printed from day to day, the final report and record going back to the House to be dealt with on the presentation of the railway estimates by the Minister of Railways and Canals. In this way very complete information is made available to the press and public on these matters some months before they could be dealt with in the annual report of the department. In consequence, it is no longer considered advisable or necessary to reprint the Canadian National Railways report with that of the Department of Railways and Canals. As a matter of fact, its inclusion has always presented some difficulty from the standpoint of comparison of railway and departmental figures, as the former have had to do with the calendar year, while the departmental report, as with the Public Accounts of the Dominion, reflect the financial activities of the federal fiscal year. As illustrating this divergence due to the overlapping of fiscal years, the guarantee of Canadian National Railways securities may be cited. Dominion Public Accounts show that \$923,681,994 in railway securities had been guaranteed by the Dominion as of March 31, 1931, whereas the amount as shown by the Canadian National Railways report for the year ended December 31, 1930, was \$854,431,994, a difference of \$69,249,999. This is accounted for by the guarantee, between the close of the calendar year and the close of the federal fiscal year, of a bond issue of \$70,000,000, less refunding during the same period of \$750,000.

In order to provide the necessary contact between the railway accounts and the Dominion Public Accounts a change has been made in the manner of the presentation of the report of the comptroller of the financial administration of the department. As the manner of presentation now adopted conforms to the method of presenting the Public Accounts of the Dominion necessary comparison or verification of figures is more readily obtainable. In that connection,

however, complete identity of accounts cannot be established owing to varying methods of treatment as between the railway accounts and the Public Accounts of the Dominion. For instance, it will be noted that the amount of \$322,155,901, interest on loans from the Dominion of Canada, accrued but unpaid, as shown in the report of the Canadian National Railways for the year ended December 31, 1930, does not appear in the departmental report. This is in conformity with the treatment of this item by the Public Accounts of the Dominion because of its present indeterminate status.

#### CANADIAN GOVERNMENT RAILWAYS

These lines comprise the original Canadian Government lines, such as the Intercolonial, the Prince Edward Island Railway, the National Transcontinental Railway and eastern branch lines. These lines are all operated by the Canadian National Railways for the Government. The investment in road and equipment in these properties is \$459,389,748; improvements on leased properties, \$1,328,419; and miscellaneous physical properties, including certain railway hotels in Eastern Canada, \$4,197,784; a total of \$408,985,952. In addition, there is an investment of \$1,455,328 in Canadian National Telegraphs.

The Income Statement of the Canadian Government Railways is set up to show separately:

- (1) Operating Results of the Canadian Government Railways included in Eastern Lines, and subject to the operation of the Maritime Freight Rates Act.
- (2) Operating Results of Canadian Government Railways outside of the Eastern Lines territory.
- (3) The total of the two groups combined.

Eastern Lines is a designation by the Maritime Freight Rates Act, for the purposes of that Act, of those lines lying east of Diamond Junction and Levis on the National Transcontinental and Intercolonial Railway. On those lines, which are subject to the 20 per cent reduction from normal freight rates, the operating deficit for 1930 was \$2,539,046, and the total income deficit for the year was \$3,443,915. This deficit, as provided by the Maritime Freight Rates Act, is met directly by the Government. On that part of the original government system not included in the Maritime Freight Rates Act, the net revenue from operation was \$4,534,342, and the net income of \$3,460,341, which, set against the loss on the Eastern Lines of \$3,443,915, left a net income of \$16,426 on Canadian Government lines as a whole.

Since April 1, 1923, the date of re-organization, the Canadian National Railway Company has expended, on these government lines, from sources made available by the Government, an amount of \$23,805,713 on addition and betterments. During the same period an amount of \$22,851,434 has been reported by the Canadian National Railway Company as being the surplus of the Canadian Government Railways (exclusive of Eastern Lines since July 1, 1927) taken into system resources.

The Maritime Freight Rates Act was put into force on July 1, 1927, to meet the recommendations of the Duncan report with respect to rates in the Maritime area. The 20 per cent reduction from normal rates recommended by the Duncan Commission is applicable to all lines operating in the eastern territory, whether publicly or privately owned. To March 31, 1931, the Government paid out \$10,820,252 on account of the 20 per cent freight reduction, as called for by this Act, and also \$17,557,176 on deficit account, a total of \$28,377,429. Of the \$10,820,252 paid on rate reduction account, \$2,922,891 was paid to privately

owned lines and \$7,897,360 to the Canadian National on Government Railway account. The deficit payment of \$17,557,176 was entirely on Canadian National (Eastern Lines) account.

The cost of train ferry service between Prince Edward Island and the mainland of New Brunswick affects transportation in the Maritime area. The provision of this train or car ferry connection has cost \$6,030,181 to March 31, 1931. Of this expenditure \$3,273,075 had to do with the original ferry and terminals at Borden and Tormentine, of which amount the construction of terminals cost \$2,592,128, and the original ferry steamer \$680,947. During the recent fiscal year a new and larger train ferry was constructed at a cost of \$1,673,175, and terminal improvements have also been provided at a cost of \$1,083,929—a total outlay for the additional train ferry and connections of \$2,757,105.

#### CANADIAN NATIONAL EXPENDITURES

The authorized expenditures of the Canadian National Railways for the calendar year 1930 were \$146,601,594. From this may be deducted refunding of maturing obligations amounting to \$54,275,438, leaving a net increase for 1930 in railway obligations of \$92,326,155. Of this amount \$28,405,413 was used to meet deficits, \$62,256,571 for additions and betterments, while \$1,664,170 represents discounts on guaranteed issues, details of which will be found in the report of the department's railway auditor, together with the various authorities under which these railway expenditures were made.

The railway auditor also deals with branch line expenditures. The 1927 program was completed during 1930 by a final expenditure of \$964,392.77 on a grand total of \$18,862,068. During 1930 also \$9,167,702.88 was expended in connection with the 1929 program. This contemplates a total authorized outlay of \$29,584,517, of which \$13,623,394 had been made to December 31, 1930.

The Union Station and terminal facilities at Toronto are a joint project of the Canadian National and Canadian Pacific Railway Companies. The total cost of the viaduct and terminals to the Canadian National Railways had been \$15,334,621 as of December 31, 1930, of which sum \$4,522,221 was on viaduct account. The total authorized outlay of the Canadian National Railways on Toronto viaduct and terminals is \$17,727,500. The Canadian National Railways are also interested jointly with the Canadian Pacific in the purchase of certain Northern Alberta railways. The Canadian National proportion of the estimated cost of these lines is \$15,312,500, on account of which \$4,443,392 has been paid. Expenditure during 1930 was \$1,116,314.

The authorized expenditure on Montreal terminal account is \$50,000,000, and the actual expenditure to December 31, 1930, was \$8,614,497.31, of this sum \$6,701,292 was for acquisition of land and \$1,411,266 for construction.

#### MERCHANT MARINE SERVICES

During the fiscal year 1930-31 the Government loaned \$834,210.89 to the Canadian Government Merchant Marine, and \$992,730.62 to the Canadian National (West Indies) Steamships Limited, a total of \$1,826,941.51. These amounts covered the deficits of both companies but do not include depreciation and interest due the Dominion with respect to the calendar year 1930. These loans were provided from Consolidated Revenue Fund of Canada. The capital investment in the original 66 vessels of the Canadian Government Merchant Marine was \$79,521,932. Operating losses, working capital and betterments to vessels brought the total investment, December 31, 1930, to \$93,217,561.

From the sale of 26 of these vessels \$1,656,385 has been realized, and from insurance on three vessels lost \$2,111,474, a total of \$3,767,860. The original cost of the vessels sold and lost, plus betterments, was \$25,194,628.

Seven vessels, originally costing \$6,818,798, have been transferred to the Canadian National (West Indies) fleet at a revaluation of \$577,315. Five new vessels were constructed for the Canadian National (West Indies) service at a cost of \$8,286,448, and three Canadian Government Merchant Marine vessels converted at an outlay of \$936,307.

#### INVESTMENT IN RAILWAYS AND CANALS

The investment of the department in railways and canals is this year treated in balance sheet form. Six schedules provide detailed information with respect to the following financial responsibilities of the department:—

- Schedule No. 1—Investments relative to railways.  
 “ No. 2—Canadian National Steamships (loans).  
 “ No. 3—Canadian Government Merchant Marine.  
 “ No. 4—Open and stores accounts, Canadian Government Railways.  
 “ No. 5—Investments relative to canals.  
 “ No. 6—Materials and supplies on hand.

The investment in railways includes the capital cost of the original Canadian Government lines, and the cash investment in former privately-owned lines as represented by purchase of stock and by loans to the Canadian Northern, Grand Trunk, Grand Trunk Pacific and Canadian National Railways since consolidation, also purchase of equipment. This cash investment in railways amounts to \$1,137,942,092 and will be found in detail in Schedule No. 1. It indicates an investment in the Intercolonial Railway system of \$132,748,305 and in other lines purchased or constructed, and associated with the original Canadian Government Railway system, an investment of \$257,033,325, a total of \$389,781,631. Included in this list are the National Transcontinental railway, at a capital cost of \$169,318,185, and the Prince Edward Island Railway at a cost of \$16,033,780. These roads have all been entrusted to the Canadian National Railways for management and operation. In addition, there is the Hudson Bay project, including the terminals at Churchill, on which \$43,775,107 had been expended to March 31, 1931. The Canadian National has had charge of the construction of the railway as agent for the Department of Railways and Canals, and is also operating the line, but the project has not as yet been formally taken over by the Canadian National Railway Company.

Included in Schedule 1 also are certain items of historic interest, such as \$62,791,435 representing government outlay connected with the Canadian Pacific undertaking before it was taken over by the Canadian Pacific Railway Company; also a loan of \$15,142,633 to the Grand Trunk Railway, then in its infancy, and \$10,457,458 of accrued interest unpaid. More recent loans and advances on railway account, including purchase of stock and purchase of equipment are:—

Canadian Northern Railway (purchase of capital stock).....	\$ 10,000,000
Canadian Northern Railway (loans and advances).....	255,408,804
Grand Trunk Railway (loans and advances).....	118,582,182
Grand Trunk Pacific Railway (loans and advances).....	116,006,599
Canadian National Railways (loans and advances).....	57,482,653
Purchase of equipment.....	56,926,001
	<hr/>
	\$ 614,406,239

Investments relating to canals total \$236,216,461, of which the Welland Ship Canal accounts for \$122,385,409; the former Welland Canals \$29,903,598; the Quebec Canals, \$30,529,835; the Ontario-St. Lawrence Canals, \$21,355,570; and the Trent Canal, \$19,953,626.

#### HUDSON BAY RAILWAY AND GRADE CROSSING FUND

On the Hudson Bay Railway \$1,557,298 was expended during the fiscal year under review, a total on Hudson Bay railway account of \$31,084,324 to March 31, 1931. On the Churchill terminals \$2,582,390 was spent during the year, bringing the total expenditure at Churchill to \$7,289,952 as of March 31, 1931. Including the \$6,274,217 expended at Nelson the total expenditure on Hudson Bay Railway account to March 31, 1931, was \$44,648,495.

The contribution towards elimination of level crossings of railways and highways during 1930-31 was \$639,757, bringing the total contribution from the inception of the Grade Crossing Fund in 1909 up to \$3,338,981. As the statutory authorizations from April 1, 1909, to March 31, 1931, twenty-two years at \$200,000 per annum, were \$4,400,000, there remained an unexpended balance at March 31, 1931, of \$1,061,051 on this account. In addition, \$500,000 was authorized by Order in Council under the Unemployment Relief measure and, at the end of the fiscal year, \$499,967 was also available on that account, making a total unexpended balance of \$1,561,018 as of that date.

#### WORKMEN'S COMPENSATION ACT

The accounting and auditing staff of the Department of Railways and Canals administers the Workmen's Compensation Act for the Government Railways and all employees of the various departments of the government in all the provinces. Dominion expenditure under this Act, including amounts advanced, was \$436,501 during the fiscal year ended March 31, 1931. This brings the total payments and advances, as of that date, to \$3,656,176, of which sum \$869,677 went to Ontario cases; \$841,766 to New Brunswick; \$631,509 to Manitoba; \$554,055 to Quebec; \$426,248 to Nova Scotia; \$166,758 to British Columbia; \$93,522 to Alberta; \$16,438 to Prince Edward Island, and \$3,136 to Saskatchewan. The total number of claims on which payments were made during the fiscal year 1930-31 was 3,647, of which 1,780 were compensation and medical aid, 1,365 medical aid only, and 502 pensions. Details of the payments made and claims allowed are shown in Statement No. 4 in the distribution of departmental expenditures.

The appendices to the report of the Comptroller deal with the following matters:—

- Appendix No. 1—Investment in Canadian Government Railways and cash assistance to Canadian National Railways, with explanation of differences between figures shown in Canadian National Railways balance sheet and Dominion Public Accounts.
- “ No. 2.—Statement showing Canadian National Railways expenditures authorized either by annual budgets or special legislation, from the date of railway reorganization, 1923-24 to 1930-31, showing how such expenditures were financed from year to year, also refunding, discounts, etc.
- “ No. 3.—Details of Canadian Government Merchant Marine fleet as at December 31, 1930.
- “ No. 4.—Canadian Government Merchant Marine vessels transferred to British West Indies service or lost.
- “ No. 5.—Canadian Government Merchant Marine operating results.
- “ No. 6.—Analysis of Canadian National (West Indies) Steamship Company fleet and operations to December 31, 1930.
- “ No. 7.—Statement of Hydraulic and other rents accrued, paid, and balances due March 31, 1931.

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- “ No. 8—Port Colborne elevator—expenditures and revenues.  
 “ No. 9—Hudson Bay Railway and terminals—expenditure to March 31, 1931.  
 “ No. 10—Statement of annual expenditures to date upon Welland Ship Canal account.  
 “ No. 11—Expenditures to March 31, 1931, upon Prince Edward Island train ferry and terminals.  
 “ No. 12—Railway Grade Crossing Fund expenditure to March 31, 1931.  
 “ No. 13—Security deposits held, drawback retained, and estimated balance of contractual commitments for work to be performed or materials to be delivered after March 31, 1931.

Distribution of expenditure under the various activities of the department and the sources of departmental revenues are shown this year in detail in the following statements:—

Statement No. 1(A)—Hudson Bay Railway (Railway only).

- “ No. 1(B)—Hudson Bay Railway—Churchill terminals.  
 “ No. 2—Distribution of expenditure to March 31, 1931, upon Welland Ship Canal.  
 “ No. 3—Maritime Freight Rates—Expenditure relative to railways.  
 “ No. 4—Government Employees Compensation Act, Chapter 30, Revised Statutes, 1927.  
 “ No. 5—Distribution of Expenditure on canal staffs and repairs.  
 “ No. 6—Expenditure from Railway Grade Crossing Fund (Chapter 170, Sec. 262, Revised Statutes, 1927).  
 “ No. 7—Statement showing sources of Canal Revenues received during fiscal year 1930-31.

From Consolidated Revenue Fund Account \$689,458,575 has been provided for departmental activities as at March 31, 1931. A statement of these expenditures appears on page 24 and details under various headings are supplied in the following schedules:—

Schedule A—Administration expenditure .....	\$ 6,606,453
“ B—Expenditure from Income and Revenue appropriations relative to Railways .....	474,303,734
“ C—Railway subsidies .....	78,610,471
“ D—Expenditures from Income and Revenue appropriations relative to Canals .....	78,187,767
“ E—Miscellaneous expenditure to March 31, 1931, from Income appropriations .....	51,750,148
	<b>\$ 689,458,573</b>
“ F—Revenue receipts by years from Canadian Government Railways and from Canals .....	\$ 420,032,595

#### CHIEF ENGINEER'S REPORT

The activities of the Chief Engineer's branch of the department are concerned chiefly with works of construction and maintenance on the various canals, the provision of port facilities for the new Canadian National Railways terminal at Churchill and with the study and presentation of various schemes for the enlargement and extension of the canal system. A complete statement giving details of the various canals and canalized waters with their mileages, limiting dimensions, etc., will be found in a separate publication, recently revised and enlarged, entitled *The Canals of Canada*, printed for the information of the public.

At Sault Ste. Marie the total freight tonnage through both Canadian and American canals declined considerably from the high record of the year before. In Canadian freight only, however, a slight increase in tonnage was registered.

The combined traffic on the Welland and St. Lawrence canals showed an increase of 1,778,416 tons, or 18 per cent over the previous year's record. The bulk of this increase was registered for the Welland Canal. Heavier shipments were noted in wheat and some other grains, oils and bituminous coal, with reduced shipments of oats and hay, manufactured iron, iron ore and sand. Detailed information regarding the traffic on all canals will be found in the publication *Canal Statistics*, issued after the close of each calendar year by the Dominion Bureau of Statistics.

During the past year the government elevator at Port Colborne received 44,543,038 bushels of grain, an increase of nearly 23 per cent over the record of the previous season. Of this amount 80 per cent originated in Canadian ports. These receipts were nevertheless about 28 per cent less than the average for the previous five years and reflect the continued depression in the export market. The new elevator at Prescott, constructed under the supervision of the Department of Public Works, was taken over for operation by this department on October 1, 1930. It has a capacity of 5,500,000 bushels. Owing to the lateness of the season, only 1,129,815 bushels of grain were received before the close of navigation, about 65 per cent of this amount remaining in storage over the winter months.

#### WELLAND SHIP CANAL

Work on the Welland Ship canal, the construction of which was commenced in 1913, progressed most satisfactorily during the past year, and from November 22 last until the close of navigation on December 20, the entire new waterway, with a depth restricted at certain points to 18 feet, was available for vessels travelling in either direction. Previous to the period mentioned the navigation of the new canal had, since April, 1930, been carried on in conjunction with certain portions of the Welland canal for boats of St. Lawrence canal draught. The Welland canal, with the exception of the first two locks at Port Dalhousie and the basin immediately above them, has now been permanently abandoned after a period of existence of forty-eight years. The original Welland canal, subsequently enlarged and relocated on two occasions, was completed in 1829. Operations still requiring to be carried out on the Ship canal consist chiefly in the deepening of the channel to 25 feet over those portions where this work is as yet unfinished and in the completion and perfection of certain mechanical details in connection with the operation of the locks, electrical equipment, etc. The time of transit for a vessel from lake to lake by the Ship canal, during the month in which it was in complete operation, averaged about seven and one-half hours. It is expected that the canal will be fully completed for 25-foot navigation in 1932.

On other portions of the canal system smaller works of maintenance and improvement were carried out during the year, chief among which may be mentioned the completion of a new concrete dam at lock 25 on the Trent canal about one mile south of Lakefield, the deepening and widening of certain portions of the Grenville canal, the construction (not yet completed) of a new and enlarged lock at St. Ours on the Richelieu river and the completion of concrete retaining walls on both sides of the Rideau canal through the city of Ottawa.

#### HUDSON BAY RAILWAY AND TERMINALS

At Churchill, the terminus of the Canadian National Railways' branch to Hudson bay, extensive development of the new port has taken place in the past year. A staff of six hundred and fifty-eight men was employed during the summer months. The harbour was clear of ice by June 23, and from then until

October 16, when ice again began to form, weather conditions permitted the continued prosecution of work on the construction of the dock and the dredging of the entrance channel and dock front. During this time 873 lineal feet of deep-water cribs were sunk in place along the west side of the dock completing nearly one-half of the proposed dock face. The dredges were constantly employed during the three and one-half months of open season and the progress made continued to be most satisfactory. Since the inception of these operations in 1929 about 50 per cent of the total submarine excavation which will amount to about 2,000,000 cubic yards, has been completed. In addition to the various buildings already erected, which include eight bunk-houses, three dining-rooms, four cottages and a hospital, for the housing and accommodation of the working forces, besides store-houses, workshops and offices, fifteen further buildings were constructed last season, making a total of forty-two since the commencement of operations. The work of installing a fresh water supply from Grassy Slough through a 10-inch pipe line about four miles in length was also taken in hand and was about half completed. In June 1930, the erection of the 2,500,000-bushel grain elevator, under contract with the Carter-Halls-Aldinger Company, Limited, was commenced. Progress on this important item in the equipment of the port has been rapid and it was given a practical test, with most satisfactory results in the initial shipment of grain from Churchill in September last.

The tug *Ocean Eagle* was employed during July and August in making several voyages of exploration for the determination of ice conditions over considerable areas in Hudson bay, extending from the westerly end of the strait as far south as Port Nelson, and much valuable data was recorded.

I have the honour to be, sir,

Your obedient servant,

V. I. SMART,

*Deputy Minister of Railways and Canals.*

OTTAWA, November 26, 1931.

# CANADIAN GOVERNMENT RAILWAYS

(OPERATED BY CANADIAN NATIONAL RAILWAYS)

BALANCE SHEET AS AT DECEMBER 31, 1930

## ASSETS

A/C			
701	<i>Investment in Road and Equipment—</i>		
	Branch lines purchases.....	\$	70,000 00
	Investment in road and equip- ment.....	\$ 403,941,094 24	
	Capital suspense overseas rail..	551,345 57	
			403,389,748 67
702	<i>Improvements on Leased Railway Property—</i>		
	Lake Superior Branch.....	\$ 1,250,310 22	
	Vale Railway.....	49,885 69	
	Van Buren Bridge Company....	28,223 27	
			1,328,419 18
705	<i>Miscellaneous Physical Property—</i>		
	Minaki Inn.....	\$ 1,091,354 40	
	Malagash Spur.....	29,290 75	
	Halifax Hotel.....	2,358,418 30	
	Charlottetown Hotel.....	689,460 14	
	Abandoned right of way.....	21,721 11	
	Murray River property.....	7,540 04	
			4,197,784 74
			408,915,952 59
			408,985,952 59
706D	<i>Investment in Affiliated Companies—</i>		
	Canadian National Telegraph Department.....		1,455,328 09
722	<i>Canadian National Railways—</i>		
	Advances account working capital.....	16,882,081 62	
	Advances account surplus.....	22,855,434 03	
	Advances by Canadian National account Capital expenditures...	23,805,713 43	
			15,931,802 22
			\$ 426,373,082 90

## LIABILITIES

755	<i>Branch Line purchases.....</i>	\$	70,000 00
757	<i>Dominion of Canada Account—</i>		
	Advances for road and equipment.....	386,561,852 94	
	Advances for working capital.....	16,882,081 62	
			\$ 403,443,934 56
778	<i>Other Unadjusted Credits—</i>		
	Uncashed official cheques.....		3,714 31
784	<i>Profit and Loss Balance.....</i>		22,855,434 03
			\$ 426,373,082 90

Certified correct:

T. H. COOPER,  
Assistant Comptroller.

J. B. McLAREN,  
Comptroller.

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## PROFIT AND LOSS ACCOUNTS YEAR ENDED DECEMBER 31, 1930

	Canadian Government Railways included in Eastern Lines	Canadian Government Railways included in System (exclusive of Eastern Lines)	Total
<b>CREDITS</b>			
602 Balance transferred from income.....	\$ 3,445,915 05	3,460,341 72	16,426 69
603 Profit on road and equipment sold.....	1,388 97	.....	1,388 97
605 Unrefundable overcharges.....	1,891 75	828 59	2,720 34
606 Donations.....	18,194 40	3,901 34	22,095 74
607 Miscellaneous credits.....	2,098 10	14,597,863 21	14,595,765 11
	<b>\$ 3,424,538 01</b>	<b>18,062,934 86</b>	<b>14,638,396 85</b>
<b>DEBITS</b>			
619 Loss on retired Road and Equipment.....	296,643 14	509,179 64	805,822 78
621 Miscellaneous Debits.....	.....	1,618 27	1,618 27
	<b>\$ 296,643 14</b>	<b>\$ 507,561 37</b>	<b>\$ 804,204 51</b>
Profit and Loss Balance for year 1930, C.G. Rlys., including Eastern Lines.....	<b>\$ 3,721,181 15</b>	<b>17,555,373 49</b>	<b>13,834,192 34</b>
<i>Deduct:</i>			
Government Contribution to meet deficit of Eastern Lines as provided for under Maritime Freight Rates Act, 1927.....	3,552,203 50	.....	.....
Amount included in Eastern Lines Accounts not requiring cash and recharged against Dominion Government in account.....	168,977 65	.....	3,721,181 15
Net Profit and Loss Balance for year 1930 of Canadian Government Railways excluding Eastern Lines.....	.....	<b>17,555,373 49</b>	<b>17,555,373 49</b>

Certified Correct:

T. H. COOPER,  
*Assistant Comptroller.*J. B. McLAREN,  
*Comptroller.*

## DETAIL OF PROFIT AND LOSS ACCOUNTS YEAR TO DECEMBER 31, 1930

## DEBITS

<i>Account 619 "Loss on Retired Road and Equipment"—</i>			
Retirement of siding, Finch Pruyn Co., Drummondville Sub-Division.....	\$		9,182 93
“ “ trestle, South Leg Wye, Rouyn Sub-Division.....			28,526 00
“ “ wharf, Levis.....			9,730 00
“ “ pipe line to tank, Larson.....			4,000 00
“ “ abandoned lines, Grant Terminal, Kowkash Sub-Division.....			374,691 92
“ “ abandoned leased lines, Lake Superior Branch.....			68,115 67
“ “ track and four turnouts, North St., Halifax.....			3,525 33
“ “ siding, Glendyne, Sub-Division.....			3,580 88
Sale of land, Bedford.....			2,339 55
Retirement of 32,050 square feet of land conveyed to city of Halifax.....			23,722 06
“ “ one stall, enginehouse, coal shed and track, Springhill S/D.....			2,998 43
“ “ agents dwelling, Pictou Sub-Division.....			4,864 78
“ “ Prince Edward Island narrow gauge equipment.....			234,950 07
Various under \$2,000.....			35,594 96
			<b>\$ 805,822 78</b>
<i>Account 621 "Miscellaneous Debits"—</i>			
Compassionate allowance paid to Hudson Bay Railway Employees from revenue Appropriations—Reversal of charge to this account in 1925.....			1,655 00
Various under \$1,000.....			36 73
			<b>\$ 1,618 27</b>

DETAIL OF PROFIT AND LOSS ACCOUNT—*Concluded*

## CREDITS

*Account 603 "Profit on Road and Equipment Sold"—*

Sale of land M 100-86 Sydney Sub-Division.....	1,365 50
Salvage value of rails released from siding, Thornburn Sub-Division.....	23 47
	\$ 1,388 97

*Account 605 "Unrefundable Overcharges"*

Various under \$200.00.....	\$ 2,720 34
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*Account 606 "Donations"—*

Shawinigan Engineering—Siding—Creek des Prairies.....	1,361 25
G. Purchell & Sons—Siding—Loggieville.....	1,875 98
Irving Oil Co., Ltd.—Siding—Deepwater Branch.....	2,405 65
Several Firms—Siding—Charlottetown Wharf Spur.....	3,300 00
Ont. Fertilizer Ltd.—Siding—Courtenay Bay Spur, St. John.....	1,088 26
Imperial Oil Ltd.—Siding—St. John.....	1,421 61
Sundry Persons—various under \$1,000.00.....	10,642 99
	\$ 22,095 74

*Account 607 "Miscellaneous Credits"—*

Deficit for 1921-22 written off.....	11,924,293 85
Pension and compensation payments to December 31, 1930, written off.....	2,094,585 34
Adjustment <i>re</i> Canadian Government Railways, Appropriation A/C and Public A/Cs.....	198,485 13
Grant Terminal property abandonment written off.....	374,691 92
Profit on acquisition of 4½% 1st Mortgage Sinking Fund Debentures \$64,000.00 National Transcontinental Railway Branch Lines Co.....	4,335 00
Writing off unclaimed wages and reclaims.....	628 13
	\$ 14,595,765 11

## INCOME STATEMENT YEAR ENDED DECEMBER 31, 1930

	Canadian Government Railways included in Eastern Lines	Canadian Government Railways included in System (exclusive of Eastern Lines)	Total
	\$ cts.	\$ cts.	\$ cts.
<b>I. Operating Income—</b>			
501 Railway Operating Revenues.....	25,729,027 30	21,100,207 99	46,829,235 29
531 Railway Operating Expenses.....	28,268,074 19	16,565,865 03	44,833,939 22
Net Revenue from Railway Operations.....	2,539,046 89	4,534,342 96	1,995,296 07
532 Railway Tax Accruals.....	229,656 18	48,900 61	278,556 79
533 Uncollectible Railway Revenues.....	2,534 46	40 54	2,575 00
Railway Operating Income.....	2,771,237 53	4,485,401 81	1,714,164 28
502 Revenue from Miscellaneous Operations.....		52,868 93	52,868 93
534 Expenses of Miscellaneous Operations.....		103,034 50	103,034 50
Net Revenue from Miscellaneous Operations.....		50,165 57	50,165 57
Total Operating Income.....	2,771,237 53	4,435,236 24	1,663,998 71
<b>II. Non-Operating Income—</b>			
504 Rent from Locomotives.....	35,217 98	148,058 71	183,276 69
505 Rent from Passenger-Train Cars.....		519,233 18	519,233 18
507 Rent from Work Equipment.....	49,653 51	78,587 41	128,240 92
508 Joint Facility Rent Income.....	108,482 30	85,760 49	194,242 79
509 Income from Lease of Road.....	23,300 00		23,300 00
510 Miscellaneous Rent Income.....	77,727 45	82,693 97	160,421 42
511 Miscellaneous Non-Operating Physical Property.....	4,180 18	22,490 05	26,670 23
515 Income from Unfunded Securities and Accounts.....	89,412 80	525,911 46	615,324 26
516 Income from Sinking and Other Reserve Funds.....		156 01	156 01
519 Miscellaneous Income.....	543 70	314 33	858 03
Total Non-Operating Income.....	388,517 92	1,463,205 61	1,851,723 53
Gross Income.....	2,382,719 61	5,898,441 85	3,515,722 24
<b>III. Deductions from Gross Income—</b>			
536 Hire of Freight Cars—Debit balance.....	272,938 31	236,310 00	509,248 31
537 Rent for Locomotives.....	28,408 28	144,140 86	172,549 14
538 Rent for Passenger-Train Cars.....	346,150 13	795,874 40	1,142,024 53
540 Rent for Work Equipment.....	4,925 33	49,958 52	54,883 85
541 Joint Facility Rents.....	74,990 67	439,910 05	514,900 72
542 Rent for Leased Roads.....	2,400 00	607,200 00	609,600 00
543 Miscellaneous Rents.....	3,400 88	536 97	3,937 85
544 Miscellaneous Tax Accruals.....		3,292 28	3,292 28
546 Interest on Funded Debt.....		138,524 39	138,524 39
547 Interest on Unfunded Debt.....	327,981 82	1,709 89	329,691 71
548 Amortization of Discount on Funded Debt.....		18,379 01	18,379 01
551 Miscellaneous Income Charges.....		2,263 76	2,263 76
Total Deductions from Gross Income.....	1,061,195 42	2,438,100 13	3,499,295 55
Net Income (or Loss) carried to Profit and Loss.....	3,448,915 08	3,460,341 72	16,426 69

