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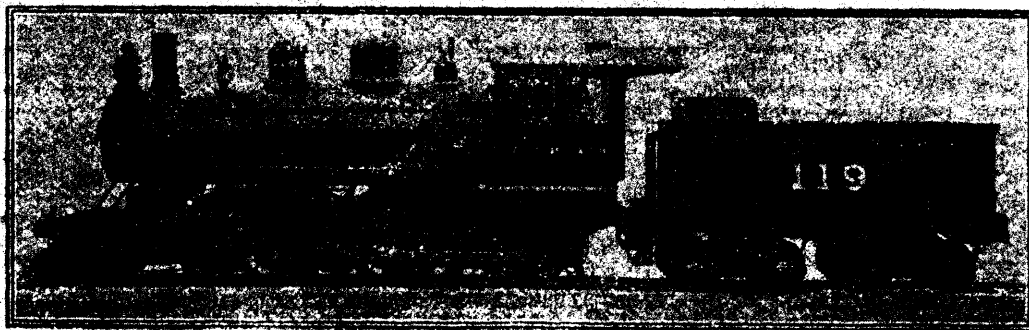
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TORONTO, CANADA, MAY, 1902.

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The C.P.R.'s New Train Rules.

The new code of train rules which were put in effect on the Pacific division of the C.P.R., on Mar. 1, on the Western division on May 1, and will become effective on the balance of that Co.'s lines on June 15, is based on the code of rules formulated by the American Railway Association, and generally known as "The Standard Code of Train Rules," which is recognized as the most approved practice. In addition to the rules the C.P.R. code contains a series of definitions, which explain so many of the terms which are used in railway service that they are given here complete:

TRAIN.—An engine, or more than one engine coupled, with or without cars, displaying markers, the movement of which on the main track has been authorized by time-table or train orders.

REGULAR TRAIN.—A time-table train. It may consist of sections.

SECTION.—One of two or more trains running under the same schedule, displaying green signals or for which green signals are displayed.

EXTRA TRAIN.—A train not authorized by the time-table.

SUPERIOR TRAIN.—A train having right to track over another train.

A train may be made superior to another train either by train order or by schedule.

Train order is superior to schedule.

SUPERIOR DIRECTION.—As specified in the time-table. The direction in which regular trains are superior to trains of the same class in the opposite (inferior) direction.

TIME-TABLE.—The authority for the movement of regular trains subject to the rules. It contains the classified schedules of trains, with special instructions relating thereto.

SCHEDULE.—That part of a time-table which prescribes the direction, class, number, and movement of a regular train.

MAIN TRACK.—A track upon which trains are operated by time-table or train orders.

SINGLE TRACK.—A main track upon which trains are operated in both directions.

DOUBLE TRACK.—Two main tracks upon one of which the current of traffic is in a specified direction, and upon the other in the opposite direction.

SIDING.—A track auxiliary to the main track for meeting or passing trains.

YARD.—Tracks within defined limits over which movements not authorized by time-table or by train orders may be made, subject to prescribed signals and regulations.

Yard limits are defined by yard limit signals and regulations or by yard limit boards.

YARD ENGINE.—An engine assigned to yard service, and working within yard limits.

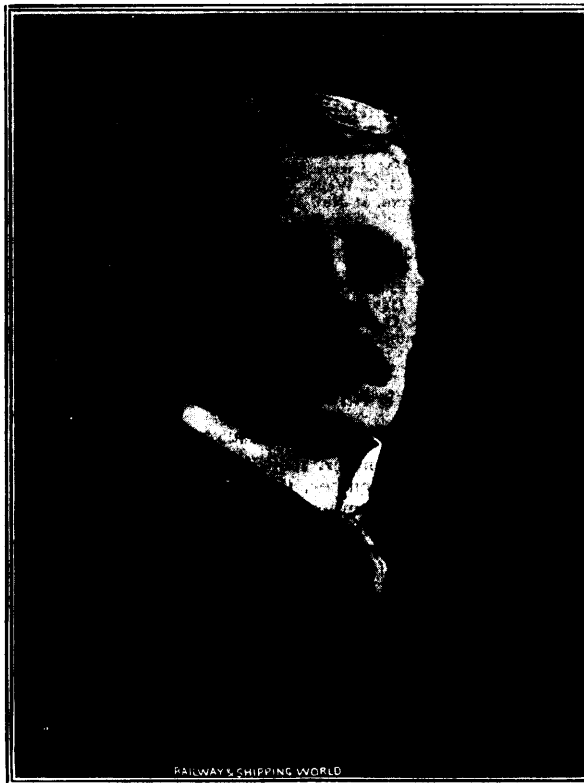
STATION.—The place, designated on the time table, at which there is a train order office or a siding, or at which the train stops to receive or discharge traffic.

FIXED SIGNAL.—A signal of fixed location, having two or more indications, affecting the movement of a train.