Certified correct:

T. H. COOPER,  
Assistant Comptroller.

J. B. McLAREN,  
Comptroller.

## CAPITAL ACCOUNT AT DECEMBER 31, 1930

## ACCOUNT 701 "INVESTMENT IN ROAD AND EQUIPMENT"

Road, etc.	To December 31, 1929	Added during 1930	Equipment Retired, 1930	Transfers to A/c 757	Total
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Branch Line Purchases—Moncton and Buctouche Railway.....	70,000 00				70,000 00
Intercolonial Railway.....	139,291,022 26	1,150,794 82			140,441,817 08
Prince Edward Island Railway.....	14,550,586 13	547,564 27			15,098,150 40
New Brunswick and Prince Ed- ward Island Railway.....	1,234,276 34	108,204 68			1,342,481 02
International Railway.....	3,226,885 57	24,577 60			3,251,463 17
National Transcontinental Rail- way.....	173,252,186 94	7,908 64			173,260,095 58
Moncton and Buctouche Railway.....	549,227 57	160 41			549,387 98
Salisbury and Albert Railway.....	665,175 54	13,696 54			678,872 08
St. Martins Railway.....	379,335 08	4,502 76			383,837 84
Elgin and Havelock Railway.....	201,056 37	2,497 17			203,553 54
York and Carleton Railway.....	64,712 81				64,712 81
Quebec and Saguenay Railway.....	7,884,556 16	19,724 03			7,904,280 19
Caraquet and Gulf Shore Railway.....	1,152,032 19	20,506 36			1,172,538 55
Lotbiniere and Megantic.....	186,336 16				186,336 16
Cape Breton Railway.....	120,616 14	18,106 35			138,722 49
Quebec Bridge.....	22,284,949 39			578,284 90	21,706,664 49
Long Lac Cut-off.....	2,847,547 01				2,847,547 01
Lawlor Building, Toronto.....	1,243,834 59				1,243,834 59
Miscellaneous Equipment.....	32,874,583 12	382,177 02	894,751 50		32,362,008 04
Branch Line Aid.....	36,485 95				36,485 95
Moncton and Buctouche Railway.....	5,718 40				5,718 40
Acadia Coal Company.....		2,700 33			2,700 33
New Prince Edward Island Car Ferry.....		1,071,317 74			1,071,317 74
	402,039,691 92	3,374,438 72	894,751 50	578,284 90	403,941,094 24
Abandoned Lines.....	374,691 92			374,691 92	
	401,665,000 00	3,374,438 72	894,751 50	203,592 98	403,941,094 24
Capital Suspense.....	552,517 99			1,172 42	551,345 57

## ACCOUNT 702 "IMPROVEMENTS ON LEASED RAILWAY PROPERTY"

Lake Superior Branch.....	1,386,720 32	136,410 10			1,250,310 22
Vale Railway.....	49,885 69				49,885 69
Van Buren Bridge.....	28,223 27				28,223 27
	1,464,829 28	136,410 10			1,328,419 18

## ACCOUNT 705 "MISCELLANEOUS PHYSICAL PROPERTY"

Minaki Inn.....	1,082,038 38	9,316 02			1,091,354 40
Malagash Spur.....	29,290 75				29,290 75
Halifax Hotel.....	1,324,815 17	1,033,603 13			2,358,418 30
Charlottetown Hotel.....	46,546 63	642,913 51			689,460 14
Murray River Property.....		7,540 04			7,540 04
	2,482,690 93	1,693,372 70			4,176,063 63
Abandoned Lines.....	21,721 11				21,721 11
	2,504,412 04	1,693,372 70			4,197,784 74

STATEMENT OF AVERAGES, YEAR ENDED DECEMBER 31, 1930

Miles of road operated.....	4,380.68
Total engine mileage.....	14,716,269
Total train mileage.....	11,973,257
Total car mileage.....	254,921,820
<b>Earnings—</b>	
Transportation—Rail (Accounts 101 to 112).....	\$ 45,899,450 64
Incidentals (Accounts 113 to 152).....	929,784 65
Total.....	<u>\$ 46,829,235 29</u>
<b>Operating Expenses—</b>	
Rail.....	<u>\$ 44,833,939 22</u>
<b>Ratio of Earnings to Gross Earnings—</b>	
Earnings from Transportation—Rail.....	98.01%
Earnings from incidentals.....	1.99%
Earnings per mile of road operated.....	\$ 10,689 95
Earnings per engine mile.....	3 18
Earnings per train mile.....	3 91
Earnings per car mile.....	cts. 18.37
<b>Ratio of Expenses to Gross Earnings—</b>	
Rail.....	95.74%
Expenses per train mile.....	3.76%
Expenses per mile of road operated.....	\$ 10,234 47
Repairs of locomotives.....	3,198,562 04
Repairs of freight cars.....	2,830,168 83
Repairs of passenger cars.....	1,680,398 67
Cost of repairs per locomotive.....	5,923 26
Cost of repairs per freight car.....	146 07
Cost of repairs per passenger car.....	2,937 76
Freight traffic.....	35,040,968 10
Passenger traffic.....	7,509,202 77
Mails and express.....	2,085,652 02
Miscellaneous (accounts 103, 104, 105, 108 to 112).....	1,263,627 75
Incidental.....	929,784 65
Total.....	<u>\$ 46,829,235 29</u>
Hire of equipment.....	Debit \$ 1,047,955 04
Rentals leased roads.....	Debit 586,500 00
All other income.....	Debit 15,516 98

LOCOMOTIVES AND CAR EQUIPMENT AS AT DECEMBER 31, 1930

	On hand January 1, 1930	Added during year	Retired during year	On hand December 31, 1930
<b>Locomotives.....</b>	551		11	540
<b>Freight Equip'ent—</b>				
Box.....	12,722	119	294	12,547
Automobile.....	493			493
Stock.....	2,145		52	2,093
Poultry.....	2			2
Refrigerator.....	270	3	8	259
Eastman heater.....	186			186
Potato.....	193		120	73
Flat.....	1,358	3	160	1,201
Ballast.....	864		47	817
Coal and coke.....	1,022	3	38	987
Pulpwood.....	329	42	44	327
Oil tanks.....	65		3	62
Caboose.....	332		4	328
Total.....	19,981	164	770	19,375
<b>Passenger Equipment—</b>				
Parlor.....	2			2
Cafe parlor.....			1	3
Cafe coaches.....	4			3
Buffet parlor.....	3			6
Mountain Observation.....	6			1
Combination, Cafe Parlor Sleeping.....	1			4
Buffet Sleeping.....	5		1	

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LOCOMOTIVES AND CAR EQUIPMENT AS AT DECEMBER 31, 1930—*Concluded*

	On hand January 1, 1930	Added during year	Retired during year	On hand December 31, 1930
<i>Passenger Equipment—</i>				
Compartment.....				
Dining.....	15			15
Sleeping.....	49		1	48
Colonist.....	39		3	36
First class.....	140		3	137
Second class.....	42		3	39
Passenger and baggage.....	96		6	90
Passenger and mail.....				
Mail and express or baggage.....	15		1	14
Baggage or express.....	84		2	82
Box baggage.....	22		1	21
Postal.....	12		1	11
Refrigerator express.....	18		2	20
Milk.....	3	1		4
Stockmens.....	6			6
Lunch counter.....	5			5
Trailers.....	6			6
Passenger and Caboose.....	3		1	2
Observation buffet sleeper.....	3			3
Observation Parlor cafe.....	13			13
Combination lunch counter and dining.....	1			1
<b>Total.....</b>	<b>593</b>	<b>1</b>	<b>22</b>	<b>572</b>
<i>Work Equipment—</i>				
Business.....	19	1		20
Photographers.....				
Instruction.....	2	3		5
Vision test.....	2			2
Stores supply.....	7			7
Dynamometer.....	1			1
Lidgerwood.....	11			11
Gas.....	8			8
Cranes and derricks.....	48	1		49
Flangers.....	114	5	8	111
Ditchers.....	9			9
Ballast spreaders and trimmers.....	9			9
Pile drivers.....	3			3
Steamshovels.....	14			14
Snow plows.....	100		7	93
Boarding.....	1,248	11	46	1,213
Engineer.....	4			4
Store.....	3			3
Auxiliary.....	140	13	9	144
Cabin and idler.....	27			27
Cinder.....	38	1	5	34
Road Repair.....	10			10
Air dump.....	38		1	37
Transfer flat.....	14		2	12
Water tank.....	9			9
Fire fighting tank.....	16			16
Concrete mixer.....	4			4
Sand blast.....	1			1
Well boring.....	1			1
Test Weight & Scale Test.....	1			1
Centrifugal Pump.....				
Ice.....	9			9
Shop service.....	11			11
Rail saw.....	1			1
Oil tank.....				
Paint.....				
Dump.....	16			16
Bridge tanks.....	1			1
Work flat.....	20			20
Radio repair car.....	1			1
Rail loader.....				
Manure cars.....	3			3
Rubbish.....	1			1
Ferry reach.....	1			1
<b>Total.....</b>	<b>1,965</b>	<b>35</b>	<b>78</b>	<b>1,922</b>

Certified Correct:

C. E. BROOKS,  
*Chief of Motive Power.*G. E. SMART,  
*Chief of Car Equipment.*

## CANADIAN GOVERNMENT RAILWAYS EMPLOYEES' RELIEF AND INSURANCE ASSOCIATION

STATEMENT OF RECEIPTS AND EXPENDITURES FROM JANUARY 1, TO DECEMBER 31, 1930

## SICK AND ACCIDENT FUND

*Receipts—*

Credit balance from 1929.....	\$ 80,642 81	
Premiums from pay lists, vouchers, etc.....	127,783 33	
Proportion of railways contribution.....	9,750 00	
Interest on bank balances, stocks and bonds.....	7,002 56	
Proportion of adjustment for O/S cheques.....	5,021 18	
Accounts collectible suspense.....	11,146 55	
		\$ 241,346 43

*Expenditures—*

Sick and accident indemnity.....	83,468 83	
Medical and surgical attendance.....	53,544 06	
Amount transferred to Temp. Emps' Acc. Fund.....	7,500 00	
Amount transferred to operating expenses.....	5,731 48	
Proportion of reduction of Reserve Fund.....	3,505 07	
		153,749 44

87,596 99

## DEATH AND TOTAL DISABILITY FUND

*Receipts—*

Credit balance from 1929.....	\$ 90,198 19	
Premiums from pay lists, vouchers, etc.....	72,123 95	
Examination fees.....	76 00	
Proportion of adjustment for O/S cheques.....	2,703 71	
Accounts collectible suspense.....	7,730 37	
		172,832 22

*Expenditures—*

Death claims (138).....	\$ 77,250 00	
Total Disability Claims (1).....	1,000 00	
Examination fees.....	70 00	
Amount transferred to Temp. Emps' Acc. Fund.....	2,500 00	
Amount transferred to operating expenses.....	3,086 18	
Proportion of reduction of Reserve Fund.....	1,887 34	
		85,793 52

87,038 70

## TEMPORARY EMPLOYEES' ACCIDENT FUND

*Receipts*

Premiums from pay lists, vouchers, etc.....	34,109 05	
Balance transferred from S. & A. Fund.....	7,500 00	
Balance transferred from D. & T. D. Fund.....	2,500 00	
Accounts collectible suspense.....	2,578 02	
		46,687 07

*Expenditures—*

Death claims (6).....	1,500 00	
Accident indemnity.....	19,084 99	
Surgical indemnity.....	9,030 89	
Amount transferred to operating expenses.....	7,071 19	
		36,687 07

10,000 00

## OPERATING EXPENSES

*Receipts—*

Proportion of railway's contribution.....	\$ 5,250 00	
Premiums from retired members.....	1,620 75	
Amount transferred from S. & A. Fund.....	5,731 48	
Amount transferred from D. & T. D. Fund.....	3,086 18	
Amount transferred from Temp. Emps' Acc. Fund.....	7,071 19	
		22,759 60

*Expenditures—*

Gen. Secretary, clerks and messenger, also prop. of salary of Asst. C. M. Officer.....	13,438 83	
Auditor.....	125 00	
District Secretaries' salaries.....	4,190 00	
Travelling expenses of officers, and travelling expenses and wages of members of the Gen. Executive Committee, Delegates and Scrutineers.....	3,637 01	
Stationery, printing, postage, telephone, etc.....	1,368 76	
		22,759 60

Nil

Credit balance as per General Balance Sheet ..... \$ 184,635 69

Certified correct:

C. C. MACDONALD,  
General Secretary.H. J. BUCHANAN,  
Auditor.

## INTERCOLONIAL AND PRINCE EDWARD ISLAND RAILWAYS EMPLOYEES' PROVIDENT FUND

### STATEMENT OF RECEIPTS AND EXPENDITURES DURING THE YEAR ENDED DECEMBER 31, 1930

Balance to the credit of the fund on December 31, 1929.....		Nil
The contributions made by employees during the year, being one and one-half per cent of their monthly salary and wages were.....	\$ 289,622 86	
The contributions made by the railways were.....	100,000 00	
Special contribution made by the railways to offset deficit, year ending December 31, 1930.....	555,627 40	
Amounts received to increase retiring allowances of all retired employees receiving less than \$30 per month, in order that the minimum allowance now paid under the Act viz., \$20 might be increased to \$30 per month, in accordance with Vote No. 473, whereby an amount was placed in the estimates to supplement retiring allowances payable under the provisions of the Intercolonial and Prince Edward Island Railways Employees' Provident Fund, including from January 1 to December 31, 1930.....	32,081 46	
Amounts received from refunds, etc.....	333 87	
Interest accrued (at three per cent).....	Nil	
	\$	977,665 59

#### THE EXPENDITURES WERE

For retiring allowances.....		904,584 21
For allowances made to retired employees receiving less than \$30.00 per month to increase the minimum allowance in accordance with Vote No. 473, whereby an amount was placed in the estimates to supplement retiring allowances payable under the provisions of the Intercolonial and Prince Edward Island Railways Employees' Provident Fund including from January 1 to December 31, 1930.....		32,081 46
For contributions refunded in cases of deceased employees.....		19,617 80
For contributions refunded which were deducted in error.....		1,051 98
For contributions refunded to discharged employees, etc.....		3,106 27
Medical examinations for probationers entering the service, etc.....		570 00
Medical examinations for employees retiring from the service.....		95 79
For election expenses.....		912 74
For salaries and travelling expenses, Secretary's Office, and proportion of salary of Assistant Chief Medical Officer.....		14,862 02
For stationery, printing, postage, etc.....		783 32
	\$	977,665 59

Balance to the credit of the fund on the 31 December 1930..... Nil

Certified correct:

C. C. MACDONALD,  
*Secretary.*

W. U. APPLETON,  
*Chairman.*

### STATEMENT SHOWING MILEAGE OF CANADIAN GOVERNMENT RAILWAYS AS AT DECEMBER 31, 1930

	1st Main Track	2nd Main Track	Yard Tracks and Sidings	Total
<b>Owned Lines—</b>				
Atlantic Region.....	2,209-19	45-83	648-00	2,903-02
Central ".....	1,447-19	20-94	334-85	1,802-98
Western ".....	390-13	4-90	138-59	533-62
<b>Leased Lines—</b>				
Atlantic Region (a).....	16-36		3-60	19-96
Central " (b).....	47-91		14-82	62-73
Western " (c).....	159-17		79-23	238-40
<b>Running Rights—</b>				
Atlantic Region.....	67-76		91-22	158-98
Central ".....	42-97	37-93	7-64	88-54
Western ".....			23-88	23-88
	4,380-68	109-60	1,341-83	5,832-11

## REPORT OF THE COMPTROLLER

SIR,—I have the honour to submit my report for the fiscal year ending March 31, 1931.

A revision of the form of presentation of the accounts of the department has been made, and the report of the Railway Auditor, attached hereto, covers the matters under departmental accounting and auditing attention relative to affairs of the Canadian National Railways, the Canadian Government Merchant Marine, Limited, and the Canadian National (West Indies) Steamships, Limited. The revised presentation appears in the following order:—

Balance Sheet.

Statement of Expenditure and Revenue.

Departmental Consolidated Revenue Fund Account.

Schedules to the Balance Sheet.

Detail Statements of Expenditure and Revenue.

Schedules to the Departmental Consolidated Revenue Fund Account.

### Appendices—

1. Dominion Investment in Canadian Government Railways and Cash assistance to the Canadian National Railway System.
2. Canadian National Railways Expenditures and Financing 1923-1930 inclusive.
3. Details of Canadian Government Merchant Marine fleet as at December 31, 1930.
4. Details of Canadian Government Merchant Marine Vessels sold, lost and transferred.
5. (a) Operating results, Canadian Government Merchant Marine fleet;  
(b) Analysis of Canadian Government Merchant Marine Deficit Account.
- 6 (a) Details of Canadian National (West Indies) Steamship fleet:  
(b) Operating Results and Analysis of Deficit of Canadian National (West Indies) Steamships Company, Limited.
- 7 Rents accrued, paid and balance due.
8. Expenditures and Revenues of Port Colborne Elevator.
9. Hudson Bay Railway.
10. Welland Ship Canal.
11. Prince Edward Island Car Ferry and Terminals.
12. Railway Grade Crossing Fund.
13. Security deposits, drawbacks retained and contractual commitments.

In all instances where the contact between the statements of the department and those of Public Accounts, and with the reports of the Auditor General, is not absolute, explanations affording such contact have been appended to the various statements.

It will be noted that the amount of \$322,155,901.96, interest on loans from the Dominion of Canada, accrued but unpaid, shown in the report of the Canadian National Railways System for the year ending December 31, 1930, has been omitted from the departmental accounts. This is in conformity with the treatment by Public Accounts of this item because of its present indeterminate status.

Similarly, in the departmental accounts the liability resulting from the amount of railway securities outstanding that have been guaranteed by the Dominion in respect of the Canadian National Railways and which are detailed in Schedule "V" of Public Accounts has been omitted. This conforms with Public Accounts as it is considered that the special notation on the Balance Sheet of the Dominion of Canada represents the current status of this item.

Also, an apparent contingent liability of the department, in respect of certain contractual commitments for work to be performed or materials to be delivered after the close of the fiscal year, has been omitted from our accounts. The contracts include a provision that the contractors shall not be entitled to any payment for work done beyond the amount voted. The amounts that may ultimately be involved are however shown on Appendix 13.

CANADIAN NATIONAL RAILWAYS

In order to facilitate the contacting of certain information shown in Public Accounts with the information contained in the Balance Sheet of the Canadian National Railways, an appendix (No. 1) indicates the tie-in between the two presentations in respect of Dominion aid to the Canadian National Railways other than by way of guarantees.

In a few instances the Departmental figures will vary slightly from the apparently identical items as shown in the Annual Reports of the Canadian National Railways. These minor differences are unavoidable and relatively unimportant. Details of contact with the figures published by the Canadian National Railway Company are, if required, available from the records of the Department.

In respect of guarantees given by the Dominion covering securities of the Canadian National Railways and constituents, the contact with the amounts shown in Public Accounts is obtained as follows:—

Schedule "V" Public Accounts, 1931, shows the amount of railway securities guaranteed as to principal and interest held by the public at March 31, 1931, as.....	\$ 707,474,852 39	
And the amount of railway securities guaranteed as to interest only, held by the public at March 31, 1931, as.....	216,207,141 67	
A total of.....	\$ 923,681,994 06	
Page 28, Annual Report of the Canadian National Railway System for the year ended December 31, 1930, shows the amount of the principal of securities guaranteed by the Dominion outstanding as.....	854,431,994 75	
A difference of.....	\$ 69,249,999 31	
The difference is occasioned by the fact that Public Accounts necessarily takes into account the guarantee of the Bond Issue of February 1, 1931, which amounted to.....	\$ 70,000,000 00	
And the amount of guaranteed securities refunded between December 31, 1930, and March 31, 1931, was.....	750,000 69	
	\$ 69,249,999 31	

Appendix No. 2 has been prepared to exhibit the application of the assistance to the Canadian National Railway Company from the time the consolidated Budgets became effective, viz., January 1, 1923, to December 30, 1930.

CANADIAN GOVERNMENT RAILWAYS

As from April 1, 1923, the net requirements of the Canadian Government Railways, with the exception of certain direct government appropriations, payments under statutory authorities and Exchequer Court awards, have been included in the annual budgets of the Canadian National Railways and financial provision therefor has been made by way of loans to the Canadian National Railway Company or by guarantee of its bonds.

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Out of the financial resources thereby available to the Canadian National Railway Company, an amount of \$23,805,713.43 has been applied in additions and betterments to the properties of the Crown. During the same period an amount of \$22,851,434.03 has been reported by the Canadian National Railway Company as being the surplus of the Canadian Government Railways (exclusive of Eastern Lines since July 1, 1927) taken into system resources, the difference of \$950,279.40 being held in abeyance as an offset against the loans to the company. These amounts are carried on the records of this department in suspense awaiting the provision of adequate authority to permit of the adjustment of Public Accounts accordingly.

Continuous accounting contact with the conversion of the Canadian Government Railways Stores and Open Accounts, which were handed over to the Canadian National Railways in lieu of working capital for the Canadian Government Railways at the time of the entrustment of the Canadian Government Railways to the company, has been maintained, but as no specific legislation has been provided, the adjustment of Public Accounts currently with the adjustment of the accounts of the Canadian Government Railways has not been attainable. The resulting differences are necessarily carried in suspense on the books of this department. The amounts so carried, as at December 31, 1930, are as follows:—

## CREDIT ACCOUNTS

Canadian Government Railways Capital Suspense.....	\$ 1,706,337 07
--	-----------------

## DEBIT ACCOUNTS

Stores and Open Accounts Suspense.....	\$ 1,133,160 02
Consolidated Revenue Fund Suspense.....	573,177 05

## HUDSON BAY RAILWAY

From 1923 to 1926 the Hudson Bay Railway was included in the Canadian Government Railway properties entrusted to the Canadian National Railways for operation and management, during which period the Canadian National Railway Company applied an amount of \$457,526.76 to that property by way of additions and betterments and met operating deficits of \$202,843.20 out of the loans from the Dominion. These amounts are carried in suspense on the books of the department as follows:—

## CREDIT ACCOUNTS

Canadian National Railway Loans, Suspense.....	\$ 660,369 96
--	---------------

## DEBIT ACCOUNTS

Hudson Bay Railway Capital, Suspense.....	457,526 76
Consolidated Revenue Fund: Hudson Bay Railway, Deficit Suspense.....	202,843 20
	<u>\$ 660,369 96</u>

## CANADIAN NATIONAL STEAMSHIPS

## CANADIAN GOVERNMENT MERCHANT MARINE, LIMITED

It seems advisable that the relations between the Canadian Government Merchant Marine, Limited, and the Dominion be briefly explained, in order to afford a basis for proper interpretations of the annual reports of this company.

The first and second annual reports (1919 and 1920) of the Canadian Government Merchant Marine outline the inception of the fleet and the terms of transfer of the vessels to the company for purposes of operation and manage-

ment. In all, the company took over sixty-six vessels, of which sixty-three were constructed by the Government, at first under War Appropriations and later under special "Capital" appropriations designated "Government Ship-building Program". Two vessels were transferred from the Canadian Government Railways and one from the Hudson Bay Railway. From time to time thereafter, as vessels were lost or sold, proceeds of sale or from insurance of such vessels were remitted to the Dominion and the accounts of the company were purged entirely of such attritions in respect of investment, interest liability to the Dominion and depreciation. The accounts of the Canadian Government Merchant Marine Limited for the year ending December 31, 1930, therefore represent the position of that company relative only to the thirty vessels that are the residue of the original fleet of sixty-six vessels, in respect of investment and interest liability to the Dominion, and depreciation, and the accumulated deficits in respect of the operation and management of the fleet since inception.

From the point of view of the Dominion the situation in respect of the Canadian Government Merchant Marine may be stated as follows:—

*Investment—*

Out of War Appropriations.....	\$19,697,372 28
Out of Capital Appropriations—	
Government Ship. Program.....	\$58,601,606 90
Canadian Government Railways.....	1,071,853 24
Hudson Bay Railway.....	151,099 90
	<u>59,824,560 04</u>

\$79,521,932 32

*Advances by Way of Loans—*

For Operating Losses.....	\$11,676,397 51
Working Capital.....	1,412,583 03
Betterments to Vessels.....	606,647 41
	<u>13,695,627 95</u>

A total of (to December 31, 1930)..... \$93,217,561 27

The amounts that have been recovered are as follows:—

From sale of 26 vessels.....	\$ 1,656,385 08
From insurance on account of three vessels lost.....	2,111,474 93
	<u>3,767,860 01</u>

The original cost plus betterments of the vessels sold and lost at time of loss or sale was \$25,194,628.73.

The Canadian Government Merchant Marine paid to the Dominion, between 1919 and 1922, a total of \$1,012,773.96 on account of interest on notes given to the Dominion to cover the cost of the vessels. (See the Annual Report for the year ending December 31, 1922.)

Original cost plus betterments of the seven vessels transferred to the Canadian National (West Indies) Steamships at a revaluation of \$577,315.80 was \$6,818,798.29.

Evidence as to present value of the fleet and other assets of the company is contained in the report of the Select Standing Committee of the House of Commons on Railways and Shipping, 1931 Session.

## CANADIAN NATIONAL (WEST INDIES) STEAMSHIPS, LIMITED

Detail of the inception and subsequent operation of this company, which was established to provide a West Indies service under the provisions of chapter 29, Statutes of Canada 1926-27, and which is operated under the same management as that of the Canadian Government Merchant Marine, will be found in the annual reports of the company, the first issue being for 1929.

The position relative to the financing of the establishment of this fleet at December 31, 1930, was as follows:—

Five vessels constructed.....	\$ 8,286,448 00
Three vessels transferred from Canadian Government Merchant Marine fleet: cost of conversion.....	936,307 78
Discount on bond issue.....	77,382 00
Cash held in trust by Department of Finance.....	99,882 22
	\$ 9,400,000 00

The operating losses have been provided out of Consolidated Revenue Fund by way of loans authorized by specific appropriations and the contact between the accounts of the company and of the Dominion is exhibited on appendix No. 6 hereto.

#### GOVERNMENT EMPLOYEES COMPENSATION ACT

The auditor in charge of workmen's compensation matters made special audits during the year of the expenditures of the various provincial boards relative to employees of the Dominion.

Prior to January 1, 1931, employees compensation payments to employees of the Canadian Government Railways were made directly out of Consolidated Revenue Fund. This procedure, a continuance of the practice adopted when the application of the Compensation Act first became effective in 1919, was discontinued, and as such payments thereafter are directly absorbed in the operating expenses of the Canadian Government Railways, the cumbersome adjustments previously necessary to obtain proper accounting now disappear, and several other practical advantages accrue. The departmental audit of such disbursements is, however, maintained to comply with the Act.

#### DEPARTMENT GENERALLY

The departmental practice of making certain regular and intermittent audits of Canals stores and accounts, and of the offices concerned in the collection of revenue, was maintained, and special audits were made of the operations of the elevators at Port Colborne and Prescott. Field audit offices were maintained at St. Catharines, Ontario (Welland Ship Canal), The Pas, Manitoba (Hudson Bay Railway), and Montreal (Montreal Terminals Development).

I have the honour to be, sir,

Your obedient servant,

F. M. MACLENNAN,  
*Comptroller.*

V. I. SMART, Esq.,

Deputy Minister Department of Railways and Canals,  
Ottawa.

OTTAWA, October 5, 1931.

**REPORT OF THE RAILWAY AUDITOR FOR FISCAL YEAR 1930-31**

**CANADIAN NATIONAL RAILWAYS**

During the fiscal year 1930-31 the assistance to the Canadian National Railways by the Dominion was as follows:—

*1. Obligations of the Government—*

Canadian National Railways, Eastern Lines, 20 per cent tariff reduction..	\$ 2,362,205 10
Canadian National Railways, Eastern Lines, balance of deficit.....	6,476,666 57
Prince Edward Island Car Ferry and facilities.....	2,500,000 00
<b>Total.....</b>	<b>\$11,338,871 67</b>

The above total of \$11,338,871.67 was paid from the Consolidated Revenue Fund of Canada.

*2. Obligations of the Canadian National Railways—*

During the calendar year 1930 the authorized expenditures of the Canadian National Railways were as follows:—

Total authorized.....	\$ 146,601,594 15
From which may be deducted:—	
Refunding of maturing obligations under specific statutes.....	\$46,651,038 84
Refunding of maturing obligations including equipment principal payments and retirements through sinking funds out of budget appropriations.....	7,624,400 06
	<u>54,275,438 90</u>
<b>Or a net increase for 1930.....</b>	<b>\$ 92,326,155 25</b>

This \$92,326,155.25 was used as follows:—

For deficits.....	\$28,405,413 71
For additions and betterments, investments, etc.....	62,256,571 54
Discount suffered on guaranteed issues.....	1,664,170 00
<b>Total.....</b>	<b>\$92,326,155 25</b>

*Financing of Canadian National Railways Obligations—*

The total requirements of \$146,601,594.15 was financed as follows:—

Cash balances available from guaranteed bonds issued prior to 1930.....	\$ 9,165,062 42
<b>LESS—</b>	
Expenditures in 1929 financed in 1930.....	7,171,181 67
	<u>\$ 1,993,880 75</u>
Guaranteed bond issue of February 1, 1930.....	18,000,000 00
Guaranteed bond issue of June 15, 1930.....	50,000,000 00
Equipment trust issue, June 1, 1930.....	15,750,000 00
Temporary Dominion loans (repaid from proceeds of \$70,000,000 issue of February 1, 1931).....	46,660,541 78
Balance of 1930 expenditures not financed until 1931.....	14,280,942 26
	<u>\$ 146,685,364 79</u>
<b>LESS—</b>	
Unused proceeds of \$50,000,000 issue of June 15, 1930, available for 1931 expenditures.....	83,770 64
<b>Total.....</b>	<b>\$ 146,601,594 15</b>

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*Authorities under which the 1930 Expenditures were made—*

The authorities under which the Canadian National Railways made these expenditures are as follows:—

1930-31 Canadian National Railways Budget.....	\$	63,010,400	85
Branch Lines Construction Acts of 1927.....		964,392	77
Branch Lines Construction Acts of 1929.....		9,167,702	88
Toronto Viaducts and Terminal Acts.....		1,945,030	70
Montreal Terminals Act of 1929.....		6,818,632	87
Northern Alberta Railways Act of 1929.....		1,116,314	13
<i>Railway Acquisition Acts of 1929—</i>			
Quebec, Montreal and Southern Railways.....	\$	100,000	00
St. John and Quebec Railway.....		1,000,000	00
			1,100,000 00

*Refunding Acts of 1929 and 1930—*

Chapter 11, Statutes of Canada, 1929.....	\$	18,000,000	00
“ 7, “ “ 1930.....		8,609,000	00
“ 8, “ “ 1930.....		20,042,038	84
			46,651,038 84
C.N.R. Act of 1920 (Section 30).....		15,750,000	00
Discounts on certain Issues included in the foregoing.....		78,081	11
			\$ 146,601,594 15

Some detail of the expenditures made under these authorities follows:—

## CANADIAN NATIONAL RAILWAYS 1930 BUDGET

Originally authorized at \$51,600,000 a supplementary appropriation of \$11,410,400.85 was necessary.

The following results are of particular interest:—

Estimated deficit for 1930.....	\$	8,396,990	00
Actual deficit for 1930.....		28,405,413	71
<hr/>			
Estimated additions and betterments.....	\$	28,550,000	00
Actual expenditures.....		19,679,172	24
<hr/>			
Interest on funded debt, 1929.....	\$	45,258,920	09
Interest on funded debt, 1930.....		50,921,421	65
<hr/>			
Interest on temporary loans, 1929.....	\$	2,649,916	54
Interest on temporary loans, 1930.....		2,257,622	34

## CANADIAN NATIONAL RAILWAYS BRANCH LINES CONSTRUCTION

*Expenditures under the Branch Lines Acts of 1927—*

These Branch Lines were all completed in 1930, the total expenditure on each being as follows:—

	Expenditure calendar year 1930	Total expenditure
<i>Quebec—</i>		
St. Felicien-Mistassini.....	\$ 15,766 14	\$ 1,430,004 98
Grand Mere-East Burrilla.....	41,790 14	2,674,900 00
	<hr/>	<hr/>
	26,084 00	4,104,904 98
<i>Saskatchewan—</i>		
Weyburn-Radville.....	17 95	648,203 86
Willowbrook-N. West.....	35,626 60	675,041 73
Sturgis-Pelsane.....	369,016 28	3,904,250 00
Pelsane-Northerly.....	28,194 51	580,199 24
Shellbrook-West.....	196,413 09	2,645,543 26
Turtleford-S.E. Extension.....	47,601 06	1,016,943 75
Kindersley-Glidden.....	25,238 29	509,558 18
Spruce Lake-Westerly.....	63,538 06	1,127,552 13
Hudson Bay Junction South.....	86,770 45	1,150,260 15
	<hr/>	<hr/>
	852,416 29	12,257,552 30
<i>Alberta—</i>		
Elk Point-Easterly.....	88,653 63	791,711 72
Ashmont-Bonnyville.....	49,406 85	1,387,851 81
Bretona-Clover Bar.....		320,047 59
	<hr/>	<hr/>
	138,060 48	2,499,611 12
Totals.....	\$ 964,392 77	\$ 18,862,068 40

*Expenditure under the Branch Lines Acts of 1929—*

The following detail shows the progress cost of each Branch Line at December 31, 1930, as compared with the total authorized expenditure:—

	Expenditure Calendar Year 1930		Total Expenditure to December, 1930		Total Expenditure authorized	
	\$	cts.	\$	cts.	\$	cts.
<i>Prince Edward Island—</i>						
Lake Verde-Pisquid.....	315,908	99	346,570	54	425,074	00
<i>Nova Scotia—</i>						
Sunny Brae-Guysboro.....	2,354,501	75	2,411,998	48	4,025,000	00
<i>Ontario—</i>						
Brantford Cut-off.....	51,021	56	52,541	41	1,552,500	00
Garson Br. Extension.....	1,555	60	116,501	52	187,220	00
Sudbury Basin Branch.....	1,810	04	17,586	47	2,127,500	00
	54,387	20	186,629	40	3,867,220	00
<i>Saskatchewan—</i>						
Melfort-Aberdeen.....	832,382	13	2,926,400	91	3,205,459	00
Mawer-S. Westerley.....	1,176,352	12	1,491,317	32	2,070,000	00
Neidpath-Swift Current.....	272,465	55	544,705	52	1,344,051	00
Ridgedale-Easterly.....	705,185	88	725,020	54	1,265,000	00
Unity-S. Westerly.....	819,838	73	1,254,240	65	2,012,500	00
Hamlin-Glenbush.....	704,512	95	882,141	04	1,274,386	00
St. Walberg-Bonnyville.....	571,023	31	897,386	76	4,843,800	00
	5,081,760	67	8,721,212	74	16,015,196	00
<i>Alberta—</i>						
Alliance-Lorraine.....	21,997	02	38,281	67	42,527	00
Bulwark-Easterly.....	227,584	51	267,382	50	1,006,250	00
Hemaruka-Scotia.....	260,758	21	570,393	07	1,650,250	00
	510,339	74	876,057	24	2,699,027	00
<i>British Columbia—</i>						
Swift Creek-Tete Jeune.....	1,759	23	17,440	65	828,000	00
Lulu Island.....	849,045	30	1,063,485	42	1,725,000	00
	850,804	53	1,080,926	07	2,553,000	00
Total.....	9,167,702	88	13,623,394	47	29,584,517	00

TORONTO VIADUCT AND TERMINALS

The investment of the Canadian National Railways is divided into two distinct classes, i.e.,

1. The Viaduct.
2. The Union Station and Terminal Facilities.

The Viaduct portion covers the elevated tracks through the city and other works incidental thereto, all property of the Canadian National Railways.

To December 31, 1930, the total cost of the viaduct to the Canadian National Railways was \$4,522,221.86.

The Union Station and terminal facilities are a joint project of the Canadian National Railways and Canadian Pacific Railway and are operated by a subsidiary known as the Toronto Terminals Railway Company.

Both railway companies subscribe equally to the cost, the Canadian National Railways portion at December 31, 1930, being \$10,812,400.

The total Canadian National Railways cost of the Viaduct and Terminals together is limited in the various Acts of Parliament to \$17,727,500. Of this amount the Canadian National Railways have spent \$15,334,621.86 to December 31, 1930, of which \$1,945,030.70 was expended during 1930 and the balance of \$2,392,878.14 is considered sufficient to complete the work.

#### NORTHERN ALBERTA RAILWAYS COMPANY

Under the Northern Alberta Railways Act of 1929 the Canadian National Railways and the Canadian Pacific Railway were authorized to purchase jointly a number of railway undertakings of the province of Alberta and transfer same to an incorporated company to be known as the Northern Alberta Railways Company.

The following detail relates to the cost to the Canadian National Railways only (which is 50 per cent of the whole):—

	Canadian National Railway portion only		
	Estimated cost	Expenditures during 1930	Total payments to December 31, 1930
	\$ cts.	\$ cts.	\$ cts.
<i>Province of Alberta—</i>			
Account purchase.....	\$ 7,790,000 00		2,500,000 00
Extensions underway.....	473,685 87		473,685 87
Bonded indebtedness assumed.....	4,710,000 00		
Liability for new extensions.....	2,026,314 13	1,116,314 13	1,157,206 63
	15,000,000 00	1,116,314 13	4,130,892 50
Capital stock in new Company (25% subscribed)...	312,500 00		312,500 00
Canadian National Railway total.....	15,312,500 00	1,116,314 13	4,443,392 50

#### ACQUISITION OF RAILWAYS

Under Chapters 15 and 17 of the Acts of 1929 payments were made on account purchase of railways as follows:—

<i>Quebec, Montreal and Southern Railways—</i>	
Purchase price.....	\$ 6,000,000 00
Less: paid in 1929.....	5,900,000 00
Balance paid in 1930.....	\$ 100,000 00
<i>St. John Quebec Railway—</i>	
Purchase price.....	6,000,000 00
First payment in 1930.....	1,000,000 00
Balance unpaid.....	5,000,000 00

#### MONTREAL TERMINALS

The authorized expenditure on this project is \$50,000,000.

The actual expenditure to December 31, 1930, was as follows:—

Construction.....	\$ 1,411,266 83
Acquisition of land.....	6,701,292 22
General supervision.....	285,054 40
Other miscellaneous.....	216,883 86
Total.....	8,614,497 31

This expenditure was made in the years 1929 and 1930 as follows:—

1929.....	\$ 1,795,864 44
1930.....	6,818,632 87
Total.....	\$ 8,614,497 31

PAYMENTS MADE UNDER REFUNDING ACTS OF 1929 AND 1930

Chapter 11, Acts of 1929, authorized retirement, at par, of: C.N.R. 4½ 5-year gold bonds, guaranteed by Dominion, maturing February 15, 1930.....	18,000,000 00
Chapter 7, Act of 1930, authorized retirement at par, of 5% Central Ver- mont Railway bonds.....	8,609,000 00
Chapter 8, Act of 1930, authorized retirement at par of:	
<i>Guarantees of Province of Manitoba—</i>	
4% Consolidated debenture bonds.....	10,785,993 31
4% Ontario division bonds.....	5,684,753 33
4½% Ontario division bonds.....	59,860 00
4% 1st mortgage debenture stock.....	2,859,998 87
4% Gilbert Plains branch bonds.....	2,433 33
4% Province of Manitoba bonds.....	349,000 00
Total provincial guarantees.....	\$ 19,742,038 84
 <i>Guaranteed by Railway—</i>	
4½% Prince Albert branch bonds.....	300,000 00
Total under Chapter 8, 1930.....	20,042,038 84
Total retirements.....	46,651,038 84

CANADIAN NATIONAL STEAMSHIPS

During the fiscal year 1930-31 the Government loaned to the

1. Canadian Government Merchant Marine..	\$ 834,210 89
2. Canadian National (West Indies) SS. Ltd.	992,730 62
Total—Canadian National Steamships..	\$ 1,826,941 51

these amounts covering the deficits of both companies, less depreciation and other non-cash items and interest due the Dominion, in respect of the calendar year 1930. These monies were provided from the Consolidated Revenue Fund of Canada.

On March 1, 1930, there was issued \$9,400,000 of 25-year 5 per cent bonds guaranteed by the Dominion of Canada to retire temporary borrowings on account of construction of five new vessels and cost of conversion of three former C.G.M.M. vessels for the West Indies service. Four other C.G.M.M. vessels, also transferred, occasioned no expense for conversion.

A. V. FRANKLIN,  
*Railway Auditor.*

October 5, 1931.

DEPARTMENT OF RAILWAYS AND CANALS  
GENERAL BALANCE SHEET AS OF MARCH 31, 1931

## ASSETS

## INVESTMENTS—

Railways.....	Schedule 1	\$ 1,137,942,092 53	
Canadian National Steamships.....	" 2	15,550,748 55	
Canadian Government Merchant Marine.....	" 3	55,863,548 92	
Canals.....	" 5	236,216,461 20	
			\$ 1,445,572,851 20

## CURRENT ASSETS—

Canadian Government Railways.....	" 4	15,748,921 60	
Supplies and materials on hand.....	" 6	362,656 92	
Government Employees Compensation Act: Advances to Provincial Boards.....		61,655 84	
Accounts receivable.....		435,593 88	
			16,608,828 24

## CONTINGENT ASSETS—

Department of Finance.....			1,963,347 71
(Contractors' Security Deposits) (contra).			

## UNADJUSTED DEBITS—

Additions and betterments to Canadian Government Railways properties since April 1, 1923, financed by Canadian National Railway Company.....	\$	23,805,713 43	
Additions and betterments to Hudson Bay Railway subsequent to April 1, 1923, financed by Canadian National Railway Company.....		457,526 76	
Stores and Open Accounts Suspense.....		1,133,160 02	
Consolidated Revenue Fund Suspense.....		776,020 25	
Moncton and Buctouche Railway.....		70,000 00	
Contractors' retained drawback (contra).....		1,387,056 21	
Unclaimed Cheques Suspense (contra).....		6,242 84	
Outstanding Cheques Suspense (contra).....		3,714 31	
Uncollectible Suspense (contra).....		6,695 26	
Capital Expenditure Adjustment Suspense.....		165,360 96	
			27,811,490 04
Total Assets.....	\$		1,491,956,517 19

## CONSOLIDATED REVENUE FUND ACCOUNT—

Being proportion of net debt incurred on account of Department of Railways and Canals.....			268,990,821 44
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**\$ 1,760,947,338 63**

DEPARTMENT RAILWAYS AND CANALS,  
OTTAWA, October 7, 1931.

DEPARTMENT OF RAILWAYS AND CANALS  
GENERAL BALANCE SHEET AS OF MARCH 31, 1931

LIABILITIES

DOMINION OF CANADA ACCOUNT—

Public Accounts—

Schedule "E" (Part):		
Canadian Government Railways Stores and Open Accounts.....	\$ 15,748,921 60	
Schedule "F".....	\$233,778,789 07	
Less: Expenditure by Other Departments—		
Burlington Bay		
Canal.....	\$ 308,328 32	
Lake St. Peter... ..	1,164,235 08	
	<u>1,472,563 40</u>	
Schedule "G".....	232,306,225 67	
Schedule "H" (part of item \$1,921,392.10 Yukon Territory Works).....	435,691,262 57	
Schedule "H" (part): Government shipbuilding program.....	283,323 55	
Schedule "K".....	55,043,085 10	
Schedule "L".....	88,398,828 78	
Schedule "L".....	614,406,239 42	
Schedule "M".....	15,550,748 55	
Schedule "N" (part): Grand Trunk Railway Preference stock.....	121,739 65	
	<u>\$1,457,550,374 89</u>	
Consolidated Revenue Fund Account.....	269,425,980 21	
		<u>\$1,726,976,355 10</u>

EXPENDITURE BY IMPERIAL GOVERNMENT PRIOR TO UNION OF UPPER AND LOWER CANADA. 4,173,921 47

CONTINGENT LIABILITIES—

Contractors' security deposits (contra)..... 1,963,347 71

UNADJUSTED CREDITS—

Consolidated Revenue Fund for Canadian Government Railways surpluses since April 1, 1923..... \$ 22,855,434 03

Loans—

Additions and betterments to Canadian Government Railways.....	\$ 950,279 40	
Expenditures on Hudson Bay Railway.....	660,369 96	
		<u>1,610,649 36</u>
Canadian Government Railways Investment Account: Adjustment of Stores and Open Accounts.....	1,706,337 07	
Dominion of Canada for acquisition of Moncton and Buctouche Railway.....	70,000 00	
Contractors' drawbacks retained.....	1,387,056 21	
Consolidated Revenue Fund for account of appropriations under Collection of Revenue (contra).....	6,242 84	
Canadian Government Railways capital (contra).....	3,714 31	
Canals Revenue—Uncollectibles.....	6,695 26	
Accrued Canals revenue outstanding.....	187,585 27	
		<u>27,833,714 35</u>
		<u>\$1,760,947,338 63</u>

F. M. MACLENNAN,  
Comptroller.

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DEPARTMENTAL CONSOLIDATED REVENUE FUND ACCOUNT AS AT MARCH 31, 1931

DR.	CR.
Administration Expenditure—Schedule A.....	6,606,453 81
Railway Income Expenditure—Schedule B.....	29,352,207 44
Railway Revenue Expenditure—Schedule B.....	444,951,527 36
Railway Subsidies Expenditure—Schedule C.....	78,610,471 09
Canals Income Expenditure—Schedule D.....	16,823,385 43
Canals Revenue Staff Expenditure—Schedule D.....	34,076,279 98
Canals Revenue Repairs Expenditure—Schedule D.....	27,288,102 32
Misc. Income Expenditure—Schedule E.....	48,334,455 66
Misc. Revenue Expenditure—Schedule E.....	3,415,692 70
	<u>51,750,148 36</u>
	<u>\$ 689,458,575 79</u>
	Railway Revenue Received—Schedule F.....
	Canal Revenue Received—Schedule F.....
	<u>\$ 420,032,595 58</u>
	Balance of Expenditure over Revenue:
	Administration.....
	Railway.....
	Canal.....
	Miscellaneous.....
	<u>* 269,425,980 21</u>
	<u>\$ 689,458,575 79</u>

\*NOTE:—

Proportion of Net Debt of Dominion incurred on account of Department of Railways and Canals.....	\$ 269,425,980 21
Less assets held by Department of Railways and Canals which are included in above.....	362,656 92
Government Employees Compensation Act: Advances to Provincial Boards.....	61,655 84
Consolidated Revenue Fund Accounts Receivable.....	10,846 01
<i>Net amount carried to Balance Sheet.</i>	<u>\$ 268,990,821 44</u>

## SCHEDULES TO THE BALANCE SHEET OF MARCH 31, 1931

## SCHEDULE NO. 1.—INVESTMENTS RELATIVE TO RAILWAYS

## CANADIAN GOVERNMENT RAILWAYS—

## A. Roads entrusted to Canadian National Railways—

## Intercolonial Railway System—

Canada Eastern Railway.....	\$ 819,000 00
Cape Breton Railway.....	3,860,879 14
Drummond County Railway.....	1,464,000 00
Eastern Extension Railway.....	1,324,042 81
Montreal and European Railway.....	333,942 72
Oxford and New Glasgow Railway.....	1,949,063 21
Intercolonial Railway.....	122,997,577 99
	<u>\$ 132,748,305 87</u>

New Brunswick and Prince Edward Island Ry. 925,266 60

Prince Edward Island Railway..... 16,033,780 11

International Railway of New Brunswick..... 2,963,021 87

National Transcontinental Railway..... 169,318,185 03

Moncton and Buctouche Railway..... 293,067 16

Salisbury and Albert Railway..... 437,647 60

St. Martin's Railway..... 302,045 64

Elgin and Havelock Railway..... 135,029 12

York and Carleton Railway..... 59,749 15

Quebec and Saguenay Railway..... 7,772,911 03

Caraquet and Gulf Shore Railway..... 711,767 38

Lotbiniere and Megantic Railway..... 360,008 39

Cape Breton Railway (Extension)..... 107,646 73

## Canadian Government Railways—

Rolling Stock..... 35,906,042 55

Miscellaneous..... 345 00

Quebec Bridge..... 21,706,664 49

Miscellaneous Suspense..... 148 09

\$ 257,033,325 94\$ 389,781,631 81

## B. Roads not entrusted to Canadian National Railways—

Hudson Bay Railway..... 30,274,193 55

Hudson Bay Railway—Nelson Terminal..... 6,240,200 86

Hudson Bay Railway—Churchill Terminal..... 7,289,550 62

Less: Accounts Receivable, Outstanding.... 28,837 62

7,260,713 0043,775,107 41

## OTHER RAILWAYS AND MISCELLANEOUS—

Annapolis and Digby Railway..... 660,683 09

Central Canada Railway..... 175,000 00

North Railway..... 250,000 00

Governor General's cars..... 71,538 82

Miscellaneous expenditure..... 18,000 00

Yukon Territory Works, Stikine-Teslin Railway (part of item under

Schedule "H" of Public Accounts)..... 283,323 55

Canadian Pacific Railway..... 62,791,435 25

Grand Trunk Railway—Debenture Account..... 15,142,633 34

Grand Trunk Railway—Interest Account..... 10,457,458 01

Grand Trunk Railway—Special Account..... 7,302 18

Grand Trunk Railway—Preference Stock..... 121,739 65

Canadian Northern Railway—Purchase of Capital Stock..... 10,000,000 00

Loans to Railways per Schedule "L" of Public Accounts and Page 41 of this report

Canadian Northern Railway..... 255,408,804 28

Grand Trunk Railway..... 118,582,182 33

Grand Trunk Pacific Railway..... 116,006,599 08

Canadian National Railways..... 57,482,652 91

Loans to Railways—Purchase of equipment..... 56,926,000 82

604,406,239 42\$ 704,385,353 31\$1,137,942,092 53

## SCHEDULE NO. 2—CANADIAN NATIONAL STEAMSHIPS (LOANS)

Canadian Government Merchant Marine, Ltd..... \$ 13,695,627 95

Canadian National (West Indies) Steamships, Ltd..... 1,855,120 60

\$ 15,550,748 55

## SCHEDULE NO. 3—CANADIAN GOVERNMENT MERCHANT MARINE

Government shipbuilding program..... \$ 55,043,085 10

Less: Accounts receivable outstanding..... 110,000 00

54,933,085 10Residue of cost of steamer *Sheba*..... 78,610 58Residue of capital cost of SS. *Drummond and McKee*..... 851,853 24\$ 55,863,548 92

## SCHEDULE NO. 4—CANADIAN GOVERNMENT RAILWAYS "OPEN" AND "STORES" ACCOUNTS

Canadian Government Railways "Open Accounts".....	6,042,932 52	
Canadian Government Railways "Stores Accounts".....	9,757,420 40	
St. John and Quebec Railway "Stores Accounts".....	2,590 94	
	<u>\$ 15,802,943 86</u>	
St. John and Quebec Railway "Open Accounts" "Cr.".....	54,022 26	\$ 15,748,921 60

## SCHEDULE NO. 5—INVESTMENTS RELATIVE TO CANALS

Quebec Canals System—		
Carillon and Grenville.....	\$ 4,191,756 51	
Ste. Anne's Lock.....	1,320,215 63	
Chambly.....	780,996 52	
St. Ours.....	394,739 33	
Lachine.....	14,007,977 30	
Lake St.-Louis.....	298,176 11	
Beauharnois.....	1,636,029 29	
Soulanges.....	7,899,944 53	
	<u>\$ 30,529,835 22</u>	
Ontario-St. Lawrence System—		
Lake St. Francis.....	75,906 71	
Cornwall.....	7,245,804 21	
Williamsburg.....	1,334,551 80	
Farrans Point.....	877,090 57	
Galops.....	6,143,468 11	
Rapide Plat.....	2,159,880 80	
Ontario-St. Lawrence River Canals—		
North channel.....	1,995,142 87	
River reaches.....	483,830 20	
Galops channel.....	1,039,895 65	
	<u>\$ 21,355,570 92</u>	
St. Lawrence Ship Canal.....	133,896 80	
St. Peters.....	648,547 14	
Rideau.....	4,214,263 99	
Tay.....	489,599 23	
Murray.....	1,248,946 71	
Trent.....	19,953,625 99	
Welland.....	29,903,598 61	
Welland Ship.....	122,483,734 00	
Less: Accounts receivable outstanding.....	98,324 98	
	<u>\$ 122,385,409 02</u>	
Sault Ste. Marie.....	4,935,809 42	
Culbute lock and dam.....	382,391 46	
Canals general.....	34,966 69	
	<u>\$ 236,216,461 20</u>	

## SCHEDULE NO. 6—MATERIALS AND SUPPLIES ON HAND

Stationery Branch.....	13,439 77	
Ontario-St. Lawrence Canals stores.....	71,747 13	
Carillon-Grenville Canals stores.....	21,766 35	
Chambly Canal stores.....	12,669 53	
Dredging Fleet stores.....	14,074 90	
Lachine Canal stores.....	24,513 39	
Soulanges Canal stores.....	28,120 82	
St. Anne's Lock stores.....	2,503 64	
St. Ours Lock stores.....	2,509 60	
Rideau Canal stores.....	26,413 45	
Sault Ste. Marie Canal stores.....	17,125 14	
Trent (Eastern) stores.....	44,583 29	
Trent (Western) stores.....	12,451 61	
Welland Canal stores.....	41,666 20	
Port Colborne Elevator stores.....	29,072 10	
	<u>\$ 362,656 92</u>	

DETAILS OF RECEIPTS AND EXPENDITURES

STATEMENT No. 1 (A)—Hudson Bay Railway (Railway only)

STATEMENT OF EXPENDITURE, FISCAL YEAR 1930-31 AND TOTAL EXPENDITURE TO MARCH 31, 1931

Classification of Expenditure	Total Expended March 31, 1930		Total Expended Fiscal Year 1930-31		Total Expenditure	
	\$	cts.	\$	cts.	\$	cts.
<b>Road—</b>						
1. Engineering.....	2,074,993	83	82,182	06	2,157,175	89
2. Land for transportation purposes.....	65,504	99	676	65	66,181	64
3. Grading.....	9,617,422	65	230,223	80	9,847,646	45
6. Bridges, trestles and culverts.....	2,405,536	08	38,527	07	2,444,063	15
8. Ties.....	2,925,678	67	48,704	58	2,974,383	25
9. Rails.....	2,895,602	84	14,414	98	2,910,017	82
10. Other track material.....	687,708	60	3,841	04	691,549	64
11. Ballast.....	2,580,458	57	481,591	93	3,062,050	50
12. Track laying and surfacing.....	3,188,640	05	304,918	93	3,493,558	98
13. Right-of-way fences.....	1,038	98	20	04	1,109	02
14. Snow fences and snowsheds.....	13,704	03	196	38	13,900	41
15. Crossings and signs.....	12,198	13	1,824	39	14,022	52
16. Station and office buildings.....	171,242	23	44,456	59	215,698	82
17. Roadway buildings.....	104,602	88	44,525	93	149,128	81
18. Water stations.....	510,756	63	34,911	51	545,668	14
19. Fuel stations.....	92,889	10	9,596	39	102,485	49
20. Shops and enginehouses.....	847,337	78	98,078	20	945,415	98
21. Grain elevators.....						
22. Storage warehouses.....	394	95			394	95
23. Wharves and docks.....	669	55			669	55
24. Coal and ore wharves.....						
25. Gas producing plants.....						
26. Telegraph and telephone lines.....	534,844	30	29,604	40	564,448	70
27. Signals and interlockers.....	458	48	9	98	468	46
35. Miscellaneous structures.....	5,372	12			5,372	12
33. Power line poles and fixtures.....	1,629	42	337	34	1,966	76
37. Roadway machines.....	35,307	03	1,851	33	37,158	36
38. Roadway small tools.....	20,658	33			20,658	33
40. Revenue and operating expenses.....	371,495	39	1,771	76	369,723	63
41. Cost of road purchased.....	21,413	79			21,413	79
42. Reconstruction of road purchased.....						
43. Other expenditures—Road.....	28,203	98	10,644	09	38,848	07
44. Shop machinery.....	35,131	76	14,933	59	50,065	35
45. Power plant machinery.....						
46. Power substation apparatus.....						
47. Unapplied construction materials.....	67,456	95	31,411	25	98,868	20
<b>Total Road.....</b>	<b>29,318,402</b>	<b>09</b>	<b>1,525,710</b>	<b>69</b>	<b>30,844,112</b>	<b>78</b>
<b>Equipment—</b>						
51. Steam locomotives.....						
52. Other locomotives.....						
53. Freight-train cars.....						
54. Passenger-train cars.....						
55. Motor equipment of cars.....						
56. Floating equipment.....						
57. Work equipment.....	68,448	63			68,448	63
58. Miscellaneous equipment.....	2,453	41			2,453	41
<b>Total Equipment.....</b>	<b>70,902</b>	<b>04</b>			<b>70,902</b>	<b>04</b>
<b>General Expenditures—</b>						
71. Organisation expenses.....						
72. General officers and clerks.....	94,131	97	14,333	99	108,465	96
73. Law.....	200	00			200	00
74. Stationery and printing.....	9,114	88	1,230	01	10,344	89
75. Suspense advances.....			15,445	05	15,445	05
76. Interest during construction.....						
77. Other expenditures—General.....	34,274	56	579	07	34,853	63
<b>Total General Expenses.....</b>	<b>137,721</b>	<b>41</b>	<b>31,588</b>	<b>12</b>	<b>169,309</b>	<b>53</b>
<b>Refunds of previous years' expenditure credited this year.....</b>	<b>29,527,025</b>	<b>54</b>	<b>1,557,298</b>	<b>81</b>		
	21,324	05	21,324	05		
<b>Total Expenditure.....</b>	<b>29,505,701</b>	<b>49</b>	<b>1,578,622</b>	<b>86</b>	<b>31,084,324</b>	<b>35</b>

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STATEMENT No. 1 (B)—Hudson Bay Railway—Churchill Terminals  
DISTRIBUTION OF CAPITAL EXPENDITURE FROM COMMENCEMENT OF PROJECT  
FISCAL YEARS 1926-27 TO 1930-31 INCLUSIVE

	Expenditure Fiscal Year 1930-31		Net Expenditure 1926-27 to 1930-31 Inclusive	
	\$	cts.	\$	cts.
Land expropriation.....	4,555	21	4,555	21
Floating plant.....	121,648	97	1,543,729	15
Land plant.....	101,451	35	296,639	14
Air equipment.....			102,066	98
Contractor's estimates.....	553,608	11	553,608	11
Work performed by railway forces.....	248,323	17	248,323	17
Payrolls.....	671,623	96	2,052,774	84
Materials and supplies.....	433,978	80	1,307,496	73
Land transportation.....	357,926	89	574,198	80
Water freight.....			367,287	85
Air freight.....			14,135	87
Other expenses.....	98,443	22	231,168	57
Advances.....	77	20	77	20
Rental of equipment.....	1,686	00	6,511	00
	2,589,950	88	7,289,550	62

STATEMENT No. 2.—Distribution of Expenditure to March 31, 1931, upon  
Welland Ship Canal

Account	Fiscal year 1930-31			Total expenditure to March 31, 1931				
	Gross expendi- ture	Credits to previous years	Net expenditure					
	\$	cts.	\$	cts.	\$	cts.		
Headquarters General Engineering and Sus- pense Accounts.....	1,051,208	99	803	70	1,050,405	29	9,592,915	08
Right of way.....	15,267	96			15,267	96	1,908,703	98
Construction hospital.....							26,476	28
Beaver dams and land damages.....							10,549	14
Preliminary surveys.....							195,711	08
General construction including locks, bridges, gateway, tower house, etc.....	8,364,290	99	1,659	96	8,362,631	03	107,965,929	69
Construction railway.....	184,901	87	9,425	11	175,476	76	2,783,448	75
	9,615,669	81	11,888	77	9,603,781	04	122,483,734	00

Net expenditure—Fiscal year 1930-31 as above..... \$ 9,603,781 04  
 Expenditure from Vote No. 99..... \$ 9,598,045 44  
 Exchequer Court award..... 5,735 60  
\$ 9,603,781 04

STATEMENT No. 3.—Maritime Freight Rates Act Expenditure

EXPENDITURE RELATIVE TO RAILWAYS UNDER THE MARITIME FREIGHT RATES ACT TO 31st MARCH, 1931. THESE EXPENDITURES COVER THE RAILWAY COMPANIES' ACCOUNTS TO 31st DECEMBER, 1930.