PILOT.—A person assigned to a train when the engineer or conductor, or both, is or are not fully acquainted with the physical char-

movement is watched day and night by the operators at every telegraph office, and the time every train passes each telegraph office is promptly telegraphed to the train dispatcher, who enters the time on a record known as the train register, which is kept constantly before him. At each station there is a special form of fixed signal known as the train order signal, which is displayed to stop trains by direction of the train dispatcher, who is thus enabled to control the movements of trains and to communicate with them when desired.

The movements of regular trains are governed by the time table, and so long as they all keep on time do not need any assistance to help them over the road. When, however, they become late the train dispatcher's assistance is often required. In addition to the regular trains, many extra trains are run which are dependent entirely upon the orders issued by the train dispatcher for their right to proceed. The fundamental principle of single track practice in this country is that an inferior train must keep out of the way of a superior train, and the entire structure of these rules is based upon that idea. Trains of the first class are superior to those of the second; trains of the second class are superior to those of the third and so on. Extra trains are inferior to all regular trains. The terms passenger and freight are descriptive and do not refer to class. First class trains may be either passenger or freight, according to their importance. The class of a regular train is determined by the management when its schedule is established, and is shown upon the time table; usually passenger trains are first class, fast trains are second class, and slow freight trains are third class. All regular trains are numbered and are officially known only by their numbers. The fanciful names which are sometimes given to trains have no place in the classification. All regular trains in one direction have odd numbers, and in the opposite direction even numbers. Extra trains are designated by the numbers of their engines and the direction in which they are moving. All trains in one direction are superior to trains of the same class in the opposite direction. Regular trains hold their right to track for 12 hours. A train must not start until a signal to do so is given by the conductor. At meeting points on single track between trains of the same class, the inferior train must clear the main track before the scheduled leaving time of the superior train, and at meeting points between trains of different classes, the inferior train must clear the schedule time of a superior train at least



E. A. WILLIAMS,

Superintendent of Rolling Stock, Canadian Pacific Railway.

acteristics or running rules of the road, or portions of the road, over which the train is to be moved.

There are 137 train rules relating to standard time, time tables, visible signals, audible signals, train signals, use of signals, classification of trains, movement of trains, and in addition 15 forms of train orders with rules for the movement of trains by train orders. These rules and the forms of train orders must be thoroughly understood by every conductor and engineer in road service.

When a train starts out on the road its

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NEXT ANNUAL MEETING of the Grand Council in Mont-
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five minutes. An inferior train must keep at
least 10 minutes off the time of a superior
train moving in the same direction. The
foregoing principles govern the movements
of regular trains, and by their observance
conductors and engineers are enabled to
make their way over the road.

Train orders are issued when it is of ad-
vantage to readjust the relations of regular
trains and also to govern the movement of
extra trains which are being continually run.
As it is of the utmost importance that train
orders should be understood alike by all who
receive them the most stringent rules have
been adopted to govern their issuance, trans-
mission, delivery, and execution. There are
15 forms of train orders which are issued for
the following purposes:—

Form A.—Fixing meeting points for op-
posing trains.

Form B.—Directing a train to pass or run
ahead of another train.

Form C.—Giving a train the right to track
over an opposing train.

Form D.—Giving regular trains the right
to track over a designated train.

Form D. (a)—Line clear order.

Form E.—Time orders.

Form F.—For sections.

Form G.—Extra trains.

Form H.—Work extras.

Form J.—Holding order.

Form J. (a)—Specifying the speed of a
train.

Form J. (b)—Directing an operator to
clear his train order signal for a train for
which he has no orders and which will not
otherwise stop.

Form K.—Annulling a regular train.

Form L.—Annulling an order or a part of
an order.

Form P.—Superseding an order or a part
of an order.

The train dispatcher is the only person
authorized to issue and sign train orders
which are transmitted by telegraph and
numbered consecutively each day beginning
with no. 1 at midnight. Each order is re-
peated by the receiving operator to the train
dispatcher. Train orders are of two classes
designated by the number of the form used
and the color of the paper upon which they
are written. The "31" train order is
written upon white paper, is used to restrict
the superiority of a train and must be ac-
knowledged by the conductor. The "19"
train order is written upon pink paper and
can be used for any purpose except to re-
strict the superiority of a train and does not
require the signature of the conductor. The
requirements as to the "19" order are some-
what less exacting, as it is to be used only for
inferior purposes. Trains must be stopped
for "31" orders but "19" orders may be de-
livered while trains are in motion. It is the
duty of the train dispatcher to anticipate the
necessity for train orders and have them
ready for delivery immediately on arrival of
trains.