—	Expenditure to March 31, 1930		Fiscal Year 1930-31		Total	
	\$	cts.	\$	cts.	\$	cts.
<i>Railways Other Than Canadian National Railways—</i>						
Atlantic, Quebec and Western Railway.....	40,776	13			40,776	13
Canada and Gulf Terminal Railway.....	7,540	56	6,965	48	14,506	04
Canadian Pacific Railway, including Fredericton and Grand Lake Coal and Railway Co., and New Brunswick Coal and Railway Co.....	650,508	34	285,888	82	936,397	16
Cumberland Railway and Coal Co.....	77,169	15	32,542	95	109,712	10
Dominion Atlantic Railway.....	465,713	02	241,029	85	706,742	87
Maritime Coal, Railway and Power Co.....	52,812	66	20,370	51	73,183	17
Quebec Oriental Railway Co.....	22,418	84			22,418	84
Sydney and Louisburg Railway Co.....	685,954	26	242,328	44	928,282	70
Temiscouta Railway Co.....	58,804	17	32,068	80	90,872	97
	2,061,697	13	861,194	85	2,922,891	98
<i>Canadian National Railways—</i>						
Eastern Lines—20% Reduction in Tolls.....	5,143,337	64			5,143,337	64
Main Estimates.....			2,362,205	10	2,362,205	10
Supplementary Estimates.....			391,818	12	391,818	12
Total 20% Reduction in Tolls.....	7,205,034	77	3,615,218	07	10,820,252	84
<i>Canadian National Railways—</i>						
Eastern Lines deficits (other than occurring from Maritime Freight Rates Act).....	10,844,937	93			10,844,937	93
Main Estimates.....			6,476,666	57	6,476,666	57
Supplementary Estimates.....			235,572	22	235,572	22
Grand Total.....	18,049,972	70	10,327,456	86	28,377,429	56

STATEMENT No. 4.—Government Employees Compensation Act—Chapter 30, Revised Statutes, 1927

Number of Canadian Government Railways Claims on which Payments were made and Amounts distributed in Compensation, Medical Aid and Pensions during the Months of January, February and March, 1931.

Province	Number of claims				Disbursements
	Compensation and medical aid	Medical aid only	Pensions	Total	
Nova Scotia.....	65	9	1	75	10,407 87
New Brunswick.....	143	19	2	164	19,880 98
Quebec.....	47	2		49	14,494 53
Prince Edward Island.....	12			12	1,836 26
Ontario.....	23	1	3	27	7,332 94
Manitoba.....	45	7	3	55	12,364 47
Total.....	335	38	9	382	66,317 05

STATEMENT No. 4.—Government Employees Compensation Act—Chapter 30,  
Revised Statutes 1927.

## STATEMENT OF EXPENDITURE TO MARCH 31, 1930

Board	Dominion expenditure including amounts advanced	Disbursements under the Act				Balance on deposit
		Compensation, Pensions, etc.	Proportion of Administration Expenses	Interest	Total	
Nova Scotia.....	\$ 377,666 60	\$ 322,918 93	\$ 44,737 93		\$ 367,656 86	\$ 10,009 74
New Brunswick.....	773,000 81	683,660 41	73,657 16		757,317 57	15,683 24
Ontario.....	766,260 10	727,828 80	22,468 91		750,297 71	15,962 39
Manitoba.....	552,051 25	483,129 27	59,974 44	1,170 30	541,933 41	10,117 84
Alberta.....	79,387 66	72,146 83	8,426 09	7,692 16	72,880 77	6,506 89
British Columbia.....	136,747 18	133,338 43	5,861 69	5,828 68	133,371 44	3,375 74
Province of Prince Edward Island.....	10,602 09	10,602 09			10,602 09	
Province of Quebec.....	478,263 86	477,763 86	500 00		478,263 86	
Province of Ontario (medical aid).....	3,880 45	3,880 45			3,880 45	
Province of Saskatchewan..	1,495 00	1,495 00			1,495 00	
Miscellaneous.....	26,172 41	26,427 61	256 20		26,172 41	
Interest deposited to credit of Casual Revenue.....	14,147 75			14,147 75	14,147 75	
Totals to March 31, 1930....	3,219,675 16	2,943,191 68	215,371 02	543 38	3,158,019 32	61,655 84

## STATEMENT OF EXPENDITURE, FISCAL YEAR 1930-31

Nova Scotia.....	\$ 48,582 31	\$ 39,226 67	\$ 4,360 90		\$ 43,587 57	\$ 4,994 74
New Brunswick.....	68,765 84	65,358 70	7,594 85		72,953 55	4,187 71
Ontario.....	103,417 30	96,288 16	6,253 73		102,541 89	875 41
Manitoba.....	79,458 33	61,981 23	7,552 22	290 80	69,242 65	10,215 68
Saskatchewan.....	11,549 57	2,284 88	340 90	103 39	2,519 39	9,030 18
Alberta.....	14,134 83	13,105 94	956 98	453 56	13,629 57	505 26
British Columbia.....	30,011 36	18,945 14	598 00	174 70	19,368 44	10,642 92
Province of Prince Edward Island.....	5,836 30	5,836 30			5,836 30	
Province of Quebec.....	75,791 75	73,902 51	1,889 24		75,791 75	
Province of Ontario (medical aid).....	2,174 60	2,174 60			2,174 60	
Province of Saskatchewan..	1,641 00	1,641 00			1,641 00	
Miscellaneous.....	5,950 49	5,865 50	124 99		5,990 49	
Interest deposited to credit of Casual Revenue.....	1,128 31			1,128 31	1,128 31	
	436,501 01	374,879 63	29,421 83	123 07	404,424 53	32,076 48

## STATEMENT OF EXPENDITURE TO MARCH 31, 1931

Nova Scotia.....	\$ 426,248 91	\$ 362,145 60	\$ 49,098 83		\$ 411,244 43	\$ 15,004 48
New Brunswick.....	841,766 65	749,019 11	81,252 01		830,271 12	11,495 53
Ontario.....	869,677 40	824,116 96	28,722 64		852,839 60	16,837 80
Manitoba.....	631,509 58	545,110 50	67,526 66	1,461 10	611,176 06	20,333 52
Saskatchewan.....	11,549 57	2,284 88	340 90	106 39	2,519 39	9,030 18
Alberta.....	93,522 49	85,252 77	9,383 07	8,125 50	86,510 34	7,012 15
British Columbia.....	166,758 54	152,283 57	6,459 69	6,003 33	152,739 88	14,018 66
Province of Prince Edward Island.....	16,438 39	16,438 39			16,438 39	
Province of Quebec.....	554,055 61	551,666 37	2,389 24		554,055 61	
Province of Ontario (medical aid).....	6,055 05	6,055 05			6,055 05	
Province of Saskatchewan..	3,136 00	3,136 00			3,136 00	
Miscellaneous.....	20,181 92	20,562 11	380 19		20,181 92	
Interest deposited to credit of Casual Revenue.....	15,276 06			15,276 06	15,276 06	
Totals to March 31, 1931....	3,656,176 17	3,318,071 31	244,792 85	420 31	3,562,443 85	93,732 32

GOVERNMENT Employees Compensation Act—Chapter 30, Revised Statutes, 1927.

Number of Claims on which Payments were made, and Amounts Disbursed in Compensation, Medical Aid and Pensions, Fiscal Year 1930-1931

NOVA SCOTIA BOARD

Department	Number of Claims				Disbursements
	Compensation and Medical Aid	Medical Aid only	Pensions	Total	
Marine.....	4	2	1	7	719 26
National Defence.....	10	4	4	18	2,179 65
Pensions and National Health.....	1		2	3	170 72
Public Works.....	33	2	8	43	5,742 37
Railways and Canals—					
Canals.....	1			1	49 40
*Canadian Government Railways....	192	47	49	288	30,365 27
	241	55	64	360	39,226 67

NEW BRUNSWICK BOARD

Fisheries.....	3	1	2	6	1,966 18
Marine Biological Board of Canada.....		1		1	7 00
Marine.....	8	7		15	934 28
Post Office.....			2	2	900 00
Public Works.....	17	3	1	21	1,614 24
Railways and Canals—					
*Canadian Government Railways....	490	70	103	663	59,937 00
	518	82	108	708	65,358 70

ONTARIO BOARD

Agriculture.....			1	1	360 00
Interior.....	1	2		3	162 75
Marine.....	4	3	10	17	6,171 84
Mines.....	1			1	323 20
National Defence.....	1	2	5	8	881 55
National Revenue.....			1	1	324 00
Pensions and National Health.....	5	1	12	18	5,028 64
Post Office.....		1		1	18 00
Public Printing and Stationery.....	6			6	1,115 17
Public Works.....	26	10	18	54	13,313 57
Railways and Canals—					
Canals.....	103	39	51	193	41,439 58
*Canadian Government Railways....	88	12	47	147	26,669 28
Trade and Commerce.....	1	1	1	3	480 58
	236	71	146	453	96,288 16

MANITOBA BOARD

Agriculture.....			1	1	965 00
Interior.....	8	1	4	13	2,149 04
Mines.....			1	1	449 28
National Defence.....	2	1		3	452 42
National Revenue.....		1		1	327 60
Penions and National Health.....			1	1	144 00
Public Works.....	9	14	4	27	3,396 67
Railways and Canals—					
*Canadian Government Railways....	146	99	33	278	27,727 36
Hudson Bay Railway.....	50	97	12	159	15,727 79
Hudson Bay Terminals.....	28	2	6	36	10,590 57
Trade and Commerce.....	-	4	-	4	51 50
	243	219	62	524	61,981 23

## GOVERNMENT Employees Compensation Act—Continued

## SASKATCHEWAN BOARD

Department	Number of Claims				Disbursements \$ cts.
	Compensation and Medical Aid	Medical Aid only	Pensions	Total	
Interior.....	7		1	8	846 98
National Defence.....	1			1	122 27
Post Office.....	1	6		7	138 12
Public Works.....		1		1	3 00
Trade and Commerce.....	11	3		14	1,174 51
	20	10	1	31	2,284 88

## ALBERTA BOARD

					\$ cts.
Agriculture.....	1	1	2	4	727 94
Indian Affairs.....			1	1	420 00
Interior.....	45	30	10	85	7,839 75
Marine.....	1			1	25 21
Mines.....	1		2	3	2,955 86
National Defence.....	2			2	6 17
Post Office.....	1	25	1	27	783 73
Public Works.....	4	1		5	138 28
Soldiers' Settlement Board.....		1		1	8 00
Trade and Commerce.....	2			2	213 34
	57	58	16	131	13,105 94

## BRITISH COLUMBIA BOARD

					\$ cts.
Agriculture.....		2		2	29 50
Fisheries.....	12	4	4	20	2,376 36
Indian Affairs.....	1			1	67 00
Interior.....	35	17	3	55	3,117 87
Justice.....					3 00
Marine.....	3	3	1	7	1,900 84
National Defence.....	3	5	2	10	3,225 33
National Revenue.....		3	1	4	807 75
Pensions and National Health.....	2			2	69 74
Pensions and National Health (Health Branch).....			1	1	1,456 00
Post Office.....		35		35	498 85
Public Works.....	15	32	5	52	5,523 98
Trade and Commerce.....		3		3	14 40
	71	104	17	192	18,945 14

## PRINCE EDWARD ISLAND

					\$ cts.
Marine.....	1	1	1	3	241 29
Public Works.....	5			5	693 37
Railways and Canals— *Canadian Government Railways.....	59	1	6	66	4,901 64
	65	2	7	74	5,836 30

GOVERNMENT Employees Compensation Act—Continued

PROVINCE OF QUEBEC

Department	Number of Claims				Disbursements
	Compensation and Medical Aid	Medical Aid only	Pensions	Total	
					\$ cts.
Indian Affairs.....	1			1	85 00
Interior.....	4	2		6	659 25
Marine.....	32	113	16	161	11,885 79
National Defence.....	10	6	5	21	2,303 53
National Revenue.....	3			3	68 01
Pensions and National Health.....		2	3	5	1,343 36
Post Office.....	47	23	5	75	5,435 80
Public Works.....	12	14	7	33	6,984 28
Railways and Canals—					
Canals.....	12	24	2	38	1,849 09
*Canadian Government Railways...	203	81	42	331	43,288 40
	329	265	80	674	73,902 51

PROVINCE OF ONTARIO (MEDICAL AID)

				\$ cts.
Interior.....		3	3	29 85
Marine.....		7	7	51 50
National Defence.....		9	9	47 75
Public Printing and Stationery.....		2	2	13 00
Public Works.....		8	8	46 00
Railways and Canals—				
Canals.....		470	470	1,986 50
		499	499	2,174 60

PROVINCE OF SASKATCHEWAN

Trade and Commerce.....			1	1	1,641 00
			1	1	1,641 00

MISCELLANEOUS

Marine.....					5,429 98
Railways and Canals—					
*Canadian Government Railways....					455 58
					5,865 50

GOVERNMENT Employees Compensation Act—*Concluded*

## SUMMARY

Department	Number of Claims				Disbursements
	Compensation and Medical Aid	Medical Aid only	Pensions	Total	
					\$ cts.
Agriculture.....	1	3	4	8	2,082 44
Fisheries.....	15	5	6	26	4,342 54
Indian Affairs.....	2		1	3	572 00
Interior.....	100	55	18	173	14,805 49
Justice.....					3 00
Marine.....	53	136	29	218	16,500 09
Marine Biological Board of Canada.....		1		1	7 00
Mines.....	2		3	5	3,728 34
National Defence.....	29	27	16	72	9,206 33
National Revenue.....	3	4	2	9	1,527 36
Pensions and National Health.....	8	3	18	29	6,616 98
Pensions and National Health (Health Branch).....			1	1	1,456 00
Post Office.....	49	90	8	147	7,774 50
Public Printing and Stationery.....	6	2		8	1,128 17
Public Works.....	121	85	43	249	37,455 76
Railways and Canals—					
Canals.....	116	533	53	702	45,324 57
*Canadian Government Railways.....	1,183	310	280	1,773	192,453 37
Hudson Bay Railway.....	50	97	12	159	15,727 79
Hudson Bay Terminals.....	28	2	6	36	10,590 57
Soldiers' Settlement Board.....		1		1	8 00
Trade and Commerce.....	14	11	2	27	3,575 33
	1,780	1,365	502	3,647	374,879 63

\*Covers nine months only. Disbursements during months of January, February and March 1931, absorbed by Canadian National Railways System and Eastern Lines.

STATEMENT No. 5.—Distribution of Expenditure from Vote 295—Canals: Staff and Repairs

Canal	General expenses		Locks		Bridges		Canal reaches		Water control		Wharves, piers, etc.		Land plant		Floating plant		Stores suspense account		Staff		Repairs		Canal total		
	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	
QUEBEC CANALS SYSTEM—																									
Head Office.....	39,676	37																		39,676	37			39,676	37
Carillon and Grenville Canal.....	47,411	01	39,109	02	868	02	13,762	18	572	77	5,495	46	8,162	95	11,081	64	267	84	32,556	71	88,678	72	121,235	43	
Chambly.....	15,053	40	29,048	37	14,335	11	8,444	14	170	18	5,495	46	15,218	53	5,190	88	968	68	54,549	58	39,375	17	93,924	75	
St. Anne's Lock.....	3,878	17	5,786	33	125	19	1,601	99					1,598	40	270	36	415	80	8,353	70	4,390	94	12,744	64	
St. Ours Lock.....	2,207	72	2,401	67					44	44	52	03	1,353	26	63	56	282	21	4,761	47	1,078	90	5,840	37	
Lachine Canal.....	49,104	63	91,081	76	104,464	88	65,478	38	9,533	75	1,015	67	60,689	27	13,701	82	2,465	44	202,901	30	194,644	30	397,545	60	
Soulanges Canal.....	17,454	84	45,068	95	21,262	51	10,532	91	858	03	660	38	29,124	19	10,155	19	3,729	34	71,780	50	59,907	16	131,687	66	
Dredge Vessels.....	6,655	29											39	02	33,478	38	4,002	43	25,886	69	18,288	43	44,175	12	
Hungry Bay Dyke—St. Barbe repairs.....	8,890	20																					8,890	20	
ONTARIO ST. LAWRENCE SYSTEM—																									
Prescott Elevator.....	44,948	69											39,738	36			3,192	24	24,714	98	18,215	62	42,930	60	
Head Office.....	53,207	86	79,624	75	7,756	09	23,627	41					16,202	46	6,854	87	2,344	64	44,948	69	76,103	92	183,928	89	
Cornwall Canal.....	8,613	10	58,581	94	9,200	70	5,708	30					6,714	52	2,079	77			60,310	40	30,599	59	90,909	99	
Williamsburg Canal.....	1,541	05	4,597	23	1,743	53	393	08					653	94	57	64			7,231	06	1,785	85	9,016	91	
St. Peters Canal.....	25,681	71	100,679	56	23,861	89	109,064	39	4,962	43	6,980	18	12,043	76	53,150	29	2,192	27	111,236	89	207,379	59	318,616	48	
Rideau Canal.....	1,505	96			8,905	62	2,454	29					174	80	5	28	6,482	46	153,840	04	73,479	17	227,319	21	
Murray Canal.....	42,687	48	81,251	91	31,300	90	15,650	62	34,262	46	6,381	29	10,863	08	12,414	33	7,492	86	157,869	28	102,709	90	260,576	18	
Trent Canal.....	54,208	55	85,759	36	18,910	10	23,273	50	23,318	92	2,068	88	52,478	33	6,418	87	2,998	33	346,874	75	261,789	04	608,663	79	
Welland.....	192,200	49	227,780	51	150,419	80	5,542	73	1,136	09	4,381	48	27,203	19					137,999	63	55,777	97	193,777	90	
Welland Ship Canal.....													190,040	73			3,737	17	41,870	66	19,335	65	61,206	31	
Port Colborne Elevator.....	18,527	86	17,642	07			2,056	06	3	36	3,908	18	14,970	81	4,783	61	745	64							
Sault Ste. Marie Canal.....	633,454	38	868,423	43	393,153	74	285,789	98	74,862	43	29,602	82	487,269	60	139,706	49	1,182	85	1,641,670	34	1,269,409	68	2,911,080	02	
Totals.....																									

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## STATEMENT No. 6.—Expenditure from Railway Grade Crossing Fund, Chapter 170 (Sec. 262), Revised Statutes, 1927

Canadian National Railways.....	65,092 67
Canadian Pacific Railway Company.....	76,811 11
Michigan Central Railroad.....	34,017 99
Toronto Suburban Railway Company.....	540 27
Toronto Terminals Railways Company.....	150,000 00
Toronto, Hamilton & Buffalo Railway Company.....	7,756 55
London & Port Stanley Railway.....	900 49
Great Northern Railway Company.....	713 08
Lake Erie & Northern Railway Company.....	534 10
Dominion Atlantic Railway Company.....	243 32
Pere Marquette Railway Company.....	2,031 26
Essex Terminal Railway Co.....	609 77
Esquimalt & Nanaimo Railway Co.....	53 38
Dept. of Roads, Province of Quebec.....	25,121 80
Dept. of Public Highways of Ontario.....	19,199 34
Dept. of Public Works, Province of British Columbia.....	15,297 48
Dept. of Public Works of Alberta.....	5,358 65
Dept. of Public Works of Province of New Brunswick.....	23,449 52
Dept. of Public Highways of Nova Scotia.....	77,185 97
Province of British Columbia.....	455 51
Township of Olden, Province of Ontario.....	572 66
Municipality of Township of Chapleau, Ont.....	21,559 67
Municipality of Township of Melbourne, P.Q.....	27,666 07
Corporation of Township of York.....	309 63
Town of Carrick, Ont.....	375 00
Corporation of the County of Wentworth, Ont.....	3,257 95
Town of Coaticook, P.Q.....	86 80
City of Three Rivers.....	77,756 25
Municipal District of Kinsella, Alberta.....	280 76
City of Calgary.....	2,487 20
	<u>\$ 639,724 25</u>

## Expenditure from Grant of \$500,000 out of Funds provided for Unemployment Relief—

City of Stratford.....	<u>\$ 32 96</u>
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STATEMENT No. 7.—Statement showing sources of Canals Revenue received during Fiscal Year ending March 31, 1931

	Land		Water power		Transmission		Boat houses		Houses		Wharfage, winterage and miscellaneous		Elevator fees		Totals	
	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.
<i>Welland Canal System—</i>																
Welland Canal.....	15,822	83	71,174	50	3,235	00	1,741	67	11,095	49	103,139	49				
Welland Ship.....	736	20	1	00	243	70	1,735	74	4,063	15	6,779	79				
Port Colborne Elevator.....											462,013	42				
<i>St. Lawrence Canals—</i>																
Lachine.....	162,375	82	43,195	00	3,629	15	490	00	24,799	35	234,489	32				
Beauharnois.....	1,775	81	46,230	00	22	00					48,027	81				
Soulanges.....	238	91	3,000	00	590	00	311	00	187	50	4,357	41				
Cornwall.....	1,048	50	23,985	00	158	33	192	00	1,438	85	26,842	68				
Williamsburg.....	300	50	1,220	00	71	00	326	00	27	40	1,944	90				
Prescott Elevator.....											27,930	08				
<i>Chambly Canal.</i> .....	400	50	20	00	173	40	662	00	3	80	1,259	70				
<i>Ottawa River Canals—</i>																
Carillon and Grenville.....	300	00	500	00	159	64	280	00			1,239	64				
Chats Falls.....	1	00									1	00				
Ste. Anne's Lock.....	303	00			96	00	50	00			449	00				
<i>Rideau Canal.</i> .....	5,858	87	1,233	67	602	50	2,214	00	140	00	10,049	04				
<i>St. Peters Canal.</i> .....	52	12			25	00	96	00			173	12				
<i>Murray Canal.</i> .....	17	00			7	00	247	00			271	00				
<i>Trent Canal.</i> .....	2,987	30	91,024	18	589	00	2,716	00	57	00	97,504	43				
<i>South Ste. Marie Canal</i>	21	00	50	00	20	00	104	00			195	00				
<i>Miscellaneous.</i> .....	4	00									4	00				
<b>Totals.....</b>	<b>192,333</b>	<b>36</b>	<b>281,703</b>	<b>35</b>	<b>9,621</b>	<b>72</b>	<b>11,165</b>	<b>41</b>	<b>41,822</b>	<b>54</b>	<b>489,943</b>	<b>50</b>	<b>1,026,670</b>	<b>83</b>		

**SCHEDULES TO DEPARTMENTAL CONSOLIDATED REVENUE  
ACCOUNT AS AT MARCH 31, 1931**

**SCHEDULE A.—Expenditure to March 31, 1931, from Civil Government Appropriations**

Ministers' salaries, statute.....	\$ 367,090 74
Civil Government salaries.....	5,440 308 06
Civil Government contingencies.....	799,055 01
<b>Total.....</b>	<b>\$ 6,606,453 81</b>

Inception of Department of Railways and Canals dates from May 20, 1879.

**SCHEDULE B.—Expenditure from Income and Revenue Appropriations Relative to Railways**

	Income		Revenue		Total	
	\$	cts.	\$	cts.	\$	cts.
Annapolis and Digby Railway.....	8,381	82			8,381	82
Intercolonial Railway.....	280,000	00			280,000	00
Canadian Government Railways Settlement of Military claims.....	79,043	33			79,043	33
Canadian Government Railways—To supplement pension allowances.....	403,421	16			403,421	16
Canadian Government Railways—Quebec Bridge.....	203,931	57			203,931	57
Canadian Government Railways—Working expenses.....			444,767	347 13	444,767	347 13
Hudson Bay Railway.....			149,760	84	149,760	84
Hudson Bay Railway—Nelson Terminal.....			34,017	02	34,017	02
Hudson Bay Railway—Churchill Terminal.....			402	37	402	37
Maritime Freight Rates Act.....	28,377,429	56			28,377,429	56
	<b>29,352,207</b>	<b>44</b>	<b>444,951,527</b>	<b>36</b>	<b>474,303,734</b>	<b>80</b>

**SCHEDULE C.—Railway Subsidies**

As detailed in the Annual Report for year ending March 31, 1930.....	\$ 78,785,471 09
Less—Canada Central Railway.....	175,000 00
<b>This item was voted under "Capital" Appropriation and is included in "Investments in Railways".</b>	<b>\$ 78,610,471 09</b>

Contact with Public Accounts is as follows:—

Public Accounts shows.....	\$ 76,115,221 09
Public Accounts omits:—	
Part of Item 40, "Canadian Pacific Extensions".....	\$ 970,000 00
Part of Item 16½, "Canada Central Railways".....	1,525,250 00
	<u>2,495,250 00</u>
	<u><b>\$ 78,610,471 09</b></u>

SCHEDULE D.—Expenditure from Income and Revenue Appropriations to March 31, 1931, Relative to Canals

Canals	Income	Revenue		Total
		Staff	Repairs	
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
<b>Quebec Canals System—</b>				
Carillon and Grenville.....	483,918 88	1,230,261 39	1,096,551 44	2,810,731 71
Ste. Anne's lock.....	148,344 67	198,005 30	209,243 42	555,593 39
Chambly.....	1,014,726 16	1,647,156 96	1,623,881 82	4,285,764 94
St. Ours.....	178,366 58	185,429 21	176,840 65	540,636 44
Lachine.....	2,065,553 96	4,649,593 43	4,438,446 72	11,153,594 11
Lake St. Louis.....				
Beauharnois.....	265,810 84	649,574 89	525,691 23	1,441,076 96
Soulages.....	521,531 21	1,218,838 18	1,563,051 07	3,323,420 46
<b>Ontario—St. Lawrence System—</b>				
Lake St. Francis.....	27,028 08			27,028 08
Cornwall.....	637,119 09	2,982,475 12	1,959,051 74	5,578,645 95
Williamsburg.....	396,175 43	1,342,740 22	1,033,279 78	2,772,195 43
Farrans Point.....				
Galops.....				
Rapide Plat.....				
<b>Ontario—St. Lawrence River Canals—</b>	316,677 02			316,677 02
North channel.....				
River reaches.....				
Galops channel.....				
Prescott Elevator.....		24,714 98	18,215 62	42,930 60
St. Lawrence Ship Canal.....	468,405 25			468,405 25
St. Peter's.....	867,971 93	202,031 59	70,700 57	1,140,704 09
Rideau.....	714,865 55	2,834,820 38	4,131,743 07	7,681,429 00
Tay.....	748 65			748 65
Murray.....	101,457 76	237,967 84	172,861 80	512,287 40
Trent.....	3,525,051 81	2,258,343 72	1,759,866 42	7,543,261 95
Welland.....	3,475,985 50	8,615,343 21	5,946,931 99	18,038,260 70
Welland, Port Colborne Elevator.....	75,342 93	667,967 76	273,242 00	1,016,552 69
Welland Ship.....		365,671 21	282,683 74	648,354 95
Sault Ste. Marie.....	320,974 77	937,887 39	780,500 42	2,039,362 58
Culbute lock and dam.....	60,923 37	11,507 48	7,036 15	79,467 00
Baie Verte.....	44,387 53			44,387 53
<b>Total.....</b>	<b>15,711,366 97</b>	<b>30,260,330 26</b>	<b>26,089,819 65</b>	<b>72,061,516 88</b>
<b>Canals general.....</b>	<b>1,112,018 46</b>	<b>3,815,949 72</b>	<b>1,198,282 67</b>	<b>6,126,250 85</b>
<b>Grand total.....</b>	<b>16,823,385 43</b>	<b>34,076,279 98</b>	<b>27,288,102 32</b>	<b>78,187,767 73</b>

SCHEDULE E

MISCELLANEOUS Expenditure to March 31, 1931, from Income Appropriations

War Appropriations—Miscellaneous.....	\$ 3,290,588 39	
—Government Shipbuilding Program.....	19,697,372 28	
		\$22,987,960 67
Government Employees Compensation Act, Chapter 30, Revised Statutes, 1927.....	\$ 3,656,176 17	
Canada Highways Act.....	20,309,263 70	
Miscellaneous small appropriations.....	1,381,055 12	
		\$48,334,455 66

MISCELLANEOUS Expenditure to March 31, 1931, from Revenue Appropriations

Railway Grade Crossing Fund.....	\$ 3,338,981 65	
Miscellaneous small appropriations.....	76,711 05	
		3,415,692 70
		\$51,750,148 36

**SCHEDULE F.—To Consolidated Revenue Fund Account—Railway and Canals  
Revenue Receipts (by years)**

Year	Canals		Canadian Government Railways		Total	
	\$	cts.	\$	cts.	\$	cts.
Revenue from 1868 to 1890, inclusive.....	8,819,581	55	39,107,792	60	47,927,374	15
1891.....	349,431	90	3,181,888	56	3,531,320	46
1892.....	324,475	24	3,136,393	51	3,460,868	75
1893.....	357,089	87	3,262,505	62	3,619,595	49
1894.....	387,788	97	3,179,019	57	3,566,808	54
1895.....	359,890	49	3,129,450	37	3,489,340	86
1896.....	339,538	72	3,140,678	47	3,480,217	19
1897.....	384,780	53	3,060,074	38	3,444,854	91
1898.....	407,662	81	3,313,847	10	3,721,509	91
1899.....	369,044	38	3,940,570	11	4,309,614	49
1900.....	322,642	86	4,774,161	87	5,096,804	73
1901.....	315,425	69	5,213,381	24	5,528,806	93
1902.....	300,413	68	5,918,990	43	6,219,404	11
1903.....	230,213	15	6,584,598	77	6,814,811	92
1904.....	79,536	51	*6,627,255	51	6,706,792	02
1905.....	78,009	21	7,050,892	11	7,128,901	32
1906.....	108,067	76	7,950,552	97	8,058,620	73
1907.....	105,003	15	6,509,186	49	6,614,189	64
1908.....	144,882	13	9,534,569	04	9,679,451	17
1909.....	199,501	26	8,894,420	42	9,093,921	68
1910.....	193,409	28	9,647,963	71	9,841,372	99
1911.....	221,138	49	10,249,394	38	10,470,532	87
1912.....	263,716	75	11,034,165	83	11,297,882	58
1913.....	307,567	66	12,442,203	46	12,749,771	12
1914.....	380,188	06	13,394,317	37	13,774,505	43
1915.....	427,763	14	12,149,357	32	12,577,120	46
1916.....	446,722	21	18,427,908	65	18,874,630	86
1917.....	461,423	14	23,539,758	61	24,001,181	75
1918.....	414,868	22	27,240,956	87	27,655,825	09
1919.....	387,654	90	38,013,725	69	38,401,380	59
1920.....	441,926	36	41,402,061	36	41,843,987	72
1921.....	365,941	36	36,814,349	70	37,180,291	06
1922.....	804,515	58 †	.....	.....	804,515	58
1923.....	742,404	13	.....	.....	742,404	13
1924.....	897,412	22	.....	.....	897,412	22
1925.....	907,650	33	.....	.....	907,650	33
1926.....	920,900	00	.....	.....	920,900	00
1927.....	961,694	09	.....	.....	961,694	09
1928.....	1,355,677	46	.....	.....	1,355,677	46
1929.....	1,230,332	55	.....	.....	1,230,332	55
1930.....	1,043,646	87	.....	.....	1,043,646	87
1931.....	1,026,670	83	.....	.....	1,026,670	83
	28,166,203	49	391,866,392	09	420,032,595	58

\* Canal Tolls abolished this year.

† Under authority of item 341, chap. 54, 1921, the receipts and revenues of the Canadian Government Railways were, from Jan. 1, 1921, applied by the management toward payment of working expenditures.

## APPENDICES

## REPORT OF THE COMPTROLLER

## APPENDIX No. 1.—The Investment in Canadian Government Railways and Cash Assistance to Canadian National Railways

## PUBLIC ACCOUNTS MARCH 31, 1931, COMPARED WITH CANADIAN NATIONAL RAILWAYS BALANCE SHEET OF DECEMBER 31, 1930

## 1. PUBLIC ACCOUNTS AT MARCH 31, 1931—

<b>A. Canadian Government Railways—</b>	
Schedule "E" (part).....	\$ 15,748,921 60
Schedule "G" (part).....	389,781,631 81
<b>Total Canadian Government Railways.....</b>	<b>\$ 405,530,553 41</b>
<b>B. Canadian National Railways—</b>	
Schedule "L".....	\$ 614,406,239 42
Less: Canadian Northern stock purchased.....	10,000,000 00
	604,406,239 42
<b>Total per Public Accounts.....</b>	<b>\$ 1,009,936,792 83</b>

## 2. CANADIAN NATIONAL RAILWAYS AT DECEMBER 31, 1930—

<i>Dominion of Canada Account—</i>	
A. Canadian Government Railways Appropriations Account.....	\$ 403,443,934 56
B. Canadian National Railways loans.....	604,406,239 42
C. Interest on loans accrued but unpaid.....	322,155,901 96
<b>Total per Canadian National Railways Balance Sheet.....</b>	<b>\$ 1,330,006,075 94</b>
<b>Difference.....</b>	<b>\$ 320,069,283 11</b>

The difference is explained as follows:—

<i>Canadian Government Railways—</i>	
1. Current adjustments due to closing of railway accounts at December 31, 1930. Cr.	\$ 853,071 84
2. Adjustments between Investment and Profit and Loss Accounts by railway, but not cleared by Public Accounts. Cr.	573,177 05
3. Credit claimed by railway for expenditures on account Hudson Bay Railway but not adjusted in Public Accounts. Cr.	660,369 96

*Unpaid Interest Accrued on Loans—*

Although included in Railway Accounts, this interest is not set up in Public Accounts	322,155,901 96
<b>Total.....</b>	<b>\$ 320,069,283 11</b>

APPENDIX No. 2.—Statement showing Canadian National Railways Expenditures Authorized by either Annual Budgets or Special Legislation (does not include Hudson Bay Railway, New Prince Edward Island Ferry, or Maritime Freight Rates Act Expenditures)

	1923-24 (April-March)		1924-25 (April-March)		1925-26 (April-March)		1926-27 (April-March)		1927-28 (9 Mos. to Dec. 31, 1927)		1928-29 (Calendar Year 1928)		1929-30 (Calendar Year 1929)		1930-31 (Calendar Year 1930)		Total			
	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.		
<b>ANNUAL BUDGET EXPENDITURES—</b>																				
Cash Deficits.....	20,356	197 43	22,476	565 12	5,568	745 43	2,006	939 65	1,477	389 32	7,640	130 92	9,977	588 83	28,405	413 71	75,660	050 63		
Refunding of Maturing Obligations.....	11,469	369 69	7,007	533 33	9,052	561 50	8,360	730 50	6,372	246 90	9,364	163 66	9,882	026 76	7,624	400 06	69,133	032 40		
Capital Expenditures.....	41,158	749 22	28,941	981 77	11,100	794 87	18,913	962 72	15,668	142 42	29,080	357 66	37,973	058 42	25,394	498 19	208,231	545 27		
Discount on Security Issues.....	1,093	500 00	1,910	000 00					1,937	000 00	2,047	500 00	1,927	965 88	1,586	088 89	10,502	054 77		
Sub-total Budget.....	74,077	816 34	60,336	080 22	25,722	101 80	25,267	753 57	22,500	000 00	32,851	890 40	59,760	639 89	63,010	400 85	363,526	683 07		
<b>SPECIAL LEGISLATION EXPENDITURES—</b>																				
Branch Lines constructions, 1924-27 program.....			1,830	286 01	6,695	059 33	3,364	409 00	1,008	118 83	731	687 63	179	921 77					13,809	482 57
Branch Lines Construction, 1925-28 program.....							664	199 32	228	409 54	242	643 33							1,135	252 19
Branch Lines Constructions, 1927-30 program.....									1,972	470 26	10,245	084 23	5,680	121 14	964	392 77	18,862	068 40		
Branch Lines Constructions, 1929-32 program.....													4,455	691 59	9,167	702 88	13,623	394 47		
Acquisition of Railways.....													13,121	185 87	2,216	314 13	15,337	800 00		
Toronto Terminals Construction.....					3,077	500 00	3,569	093 45	1,765	463 50	1,481	579 25	2,895	954 96	1,945	030 70	15,334	621 86		
Montreal Terminals Construction.....													1,795	864 44	6,818	632 87	8,614	497 31		
Refunding of Maturing obligations.....			17,000	000 00					20,000	000 00	22,748	109 60			46,651	038 84	106,399	148 44		
Equipment Trust Issues.....			22,500	000 00	9,375	000 00			15,000	000 00			18,000	000 00	15,750	000 00	80,625	000 00		
Discounts Chargeable to Special Expenditures.....															672	118 72	78,081	111		
Sub-total Special Expenditures.....	22,500	000 00	29,000	286 01	10,372	559 33	7,597	701 77	39,974	462 13	35,875	994 44	46,800	858 49	83,591	193 30	275,713	055 47		
Total Expenditures.....	96,577	816 34	89,336	366 23	36,094	661 13	32,865	455 34	62,474	462 13	68,727	884 84	106,561	498 38	146,601	594 15	639,239	738 54		



APPENDIX No. 3.—Details of Canadian Government Merchant Marine Fleet  
(as at December 31, 1930)

Vessels	Deadweight tonnage	Original cost plus betterments		Cost per C.G.M.M. books	
		\$	cts.	\$	cts.
1. Canadian Cruiser.....	10,682	2,338,788	33	2,338,788	33
2. Canadian Constructor.....	10,500	2,349,592	18	2,349,592	18
3. Canadian Leader.....	8,456	1,519,867	84	1,519,867	84
4. Canadian Highlander.....	8,449	1,572,935	10	1,572,935	10
5. Canadian Commander.....	8,439	1,516,834	99	1,516,834	99
6. Canadian Traveller.....	8,439	1,772,260	95	1,772,260	95
7. Canadian Victor.....	8,433	1,521,343	02	1,521,343	02
8. Canadian Skirmisher.....	8,424	1,793,621	13	*490,989	78
9. Canadian Challenger.....	8,423	1,476,134	15	1,476,134	15
10. Canadian Pioneer.....	8,408	1,533,301	72	1,533,301	72
11. Canadian Conqueror.....	8,407	1,517,925	21	1,517,925	21
12. Canadian Winner.....	8,407	1,686,443	50	1,686,443	50
13. Canadian Planter.....	8,399	1,601,363	37	1,601,363	37
14. Canadian Spinner.....	8,393	1,603,479	31	1,603,479	31
15. Canadian Seigneur.....	8,391	1,598,385	09	1,598,385	09
16. Canadian Miller.....	8,390	1,598,074	58	1,598,074	58
17. Canadian Ranger.....	8,382	1,584,910	50	1,584,910	50
18. Canadian Importer.....	8,381	1,671,502	17	1,671,502	17
19. Canadian Prospector.....	8,367	1,677,910	35	1,677,910	35
20. Canadian Transporter.....	8,356	1,548,990	84	1,548,990	84
21. Canadian Inventor.....	8,350	1,676,622	93	1,676,622	93
22. Canadian Pathfinder.....	8,347	1,773,206	48	*488,833	38
23. Canadian Explorer.....	8,341	1,651,561	25	1,651,561	25
24. Canadian Mariner.....	8,340	1,648,617	80	1,648,617	80
25. Canadian Britisher.....	8,100	2,129,925	58	2,129,925	58
26. Canadian Scottish.....	8,100	2,140,148	14	2,140,148	14
27. Canadian Voyager.....	4,575	953,934	52	953,934	52
28. Canadian Squatter.....	4,554	1,014,429	96	1,014,429	96
29. Canadian Beaver.....	3,973	858,359	54	858,359	54
30. Canadian Farmer.....	3,964	795,226	43	795,226	43
30 Vessels.....	239,170	48,125,696	96	45,538,692	51

Notes held by Government (including \$9,444.01 pending).....	\$44,996,242	95
Loans appropriations used for betterments.....	\$ 606,647	41
Less—Credit claimed for vessels sold.....	53,728	37
	552,919	04
<b>Total Capital Liability.....</b>	<b>\$45,549,161</b>	<b>99</b>
Equipment retirements.....	\$ 20,176	84
Less—C.G.M.M. additions.....	9,707	36
	10,469	48
<b>Investment Value (per C.G.M.M. Report).....</b>	<b>\$45,538,692</b>	<b>51</b>

\*Revaluation authorized.

APPENDIX No. 4.—Canadian Government Merchant Marine—Detail of Vessels Sold, Transferred to British West Indies Service, and Lost, as at December 31, 1930

## 1. VESSELS SOLD

Name	Dead-weight tonnage	Original cost plus betterments		Date sold	Sale price, net	
		\$	cts.		\$	cts.
1. Drummond.....	3,501	550,339	13	Aug. 24, 1923	110,000	00
2. Sheba.....	3,400	151,099	90	" 24, 1923	72,489	32
3. McKee.....	3,575	521,514	11	Oct. 3, 1923	110,000	00
4. Miner.....	2,778	583,467	40	Mar. 24, 1924	91,246	88
5. Sealer.....	2,777	583,362	66	" 24, 1924	88,794	04
6. Logger.....	3,839	704,120	54	April 20, 1924	100,000	00
7. Settler.....	4,918	985,273	34	Jan. 1, 1925	83,737	08
8. Engineer.....	3,679	1,018,102	81	Oct. 9, 1925	48,665	19
9. Pathfinder.....	3,640	957,232	90	" 9, 1925	50,000	00
10. Adventurer.....	3,408	717,467	49	" 15, 1925	38,566	31
11. Sailor.....	3,357	690,409	84	" 15, 1925	37,879	40
12. Signaller.....	3,975	814,926	25	" 15, 1925	37,383	34
13. Sower.....	3,406	716,856	63	" 15, 1925	37,373	24
14. Trader.....	3,341	686,905	38	" 15, 1925	38,609	43
15. Warrior.....	3,995	819,671	26	" 15, 1925	39,616	07
16. Harvester.....	4,000	730,914	67	Feb. 15, 1926	50,000	00
17. Gunner.....	3,978	859,163	65	Dec. 13, 1926	50,000	00
18. Raider.....	5,100	1,141,247	25	May 6, 1929	(scrap) 6,500	00
19. Fisher.....	5,100	1,537,971	30	Aug. 9, 1929	86,528	05
20. Forester.....	8,347	1,570,654	20	" 9, 1929	86,528	05
21. Coaster.....	3,939	731,928	38	Oct. 2, 1929	58,333	33
22. Observer.....	3,982	771,550	41	" 2, 1929	58,333	34
23. Rover.....	3,920	727,424	56	" 12, 1929	58,333	33
24. Rancher.....	4,892	1,028,025	35	" 26, 1929	84,510	00
25. Trapper.....	5,054	1,061,864	49	" 26, 1929	85,458	68
26. Trooper.....	4,540	989,262	45	Aug. 12, 1930	47,500	00
26 Vessels.....	106,441	21,650,756	35	.....	1,656,385	08

## 2. VESSELS TRANSFERRED TO B.W.I. SERVICE

Name	Dead-weight tonnage	Original cost plus betterments		Date sold	Revaluation	
		\$	cts.		\$	cts.
1. Carrier.....	4,620	1,031,915	65	Dec. 21, 1928	92,400	00
2. Volunteer.....	4,496	983,361	66	Jan. 2, 1929	79,129	60
3. Colborne.....	4,573	1,022,480	73	" 17, 1929	91,460	00
4. Otter.....	4,555	1,035,422	40	" 30, 1929	91,100	00
5. Hunter.....	5,021	1,054,958	05	April 13, 1929	89,875	90
6. Aviator.....	5,166	1,147,106	49	" 27, 1929	85,239	00
7. Sapper.....	2,781	543,555	31	June 30, 1929	48,111	30
7 Vessels.....	31,212	6,818,798	29	.....	577,315	80

## 3. VESSELS LOST

Name	Dead-weight tonnage	Original cost plus betterments		Date lost	Insurance recovered	
		\$	cts.		\$	cts.
1. Exporter.....	8,380	1,682,681	67	July 31, 1921	1,313,357	67
2. Recruit.....	3,964	812,974	45	Aug. 18, 1921	669,849	26
3. Navigator.....	4,581	1,048,216	26	Feb. 17, 1925	128,268	00
3 Vessels.....	16,925	3,543,872	38	.....	2,111,474	93

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## APPENDIX No. 5

## "A"—CANADIAN Government Merchant Marine Operating Results

## FLEET

Year ending	Number of vessels	Dead-weight tonnage	Operating results	
			\$	cts.
December 31, 1919.....	19	99,664	1,056,767	38 surplus
" 31, 1920.....	47	256,678	1,293,525	55 "
" 31, 1921.....	63	367,737	2,390,875	05 deficit
" 31, 1922.....	64	378,237	2,327,351	23 "
" 31, 1923.....	60	362,844	1,892,097	07 "
" 31, 1924.....	57	353,450	1,440,880	21 "
" 31, 1925.....	49	324,986	948,053	34 "
" 31, 1926.....	46	312,090	168,543	82 "
" 31, 1927.....	46	312,090	720,735	40 "
" 31, 1928.....	38	275,697	1,209,083	02 "
" 31, 1929.....	31	243,710	878,907	21 "
" 31, 1930.....	30	239,170	834,210	89 "

## "B"—ANALYSIS of Profit and Loss Account

1919 and 1920 surplus.....	2,350,292	93
Surplus paid government covering interest on investment.....	1,012,773	96
Surplus retained by company.....	\$ 1,337,518	97
*1921 to 1930 deficits (inclusive).....	12,810,737	24
Net cash deficit.....	\$11,473,218	27
Add: Depreciation accrued.....	17,738,806	29
Interest due government accrued.....	28,427,977	02
Total book deficits.....	\$57,640,001	49

\*Loans by the Government during operating period to December 31, 1930, were as follows:—

For operating losses.....	\$13,088,980	54
For betterments to vessels.....	606,647	41
Total.....	\$13,695,627	95

of which an amount of \$434,210.89 was advanced to the C.G.M.M. after their books had closed for 1930.

APPENDIX No. 6

ANALYSIS of Canadian National (West Indies) Steamship Co. Fleet and Operations (to December 31, 1930)

THE FLEET

Date of delivery	Vessel	Dead-weight tonnage	Transfer value	Cost of conversion	Total cost
	<i>1. Constructed</i>				<b>\$ cts.</b>
Nov. 11, 1928.....	1. Lady Nelson.....	6,710			1,584,361 62
Dec. 9, 1928.....	2. Lady Hawkins.....	6,670			1,591,231 57
Dec. 28, 1928.....	3. Lady Drake.....	6,670			1,587,885 60
Mar. 23, 1929.....	4. Lady Sommers.....	4,665			1,763,994 36
April 12, 1929.....	5. Lady Rodney.....	4,665			1,758,974 85
		29,380			8,286,448 00
	<i>2. Transferred from C.G.M.M.</i>				
Dec. 21, 1928.....	6. Champlain (Carrier).....	4,620	92,400 00		92,400 00
Jan. 2, 1929.....	7. Cornwallis (Volunteer)...	4,496	79,129 60		79,129 60
Jan. 17, 1929.....	8. Colborne (Runner).....	4,573	91,460 00		91,460 00
Jan. 30, 1929.....	9. Chomey (Otter).....	4,555	91,100 00		91,100 00
April 13, 1929.....	10. Cathcart (Hunter).....	5,021	89,875 90	353,084 43	442,960 33
April 27, 1929.....	11. Cavalier (Aviator).....	5,166	85,239 00	349,826 21	435,065 21
June 30, 1929.....	12. Connector (Sapper).....	2,781	48,111 30	233,397 14	281,508 44
					4,643 46
<b>Totals.....</b>	<b>12 Vessels.....</b>	<b>60,592</b>	<b>577,315 80</b>	<b>936,307 78</b>	<b>9,804,715 04</b>

OPERATING LOSSES

1929 cash deficit.....	\$ 862,269 91
1930 cash deficit.....	992,730 62
<b>*Total cash deficit.....</b>	<b>\$ 1,855,000 53</b>
Depreciation on vessels.....	516,314 68
Interest due Government.....	106,658 13
Amortisation of discount.....	2,578 73
<b>Total book deficit.....</b>	<b>\$ 2,480,552 07</b>

\* Of this deficit an amount of \$1,674,636.49 was advanced by the Government to December 31, 1930, and the balance after the Steamship Company's books were closed for 1930.

APPENDIX No. 7.—Statement of Hydraulic and Other Rents Accrued, Paid and Balances due March 31, 1931

Balance due April 1 1930	Hydraulic and other Rents Accrued	House Rents Accrued	Totals	Divisions	Abate-ments of Over-charges	Refunds	Deposited to Credit of Receiver General		Balance due March 31 1931	Total
							House Rent	Hydraulic and Other Rents		
\$ cts.	\$ cts.	\$ cts.	\$ cts.		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
11,528 60 238 18	247,350 87 951 30	1,907 00 1,692 33	260,786 47 2,901 81	Welland Canal System— Welland Canal..... Welland Ship Canal.....	4,583 07 6 25	975 00	1,741 67 1,735 74	90,302 33 980 90	163,184 40 178 92	260,786 47 2,901 81
117,498 89	339,311 65	535 00	222,347 76	St. Lawrence Canals— Lachine Canal..... Beauharnois Canal..... Soulanges Canal..... Cornwall Canal..... Williamsburg Canal..... Chambly Canal..... Ottawa River Canals— Carillon and Grenville..... Chats Falls Canal..... Ste. Anne's Lock..... Rideau Canal..... St. Peter's Canal..... Murray Canal..... Trent Canal..... Sault Ste. Marie Canal..... Miscellaneous.....	1,688 28		490 00 311 00 192 00 326 00 662 00	209,199 97 48,027 81 3,848 91 25,211 83 1,591 50 593 90	10,969 51	222,347 76 48,027 81 4,159 91 25,410 50 6,074 50 1,258 90 1,240 64 1 00 449 00 20,339 71 186 12 276 00 97,637 77 195 00 76 00
123 18	1,123 82	240 00	1,240 64		1 00		280 00	959 64		1,240 64
9,541 84 5 00	399 00 8,583 87	50 00 2,214 00	449 00 20,339 71		637 33	10 00	50 00 2,214 00	399 00 7,695 04		449 00 20,339 71
335 13	94,586 64	2,716 00	97,637 77		111 24		247 00 2,716 00	77 12 24 00	13 00 5 00	186 12 276 00
	91 00	104 00	195 00				104 00	94,731 43 91 00	79 10	97,637 77 195 00
92,647 32	772,701 89	11,314 33	691,368 90		7,893 84	985 00	11,165 41	483,739 38	187,585 27	691,368 90

CANALS REVENUE RECEIVED DURING FISCAL YEAR 1930-31

House rents, as above.....	\$	11,165 41
Hydraulic and other rents, as above.....	\$	483,739 38
Wharfage, winterage and miscellaneous.....		494,904 79
Port Colborne elevator.....		41,822 54
Prescott elevator.....		462,013 42
Total (see statement No. 7) Expenditure and revenue account.....	\$	27,980 08
	\$	1,026,670 83

APPENDIX No. 8

PORT COLBORNE Elevator—Expenditures and Revenues

	Capital	Income	Revenue		Total Expenditure	Revenue received
			Staff	Repairs		
1904-05 Construction	19,325 34				19,325 34	
1905-06 "	102,974 42				102,974 42	
1906-07 "	24,063 96				24,063 96	
1907-08 "	581,701 35				581,701 35	
1908-09 "	89,669 87		1,634 53		91,304 40	
1909-10 "	3,048 38		22,792 19	1,725 54	27,566 11	12,061 46
1910-11 "	34,086 26		15,177 89	2,340 97	51,605 12	20,203 28
1911-12 "			19,580 46	4,226 25	23,806 71	46,590 72
1912-13 Enlargement	81,814 63		26,053 85	4,559 98	112,428 46	60,828 06
1913-14 "	192,346 90		40,024 56	7,517 57	239,889 03	101,422 78
1914-15 "	104,950 21		63,701 77	14,167 12	182,819 10	176,674 38
1915-16 "	20,747 54		78,716 50	18,509 94	117,973 98	165,925 20
1916-17			81,489 19	15,325 95	96,815 14	175,536 50
1917-18			85,473 94	13,180 80	98,654 74	163,164 82
1918-19			61,501 26	11,704 12	73,205 38	129,676 68
1919-20 Reconstruction		349,905 01	45,338 74	25,081 36	420,325 11	123,862 95
1920-21 "		449,832 45	48,317 06	13,990 45	512,139 96	25,078 83
1921-22 Original construction	7,000 00		144,465 21	19,722 65	171,187 86	294,558 51
1922-23 Reconstruction			109,399 49	26,188 29	135,587 78	356,740 43
1923-24 Extension	76,414 96		139,352 76	50,852 89	266,620 61	355,627 07
1924-25 "	426,596 74		138,493 05	62,053 07	627,142 86	357,947 89
1925-26			129,487 11	69,177 86	198,664 97	388,678 92
1926-27			153,351 59	72,042 28	225,393 87	494,455 92
1927-28		11,525 60	195,408 48	76,250 16	283,184 24	614,466 25
1928-29		23,563 95	206,718 81	69,724 42	300,007 18	581,113 44
1929-30		21,379 86	127,840 54	71,489 45	220,709 85	404,680 23
1930-31		18,873 52	137,999 93	55,777 97	212,651 42	462,013 42
<b>Total</b>	<b>1,764,740 56</b>	<b>875,080 39</b>	<b>2,072,318 91</b>	<b>705,609 09</b>	<b>5,417,748 95</b>	<b>5,511,307 74</b>

Expenditure prior to April, 1 1927, included, in Departmental Reports with Welland Canal appropriations.

## APPENDIX No. 9

## HUDSON BAY RAILWAY—Expenditure to March 31, 1931

Year	Capital		Deficits during operations		Total cost
	Schedule "G" Public Accounts	Schedule "L" Public Accounts	Amounts chargeable to appropriations under collection of Revenue	Schedule "I"	
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1909.....	92,427 83				92,427 83
1910.....	53,042 63				53,042 63
1911.....	184,149 81				184,149 81
1912.....	159,632 00				159,632 00
1913.....	1,009,024 52				1,009,024 52
1914.....	3,071,631 22				3,071,631 22
1915.....	3,256,074 39				3,256,074 39
1916.....	2,981,425 47				2,981,425 47
1917.....	1,792,190 39				1,792,190 39
1918.....	1,288,789 61				1,288,789 61
1919.....	641,318 69				641,318 69
1920.....	247,153 67		*51,585 17		195,668 50
1921.....			*22,484 42		22,484 42
1922.....	61,563 43		*49,397 98		110,961 41
1923.....	13,824 94		*26,293 27		40,118 21
1924.....	183,250 35	27,104 38		111,924 37	322,279 10
1925.....	53,848 38	296,439 06		51,567 80	294,158 48
1926.....		133,983 32		39,351 03	173,334 35
1927.....	2,808,549 31				2,808,549 31
1928.....	2,674,224 57				2,674,224 57
1929.....	3,389,084 88				3,389,084 88
1930.....	5,357,692 75				5,357,692 75
1931.....	1,557,298 81				1,557,298 81
Total.....	30,274,193 55	457,526 76	149,760 84	202,843 20	31,084,324 35

NOTE.—Above items under "Schedule L" in Public Accounts form part of cash loans to Canadian National Railways.

\* These items form part of Canadian Government Railways deficits shown elsewhere under heading of "Government expenditure relative to Railways."