In formulating its code the C.P.R. has
amended some of the rules in the standard
code and has made additional rules. For
instance train dispatchers are forbidden to
send combination train orders unless every
movement in the order directly affects the
train first named in the order. While this
rule may cause a greater number of orders,
it prevents the issue of orders so long and
covering so many movements as to be com-
plicated and difficult to understand. The rules
governing the change of time tables has been
amended so as to preclude the possibility of two
trains being run on one schedule, when a
change of time tables is made at midnight.
The rule governing work trains is amended
so as to keep extra trains from entering a
work train's limits until authorized by the
train dispatcher. The Co. very wisely
commenced introducing its new code in in-

stalments over two years ago, and at the end of last year all rules relative to standard time, time tables, and the use of visible, audible, and train signals were in effect, and all employes thoroughly conversant with them. For the introduction of the balance of the rules papers were prepared for the instruction and examination of all employes concerned, and were given to the men last Dec., and about a month later instruction classes were opened at various points, where employes were given the opportunity of attending lectures and asking questions on the rules. The result has been that the employes, realizing the expense and trouble the Co. has taken to educate them, are taking every advantage of the opportunity afforded, and a recent inspection of the system, including the Pacific division, on which the rules are in effect, has shown that the men who have been examined are thoroughly competent to handle trains under the new rules.

G. T. R. SEMI-ANNUAL MEETING.

At the semi-annual meeting in London, Eng., April 10, the following report was presented for the half year ended Dec. 31, 1901: The following summary shows a comparison of the half-year's revenue account with that of the corresponding half-year, ended Dec. 31, 1900. As the receipts and working expenses of the Cincinnati, Saginaw, and Mackinaw Co. are included in the accounts of the past half-year, the figures of the corresponding period have been altered for the purpose of comparison:—

	Dec. 31, 1900.	Dec. 31, 1901.
Gross receipts.....	£2,435,742	£2,569,804 15 2
Deduct working expenses, 68.38% compared with 67.56 in 1900.....	1,645,528	1,757,154 15 0
Net traffic receipts.....	790,214	812,650 0 2
Add received from International Bridge Co.....	12,930	12,930 12 9
Interest Toledo, Saginaw, and Muskegon bonds.....	4,428	3,079 17 2
Interest Central Vermont Ry. bonds.....	3,088	5,842 16 2
Interest securities of controlled lines and on St. Clair tunnel bonds acquired by issue of G. T. 4% debenture stock.....	59,936	61,705 7 9
Balance of general interest account.....	20,846	12,637 6 0
Net revenue receipts.....	£891,442	£908,846 0 0

Following are the net revenue charges for the half year:—

Rents (leased lines).....	£77,603 0 9
Interest on debenture stocks and bonds of the Co.....	466,108 10 9
Interest on debenture stocks and bonds of Lines consolidated with the G. T. Co.....	67,172 2 6
Interest on Michigan Air Line bonds.....	7,750 0 0
Less Detroit, Grand Haven and Milwaukee surplus.....	618,633 14 0
	1,930 1 2
	£616,703 12 10
Leaving a surplus of.....	292,148 7 2
	£908,846 0 0

Adding £7,018 15s. 4d. at the credit of net revenue account June 30, 1901, to the above surplus for the past half-year of £292,148 7s. 2d., the total amount available for dividend is £299,161 2s. 6d., from which the directors recommend the declaration of the following dividends, viz.:—

Half-year's dividend on 4% Guaranteed Stock.....	£104,395 17 6
Half-year's dividend on 1st Preference Stock.....	85,420 15 0
Dividend of £4% on 2nd Preference Stock.....	101,136 0 6
	£290,952 13 0

leaving £8,208 9s. 6d. to be carried forward to next half-year's accounts.

Following is a comparison of receipts for the half-years ended Dec. 31, 1901 and 1900.

Description.	1901.	1900.	Incr'se	Decr'se.
	£	£	£	£
Passengers.....	834,662	704,237	130,425	.....
Mails and express.....	125,072	119,854	5,218	.....
Freight and live stock.....	1,539,457	1,543,218	.....	3,761
Miscellaneous.....	70,614	68,433	2,181	.....
	2,569,805	2,435,742	134,063	.....

TRAFFIC STATISTICS.

	1900.		1901.	
	Increase.	Decrease.	Increase.	Decrease.
Passengers carried.....	510,881	.....	444,614	.....
Average fare per passenger.....	2d.	.....	3s. 7d.	.....
Tons of freight and live stock.....	199,465	.....	5,466,444	.....
Average rate per ton.....	.....	.....	5s. 7½d.	.....
Tons carried one mile.....	44,098,282	.....	1,170,837,355	.....
Earnings per train mile.....	3.67d.	.....	70.93d.	.....

The average rate per ton per mile on the entire freight business was 0.64 of a cent compared with 0.67 of a cent in the corresponding half-year.

The working expenses, excluding taxes, were £1,723,278, or 67.06% of the gross receipts, against £1,611,185, or 66.15% in the corresponding half-year; an increase of £112,093, or 0.91%.

Following is a comparison of revenue expenditure, including taxes, for the half-years ended Dec. 31, 1901 and 1900:—

Description.	1901.	1900.	Incr'se.	Decr'se.
	£	£	£	£
Maintenance of way and structures.....	496,987	452,558	44,429	.....
Maintenance of equipment.....	317,935	285,399	32,536	.....
Conducting transportation.....	847,985	811,491	36,494	.....
General expenses.....	60,371	61,737	.....	1,366
Taxes.....	33,877	34,343	.....	466
Total.....	£1,757,155	£1,645,528	£111,627	.....
Percentage of gross receipts.....	68.38	67.56	0.82	.....
Expenditure per train mile.....	48.50d.	45.44d.	3.06d.	.....

The train mileage of the half-year compares with that for the half-year ended Dec. 31, 1900, as follows:—

Description.	1901.	1900.	Incr'se.	Decr'se.
Passenger.....	3,673,824	3,483,780	190,044	.....
Freight.....	4,478,410	4,669,763	.....	191,353
Mixed Trains.....	542,799	538,136	4,663	.....
Total.....	8,695,033	8,691,679	3,354	.....

The G. T. gross receipts for the half-year show an increase of £134,063, or 5.50%; the working expenses, including taxes, an increase of £111,627, or 6.78%. The train mileage shows an increase of 3,314 or 0.04%.

The length of the line has been increased during the half-year by 3½ miles, by the con-

struction of extensions of 2.08 miles at Meaford, and 1.42 miles at Beeton.

The total charge to capital account during the half-year was £283,100 4s. 4d., of which, £213,138 was in respect of the acquisition of £212,600 G. T. Junction 5% 1st mortgage bonds, and £615 of Chicago, Detroit, and Canada G. T. Junction shares, by which an annual saving in the net revenue charges of over £2,000 was effected.

The outlay for new works, etc., on capital account during the half-year was as follows:—

Instalment on Portland city elevator loan.....	£445 9 7
New works, sidings, etc.....	47,004 18 4
Double track.....	10,036 2 4
Improvements to rolling stock.....	4,702 18 3
Land purchased.....	7,772 15 11
	£69,962 4 4

£37,174 18s. 8d., being £11,490 premium on debenture stock sold during the half-year, and £25,684 18s. 8d. received from the Royal Electric Co. for the right to use the Victoria jubilee bridge for its electric cables, has been placed to the credit of capital account, thereby reducing the charge of £283,100 4s. 4d., as above stated, to £245,925 5s. 8d.

No additions to the rolling stock at the expense of capital were made during the half-year.

Eight passenger and 9 freight engines, and 5 passenger, 300 furniture, 26 box, and 3 derrick cars were built in the Co.'s shops during the half-year on revenue account, and at Dec. 31 there remained £79,812 18s. 11d. at the credit of engine renewal fund, and of £47,006 7s. 5d. at the credit of car renewal fund, applicable to future renewals.

In the report for the half-year ended June 30, 1898, the proprietors were informed that it had been decided to charge to revenue over a period of five years a portion of the cost of the reconstruction of the Victoria jubilee bridge, and the cost of renewing the bridges between Montreal and Portland, and on the Southern division. Owing to the special amounts credited to the renewal of bridges account in the half-years ended Dec. 1899, Dec., 1900, and June, 1901, the total amount already expended, and of the estimated cost of completing these renewals, has been charged against revenue account in four years, thereby curtailing the period originally contemplated by one year.

It has not been found practicable, owing to the high price of materials, to complete the renewal of the bridges on the Southern division, and of the £230,000 estimated to be required for that purpose \$222,625 (£45,745) has not yet been expended, and forms part of the amount of £75,745 at the credit of renewal of bridges account in the general balances.

In pursuance of the policy announced in the report for the half-year ended June 30, 1901, and explained by the President at the last general meeting, it has been decided to proceed with the renewal of the bridges between Montreal and Hamilton, Toronto and Sarnia, and further bridges on the Southern division. It is proposed to charge the cost of renewing these bridges to revenue account, as also a portion of the cost of the bridges on the new double track between Hamilton and Niagara Falls, spreading the amount over a period of five years, so as not to unduly burden the revenue of any particular period £30,000 specially credited to the renewal of bridges account in the amounts of the past half-year will be appropriated to this purpose.

The gross receipts of the G. T. W. Ry. Co. for the half-year were £442,503, and the working expenses £371,902, leaving a net profit of £70,601. The net revenue charges for the half-year were £60,010, so that there was, on Dec. 31, a net revenue credit of £10,591, which is carried forward, as, under the provisions of the income mortgage, the accounts

are required to be made up annually to June 30 in each year. The number of passengers carried during the half-year was 711,213; and the passenger train receipts, including mails and express receipts, were £149,598. The quantity of freight moved during the half-year was 1,158,372 tons, and the receipts from this traffic were £292,702.

The gross receipts of the Detroit, Grand Haven, and Milwaukee Ry. for the half-year were £124,179, against £116,363 in 1900; the working expenses were £85,069, against £84,523; leaving a balance of £39,110, against £31,840, and showing an increased net revenue of £7,270, compared with the corresponding half-year of 1900. The net revenue charges for the half-year were £37,180, against £37,266 in 1900, so that there was a surplus of £1,930, as compared with a deficiency of £5,426, for the corresponding period of 1900. The number of passengers carried during the half-year was 429,313, against 401,805, an increase of 6.84%; and the passenger receipts, including mails and express receipts, were £57,032, against £58,125, a decrease of 1.88%. The quantity of freight moved was 370,448 tons, against 356,183 in 1900, an increase of 4%, and the receipts from freight traffic were £64,797, against £56,359 in 1900, an increase of 14.97%.