PORT NELSON AND FORT CHURCHILL TERMINALS—Expenditure to March 31, 1931

	Port Nelson		Fort Churchill	
	Capital	Amounts chargeable to appropriations under collection of Revenue	Capital	Amounts chargeable to appropriations under collection of Revenue
	\$	cts.	\$	cts.
1913.....	90,038	63		
1914.....	1,427,086	03		
1915.....	1,517,669	60		
1916.....	1,905,706	30		
1917.....	812,089	55		
1918.....	590,909	39		
1919.....	78,760	89		
1920.....	11,545	19		
1921.....	121,063	71		
1922.....	34,769	87		
1923.....	27,802	56		
1924.....	24,621	93		
1925.....	2,184	04		
1926.....	2,484	07	20,587	31
1927.....	1,548	80	13,429	71
1928.....	364	76	16,905	09
1929.....			880,643	30
1930.....			2,770,478	07
1931.....			1,039,133	69
			2,582,390	47
<b>Total.....</b>	<b>6,240,200</b>	<b>86</b>	<b>7,289,550</b>	<b>62</b>
				<b>402 37</b>

HUDSON BAY RAILWAY AND TERMINALS—Summary of Expenditure to March 31, 1931

	Cost to March 31, 1930	Net expenditure Fiscal Year 1930-31	Total cost to March 31, 1931
	\$	cts.	\$
1. Railway.....	29,527,025	54	1,557,298 81
2. Port Nelson Terminals.....	6,274,217	88	31,084,324 35
3. Churchill Terminals.....	4,707,562	52	6,274,217 88
<b>Total.....</b>	<b>40,508,805</b>	<b>94</b>	<b>2,582,390 47</b>
			<b>44,648,495 22</b>

## APPENDIX No. 10.—Welland Ship Canal—Amounts Expended on Construction to March 31, 1931

	Year ending	Capital
		\$ cts.
Government expenditure.....	1914	994,257 60
“ “ .....	1915	4,074,200 69
“ “ .....	1916	4,892,105 15
“ “ .....	1917	3,513,769 82
“ “ .....	1918	1,235,046 59
“ “ .....	1919	1,823,875 96
“ “ .....	1920	3,499,963 35
“ “ .....	1921	5,070,297 57
“ “ .....	1922	4,279,815 61
“ “ .....	1923	4,776,393 84
“ “ .....	1924	6,465,512 55
“ “ .....	1925	9,909,636 95
“ “ .....	1926	11,960,465 11
“ “ .....	1927	13,846,472 92
“ “ .....	1928	13,722,925 75
“ “ .....	1929	13,211,259 03
“ “ .....	1930	9,378,626 15
“ “ .....	1931	
“ “ .....	\$ 9,603,781 04	
Less sale of materials.....	11,888 77	9,591,892 27
Total.....		122,246,516 91

Expenditure as above..... \$ 122,246,516 91

To which add the preliminary expenditure for survey, borings, etc., charged to Welland canal capital as follows:—

1905-06.....	\$ 13,231 97	
1906-07.....	10,825 27	
1907-08.....	8,300 34	
1908-09.....	19,993 37	
1909-10.....	9,979 91	
1910-11.....	21,229 35	
1911-12.....	23,138 60	
1912-13.....	112,890 92	
1915-16.....	17,627 36	
Total cost of Welland Ship Canal to March 31, 1931.....	\$ 237,217 09	\$ 122,483,734 00

APPENDIX No. 11.—Prince Edward Island Car Ferry and Terminals—Expenditure to March 31, 1931

Fiscal Year	Terminal		Ferry Steamer		Total	
	\$	cts.	\$	cts.	\$	cts.
<b>Original Ferry and Terminals—</b>						
1912-13.....	8,276	20			8,276	20
1913-14.....	117,412	30			117,412	30
1914-15.....	566,613	63			566,613	63
1915-16.....	648,803	34	673,790	00	1,322,593	34
1916-17.....	600,641	68	4,035	18	604,676	86
1917-18.....	301,232	90	3,122	14	304,355	04
1918-19.....	55,730	58			55,730	58
1921-22.....	97,000	00			97,000	00
1923-24.....	196,417	63			196,417	63
	2,592,128	26	680,947	32	3,273,075	58
<b>Additional Ferry and Terminal Improvements—</b>						
1928-29.....	172,774	85	87	50	172,862	35
1929-30.....	84,243	27			84,243	27
1930-31.....	826,911	82	1,673,068	18	2,500,000	00
	1,083,929	94	1,673,175	68	2,757,105	62
<b>Total expenditure.....</b>	<b>\$ 3,676,058</b>	<b>20</b>	<b>2,354,123</b>	<b>00</b>	<b>6,030,181</b>	<b>20</b>

APPENDIX No. 12.—Railway Grade Crossing Fund Expenditure to March 31, 1931

Fiscal Year	Expenditure under Statutory authority		Expenditure from Unemployment Relief under authority of O.C., P.C. 2580 November 5, 1930		Total		
	\$	cts.	\$	cts.	\$	cts.	
1909-10.....		70				70	
1910-11.....	6,909	18			6,909	18	
1911-12.....	7,643	14			7,643	14	
1912-13.....	20,807	38			20,807	38	
1913-14.....	39,968	11			39,968	11	
1914-15.....	92,099	48			92,099	48	
1915-16.....	47,079	99			47,079	99	
1916-17.....	46,630	53			46,630	53	
1917-18.....	13,740	85			13,740	85	
1918-19.....	8,715	46			8,715	46	
1919-20.....	12,359	74			12,359	74	
1920-21.....	56,772	62			56,772	62	
1921-22.....	13,292	44			13,292	44	
1922-23.....	46,885	94			46,885	94	
1923-24.....	44,439	94			44,439	94	
1924-25.....	39,436	49			39,436	49	
1925-26.....	66,224	53			66,224	53	
1926-27.....	126,490	81			126,490	81	
1927-28.....	678,787	53			678,787	53	
1928-29.....	855,815	17			855,815	17	
1929-30.....	475,055	11			475,055	11	
1930-31.....	639,724	25		32	639,757	21	
	3,338,948	69		32	3,338,981	65	
<b>Statutory authorizations from April 1, 1909, to March 31, 1931: 22 years at \$200,000 per annum.....</b>	<b>4,400,000</b>	<b>00</b>					
<b>Unemployment Relief: Amount authorized by O.C., P.C. 2582 dated November 5, 1930.....</b>			<b>500,000</b>	<b>00</b>	<b>4,900,000</b>	<b>00</b>	
<b>Expenditure 1st April, 1909, to March 31, 1931.....</b>	<b>3,338,948</b>	<b>69</b>		<b>32</b>	<b>3,338,981</b>	<b>65</b>	
<b>Unexpended balance at March 31, 1931.....</b>	<b>1,061,051</b>	<b>31</b>		<b>499,967</b>	<b>04</b>	<b>1,561,018</b>	<b>35</b>

APPENDIX No. 13.—Statement of security deposits held, drawback retained, and estimated balance of contractual commitments for work to be performed and/or materials to be delivered after March 31, 1931.

	Number of contracts	Security deposits held as at March 31, 1931	Drawback retained as at March 31, 1931	Estimated balance of contractual commitments for work to be performed and/or materials to be delivered after March 31, 1931
		\$ cts.	\$ cts.	\$ cts.
<b>CAPITAL—</b>				
<i>Railways—</i>				
Prince Edward Island Car Ferry and Terminals.....	4	161,500 00	74,432 86	734,483 88
Hudson Bay Railway and Terminals.....	7	275,553 65	57,369 45	2,844,465 17
<i>Canals—</i>				
St. Ours Lock.....	1	50,000 00	19,614 75	194,467 49
Welland Ship Canal.....	*75	1,323,855 33	1,221,261 18	4,121,700 02
Cement Co's. (Dominion Canals).....	2	19,722 83		
<b>CONSOLIDATED REVENUE FUND—</b>				
<i>Canals—</i>				
Carillon and Grenville.....	1	2,531 00	2,645 73	11,520 95
Rideau.....	1	210 00		
Soulanges.....	1	75 00		
St. Peters.....	1	1,359 00		
Trent.....	3	19,650 00	11,732 24	171,093 68
Welland.....	1	200 00		
Sub-total.....		1,854,656 81	1,387,056 21	8,077,731 19
CANADIAN GOVERNMENT RAILWAYS SUSPENSE	10	108,690 90		
Totals.....	107	1,963,347 71	1,387,056 21	8,077,731 19

\*Includes 30 Purchasing contracts.

## REPORT OF THE CHIEF ENGINEER OF THE DEPARTMENT OF RAILWAYS AND CANALS

SIR,—I have the honour to submit my annual report for the fiscal year ending March 31, 1931.

The canal system of Canada comprises a series of canals and canalized waters by which a total waterway of 1,891 miles has been opened to navigation. These canals may be considered under two main classes; the through St. Lawrence and Great Lakes route and the subsidiary canals or branches. By the former, communication with seaports is made possible for vessels of not more than 14 feet draught which navigate the Great Lakes. The latter or branch system of canals serves for the most part the requirements of a merely local traffic.

The through water route between Montreal, at the head ocean of navigation, and Fort William and Port Arthur, on the west shore of lake Superior, comprises 76 miles of canal, with thirty-one locks and 1,142 miles of river and lake waters or a total of 1,218 miles. The minimum depth of water on this route, at normal low water level, is 14 feet. From Montreal to Duluth, at the southwest end of lake Superior, the total distance is 1,337 miles and to Chicago 1,244 miles. Connection is made with the Canadian Pacific Railway from points west and south at Fort William and Port Arthur (6 miles apart). From Fort William, connection with the main transcontinental line of the Canadian National Railways is made by the branch line originally constructed by the Grand Trunk Pacific Railway, but now operated by the Canadian National Railways. At Port Arthur, the Canadian National Railways have an additional connection with points west and south *via* the old main line of the Canadian Northern Railway.

A full statement of the various canals and canalized waters now in operation, with their mileage, limiting dimensions, etc., is the subject of a separate departmental publication, "The Canals of Canada" (1931 edition). A summary of this data is, however, appended to this report.

In the detailed report which follows, the various canal systems, etc., are taken up in the following order:—

1. The present St. Lawrence and Great Lakes route between Montreal and lake Superior, including the Lachine, Soulanges, Cornwall, Farran's Point, Rapide Plat, Galops, Welland, Welland Ship and Sault Ste. Marie canals.
2. The route from Montreal to Kingston *via* the Ottawa and Rideau rivers, including the Ste. Anne lock, and the Carillon and Grenville and Rideau canals.
3. The navigation of the Richelieu river from its junction with the St. Lawrence at Sorel to lake Champlain, including the St. Ours lock and Chambly canal.
4. The route from lake Ontario to Georgian bay *via* the Trent river, including the Murray and both divisions of the Trent canal.
5. The St. Peters canal across the isthmus at the southerly end of Cape Breton island connecting the Bras d'Or lakes with the Atlantic ocean.
6. Miscellaneous works.

## 1. THE ST. LAWRENCE AND GREAT LAKES ROUTE

For the St. Lawrence river system of canals as a whole, traffic returns showed an increase in tonnage handled of 8 per cent over the year before. Way traffic on these canals totalled 5,351 vessels, through traffic, 4,168. The total tonnage of all cargoes transported amounted to 6,179,023.

## (a) LACHINE CANAL

This canal, which lies across the southeasterly portion of the island of Montreal, overcomes the Lachine rapids, between the harbour of Montreal and lake St. Louis. It is 8.74 miles long, and has five locks with a minimum depth, at normal low water level, of 14 feet.

The canal opened for traffic April 23 and closed December 12 and was operated without serious accident or delay to navigation during the entire year.

Among the more important works of construction and maintenance attended to the following may be noted:—

The emergency gate at south lock 2 was renewed and a spare gate constructed for this lock. At north lock 3 the four top courses of masonry, which had been removed over a length of 500 feet, were replaced by a concrete wall. A new rack was installed at the weir of lock 4.

Along the canal reaches extensive repairs were carried out. On the south side, west of Wellington street bridge, 272 lineal feet of dry wall was removed to water level and replaced by a concrete wall 6½ feet high. A further length of wall of nearly 600 feet was taken down and will be similarly replaced by concrete during the coming season. On the north bank between Charlevoix street bridge and the Canadian National Railways crossing and on the south bank, from Atwater Avenue bridge westward to a point 300 feet beyond the Canadian National Railways crossing, the old wall was rebuilt in a similar manner a total length of 2,710 feet. From Côte St. Paul bridge westward on the south side a total of 1,196 feet of wall was similarly reconstructed. A further length of 900 feet was demolished in readiness for rebuilding in 1931. Below lock 4 the north wall was underpinned for a distance of 874 feet.

New floors were laid on Black's, Wellington, Atwater and Côte St. Paul bridges, and on the fixed bridge over Weir 3, the steelwork of Seigneurs' and Charlevoix bridges was sand-blasted and painted and various lesser repairs attended to at other bridges.

At Flour Basin 1, one corner of the pier was removed and rebuilt in concrete and various smaller repairs were made to wharves between the Colborne street sheds and along St. Gabriel basin.

A concrete garage 25 feet by 76 feet, with capacity for six cars, was constructed in the Mill street yard. The new blacksmith shop was completed by the installation of heating and sewage systems and electric wiring. At the old power house, the flume to the canal was filled in and a concrete wall built across the opening.

The floating plant of the canal, consisting of tug *Lachine*, one steel gate lifter, one floating derrick and two flat scows, underwent various repairs during the winter. The tug and derrick were caulked and painted and all machinery thoroughly gone over. A new scow 28 feet by 56 feet was constructed ready for the reception of a derrick. Previously blasted rock, on the north side of the canal along the Dominion Bridge Company's wharf at Lachine, was dredged to increase the depth from 13½ to 14½ feet, making possible the turning of vessels at this point. The rock removed amounted to about 900 cubic yards.

## (b) SOULANGES CANAL

The entrance to this canal lies 16 miles west, or upstream, of the upper end of the Lachine canal. The canal is 14.67 miles in length, has five locks with a minimum depth of 15 feet, and extends from Cascades Point to Coteau Landing, overcoming the Cascades, Cedars and Coteau rapids.

Navigation opened April 23 and closed December 11, and no serious accidents or delays in the movement of traffic occurred during the season of navigation.

Repairs and improvements carried out during the year included the following:—

For the greater convenience of boats entering the lock at Coteau, a stone-filled crib wharf was constructed in the re-entrant angle on the north side of the entrance to the guard lock. The face of this crib is 86 feet long, its depth at the centre 13 feet.

Two of the gates were replaced at lock 3 and one at lock 4.

New floors were laid on the Emmanuel road and Rivière Rouge road bridges. The St. Antoine road and St. Dominique road bridges were painted and lesser repairs made to two other bridges.

Landing platforms at locks 3 and 4 were rebuilt.

The Collector's office was removed from Coteau to Cascades Point, and general repairs made to various canal buildings, fences, machinery, etc.

During the past season the quarry produced 2,500 cubic yards of crushed stone and 900 cubic yards of one-man stone. The Lachine canal was supplied with 2,811 cubic yards of crushed stone and with 259 cubic yards of one-man stone.

The floating plant of the canal, consisting of tug *Carillon*, one gate lifter, one derrick scow and 6 flat scows, underwent various repairs during the winter. The *Carillon* was entirely repainted and other repairs attended to. The hull of the gate lifter was painted inside. On the derrick scow, a mast, boom and stiff legs were installed and the hull caulked and painted. Two of the flat scows also received general repairs.

## (c) CORNWALL CANAL

This canal, the foot of which lies at the westerly or upstream end of lake St. Francis, 31 miles from the head of the Soulanges canal, is 11 miles long, with six locks and a minimum depth of 14 feet. It surmounts the Long Sault rapids.

Navigation opened April 23 and closed December 11 and suffered no delays during the entire season.

At the weir of lock 20, six new valves were installed early in April. The lower gates of locks 15 and 18 were changed. Repairs were also made in the repairing basin to several pairs of gates and the repaired gates held in reserve. Below the weir of lock 18, the dry masonry return walls were taken down and rebuilt. At the guard gates above lock 20 the two top courses of the north abutment were removed and rebuilt.

In April, 1930, before the canal had been filled, a considerable slide, about 60 feet in length, occurred on the north side of the canal about a quarter of a mile below lock 19. Sufficient of the displaced material was immediately removed to provide a temporary channel. After the filling of the canal the prism was fully cleaned out by dredge, the slope below water re-established with field stone and the portion above filled with earth and faced with stone. During the 1930 summer season about 4,000 feet of stone protection was placed on canal banks chiefly between lock 21 and the upper dam on the summit level. Between locks 15 and 17 about 60 feet of the dry masonry wall on the south side, which had become badly dilapidated, was rebuilt after the close of navigation. The south bank between lock 20 and the New York Central Railroad bridge, which had settled considerably, was brought up to original grade.

A catch water ditch 1,100 feet long and 3 feet deep along the north side of the canal grounds, was constructed between locks 19 and 20 to replace the old ditch on private property.

The usual repairs to motors and other machinery, telephones and transmission lines, lock gates, bridges, buildings etc., as well as the care of canal grounds and decorative plants were given customary attention.

Repairs and improvements to the floating plant included the scraping and painting of the hull of the steel gate lifter, the re-tubing of the boiler of the floating derrick from the Williamsburg canals and the construction of a new flat scow 18 feet by 65 feet.

#### (d) FARRAN'S POINT CANAL

This canal, together with the Rapide Plat and Galops canals, which succeed it up-stream, form the group known as the "Williamsburg Canals." The length of the Farran's Point canal is 1.28 mile. It has one lock and is situated 5 miles west of the Cornwall canal.

The season of navigation extended from April 23 to December 11.

One accident, which however occasioned no delay to traffic, occurred during the navigation season. On May 6 the motor vessel *Marie Lydia*, upbound, collided with the upper gates of lock 22, breaking the top bar and foot-bridge and partly displacing the gates.

Of repairs and improvements the following may be noted: Damages sustained along the south bank from abnormally high water early in the season were partially repaired at a later date and will be completed this year.

Repairs were made to the gates of lock 22. The old timbers supporting the filling valves were renewed.

The new electric lighting system for this canal, installed during the winter of 1930, was in operation during the ensuing season of navigation.

#### (e) RAPIDE PLAT CANAL

This canal extends from the town of Morrisburg to Flag's bay, a distance of 3.89 miles. It is situated  $9\frac{1}{2}$  miles above the Farran's Point canal and has two locks.

Navigation opened April 23 and closed December 11.

Only one accident occurred during the year. On November 9 the steel barge *Redhead*, downbound, damaged her bottom on the south bank and sank about half way down the canal. Ample space, however, remained for other vessels to pass and the repairs necessary to allow this vessel to proceed were completed within three days.

Damage to the south bank resulting from the high water of the previous season was repaired by the deposit of earth filling reinforced by heavy stone protection.

All four gates of old lock 23 at Morrisburg were removed, rebuilt in the repair yard and replaced. The timbers supporting the valves in the regulating weir of this lock were replaced by a new timber frame. Valve shafts of all valves were thoroughly inspected and repaired where necessary.

On the tow-path a new foot-bridge was built across the creek west of lock 24 for the use of crews of downbound vessels.

The roadway from the highway to the canal office was widened and regraded and fenced along the canal.

The new electric lighting system for this canal, installed during the winter of 1930, was in operation last season.

## (f) GALOPS CANAL

Situated about  $4\frac{1}{2}$  miles west of the Rapide Plat canal, the Galops canal extends from the village of Iroquois to a point about  $1\frac{1}{2}$  mile above the town of Cardinal, a distance of 7.36 miles. It surmounts the last series of rapids met with between Montreal and lake Ontario, and has three locks, a lift lock at the easterly entrance, a guard lock at the upper entrance and a lift lock beside the guard lock for overcoming the Galops rapids only.

This canal was opened to navigation on April 23 and closed December 11.

One delay to navigation occurred during the season. On May 8 the steamer *Keybell*, downbound, on backing away from the wall below lock 28 where she was moored, struck the north lower gate and caused some damage. The necessary repairs were made and locking resumed within twelve hours.

About 1,200 lineal feet of stone protection along the canal banks was repaired.

The road leading from the highway to locks 27 and 28 was repaired and the side ditches deepened.

At the Cardinal swing-bridge a new main shaft and pinion, a new friction shaft and two new sections of circular rack on the pivot pier were installed. A new 3-inch plank floor, covered with tarvia and stone chips, was laid between the rails of the railway track. General repairs also were made to the Iroquois bridge.

A 4-inch concrete slab was laid behind the coping on the south side of lock 27 with a width of 16 feet, extending the entire length of the lock chamber.

The small park at Morrisburg and all flower beds and grounds were as usual attractively maintained.

## (g) WELLAND CANAL

Lakes Erie and Ontario, with a difference in level of 327 feet, separated by the Niagara peninsula about 24 miles in width, were first united for purposes of inter-navigation by the construction of a small canal, between the years 1824 and 1829. This canal leaving lake Ontario at Port Dalhousie traversed half the width of the peninsula *via* St. Catharines, Thorold and Allanburg, to Port Robinson from which point a connection was made *via* the Welland river to an outlet into the Niagara river at Chippawa, about two miles above the Niagara falls. During subsequent years up to 1850, this original canal was reconstructed and improved, a direct route from Port Robinson to an entrance to lake Erie at Port Colborne being substituted for the original circuitous channel *via* Chippawa and the Niagara river. Between 1875 and 1887 the portion of the canal between Port Dalhousie and Thorold was reconstructed on a new alignment and the remainder enlarged to provide a navigable depth of 14 feet throughout. This last canal, 26.75 miles in length with twenty-six locks, remained in operation until the close of the 1929 season.

During the season of 1930 portions of the Welland canal were still operated in conjunction with the almost-completed ship canal. From the opening of navigation, on April 21, until June 21 traffic in both directions followed the old route both between lock 11 and the turning basin above lock 24 and between Port Robinson and Welland. The latter diversion was abandoned after June 23, but until September 10 locks 11 to 24 were continued in use for both upbound and downbound vessels. Between September 10 and October 7 and again from October 24 to November 22 upbound vessels only were diverted from the new route. All traffic, however, used the diversion from October 7 to 24. After November 22 the further operation of locks 11 to 24 was discontinued and all traffic, until the close of navigation on December 20, was accommodated by the ship canal. It is expected that during the 1931 season the only part of the Welland canal to be kept in operation will be that portion between Port Dalhousie and the basin above locks 1 and 2.

Between Port Dalhousie and Thorold, there were in 1930 4,006 transits of vessels during the navigation season as against 3,764 in 1929. Through lock No. 1 only at Port Dalhousie there were 207 passages, 101 upbound and 106 downbound. The freight carried during the season through the combined canals amounted to 6,087,910 tons, a figure only exceeded by the records of 1927 and 1928.

There were no serious accidents or interruptions to traffic during the entire navigation season. A delay, of about four hours, was occasioned on July 2 owing to the necessity of lowering the water to allow of repairing a small leak at the westerly end of the lock 20 weir.

Of repairs and improvements carried out the following may be noted:—

On the Welland canal only such repairs were attended to as were necessary for the proper maintenance and operation of the various structures.

*Old Canal.*—Under contract with the Canadian Dredging Company certain shallow portions of the old canal above lock 1 near Port Dalhousie were dredged along the route of the "Henley Regatta Course," the work being completed early in August.

At Merritt street, Merriton, the wooden highway bridge was replaced by a 30-inch diameter metal culvert and an earth fill which will, next season, be provided with a foot walk and railings. The superstructures of the steel bridges over lock 2 and the by-pass below the weir were painted.

Necessary repairs were made to all subaqueous works between the supply weir south of Thorold and lock 3 while this portion of the canal was unwatered between May 23 and 26.

The removal of the lower gates of lock 9 and most of the gate bars at the upper end of this lock now permit of the total flow of the old canal passing through this lock and none through the weir, which had become so undermined as to be unsafe to carry a head of water. The lock 9 reach is thus very much lowered. Openings were also cut in the gate bars of locks 6, 10, 15, 16 and 17 to relieve the weirs.

*Feeder Canal.*—Under contract with Kett Brothers of Hagersville, Ont., an earth fill was placed in front of waste weir 3 at the southerly end of the embankment dam near Dunnville. The waste weir had become badly undermined. The new fill while acting as a watertight dam also carries highway traffic which formerly used the weir bridge. To compensate for the closing of this weir the sill of the Dunnville dam under the long bridge was lowered. The concrete apron of the dam received various minor repairs necessitated by damage from freshets.

The steel superstructures of bridges at Sulphur creek and at Forks road were both painted.

The approaches to the Port Maitland ferry, badly damaged by spring freshets, were rebuilt.

#### (h) WELLAND SHIP CANAL

This work, which has been in progress since the latter part of 1913, is now rapidly approaching completion and although all items of construction will not be finished before the end of 1932, the entire waterway, with certain restrictions as to width of channel available was opened to 18 foot navigation for vessels of St. Lawrence canal size on November 22, 1930. On the opening of last year's navigation on April 21, locks 1, 2 and 3 were placed in commission; a diversion to the Welland canal, as already noted, was then made to the turning basin above lock 7. The remainder of the route, with the exception of another diversion to the former canal between Port Robinson and Welland until June 23, was then followed to Port Colborne, 14 foot through navigation only being provided. On September 10 all downbound traffic was routed through lock 7 and the flight

locks, upbound traffic following the old route, but between October 7 and 24, owing to the necessity of closing lock 7 for repairs, all traffic had again to use the diversion. Between October 24 and November 22 downbound traffic was resumed on the new route. From this latter date until the close of navigation on December 20 the entire new waterway was available for through traffic in either direction with a minimum depth of 18 feet. The average time of transit from lake to lake was approximately seven and one-half hours.

The new ship canal leaves lake Ontario at the original mouth of Ten Mile creek, now known as Port Weller, about 3 miles east of Port Dalhousie, where a harbour of entry has been constructed, and follows an entirely different route from the present canal as far south as Allanburg. From here it proceeds in general along the line of the former canal to a point about one mile north of the village of Humberstone, where another diversion, about two and one-half miles in length, is made to the east of the present waterway. The route of the former canal is then followed for the final half mile to the lake Erie entrance at Port Colborne. The total distance traversed from lake to lake is 25 miles. The difference in level between the two lakes, 327 feet, is overcome by seven lift locks, all of which are now practically completed, with lifts varying from 43 feet 8 inches to 47 feet 10 $\frac{3}{4}$  inches, and one guard lock of variable lift. The lift locks are 859 feet long between inner gates and 80 feet wide and provide a depth of 30 feet of water over the mitre sills. The width of the canal prism at bottom is 200 feet. For purposes of construction the route of the new canal has been divided into eight sections numbered in order from Port Weller southerly. The main construction operations of the entire canal have been performed under contract.

While during the war years and for some time after construction work was, through many causes, greatly retarded or entirely at a standstill, it has progressed during the past nine years in a very satisfactory manner.

Following is a brief account of the more important work carried out or still in hand on the various sections of the canal during the year just ended.

*Section No. 1.*—Commencing with the harbour works of Port Weller, this section extends in a southerly direction, a distance of nearly 3 miles, and comprises the harbour construction, prism excavation, one lock with weirs, one highway bridge over the canal, a gate yard, etc.

When work on the present contract with Johnston P. Porter (which included all general construction but that of the gate yard) was commenced in September, 1921, about 30 per cent of the entire undertaking still remained unfinished. For the past five years the principal work included in this contract has been practically completed. Various small operations have however been in progress, such as the sodding of slopes and embankments, the macadamizing of areas adjacent to the lock, the reinforcement of harbour embankment slopes, etc.

During the month of August last, the P. Lyall & Sons Construction Company, contractors for Sections Nos. 3 and 4, transferred a quantity of uncrushed rock from their storage pile to the outer slope of the west harbour embankment at Port Weller, completing the rock protection at this point.

*Section No. 2.*—The extent of this section is approximately 4 $\frac{1}{2}$  miles. The work involved has comprised the taking out of canal prism and construction of embankments, the building of locks 2 and 3 with entrance walls, etc., and of three highway bridges.

The work on this section has been prosecuted under the same contract as that of Section No. 1. Under the original pre-war contract about 58 per cent of the entire undertaking had been completed.

The removal of all material displaced by the slide in 1929 from the east slope of the prism, near bridge 4, mentioned in last year's report, was completed in 1930.

During the winters of 1929 and 1930 the Welland canal banks extending across the line of the ship canal prism just south of lock 3 were removed and a temporary 14-foot channel, providing access to the flight locks, was excavated. A temporary channel of 14 feet draught was also excavated from the head of lock 3 to the foot of lock 11 of the Welland canal thus providing for a temporary alternative route between lock 3 and the Thorold turning basin. At the close of navigation in December last the reach above lock 3 was unwatered and during the succeeding winter months the drainage ditch excavation at the head of this lock was completed, the Homer road bridge was removed and the permanent east embankment of the ship canal constructed across the lower entrance to lock 11 of the Welland canal. On the opposite side of the prism the gap in the west entrance wall, which had remained during the 1930 season to provide access to Port Dalhousie *via* the old route, was filled in by the completion of this wall and the placing of the back filling across the prism of the former canal. By the end of March all work on the permanent prism above lock 3 had been completed. The only work now remaining to be done of Section No. 2 is a general trimming up of the area west of the upper entrance wall to lock 3.

A general summary of the work performed on Sections Nos. 1 and 2 may now be given as follows:—

Rock excavation.....	100·0 per cent
Earth excavation.....	99·9 “
Concrete work.....	100·0 “
Watertight embankments.....	100·0 “

*Section No. 3.*—This section extends southerly from Section No. 2 for a distance of about two miles. The work involved, which since 1922 has with Section No. 4 been carried on under contract with the P. Lyall & Sons Construction Company Limited, has comprised the excavation of canal prism and lock sites, the construction of three twin locks in flight and one single lock, together with masonry approach walls, three bridges, a core wall for a dam, control weirs and other minor structures and the building of a large earth dam at the head of the flight locks.

In September, 1929, the Lyall Company went into voluntary liquidation. The work, however, has continued without interruption, having been carried on under direction of the receiver.

At the north end of the section the contractors' stone-crushing plant, being no longer required, was entirely dismantled and the area cleaned up and finally graded during the summer of 1930. In conjunction with this work the railway ramp down the prism slope below lock 4 was removed and the slope trimmed and sodded.

On the opening of bridge 6 to main line traffic, the temporary spans in the railway diversion across twin locks 6 were removed. All work at twin locks 4, 5 and 6, which included a general clean up of the adjacent areas, the sodding of slopes, the filling of centre wall areas, macadamizing of roadways, etc., was completed last season.

The portion of the Welland canal between lock 11 and the reach above lock 24 being in operation all last season, work on the locks 6 pondage area and dam was confined to such operations as could be carried out without interference with navigation and consisted in excavation along the site of the dam between the regulating weir and the east side of the Welland canal and the construction of a portion of the core wall. In conjunction with these operations, work on the locks 6 weir was considerably advanced. By the end of August all concrete work in the weir structure had been completed and following this a considerable portion of the slope protection slabs in the west channel north of the weir was placed. As the Welland canal between locks 11 and 24 has now been abandoned,

work in the pond 6 area will, during the coming season, proceed more actively than has hitherto been possible. At lock 7 the filling in rear of the east and west walls was completed and the slopes trimmed and sodded. The towpath from Peter street to the foot of the flight locks was macadamized and the guard rail erected.

On the unwatering of lock 7 at the close of the navigation season, it was found that extensive scour had taken place along the front of the lower east entrance wall. To effectually stop this action, the concrete of the lock floor was extended north over the entire entrance area between the walls, the work being carried on during the winter months. Concurrently with these operations lock 24 of the Welland canal was removed and the retaining wall from the east side of lock 7 across the lock 24 area to the west side of the supply channel to weir 7 was completed. As these operations involved the removal of the Peter street swing span over old lock 24, a temporary trestle was provided to accommodate road traffic and work was commenced on the approach spans to bridge 7. By the end of March, this bridge structure was nearing completion and will be ready for traffic early in April. The excavation of the supply channel from the south end of lock 7 to the regulating weir site was also carried on during the past winter and is now practically finished with the exception of the placing of slope protection. All concrete in regulating weir 7, except the lower approach walls, has been completed. The approach walls will be finished during the coming summer after the completion of the discharge channel through lock 22.