G. B. Reeve, who had at the request of the board, returned to the Co. in Dec. 1900, as Second Vice-President and General Manager, retired definitely at the end of last year, and has been succeeded by C. M. Hays, who resumes the management in Canada with the same title as that held by Mr. Reeve. W. Lindley, the Secretary of the Co., retired at the end of the year, and has been succeeded by H. H. Norman, the Assistant Secretary.

Mr. Lindley had been connected with the late Great Western Ry., and this Co. for 48 years, and had filled the post of Secretary of the G.T. Co. since 1895. The ability and zeal with which he performed his duties, added to his long experience and intimate familiarity with the business in all its details, enabled him to render most valuable service to the Co., and the board received his resignation with great regret.

The retiring directors are Sir C. Rivers Wilson, J. Price, G. Allen and J. A. Clutton-Brock, all of whom are eligible, and offer themselves for re-election. The directors report, with regret, the death of T. Davidson, one of the auditors in Canada, whose term of office would have expired at the forthcoming meeting. C. Percy, of Montreal, has been appointed to fill the vacancy, and has audited

the accounts for the past half-year. He offers himself for election by the proprietors. F. Whinney, one of the auditors in London, retires by rotation, and offers himself for re-election.

REPORTS OF OFFICIALS.

Following are extracts from appended reports of officials:—

The Chief Engineer reports that the charges for Maintenance and Renewals, on the G.T.-R. system east of Detroit and St. Clair rivers, and on the Detroit and Michigan air line, and Cincinnati, Saginaw and Mackinaw divisions, in Michigan, for the year ended Dec. 31, 1901, were \$303,755.26 in excess of those for 1900. The items showing an increase were repairs of roadway, renewals of rails and ties, repairs and renewals of bridges, culverts, fences, road crossings, signs, cattle guards, buildings and telegraphs, and for stationery and printing. The aggregate increase in these was \$421,907.59. The reduced charges were for superintendence, ballast and ballasting, clearing snow, repairs of docks and wharves, and on account of the construction of the new general offices, and amounted in all to \$118,152.33. The charges on account of these offices were \$40,000 in 1901; and in

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CHARLES MILLER,
PRESIDENT.

1900, \$125,000. The draw spans of the new International bridge, across the Niagara River and Black Rock harbor, at Buffalo, were so nearly finished on April 12, 1901, the day upon which navigation on the river was opened, that they were brought into service. The bridge was finally completed on July 27 following. The replacement of old iron bridges, which are not strong enough for the present heavy loads, by modern steel structures, has been continued. Those renewed, or in course of renewal, at the close of the year, are nearly all between Montreal and Niagara Falls. Among these was a double track drawbridge across the Lachine canal at Montreal. The extension of the track to Meaford harbor, of 2.12 miles, is so far finished that it can be used for the transportation of freight. The first movement of grain over it, from the elevator at the harbor, was made on Aug. 31 last. The Co.'s new general offices at Montreal will probably be ready for occupation about April 15, 1901. New stations have been built at Belœil, Plessisville, Helena, Point St. Charles, Thousand Islands junction, Trenton, Pickering, Meaford, Forest, Watford, Tara, Port Robinson, and Windmill Point. The materials used for repairs of main tracks and sidings were:—

New steel rails in main tracks ..	16,060 tons.
Re-rolled steel rails in main tracks ..	2,812 "
Partially worn steel rails laid in branch lines and sidings ..	20,422 "
New ties in track ..	1,739,376 "
Ballast ..	278,405 cubic yards.

The Acting Superintendent of Motive Power reports the expenditure, mileage, etc., as follows:

Half-year ended.	Expenditure.	Train Mileage.	Rate of expenses per Mile.		
			Train	Engine.	Car.
Dec. 1901	Dollars. 2,671,012	8,694,993	Cts. 30.72	Cts. 24.75	Cts. 1.79
" 1900	2,562,699	8,691,679	29.48	23.77	1.80

An increase in expenditure of \$108,313, or 4.23% compared with an increase in train miles of 3,314, or 0.04%.

The average number of cars moved per train was	Passenger Trains. Freight Trains. Mixed Trains.		
	And for the corresponding period	4.6	28.2	10.4
	4.5	25.9	10.5

During the half-year 28 engines were scrapped or sold; 8 passenger and 9 freight engines were turned out new at the Co.'s works. The actual stock at Dec. 31, 1901, was 794, against the official figure of 803. The comparative cost of repairs per train, engine and car mile was:

Train Engine. Car	Repairs and renewals of locomotives.		All repairing charges, including shop machinery, tools, and marine equipment, etc.	
	1901.	1900.	1901.	1900.
	Cents. 7.03	6.72	8.63	8.42
	5.66	5.42	6.95	6.87
	0.41	0.41	0.50	0.52

The expenditure on capital account was: 7 engines supplied with driver brake and air brake equipment, 2 supplied with driver brake, 22 supplied with car warming equipment, 18 supplied with train air signal equipment, 43 supplied with vertical plane couplers. The Superintendent of Car Department reports the expenditure, mileage, etc., as follows:—

Half-year ended.	Dollars.	Miles run by Cars.			Cost per Mile.
		Passenger.	Freight.	Total.	
Dec. 1901	797,292	18,350,246	130,634,938	148,985,184	Cts. 9.17
" 1900	648,382	16,823,345	125,299,740	142,123,085	4.66

An increase in expenditure of \$148,910 or 22.97%, with an increase in car miles of 6,869,099, or 4.83%.