The chief items of work still remaining to be carried out on this section are as follows:—Rock excavation in the discharge channels of regulating weirs 6 and 7, earth excavation in the completion of the pond 6 dam and in the discharge channel of the pond 6 regulating weir, and a small amount of concrete work in the fixed east approach spans of bridge 7, in the slope protection of the channels of weir 7 and in slope protection work at the pond 6 dam, and in the placing of water-tight material for the completion of the east end of pond 6 dam.

The general progress of work on the section may be summarized as follows: Rock excavation, 99·8 per cent; earth excavation, 89·4 per cent; concrete work, 97·7 per cent.

*Section No. 4.*—The extent of this section is about 2 miles southerly from the end of Section No. 3 or from the southerly end of the town of Thorold to one-third of a mile north of the northerly end of the village of Allanburg. The work involved has comprised excavation for canal prism and for foundations of guard gates and safety weir, the construction of Shriner's and Beaver Dams culverts, the relocation of a branch of the Canadian National Railways, the construction of two bridges, and various other lesser undertakings.

This section, as previously stated, is included with Section No. 3 under the P. Lyaal and Sons Construction Company's contract.

All rock excavation on this section, which included the removal of the balance of the material at the south end of the turning basin, was completed. These operations were carried out during the first half of April, 1930.

In the guard gate structure, concrete work in the lower east entrance wall was completed as well as the concrete work in the safety weir. The roadway across the latter structure became available for highway traffic in April 1930.

On the transfer of highway traffic to the safety weir the embankment on the south side, which during construction had been carrying this traffic, was removed by dipper dredge. All excavation at this weir had been completed before the close of last year's navigation season.

Those portions of the roadway in rear of the Ontario Paper Company's dock, which had been excavated for the placing of the dock wall, were filled in and the road surface reconstructed. At the same time the Paper Company completed the installation of its handling equipment and the construction of tunnels and a conveyer system between the dock and the company's plant.

Excavation operations on the west side of the prism by suction dredge was completed to final grade. All dredging in the prism of Section No. 4 is now finished.

The grading and sodding of slopes in the area east of the guard gate and along the sides of the prism was also extensively carried out.

The work now performed on this section may be summarized as follows: Rock excavation, 100 per cent; earth excavation, 99.7 per cent; concrete work, 98.9 per cent; and watertight embankments, 100 per cent.

*Section No. 4B.*—This section, which lies immediately south of Section No. 4, includes a stretch of canal prism one-quarter of a mile in length. It is situated immediately north of the junction of the present canal with the route of the ship canal near the village of Allanburg. The work to be performed has consisted of prism excavation, the construction of watertight embankments, and the building of a siphon culvert to carry the Davis creek under the canal. A contract covering this work was let to Johnston P. Porter, July 28, 1926.

By the end of March, 1930, a channel with a minimum width of 100 feet had been excavated for the full length of the section and on the opening of navigation all traffic was diverted to the new route and the Welland canal route to the west of the ship canal abandoned. Drilling, blasting and dredging of the prism were continued throughout the 1930 season and up to the beginning of January and drilling recommenced in March. At the close of the fiscal year the east half of the prism had been excavated and swept to provide a depth of 18 feet of water and the west half to 13 feet.

On the abandonment in April, 1930, of the portion of the Welland canal south of the guard gate the work of providing an open channel across the Welland canal prism to the outlet in Gibson lake was taken in hand. This work was completed by the end of October with the exception of the final trimming and grading of the areas on either side of the new channel which will be carried out this year.

All that now remains to complete the work on Section No. 4B is the further excavation of the prism to full width and final grade which, it is expected, will be carried out during the coming season. These operations will involve the removal of about 23,000 cubic yards of rock and 17,000 cubic yards of earth.

*Section No. 5.*—This section is about  $3\frac{1}{4}$  miles in length extending from Allanburg to Port Robinson. The work involved has comprised rock and earth excavation and dredging, the construction of two bridges, one at Allanburg and one at Port Robinson, and small quantities of concrete and stone protection along the canal banks.

The work on this section has been under contract with the Canadian Dredging Company, Limited, for the past eight years.

In March, 1925, work on this section had been discontinued, there remaining to be carried out the completion of the substructures of bridges 11 and 12 at Allanburg and Port Robinson, the removal of the two Welland canal swing bridges near the sites of the new bridges and dredging operations in the prism at these bridge sites. Work was resumed in June, 1929.

The completion of vertical lift-bridge 11 in March 1930 allowed of the immediate removal of the swing span at this point which it replaced. In April work was commenced on the removal of the masonry substructure of the former bridge and the remaining rock and earth in the prism in this vicinity. All this excavation was completed down to final grade by the close of the navigation season.

At the site of bridge 12 at Port Robinson the west half of the channel was deepened sufficiently during the summer of 1930 to provide for 18-foot navigation.

The erection of the substructure of bridge 12, under contract with the Canadian Bridge Company, was commenced in October last and it is expected that this bridge will be available for continuous operation during the month of April.

The work still remaining to be done on this section consists in the removal of the substructure of the former swing span at the site of bridge 12 and the completion of the prism excavation at this point. These final operations will be concluded during the coming summer.

*Section No. 6.*—This section extends from a point on Section No. 5, about one mile north of Port Robinson for a distance of approximately 5 miles southerly to Welland. The overlap on Section No. 5 became necessary on account of some silting which had taken place in the canal prism north of the original northerly boundary of Section No. 6. The work to be performed has included the dredging and enlargement of the present canal prism, the diversion of the Welland river, which crosses the line of the canal at the north end of the town of Welland, by means of a large siphon culvert of six 22-foot diameter concrete tubes, the construction of a highway bridge over the Welland river at Port Robinson, the building of watertight banks, concrete protection for slopes, etc.

A contract for the work on this section was awarded to the Atlas Construction Company, Limited and E. O. Leahey & Company, Limited, October 12, 1925.

After the completion of a channel for the accommodation of navigation in the west half of the prism opposite to the Welland canal aqueduct, the removal of the masonry of the aqueduct was commenced and these dredging operations were continued until the close of navigation in December. Other rock excavation on various parts of the prism included the removal of about 3,000 cubic yards of boulders.

Earth excavation in the prism was carried on over the entire extent of Section No. 6. This work was performed by two hydraulic and two dipper dredges and covered the removal of about 2,350,000 cubic yards outside the siphon culvert area and about 124,000 cubic yards within this area. Up to the present, about 92 per cent of the total earth excavation required has been completed. Various portions of the route, aggregating about 2 miles in length, have been excavated to full width and depth. The remaining stretches have for the most part been taken out to final grade for half the width of the prism only.

All watertight embankment construction was completed during the year. The work carried out consisted in the completion of the embankment across the original bed of the Welland river west of the canal prism and the placing of additional watertight material on two stretches of the east embankment of the canal. A total of about 38,000 cubic yards was deposited.

About 5,800 cubic yards of rock was placed during the year for the protection of prism slopes and the slopes of the intake channel of the Welland river siphon culvert. A small amount of this work still remains to be done for the completion of the rock bank across the abandoned prism of the Welland canal. A general trimming of slopes was also carried out in the vicinity of the siphon culvert and on the disposal areas. Such further work of this nature as remains will be attended to during the coming summer.

The work still remaining to be completed on Section No. 6 consists for the most part of prism excavation, including the removal of the rest of the masonry of the Welland canal aqueduct. It is expected that all this work will be carried out during the coming summer.

The general progress of work may be summarized as follows: Rock excavation, 52 per cent; earth excavation, prism, 90 per cent; siphon culvert area, 93 per cent; concrete work, 100 per cent; watertight embankments, 100 per cent.

*Section No. 7.*—This section, which is about 6 miles in length, extends from the city of Welland to the northerly limits of the village of Humberstone. The work to be performed, which since December 30, 1924, has been under contract with the Canadian Dredging Company, Limited, has included the dredging and enlargement of the prism of the existing canal to a point about one mile north of the end of the section, where the new line diverges from the old, the excavation

of the new line from this point to the point where it crosses that of the Welland canal north of Humberstone, the construction of five bridges, the building of retaining and dock walls at both end of the section, slope protection works, etc.

During the 1930 season, rock excavation operations were carried on over the lower end of the section and about 122,000 cubic yards of material removed. For a length of 4,400 feet the prism was excavated to final grade and swept to an elevation  $6\frac{1}{2}$  feet above this level. Further operations will be continued during the coming season and this portion of the prism swept to finished level.

Earth dredging consisted mostly in cleaning up portions of the prism to final width and grade and in removing material deposited by slides. The area in front of the Electro-Metallurgical Company's dock at Welland South was excavated to provide for boats with a draught in excess of 14 feet. To prevent the possibility of extensive subsidence on the east side of the prism on the lowering of the summit water level, the bank on this side, for a distance of  $3\frac{1}{2}$  miles, was flattened to a three to one slope. With the diversion of traffic to the newly completed bridge 13 in April, 1930, the temporary swing span at Bald and Division streets was removed and the prism excavation, including the removal of the substructure of the temporary bridge was completed. After the flattening of the slope on the east side of the prism, already noted, stone protection was placed at the water line and the slope sodded.

Concrete work carried on during the year included the completion of the retaining walls through the city of Welland on both sides of the prism, the back filling of these walls and the grading and cleaning up of the surrounding areas. At the south end of the section the east dock wall across the abandoned prism of the Welland canal was completed. The only concrete work now remaining to be done on Section No. 7 is that involved in the completion of the retaining walls on the east and west sides of the widened and deepened portion of the Welland canal west of the new route at the south end of the section.

Progress on this section may be summarized as follows: Rock excavation, 96 per cent; earth excavation, 99 per cent; concrete work 99 per cent; slope protection, 100 per cent.

*Section No. 8.*—This section, which extends from the north end of the village of Humberstone to deep water in lake Erie, is about 3 miles in length. The work to be performed has consisted in the excavation of a new route from the north end of the section for a distance of about  $1\frac{1}{2}$  miles, the dredging and enlargement of the present canal for the remainder of the route, the construction of guard lock 8 with entrance walls, etc., the construction of a supply weir across the Welland canal on Main street, Humberstone, the dredging and deepening of the harbour and the building of an extension to the breakwater at Port Colborne, the construction of three bridges and numerous other minor undertakings. The main contract for this work was let in February, 1924, to A. W. Robertson, Limited.

The chief operations carried on last season were in connection with the construction of the supply weir and the further excavation of the harbour area. Since September, 1929, when traffic was diverted to the new ship canal route through lock 8, construction has proceeded on the supply weir across the former Welland canal route at Humberstone. By the end of March, 1930, the area of the weir had been enclosed by a cofferdam, most of the excavation completed and a start made on the placing of concrete. Operations were proceeded with all last season. The three westerly sluices were completed in April with valves installed and this portion of the weir became available for the supply of water to the summit level at the opening of navigation. To allow of the easterly portion of the area remaining dry, a dividing cofferdam was constructed, as described on page 101 of last year's report. All concrete operations, together with the installation of the valves, was completed by the end of August, 1930, and highway traffic permanently diverted to the roadway deck of the com-

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pleted structure. The cribwork cofferdams were then removed by dipper dredge and the excavation of the approach and discharge channels completed. During the remainder of the year the valve operating machinery and its electrical equipment were installed and by the end of February the supply weir was under automatic electrical control. On the completion of the weir the temporary diversion channel on the east side was filled in and the disturbed area regraded.

In the area about lock 8 final trimming and sodding were completed and the decoration of this area commenced by the departmental forestry organization.

In February last the chamber of lock 8 was unwatered and the gates scraped and repainted by the Steel Gates Company. At the same time departmental forces scraped, painted and overhauled the intake and discharge valves and operating machinery of the lock.

Towards the end of last July, the excavation of the earth core between the prisms of the Welland and Welland Ship canals, just north of bridge 20 at Port Colborne, was commenced. By the close of the season this work had been carried sufficiently far to provide a temporary channel for the Valley Camp Coal Company's collier between the ship canal and the company's dock on the west side of the Welland canal prism. This excavation will be completed during the 1931 season.

On the harbour and lake divisions, drilling and dredging operations were carried out from April till December. Of drilling still to be done there remain now only two areas; in the west half of the channel 7,000 cubic yards, in the east half 9,000 cubic yards, all of which work, it is expected, will be completed this year. Two dipper dredges were employed almost continuously last season in the excavation of the harbour and lake division channels between bridge 21 and the southerly limit of the harbour. Sweeping operations were also carried on as weather permitted. From bridge 21 south for a distance of about 2,400 feet a channel on the east side averaging 100 feet in width and available for 20-foot draught vessels has been fully cleaned up. Beyond this point a few small areas still remain unfinished.

The work thus far performed on Section No. 8 may be summarized as follows: Rock excavation (dry), 99 per cent; rock excavation (wet), 95 per cent; earth excavation (dry), 98 per cent; earth excavation (wet), 85 per cent; concrete work, 99.5 per cent; steel sheet piling, 100 per cent.

*Construction Railway.*—The construction railway has during the past year been maintained chiefly for the accommodation of the department's own forces. After the completion of rock deliveries to Port Weller, noted under Section No. 1, the tracks on the west embankment were removed. A total of 8,578 cars was handled.

*Bridges.*—As noted in last year's report, all of the twenty bridges which span the canal had, with the exception of bridge 12 at Port Robinson, been practically completed by the close of the fiscal year 1929-30. A contract for the steel superstructure of this last bridge was let in September, 1930, to the Canadian Bridge Company. The erection of this bridge, a 200-foot vertical lift span for the accommodation of highway traffic, is now complete. It will be ready for continuous operation with the opening of navigation in April. Bridges 6, 9 and 13, mentioned in last year's report as not fully completed in every detail, were all put into satisfactory operation early in the 1930 navigation season.

Six of the twenty bridges, Nos. 6, 8, 10, 15, 17 and 20, are for railway traffic; the remaining fourteen are highway bridges. In was decided in 1928 that bridge 2, originally proposed as a highway crossing about midway between locks 1 and 2, would not be constructed.

All bridges are now supplied with power for electrical operation by the department's own transmission line.

*Steel Lock Gates.*—During the past year the erection of all steel gates, including the spare gates in the gate dock, was completed by the Steel Gates Company. Periodic examinations of the painting of the gates during 1930 disclosed the fact that the condition of both interior and exterior coats was unsatisfactory. In accordance with the paint guarantee of the Steel Gates Company's contract, remedial measures were taken in hand after the close of navigation. The cleaning and repainting of the gates of locks 1, 4, 7 and 8 has now been completed and the painting of the remaining gates will be completed during the coming year.

*Gate and Valve Machinery.*—The delivery of all material called for by the contract with the Montreal Locomotive Works and their agents the Harland Engineering Company was completed last summer and all this equipment has been installed with the exception of that required for the operation of weirs 6 and 7, where installation has had to be postponed till the coming summer pending the completion of the weir buildings.

*Valves.*—All taintor and stoney valves had been delivered prior to 1930. The former have all been installed except at weirs 6 and 7; the stoney valves for weir 6 have yet to be placed.

*Wire Rope Fenders.*—A contract for the supply of twenty-three wire rope fenders, with the necessary equipment, for the protection of lock gates from possible impact of vessels was awarded to the Montreal Locomotive Works in March, 1930. At the present time the delivery of all material with the exception of one machine and a few auxiliary parts has been completed. The remainder of the equipment will be delivered during April and May. The installation of these fenders has been attended to by departmental forces and thus far two machines have been placed above and below the lower gates of locks 1 and 2, one each above the lower gates of the east chambers of twin locks 4 and 6 and one above the lower gates of lock 7 while parts only of nine machines are in place at other structures. It is hoped that the complete installation of all wire rope fenders will have been effected by the beginning of next August.

*Pontoon Gate Lifter.*—A contract was placed in December 1929 with the Collingwood Shipyards Company for the construction and delivery of a 500-ton capacity steel pontoon gate lifter. The design for this equipment was made under agreement with the Canadian Wellman-Seaver-Morgan Company of Toronto and the Wellman-Seaver-Morgan Company of Cleveland, Ohio. The construction of the gate lifter was carried out at the company's shipyards and delivery made at Port Weller early last November. Final equipment was completed after delivery. Tests preceding acceptance by the department will be carried out next month.

*Buildings.*—The construction of the various buildings required for the operation and administration of the canal has been attended to by departmental forces. During the past year all buildings, including the administration offices at Port Weller and Port Colborne, the power house at the foot of the twin flight locks, the pond 6 and lock 7 weir buildings and the machinery building at the west end of the safety weir have been completed with the exception of a small amount of work still to be done at the pond 6 building and the construction, yet to be undertaken, of the electrical stores and repair building near the power house.

*Electrical Equipment.*—At the power house at the foot of the flight locks the three 5,000 horse-power hydraulic turbines were delivered in December 1930, under contract with the S. Morgan-Smith Inglis Company and their installation started. This work, which is as yet incomplete, will be continued during the coming year. The three 5,000 k.v.a. electric generators for the power house, the supply of which has been under contract with the Canadian

General Electric Company, will, it is expected, be delivered in April and available for installation during the summer. Orders have been placed during the past year for most of the auxiliary electrical equipment for the power house including the transformers, circuit breakers, etc. Under contract with the Horton Steel Works the design and manufacture of the differential surge tank has been in hand during the year and it is expected that erection will be begun during the coming summer.

During the 1930 season the departmental forces completed, with the exception of two small gaps at the Welland canal crossings, the installation of the permanent transmission line.

The installation of the intercommunicating dial telephone system between Port Weller and Port Colborne has also been completed. This system provides communication between all lock and bridge structures and administrative buildings and since its completion in the summer of 1930 has given entire satisfaction.

The installation of surface lighting fixtures, begun in the 1929 season, was completed at all locks last year. The prism lighting fixtures also, for the illumination of the various reaches, have all been installed.

All power control and interlock cable work at the various lock and weir structures was completed last year. There remains, however, considerable work still to be done in connecting the main cables to the electrical equipment of the fenders and capstans.

Control desks for the local operation of lock equipment, which had been installed in March, 1930, functioned satisfactorily during the 1930 season. Further installations at locks 4, 5, 6 and 7 made in June were also in operation.

The electrical equipment of the safety and supply weirs was installed and put in operation last autumn.

With the exception of installations still to be carried out in connection with the fenders and capstans and at the power house, practically all electrical work on the canal has now been completed. The only material yet to be purchased is that still required for the completion of the power house.

*Laboratory.*—All cement used on construction work was tested as usual. Tests were taken of 739 samples with satisfactory results in every case. Concrete test cylinders were made daily at each point where construction was in progress. The results were entirely satisfactory. Haydite concrete for bridge floors was given a thorough test at bridges 11, 12 and 18 and further investigation was carried on in regard to the design of a concrete of high specific gravity for counterweight purposes.

*Forestry Work.*—The setting out of trees and shrubs and the cultivation of flowering plants for the beautification of the canal zone and lock areas received due attention during the summer of 1930. At Port Weller the nursery and transplanting beds were well maintained and developed as a source of supply for the rest of the canal. The green house at this point also proved a valuable adjunct to the entire scheme both in the propagation of new species and in the carrying over of plants taken up in the autumn.

The forestry staff carried on its work of maintaining the appearance of the entire zone including the clearing of waste lands, the destruction of weeds, the cleaning of ditches, etc.

*General Summary.*—For the principal items of work involved, in the construction of the entire canal, the estimated quantities on the final completion of work and the percentages of these totals now completed are as follows:—

Rock excavation.....	9,060,000	cubic yards	99	per cent
Earth excavation.....	51,193,000	"	97	"
Concrete.....	3,509,000	"	99	"
Watertight embankment and puddle.....	4,921,000	"	99	"
Reinforcing steel, spikes, bolts, etc.....	36,972,000	lbs.	99	"
Steel sheet piling.....	35,363,000	"	98	"

## (i) SAULT STE. MARIE CANAL

This canal provides communication between lakes Huron and Superior, surmounting by a single lock the rapids of the St. Mary river. It is 1.38 miles in length between the east and west extremities of the entrance channels and under usual conditions provides a minimum depth on sills of 18 feet 3 inches.

The canal was opened to traffic April 23 and closed December 12. The total registered tonnage of vessels which passed through the lock was 3,481,576, a decrease of 28.5 per cent from the previous year. In total freight tonnage there was a decrease of 29 per cent. For the Canadian and United States canals taken together the registered tonnage showed a decrease of 20 per cent and freight tonnage of 21 per cent. Traffic in Canadian vessels through both canals showed a decrease of 15 per cent in registered tonnage and 22 per cent in freight tonnage. Similar reductions in passenger traffic were also noted. The total number of vessels which passed through the Canadian lock was 2,957 as compared with 3,585 in 1929.

No accidents to vessels occurred during the year. On August 20 the hub of the clutch driving No. 1 generator broke. The lock was operated by the second generator for the rest of the season and the necessary repairs were attended to during the past winter.

There were no extensive repairs or improvements in hand during the past year.

The average water level during the 1930 navigation season was 1.26 foot lower than in the year previous but was at all times sufficient for the navigation of the lock and canal.

## 2. OTTAWA AND RIDEAU RIVERS

## (a) STE. ANNE LOCK

This canal surmounts the Ste. Anne rapids between Ile Perrot and the island of Montreal at the junction of lake St. Louis with the Ottawa river. It consists of two parallel locks, the old and the new each with a lift of 3 feet. The old lock (now disused) has a depth of only 6 feet, but in the new lock there is 9 feet of water on the sills.

Navigation opened April 23 and closed November 30. There were no accidents or delays to traffic during this period.

For the Ottawa river canals, which include the Ste. Anne lock and the Carillon and Grenville canals, a total of 540,993 tons of merchandise was transported during the 1930 season, an increase of about 0.07 per cent over the previous year's record.

All four gates of the new lock were scraped and painted as well as gate railings, motor boxes, mooring and lamp posts, etc. Small repairs were also made to valves and other mechanism. A pair of spare gates was sunk in the old lock.

Seven lengths of boom were repaired. The north and south masonry walls were pointed.

The slip bridges above and below the lock and the Convent street slip bridge were painted and generally repaired.

General repairs and improvements made to buildings included fencing at the superintendent's house and small repairs to the house itself, repairs to roof of statistician's house and painting the exterior and whitewashing sheds and fences.

Both ends of the working scow were renewed and part of the deck and bottom replaced and caulked.

## (b) CARILLON AND GRENVILLE CANALS

From the Ste. Anne lock to the foot of the Carillon canal there is a navigable stretch of water 27 miles in length through the lake of Two Mountains and the Ottawa river. The Carillon canal, which is 0.94 mile in length with two locks, giving a total lift of 14 feet, surmounts the next rise in the river level produced both by the Carillon dam at the head of the canal and the natural fall of the river below.

The Long Sault rapids, extending upstream from 6 miles above the Carillon canal, are surmounted by the Grenville canal 5.94 miles in length, with five locks. Both canals provide a depth of 9 feet of water over the lock sills.

These canals were opened to navigation May 1 and closed November 30. One delay to navigation only occurred during the season. Owing to the breaking of a valve pin at the upper gates of lock 4 on July 10, the lock was out of commission for 5½ hours. One vessel only was held up.

During the past winter important improvements were made to the Grenville canal in the widening and deepening of the reaches between locks 5 and 7. This work was carried out under contract with Messrs. Farley & Grant and provides for a minimum prism width at bottom of 45 feet and a depth of 10 feet involving the removal of about 15,400 cubic yards of rock and 26,200 cubic yards of earth. The entire undertaking will be completed by the opening of this year's navigation. During the period in which the canal was unwatered, defective portions of wall were rebuilt below lock 4 and above lock 6. Rip rap walls on both sides of the prism between locks 5 and 7 were also rebuilt.

The wires of the telephone line along the Grenville canal were entirely renewed and most of the poles and cross arms.

The floating plant of these canals consisting of tug *Shirley*, a gate lifter and six scows received various repairs. The valves and engine were removed from the tug and generally repaired and the hull repaired and painted. The construction of a new hull for this boat was begun in February. A new hull was constructed for the gate lifter and one new flat scow completed.

During the summer months a section of the Rideau canal dredging fleet was employed in widening and deepening the prism between locks 5 and 7, a total of about 7,000 cubic yards of loose material being taken out.

## (c) RIDEAU CANAL

This canal connects with the Ottawa river about 56 miles above the head of the Grenville canal and provides a waterway between the cities of Ottawa and Kingston. It consists of a series of natural watercourses joined by artificial cuttings, is 126.25 miles long and has forty-seven locks with a minimum depth of 5 feet over the sills. It rises by thirty-three locks to a summit in the upper Rideau lake, from which body of water it descends by fourteen locks to the level of lake Ontario. A subsidiary canal 7¼ miles in length known as the "Tay Branch," connects the town of Perth with the north end of the lower Rideau lake. Its minimum depth is 5 feet.

Navigation opened, both at Ottawa and Kingston Mills May 1 and closed at Ottawa November 30 and at Kingston Mills November 18.

The season of 1930 was exceptionally dry and by the middle of October the level of Rideau lake had fallen below navigation level. As however the larger vessels had ceased running, no inconvenience was experienced.

The total number of floating craft trips made on the canal was 10,927, of which 10,410 were of pleasure craft. The total tonnage of merchandise transported during the season was 28,210, a decrease of 39 per cent from the record of the previous season.

The spring freshet of 1930 was unusually light and caused practically no damage.

The construction of concrete walls along the canal banks through the city of Ottawa, which has been in progress for a number of years, was finished last winter by the completion of the 2,500-foot gap between Pretoria avenue and Bank street. The backfilling of this wall has still to be done.

At locks 1 and 2 the old stone copings were replaced by concrete, three courses of the wing walls of lock 1 were renewed in concrete, portions of the chamber walls of lock 2 and the parapet of the steps to this lock.

The cribwork anchor pier in Dow's lake, which was wrecked last autumn, will be replaced during the coming summer. A new boathouse is now under construction by the Federal District Commission at the northwest corner of the lake for the accommodation of motor boats, skiffs, etc., to replace boat houses abandoned since the construction of the new wall.

At Hartwell's locks, the top courses of the lay-by piers were reconstructed.

At Hogsback locks, the old timber cribwork on the east side of the apron below the west bulkhead was rebuilt for a length of 140 feet. A new concrete cistern was installed in the cellar of the lockhouse. The frame storehouse was rebuilt on a concrete foundation.

The old timber swing span at Manotick was replaced by a new timber span and the bridge seats and portions of the piers renewed. An entire new deck was also laid on this bridge.

At Burritts Rapids and at Nicholson's lock, dry stone walls were rebuilt.

The lower timber mitre sill of Clowe's lock was unwatered during the winter and rebuilt in concrete with steel facing.

New timber floors were laid on two waste weirs at the Merrickville lock station.

At Smiths Falls, the decayed cribwork piers in the basin above lock 30 were taken down and smaller piers constructed in concrete to replace them. A new floor was laid on the swing bridge over lock 30.

At Poonamalie, lock 32 was unwatered and extensive repairs made to the lock walls. A new mitre sill of timber and concrete was also constructed at this lock and a pair of new lock gates hung. The draught on the upper sill, owing to unusually dry weather, is now two feet below normal, measuring only 3 feet.

The work of rebuilding the cribwork wharf at the Perth basin has been completed on the north and east sides, the southwest side still remaining to be done.

At Jones' Falls, the lower sill of the lock was replaced by a new concrete and timber sill. A new plank floor was laid on the bridge.

At Brass' Point, the timber rest pier was rebuilt from low water level.

The south side of the wall of lock 43 at Brewers Upper Mills, which was badly bulged was taken down and reconstructed in concrete. At the Lower Mills extensive repairs were made to the upper portion of lock 45 including the rebuilding in concrete of the wing walls, gate recesses and piers. A new storehouse was also built at this point.

The floating plant of the canal, consisting of the tugs *Loretta* and *Agnes P.*, dredge *Rideau*, gasoline launch *Lola* and six scows, was employed during the season at various points. Up to the middle of June the dredge *Rideau*, with the *Agnes P* and two dump scows, was engaged in backfilling the Echo drive walls at Ottawa. For the next four months this section of the plant was moved to the Grenville canal and on the completion of work at this latter point returned to Ottawa working until the close of the season, first at Hogsback and Black Rapids, in the placing of clay on retaining dams, then at the Echo drive retaining wall and lastly at the foot of the flight locks. The tug *Loretta* was employed in the setting out, repairing and replacing of spare buoys along the channel, in the delivery of stores and in inspection work. A new flat scow was constructed during the past winter.

## 3. RICHELIEU RIVER NAVIGATION

## (a) ST. OURS LOCK AND DAM

At a point on the Richelieu river, 14 miles above the town of Sorel, the level of that river has been raised 5 feet by a dam. This difference in level is overcome by the St. Ours lock. There is 7 feet of water on the upper lock sills, but the depth of water on the lower sill is governed by the level of the St. Lawrence river having been as low as 5 feet 1 inch in October, 1895.

Navigation opened May 1 and closed November 30.

A total of 779 vessels passed through the locks of the Richelieu river in the 1930 season. The tonnage transported during the year amounted to 99,998, a decrease of about 19 per cent from the traffic of the year before.

The work of constructing a new and larger lock at this point was begun early last season under contract with Messrs. Robertson & Janin. This new lock, which will be 339 feet long between service gates and 45 feet wide, is being constructed nearly parallel to and immediately west of the present lock. It will provide for a minimum depth of 12 feet on the lower sill. At the commencement of the undertaking great difficulty was encountered in the unwatering of the site and it was not until the beginning of September that operations on the actual construction of the lock began. Subsequent progress has however been satisfactory and up to the present the upper entrance walls, about 120 feet of the lock and the lower east entrance wall, have been constructed representing, on the basis of total estimated expenditure, about 40 per cent of the entire undertaking. It is expected that the new lock will be ready for operation for the navigation season of 1932.

Supplementary to the contract work on the lock, the department's dredging fleet was employed from June until the middle of November in dredging operations in both the lower and upper entrance channels. At the lower end about 22,000 cubic yards of material was excavated and at the upper about 19,000 cubic yards.

Such repairs as were carried out during the year at the old lock were of a minor nature only and included the maintenance of gates and machinery, repairs to weirs, guide booms, buildings, etc.