At cost of capital 149 freight cars were equipped with automatic couplers and Westinghouse air brakes, and 68 with air brakes only. At cost of revenue 5 day coaches, 300 furniture, 26 box and 3 derrick cars, were built at the Co.'s shops.

The revenue account for the half-year was as follows:

	RECEIPTS.		£	s.	d.	£	s.	d.
	£	s. d.						
Passengers	840,485	16	0					
Less—								
International bridge tolls ..	1,919	1	8					
St. Clair tunnel tolls	3,904	13	1					
Toledo, Saginaw, and Muskegon Ry., under traffic agreement						5,823	14	9
								834,662 1 3
Mails and express								125,071 19 7
Freight and live stock	1,605,899	7	2					
Less—								
Cartage, etc.	42,149	17	2					
International bridge tolls ..	9,165	6	10					
St. Clair tunnel tolls	15,127	5	3					
Toledo, Saginaw and Muskegon Ry., under traffic agreement						66,442	9	3
								1,539,456 17 11
Miscellaneous receipts, rents, tolls, etc.								70,613 16 5
								<u>£2,569,804 15 2</u>

	EXPENDITURE.		£	s.	d.
	£	s. d.			
Maintenance of way and structures	496,987	2	10		
Maintenance of equipment	317,934	12	6		
Conducting transportation	847,985	9	9		
General expenses	60,370	14	9		
Total working expenses	67.06%	1,723,277	19	10	
Taxes	1.32%	33,876	15	2	
		<u>68.38%</u>	1,757,154	15	0
Balance to net revenue account ..			812,650	0	2
			<u>£2,569,804 15 2</u>		

Dec. 31, 1900.	Statement of Train Mileage.	Dec. 31, 1901.
3,483,780	Passenger trains	3,673,824
4,660,763	Freight trains	4,478,410
538,136	Mixed trains	542,759
8,691,679		8,694,993

A London cablegram says cheerfulness pervaded the meeting. The only discordant note came from a shareholder, who expressed the opinion that there was not as much economy as possible in the management of the Co.

Sir C. Rivers Wilson declared that the Co. had the first of the railway managers of America, and in view of the results obtained the criticism was ungracious. He also characterized the past half-year as having been uneventful but prosperous. The volume of business had increased, more passengers and freight had been carried, the revenue had been considerably increased, and the improvements on the lines throughout the system had been continued. He outlined the progress of building the second track, and said he hoped it would be completed from Montreal to Chicago within a year, predicted continued prosperity; and expressed the hope that the time was coming when they would be able to close their capital accounts, as some of the roads in the U.S. had done, and pay for improvements out of the earnings of the road.

The directors whose term of office had expired were re-elected.

Water, in the Boiler, and Out of It.

Following is an abstract of an address recently delivered before the C.P.R. Club at Toronto Junction, by M. A. Chrysler, B.A.:—

I shall first consider water outside the boiler. On account of its commonness, water was once called an element, the others, of course, being earth, air, fire. It has long been known that earth is far from being a simple substance, but is composed of a large number of substances; air, too, has been proved to consist mostly of two elements, oxygen and nitrogen, to which must since 1895 be added argon; fire is believed to be not a substance at all; and I shall endeavour to prove that water is not an element.

We may approach the question of the composition of water from two standpoints, which may be illustrated thus: To demonstrate the nature of a watch it would be possible to start with a whole watch and take it apart into the wheels, springs, etc., or it would be equally satisfactory to start with the individual wheels and other parts, and put them together so as to produce a complete watch. Let us apply the first of these methods to water, and accomplish what chemists call the analysis of water, that is, break it up into the elements which compose it.

When a current of electricity is passed through the apparatus before you, a colorless gas collects in each of the two tubes, twice as much gas in one tube as in the other. On applying a taper to the tube containing more gas, this is seen to burn with a colorless flame—this gas is the element hydrogen; the gas present in smaller quantity does not burn, but rekindles the glowing end of the string which is held in the gas—this is the element oxygen. Hence water consists of two substances, and is therefore not an element. Another way of breaking up water is by putting a piece of the metal potassium in contact with the water. The metal spins around on the surface, and the hydrogen liberated from the water burns. In case sodium is used instead of potassium, the hydrogen does not take fire by itself, and so may be collected in a tube and then proved to be hydrogen, for instance by setting fire to it.

The reverse process, compared above to putting together the parts of a watch, may be accomplished by putting into a pop bottle of thick glass two parts of hydrogen and one part of oxygen, and applying a taper. A sharp explosion follows, and a minute quantity of water vapor is produced. In order to see the water which we thus make we may vary the experiment by burning a jet of hy-

drogen under an inverted tumbler, when the hydrogen will combine with oxygen from the air, and the resulting water form as a mist on the sides of the tumbler. This process is called the synthesis of water as opposed to analysis.

Pure water, as thus prepared, is a colorless, odorless, tasteless liquid, with which you may think yourselves tolerably familiar, but it must be said that pure water, such as the sample before you, is not found in nature; no, not in that cool spring which you sought in boyhood days; not in that well to which the farmer points with such pride—every farmer's well is "the best well in the township"; not even in the raindrops which fall from the thunder-cloud, though this is nature's nearest approach to pure water.

Naturally occurring waters may be classed as—1, rain; 2, spring; 3, river; 4, sea water. Of these, the water which falls towards the end of a shower is nearly pure; that which falls earlier is contaminated with ammonia and dust. Spring water derives impurities such as lime, iron, sulphur, from the rocks or soil with which it has come in contact. Thus we have the various mineral waters, and the hard water so common in wells. River water necessarily contains the impurities of spring water, and in addition organic matter from decaying vegetation and animal refuse. I hardly need mention that sea water contains about 3½% of solid matter, mostly common salt.

The common impurities found in water may now be considered. One of the commonest of these is salt, and this, though harmless of itself, is a bad symptom for water to show, for it generally goes hand in hand with dangerous organic impurities. These are naturally regarded as menacing to health, and it should be borne in mind that a water may be clear and sparkling and yet be entirely unfit for domestic use. If the water contain a suspicious quantity of organic matter, it will in

a few minutes bleach a solution of potassium permanganate. This may be shown by placing two glass cylinders on a sheet of paper, filling one with pure water and the other with the suspected water, then adding to each a quantity of the permanganate sufficient to impart a distinct pink color. If the second cylinder loses its color in a few minutes, the water should be condemned. From the decomposition of organic matter ammonia is produced (witness a manure pile), hence ammonia is usually present in impure water; its presence may be detected by the addition of a few drops of Nessler's solution. Even one part of ammonia in a million parts of water may be detected by this reagent.

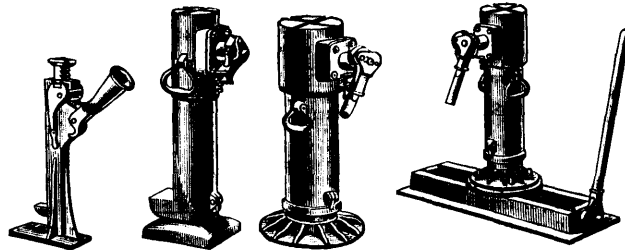
Of particular interest to the engineer as well as to the hygienist is the existence of lime in water, producing so-called hard water. As is well known such water uses up a quantity of soap before a lather can be produced, and this property is made use of in estimating the degree of hardness of any water. Another convenient test for hard water consists in adding a few drops of solution of ammonium oxalate; if lime is present in the water a white cloudiness or precipitate is produced. Hardness is of two kinds—1, temporary; 2, permanent. Temporary hardness means that hardness which is removed by boiling, and is due to carbonates of lime or magnesia. We may illustrate its formation thus: Into some lime-water a current of carbon dioxide is led; the liquid becomes milky, but on continuing to pass in the gas the liquid clears up; it now contains carbonate of lime in solution, and is simply artificial hard water. When we boil some of it in a glass tube it turns turbid, and the lime deposits on the tube, off which it may be dissolved by a few drops of acid. We can now understand how hard water is formed in nature. From decaying leaves, etc., the water of a stream becomes charged with carbon dioxide; such water possesses the power of dissolving carbonate of lime, so it

takes up the substance from the soil or from the limestone rock over which it may flow. When such water is boiled it loses the carbon dioxide, and the carbonate of lime falls to the bottom of the vessel, as fur in a tea-kettle or as scale in a boiler. The evil produced by such a deposit on a boiler is so great that it has been estimated that ¼ in. of scale wastes 60% of the fuel. Since in Toronto the water supply comes from Lake Ontario very little trouble from scale is experienced, but in localities such as Galt and Guelph, Ont., where limestone exposures are common, the water is quite unsuitable for use in boilers. Though the exact composition of scale varies according to the locality, it generally consists of carbonate of lime, or magnesia, or both; what can be done for it? As with most other maladies, treatment may be in the way of prevention or of cure. In households three methods of prevention are used: 1, boiling; 2, adding lime; 3, adding washing soda. Of these methods of softening water, the second seems, at first sight, altogether unreasonable, but an experiment shows that on adding lime-water to water containing lime, a precipitate of chalk falls to the bottom and the water is made pure. Such a method may be applied to a tank of hard water, the requisite quantity of lime being previously determined. In order to cure the scale numerous boiler compounds have been used; in many of these tannic acid is the active ingredient, hence the cure is about as bad as the disease, for the acid eats its way between iron and scale, loosening the latter by attacking the iron underneath the coating. What is wanted is a compound that will eat its way through the scale and not attack the iron.