## (b) CHAMBLY CANAL

Between the St. Ours lock and Chambly basin, a distance of 32 miles, the river is navigable with a depth of 7 feet. The Chambly canal, which enters at this point, is 11.76 miles in length and has nine locks. It surmounts all the rapids between Chambly and St. Johns, thus establishing communication with lake Champlain. The locks, nine in number, provide a depth of 6½ feet of water over sills.

The canal was opened to traffic May 1 and closed November 30.

There were no accidents or delays to traffic.

As noted in last year's report a retaining wall of crib construction was built in 1929 along the west side of the canal southerly from the Canadian Pacific Railway bridge. Last year a similar wall was erected, also on the west side, from the north side of the bridge to meet the entrance return wall to the head of lock 9, a distance of about 345 feet. This wall, like the former, consists of a foundation crib, rock filled, 12 feet wide and 8 feet deep, surmounted by a second crib filled with earth 8 feet wide and 8 feet deep extending about 6 feet above low water. The wall is backfilled to the level of the top of the upper crib.

At locks 1, 2 and 3, steel plates were installed in the hollow quoins.

The steel work of bridges 3, 9 and 10 was scraped and painted, a new rolling bridge was built over lock 9 and minor repairs attended to at other bridges.

Stone revetted slopes along both sides of the prism were repaired wherever necessary and bad spots along the tow path resurfaced.

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At Chambly Canton the ditch on the west side of the canal was widened and otherwise improved along a length of 2,700 feet and the wooden culvert under the highway near the canal office replaced by a 24-inch concrete pipe 140 feet long.

The floating plant of the canal, consisting of tug *Chambly*, one dredge, one derrick and six scows, underwent various repairs. These included a general overhauling of the machinery and boilers of the tug, repairs to deck and hull of the derrick and the installation of new boiler tubes and the painting of each unit of the entire plant. In addition to the foregoing two new dump scows, 20 feet by 70 feet, were constructed.

#### 4. LAKE ONTARIO TO GEORGIAN BAY

##### (a) MURRAY CANAL

This canal, an open waterway 5.15 miles long, 80 feet in width with 10 feet depth at low water across the isthmus of the Prince Edward County peninsula connecting the bay of Quinte with lake Ontario and is without locks.

Navigation opened April 21 and closed December 4. No delays, due to accident or other cause, occurred during the season.

The principal repairs found necessary during the year were as follows:—

The highway bridges at Trenton road and Brighton road, composite timber and steel structures, constructed in 1889, both received temporary repairs during the past winter. The Smithfield road bridge, of the same age and type of construction, which failed last August, remains out of use having been swung into the open position, pending a decision as to what action will be taken in regard to its continued maintenance.

Canal banks were kept in good order and all ditches cleared of weeds, brush and refuse.

##### (b) TRENT CANAL

The route of the Trent canal, as now in operation, lies between Trenton, on the bay of Quinte, where direct connection is made with lake Ontario, and Port Severn, on Georgian bay, from which the waters of the Great Lakes are accessible. The canal is made up of a series of lakes and rivers connected by relatively short lengths of artificial cuttings. Connection between the water levels of the various reaches is effected by locks, except at Swift Rapids and Big Chute where marine railways are employed. The through route may be briefly described as follows: Between Trenton and Rice lake the canal follows the line of the Trent river. Passing through Rice lake, it enters the Otonabee river, the route of which is followed to its source in Katchiwano lake. From this lake the line of the canal passes in succession through Clear lake, Stony lake, Love-sick lake, Buckhorn lake, Pigeon lake, Sturgeon lake and Cameron lake to the west side of Balsam lake. From here connection is made by an artificial cutting with Mitchell lake about two miles westward, and from the latter lake another cutting makes connection with Cranberry lake. From the south end of Cranberry lake connection is made with lake Simcoe by the Talbot river and another artificial cutting. Passing through lake Simcoe the route of the canal continues to the Severn river, the line of which is followed to the Georgian bay outlet at Port Severn. From Trenton the canal rises to a summit at Balsam lake, the level of which is about 595 feet above that of lake Ontario. From Balsam lake to Georgian bay there is a fall of 260 feet. The total length of the route from lake to bay is about 240 miles. In addition to the through route the canal includes also a branch to Lindsay and Port Perry, *via* the Scugog river and lake, 35 miles in length, a branch from Buckhorn lake to Chemong Park, 8 miles long, and another from Pigeon lake to Omemee, 10 miles. The total length of the entire canal system amounts therefore to upwards of 300 miles. It includes in all forty-four locks, two of which, namely the lock at Peterborough and that

at Kirkfield, are hydraulic lift locks. The route of the canal is traversed by sixty-four bridges; twenty-two of these are railway bridges, the remainder highway. Included also in the operation of the canal is a reserve water system which embraces sixty-one lakes with thirty-six reservoir dams.

Since November 1, 1930, the eastern and western divisions of the canal, formerly organized as two separate units, have been placed under the jurisdiction of one superintending engineer.

There were 11,047 lockages during the year, a slight decrease from the year previous. Cargo tonnage amounted to 23,785, an increase of about 30 per cent over the season of 1929.

Among the principal works of construction, completed or in progress during the year, the following may be noted:—

The new dam at lock 25, being constructed under contract with the Detroit River Construction Company, which was commenced in July, 1929, was, at the beginning of the past fiscal year, about 33 per cent completed. Work on this structure has been carried on continuously and the dam is now finished. The removal of the old dam and a few minor items such as the levelling of spoil banks, grading, riprapping and clearing up the site now only remain to complete the undertaking.

The lower entrance wall of lock 19 at Peterborough, 252 feet in length, had become undermined to such an extent that it was in great danger of collapsing. The rebuilding of this wall was commenced early in July last. After the removal of the old wall a seat for the foundation cribs was excavated. The cribs were all completed and sunk by the end of November. Work was suspended for the season a few weeks later.

In June last, work was commenced on the installation of a guard gate of the submerged automatic type in the upper entrance to the uncompleted lock at Swift Rapids on the Severn river. Since 1917, when construction work on the lock was suspended owing to war conditions, the upper entrance has been closed by a row of wooden stoplogs only. The new installation which involved the construction of a cofferdam across the upper entrance and considerable alterations to existing concrete work was completed in November last. For the closing of the upper entrance two rows of wooden stoplogs are now provided, about 40 feet apart, the submerged guard gate being placed between.

On the channel connecting Black lake with Hungry bay, an inlet of and about one mile north of Six-Mile lake, the timber stonefilled dam was replaced during the past winter by a concrete dam. The new structure consists of two dam sections about 75 and 140 feet long respectively with a stoplog sluice between. The object of this dam is to control the flow of surplus water at freshet periods into Black lake and thereby protect from flooding the Indian settlement bordering on this lake.

The timber stone-filled dam across the outlet from Big Bob lake in the township of Lutterworth, Haliburton county, one of the dams of the reservoir lakes system, was replaced by a concrete dam 115 feet long. The Trout lake dam, 86 feet long, in the township of Sherburne, was rebuilt in timber. Various lesser repairs were made to twenty-one other reservoir dams.

At Perry creek, just south of the Burleigh Falls locks, the old timber dam which served also as a road bridge is being replaced by a concrete stoplog dam. The new structure consists of three spans of 15 feet supported on concrete abutments and two central piers. The bridge deck which will be 28 feet wide is of reinforced concrete construction and will provide for both vehicular and pedestrian traffic. Portions of the piers and the deck still remain to be placed.

Improvements were made to the wharf at Sturgeon Point by the removal, to below water line, of the decayed timber superstructure and the construction of an outer wall of concrete, the entire structure being then filled to former level with broken stone and gravel.

At lock 40 near Gamebridge concrete aprons were constructed in front of the lower entrance walls as a prevention from scour due to the discharge from the lock valves.

New gates were erected at Norwood road, Warsaw road and Lakefield.

Under contract with the Sarnia Bridge Company, a steel 72-foot swing span was erected to replace the former wooden Howe truss across lock 34 at Fenelon Falls. The new span has an 18-foot roadway with 6-foot sidewalk. Work was completed early in March.

The floating plant of the canal, consisting of dredges, *Fenelon* and *Auburn*, tugs *Bessie Butler*, *Bob Hall*, *Harwood* and *J. B. McColl*, a gate lifter, two dump scows, two derrick scows, one drill boat, one punt, two cook boats, one covered scow and four flat scows received various repairs during the winter season. A new hull was constructed for the dredge *Fenelon* and a new 120 cubic yard dump scow was built. Last season's dredging operations consisted in the widening and deepening of the channel of the east mouth of the Otonabee river, involving the removal of about 26,700 cubic yards of material, the removal of a rock shoal in the river at Hastings, excavation in the vicinity of lock 19 in connection with the removal and rebuilding of the lower entrance wall, the removal of a shoal near George street wharf, Peterborough, in operations at Katchiwano lake, and in lowering the grade in the upper entrance to Young's Point lock.

Minor improvements have included repairs to various bridges, repairs to hydraulic lift locks at Peterborough and Kirkfield, the rebuilding above water line of the wharves at Bensfort and Coboconk, repairs to various buildings and the erection of an office building at Washago.

## 5. ST. PETER'S CANAL

The St. Peter's canal, which was reconstructed between the years 1912 and 1917, connects the Bras d'Or lakes with St. Peter's bay on the southeast coast of Cape Breton island, Nova Scotia. It consists of a tidal lock 300 feet in length and 48 feet in width with approaches, totalling in all one-half mile. The minimum depth on lock sills is 18 feet and depth of approach channels 17 feet.

Navigation opened April 14, 1930, and closed January 10, 1931.

During the 1930 season 1,488 registered and unregistered vessels passed through the canal carrying a total tonnage of 60,533, an increase of about 20 per cent over the record of the year before.

Under contract with the Standard Steel Construction Company, a new steel swing span, 135 feet long, was erected at the highway crossing about one-quarter of a mile north of the lock just south of the entrance to the Bras d'Or lakes. In connection with this replacement a new concrete abutment was constructed at the west side of the canal, alterations were made to the east abutment and about 360 feet of new highway approach constructed at the west end of the bridge. The new span which is 35 feet shorter than the former one, is provided with a sidewalk and a roadway with accommodation for two lines of traffic.

Smaller improvements included the anchorage of a concrete wall near the Atlantic wharf, the cleaning and scraping of the lock gates below water level, repairs to lock walls and the usual attention to canal grounds.

## MISCELLANEOUS WORKS

### (a) PORT COLBORNE ELEVATOR

This elevator was constructed between the years 1906 and 1908 and subsequently enlarged. Its capacity is 3,000,000 bushels.

During the past fiscal year, 44,543,038 bushels of grain were received, an increase of nearly 23 per cent over the receipts of the year before. Of this amount 36,703,380 bushels were from Canadian ports, the remainder from

United States ports. These total receipts, though an increase on the year before, are about 28 per cent below the average for the period from 1924 to 1929 and reflect the continued depression in the export market.

Deliveries of grain for the year amounted to 44,601,859 bushels of which 97 per cent was loaded on ships and the remainder taken by rail or truck.

The record of out-turn for the year, or the amount of grain leaving the elevator as compared with that received, showed an average loss of 0.284 bushel per thousand bushels handled.

Vessels unloaded and lightered amounted to 158 as compared with 124 in the previous season. Delays to these vessels in excess of 24 hours amounted to an average of 58.5 hours as compared with 110 hours in the previous season. These delays were all the result of slow movement of grain out of the port of Montreal.

At the close of the navigation season there were 2,555,000 bushels of grain held over in the elevator for winter storage.

Repairs carried out during the year were of a minor nature only and consisted of repairs to outside walls of marine towers and elevator and cleaning and painting walls of cupola, replacing main switch and oil circuit breaker, etc.

#### (b) PRESCOTT ELEVATOR

This elevator, the construction of which was carried out under the supervision of the Department of Public Works during the years 1929 and 1930, was taken over by the department for operation on October 1, 1930. The first ship-load of grain was received on October 13, 1930, from the SS. *Sarniadoc*.

The elevator, which is approximately 70 feet wide by 1,360 feet long, has a capacity of about 5,500,000 bushels. Docking facilities are provided for vessels drawing up to 24 feet.

Owing to the lateness of the season at which the elevator was in readiness to receive grain, to the fact that the Welland Ship canal was not yet open to upper lake traffic and to weather conditions which retarded the crop, the total receipts for the short period of navigation which remained were not only small but less than had been anticipated. The total grain received amounted to 1,129,815 bushels. Of this amount 742,210 bushels remained in storage at the close of the navigation season. At the end of the fiscal year the stock on hand amounted to 712,835 bushels.

As a result of representations from the Department of Agriculture the installation of a grinder plant was commenced in February last. This undertaking is now about 30 per cent completed.

#### (c) HUDSON BAY TERMINALS

At the close of the fiscal year 1929-30 the working staff at Churchill numbered about twenty. This force was gradually augmented during the succeeding months until by the end of July the men employed numbered six hundred and fifty-eight, of whom five hundred and thirteen constituted the land force and the remainder the marine force.

From the beginning of the season until the complete clearing of the harbour of ice on June 23, work of a preparatory nature was carried on in anticipation of the more extensive operations of construction which were to follow. Both the land plant and floating plant were thoroughly overhauled, bunkhouse and warehouse accommodation was extended, camp buildings were erected at Grassy slough, the site of the proposed water supply, and new equipment unloaded and put in readiness for operation.

The following buildings were added during the year to those already erected. Two bunkhouses, a staff cottage, an oil house, a tool house, extensions to the

warehouse and to the engineers' office, a boat house and several small shacks. The principal buildings erected since the commencement of operations now number forty-two, among which are eight bunkhouses, three dining rooms, four cottages with from six to eight bedrooms, six warehouses, a retail store, hospital, saw mill, machine, carpenter and blacksmith shops, laundry, power house, and engineers' and accountants' offices.

During the early part of the season a new timber scow 120 feet by 35 feet was constructed and a 20-ton derrick erected on it. A timber derrick also was added to the large scow which had been built the year before.

Construction work on the dock cribs was commenced near the end of June when the ice had finally left the harbour and during the ensuing open season 873 lineal feet of deep water cribs along the west side of the dock were sunk in place, or nearly half the total length of this face. A small wing crib was also built at the southerly end of the dock to hold the filling in place. The cribs are all 154 feet long with the exception of one which is 100 feet. They are constructed of 12-inch by 12-inch British Columbia fir, creosoted timbers being used above low water. Construction was carried on in three stages. Eight courses were framed in shallow water at the temporary dock distant about three-quarters of a mile from the permanent dock. They were then moved out into deeper water and continued to the seventeenth course after which they were towed to still deeper water anchored and completed to the thirty-eighth course. Finally they were towed to their ultimate location on the dock face, sunk in position, completed up to full height and filled. A force of 100 men was employed on this work.

After the clearing of the ice from the harbour dredging operations were carried on by two 8-yard dipper dredges, two hopper barges, three dump scows and the tugs *Graham Bell* and *Geo. W. Yates*. The dredging season lasted from June 26 to October 18 when the sudden appearance of heavy ice made it necessary to remove the entire plant into winter quarters. During this entire open season dredging operations were carried on continuously. Dredge *No. 1* was employed first at the southerly end of the dock, it then moved to the ship channel at the upper end of the dock continuing the work of the year before. After September 1 it continued, equipped with a long dipper arm, in the excavation of the channel immediately in front of the dock to the full 30-foot depth below low tide. Dredge *No. 2* worked first on the excavation of the crib seats and for the last six weeks of the season either along the midstream channel or in sinking and filling cribs. During the season a total of 480,000 cubic yards of material was excavated. Of this 47,000 cubic yards was used for filling purposes, the remainder was dumped both in the bay and, to a lesser extent, in the harbour. The dredging fleet was manned with double crews and worked in two shifts of 10 hours up till August 21 and from then until the close of the season in two 8-hour shifts. Since work was commenced in 1929, a total volume of material, amounting to 953,000 cubic yards, has been excavated.

Grading operations were carried on both by the department's forces and by the Canadian National Railways. The department's organization employed two locomotives with 4-yard dump cars. Gravel was obtained from two pits and work was commenced May 14, continuing until the beginning of November. During this period the two shovels excavated 133,500 cubic yards of gravel and 1,500 cubic yards of rock, the latter being used for riprap. The material was used principally for grading in the townsite area, for the trestle approach to the dock and in filling in and about the cribs. The railway operated three shovels in the pit east of Mile 507 and during the season delivered 400,144 cubic yards at Churchill. This material was spread on the dock and elevator approaches, round the elevator site and in the main dock area. Work continued until the end of October.

Early in 1930 work began at Grassy Slough on the construction of a reservoir and pipe line for the Churchill water supply. Excavation for the reservoir amounted to about 60,000 cubic yards. A 10-inch supply pipe is to be laid which will rest on posts, being insulated by a covering of muskeg. This pipe line will be four miles in length. About two miles of pipe has already been installed. The posts, which are set in holes at 10-foot intervals drilled into the frozen subsoil, have been placed on a length of two and one-quarter miles.

Work was started in June, 1930, on the construction of a 2,500,000 bushel grain elevator. Three separate contracts, covering the construction of the elevator and subsidiary buildings, the power house foundations and the power house superstructure, have been let to the Carter-Halls-Aldinger Company of Winnipeg. The boiler room apparatus is to be supplied under contract with the Babcock-Wilcox and Goldie-McCulloch Company of Galt, and further contracts will shortly be let covering the construction of shipping galleries and conveyers to and along the dock front, and for the supply and installation of the generator room apparatus. The elevator buildings comprise a storage building of 2,000,000 bushels capacity, 294 feet by 100 feet, a workhouse with a capacity of 500,000 bushels, 190 feet by 80 feet, a drier plant, a power house 117 feet by 97 feet and a combined office building and millwright's shop 96 feet by 45 feet. Four service tracks enter a car unloading shed in rear of the workhouse. Unloading will be performed by four automatic grain car unloaders with a capacity of eight cars per hour. The shipping galleries from the workhouse to the dock front will carry four conveyor belts each with a capacity of 20,000 bushels per hour. The completion of all contracts is called for by September 15th next.

During the open season the tug *Ocean Eagle* and motor schooner *Neophyte* made two trips to Port Nelson returning to Churchill with machinery and material for use on the work. The same two vessels also transported men and supplies to Chesterfield Inlet for building a wireless station. Later on the *Ocean Eagle* made another trip to Chesterfield Inlet bringing out the party of men which had been engaged there.

On two days only during the winter months was any open water observed in the ice of the bay. Near the end of May the ice began to break up and on June 6 a Hudson's Bay Company whaleboat arrived from a post about eighty miles north and moored off the edge of the ice about a mile from shore. Churchill harbour was not clear of ice until June 23. Five days later no ice could be seen in the bay. The first thin ice came down the Churchill river on October 16 and by the evening of the next day the harbour was so full of thick floating ice and snow that considerable difficulty was experienced in getting the floating plant into winter quarters. By October 30 the ice was frozen fast south of a line between Cockles point and the lower dock. In the bay, scattered ice conditions prevailed after October 17 and by November 4 the bay was packed with ice as far as the eye could reach with only one strip of open water along the shore to the east. The entire harbour was frozen over on November 28.

Following the opening of Churchill harbour June 23, 1930, a study of ice conditions in Hudson bay was carried on by the tug *Ocean Eagle* during three different periods, first between July 1 and 7, next between July 10 and 18 and lastly between August 3 and 11. On the first trip the west side of the bay was covered both north and south of Churchill, open water being found along the coast between lat. 58° and 62° 15'. South of Churchill harbour the ice was about fifteen miles off the coast. Between Churchill and lat. 62° it ran in an irregular line extending as far east as long. 90° 12'. The second investigation extended as far north as lat. 61° 30', eastward to long. 86° and southerly to Port Nelson. The third trip extended to a point near the west end of Hudson strait between Coats and Mansel islands, lat. 62° 30' N, long. 80° 40' W. On the return voyage down about the centre of the bay no more ice was seen.

The trawler *Loubyrne* of the Department of Marine and the Canadian Government SS. *Acadia* also carried out investigations and survey work during the summer months.

(d) ST. LAWRENCE SHIP CANAL

The preparation of plans and estimates to accompany the report of the conference of Canadian engineers, whose meetings were held in 1929 and 1930, in connection with the International Rapids section of the St. Lawrence river, was completed in April, 1930. Between September 25 and December 15, 1930, eleven meetings of this same board were held for consideration of the Beauharnois development project and the manner in which it might affect the future improvement of the Soulanges Section of the St. Lawrence project in the matter of power and navigation. A full report on this matter, also accompanied by plans and other data, has been submitted.

The staff at Cornwall during most of the past year has consisted of a junior engineer and a drill runner and assistant. Additional men have from time to time been taken on when required for special work. Since last November the junior engineer, who had been employed on the Chignecto canal survey, has been transferred to Cornwall. The field work carried on consisted in the sinking of fourteen borings in the International Rapids Section, in the vicinity of Cornwall island, and thirteen in the Soulanges section, in the vicinity of St. Timothée, Cascades Point and Coteau du Lac. Temperatures of the water in the St. Lawrence were also recorded for various points between Trois Rivières and Kingston and of the movement of ice in the same section of the river.

In the Ottawa office the staff has included the engineer in charge, a senior office engineer, an assistant engineer, two draughtsmen and one stenographer. The office work carried on has consisted in the preparation of plans and estimates for the report of the conference of Canadian Engineers in the International Rapids Section, for various methods of improving the Soulanges Section in connection with the report of the Canadian Section of the Joint Board of Engineers on the Beauharnois Project and in miscellaneous work having to do with projects for the improvement of the International Rapids Section. Assistance has also been given on work connected with the Chignecto canal project.

(e) CHIGNECTO CANAL

Surveys in connection with this project were commenced in September, 1929. Four commissioners were appointed by Order in Council June 11, 1930, to inquire further into the matter from the standpoint of economic and national advantages, location and probable traffic. At a meeting of the commissioners, held July 24, 1930, summaries of estimates of cost of the various projects which had been gone into were presented by this department for consideration.

The field work during the past fiscal year was carried on by a junior engineer with such additional workers as occasion might demand. The surveys, begun in 1929, were completed and traverse lines referenced. Twenty-four borings were made to determine the depth of the surface soil and the location of underlying rock. Two test pits were also sunk. All field work was completed in October and the engineer who had been in charge of the work was transferred to the Cornwall office of the St. Lawrence Waterways project.

(f) HUNGRY BAY AND STE. BARBE DYKES

These dykes extend westerly along the south shore of lake St. Francis from the upper entrance of the Beauharnois canal for a distance of about 7 miles. They are maintained as a protection against the waters of the lake, the level of

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which was raised when the canal was constructed. It may here be mentioned that since the opening of the Soulanges canal in 1899 the Beauharnois canal has ceased to be used for navigation and is under lease for power purposes only. The Hungry bay dyke has been in existence since 1856. The top of this dyke is maintained as a road. The Ste. Barbe dyke was constructed in 1889. At various places along the lake shore, protection walls have been built outside the dykes.

The roadway along the Hungry bay dyke was repaired over a length of 13,000 feet through the parishes of St. Stanislas de Kostka and Ste. Cecile.

Temporary repairs, which had been made to the Ste. Barbe dyke after the damage sustained in the heavy gales in the summer of 1929, were gone over again and reinforced. Five weak places in this dyke were strengthened by stone walls for a total length of nearly 800 feet. The repairs to stone protection walls started in the previous year were completed last winter. At three different points new protection walls were constructed totalling about 600 feet in length.

I have the honour to be, sir,

Your obedient servant,

A. E. DUBUC,

*Chief Engineer.*

V. I. SMART, Esq.,

Deputy Minister, Department of Railways and Canals,  
Ottawa, Canada.

OTTAWA, April 1, 1931.

## CANALS OF CANADA

Name	Location	Length in Miles	Number of Locks	Locks		
				Minimum dimensions		
				Length between hollow quoins	Mini- mum Width	Normal depth over sills
			Feet	Feet	Feet	
<i>St Lawrence and Great Lakes</i>						
Lachine.....	Montreal to Lachine.....	8-74	5	270	45	14
Soulanges.....	Cascades Point to Coteau Landing	14-67	5	280	46	15
Cornwall.....	Cornwall to Dickinson's Landing..	11-00	6	270	43-67	14
Farran's Point.....	Farran's Point Rapids.....	1-28	1	800	50	16
Rapide Plat.....	Rapide Plat, Morrisburg.....	3-89	2	270	45	14
Galops.....	Iroquois to Cardinal.....	7-36	3	270	45	14
Welland Ship.....	Port Weller, Lake Ontario, to Port Colborne, Lake Erie.....	27-60	8	859	80	30*
Sault Ste. Marie.....	St. Mary's Rapids, Sault Ste. Marie.....	1-38	1	900	60	18-25
<i>Ottawa and Rideau Rivers</i>						
St. Anne's Lock.....	Junction of St. Lawrence and Ottawa rivers.....	0-12	1	200	45	9
Carillon.....	Carillon rapids, Ottawa river.....	0-94	2	200	45	9
Grenville.....	Long Sault rapids, Ottawa river...	5-94	5	200	45	9-5
Rideau.....	Ottawa to Kingston.....	126-25	47	134	33	5
	Rideau Lake to Perth (Tay Branch)	7-25	2	134	33	5
<i>Richelieu River</i>						
St. Ours Lock after 1931..	St. Ours, Que.....	0-12	1	339	45	12
Chambly.....	Chambly to St. Johns, Que.....	11-76	9	120-5	23-25	6-5
<i>Lake Ontario to Georgian Bay</i>						
Murray.....	Isthmus of Murray, Bay of Quinte.	5-15	None			(11)†
Trent.....	Trenton to Peterborough lock, Peterborough.....	88-74	18	175	33	8-33
	Peterborough lock to Swift Rapids	135-71	24	134	33	6
	Swift Rapids to Port Severn.....	16-0	None			(4)
	Port Severn lock.....		1	100	25	6
	Sturgeon lake to Lindsay (Scugog Branch).....	8-35	1	142	33	6
	Lindsay to Port Perry (Scugog Branch).....	26-65	None			(4-5)
<i>Miscellaneous</i>						
St. Peters.....	St. Peter Bay to Bras d'Or Lakes, Cape Breton, N.S.....	0-50	1	300	48	18‡

\*The minimum depth of canal prism between locks at the close of the 1930 season was 18 feet. Further deepening, to 25 feet, will be continued in the 1931 season.

†With lake Ontario at Elev. 244.

‡The depth of canal prism is 17 feet.

Table Showing the Dates of the Opening and Closing of the Canals

For the Seasons of 1927, 1928, 1929 and 1930

Canals	1927		1928		1929		1930	
	Opened	Closed	Opened	Closed	Opened	Closed	Opened	Closed
Lachine.....	April 25	Dec. 12	April 26	Dec. 11	April 25	Dec. 11	April 23	Dec. 12
Soulanges.....	" 24	" 10	" 25	" 11	" 25	" 11	" 22	" 11
Cornwall.....	" 23	" 10	" 25	" 10	" 23	" 12	" 23	" 11
Williamsburg—								
Farran Point.....	" 25	" 10	" 25	" 9	" 23	" 12	" 23	" 11
Rapide Plat.....	" 25	" 10	" 25	" 9	" 23	" 12	" 23	" 11
Galops.....	" 25	" 10	" 25	" 9	" 23	" 12	" 23	" 11
Welland.....	" 16	" 16	" 16	" 15	" 18	" 11	" 21	" 15
Sault Ste. Marie.....	" 12	" 18	May 1	" 15	" 14	" 14	" 23	" 12
Ste. Anne.....	" 25	Nov. 30	April 26	Nov. 30	" 25	Nov. 30	" 25	Nov. 30
Carillon and Grenville.....	May 1	" 30	" 30	" 30	May 1	" 30	May 1	" 30
Rideau—								
At Ottawa.....	" 1	" 30	May 1	" 30	" 1	" 30	" 1	Dec. 1
At Kingston Mills.....	" 1	" 25	" 1	" 20	" 1	" 22	" 1	" 1
Trent—								
Ontario-Rice Lake Division,								
Lower Section.....	" 11	" 12	" 13	" 9	" 1	" 15	" 13	Nov. 15
Trenton Bridge.....	" 3	" 11	" 10	" 20				
Ontario-Rice Lake Division,								
Upper Section.....	" 10	" 12	" 18	" 20	" 6	" 19	" 12	" 15
Hastings to Rice Lake.....	" 9	" 30	" 10	" 19	" 1	" 22	" 14	" 15
Hastings to Peterborough.....					" 1	" 22	" 14	" 15
Rice Lake to Peterborough.....	April 29	Nov. 15	" 10	Dec. 3	" 13	" 8	April 26	" 22
Peterborough to Lakefield.....	May 7	" 15	" 13	Nov. 20	" 13	" 8	May 5	" 6
Peterborough Lift Lock.....	" 10	" 5	" 16	" 8	" 13	" 8	" 8	" 6
Lakefield to Bobcaygeon.....	" 7	" 5	April 30	" 17	April 24	" 18	" 12	" 15
Bobcaygeon to Balsam Lake.....	" 2	" 1	May 13	" 19	" 26	" 15	" 15	" 15
Kirkfield Lift Lock.....	" 13	Oct. 25	" 17	Oct. 25	May 10	Oct. 25	" 13	Oct. 25
Kirkfield to Lake Simcoe.....	" 13	Nov. 8	" 13	Nov. 21	" 15	" 25	" 8	" 25
Seugog River to Lindsay Lock.....	May 12	Nov. 7	May 1	" 24	April 3	Nov. 13	" 14	Nov. 14
Murray.....	April 14	Dec. 6	April 17	Dec. 11	" 20	" 29	April 21	Dec. 4
St. Ours.....	May 1	Nov. 30	May 1	Nov. 30	May 1	" 30	May 1	Nov. 30
Chambly.....	" 1	" 30	" 1	" 30	" 1	" 30	" 1	" 30
St. Peters.....	April 25	Jan. 21	April 16	Jan. 16	April 22	Jan. 11	April 14	Jan. 10
		1928		1929		1930		1931