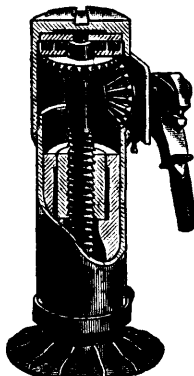
Turning to permanent hardness, we may illustrate its cause by dissolving in water a little gypsum (plaster of Paris), chemically called sulphate of lime. This liquid responds to the oxalate test, but is in no degree softened

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NOT



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by boiling. Permanent hardness is always due to sulphates or chlorides of lime or magnesia. Upon boiling such water for some time the slightly soluble sulphate of lime gradually separates out and settles on the boiler. This bears out an earlier statement to the effect that the composition of scale varies according to locality, so that only an analysis can determine the best method of dealing with any particular case. Permanently hard water may be softened by means of washing soda, but is not affected by addition of lime.

But water may be quite injurious to a boiler without containing any lime; a complaint has come to my ears that the water from a certain place beyond Hamilton causes much annoyance because of its corrosive action, causing leakage at joints. It has been suggested that this water may contain iron, or perhaps tannic acid, but the former would not act harmfully; tannic acid, if present in such quantities as may be found in parts of the Georgian bay, attacks iron readily, as would naturally be inferred from the remarks made above on its use as scale remover.*

Turning from the chemical side of the subject, let us consider a few points concerning the boiling of water. It is commonly said that water boils at 100° Centigrade or 212° Fahrenheit. Is this true? Into a glass flask some pure water is poured, and the bulb of a sensitive thermometer lowered into the liquid. When the water boils the thermometer indicates about 101 1/2°C., and remains at this point; if the thermometer be raised into the vapor, 100° is registered. If now some iron filings or a few small cinders be dropped in, the temperature of the boiling liquid falls to 100°. Presence of the rough particles seems to aid in the formation and loosening of the bubbles of vapor at the bottom of the flask. In accordance with this, it is found that water boils at a lower temperature in a vessel of copper than in one of glass. If some salt be added to water the boiling point is raised 2°. After performing these experiments before a junior class in physical science, the writer said to the class: "It is a well-known fact that the water in a locomotive boiler is at considerably above 100°; why is this?" One pupil suggested "presence of impurities," evidently thinking of the experiments previously made; another considered rust to be the cause; finally a pupil ventured the opinion, to as a matter of experience, that the increased pressure in the boiler kept the vapor from rising until the temperature was raised much above 100°. It has, in fact, been determined that at a pressure of 2 atmospheres, or 30 lbs. to the square inch, water boils at 120°; at a pressure of 15 atmospheres, water boils at 200°.

It is easier to show the lowering of the boiling point caused by lessening the pressure: A glass flask is half filled with water, and this is boiled until the upper part of the flask is filled with steam; the mouth of the flask is now tightly corked, and the flask inverted over a basin. If now some cold water is poured over the flask the water within boils vigorously, and may be kept boiling until cool enough to be held in the hand. This paradoxical result is due to the condensation of the steam in the upper part of the flask, causing a partial vacuum; therefore, the water is under very slight pressure, and boils at a low temperature.

Everybody has seen water dropped on a hot stove dancing over the surface in the form of spheres until the edge of the stove is reached; also, we know that if the stove is not very hot the drops behave quite differently, resting on one place and turning into steam. To ex-

amine into the curious behaviour of the water in the first instance, a disk of brass slightly hollowed out on the upper surface may be used. If this is heated nearly to redness, a spoonful of water may be placed upon it without any sign of boiling. This assumes the form of a much flattened sphere or spheroid, rolls about rather uneasily on the brass, and gradually becomes smaller through evaporation. If the brass is allowed to cool, nothing happens until the temperature falls to a certain point, when the water suddenly commences to boil violently, and is in a few seconds turned into a cloud of vapor, leaving the brass perfectly dry. By a proper arrangement it may be actually seen that the large drop does not touch the brass disk, and this fact may be proved in other ways. Why is this? The old explanation was that the spheroid rests upon a cushion of steam, and is thus preserved from contact with the metal and consequent boiling. But why does this steam not escape at the sides of the space, causing production of more steam and a rapid lessening in size of the spheroid of water? A later explanation is that the spheroid is supported by a Crooke's layer of steam, in which the particles of steam are rapidly dancing up and down between metal and spheroid, thus keeping the two apart. This spheroidal state of water has frequently been assigned as a cause of boiler explosions, and many arguments have been advanced pro and con. I shall close with the suggestion that this matter be discussed.

The Proposed Railway Commission.

Under the heading "The Dominion of Canada Seeking Trouble," the *Railway World*, Philadelphia, Pa., says:—

It is a remarkable circumstance that just as the Governor-General of Cuba has promulgated a statute for the regulation of the railways of the island, which contains convincing evidence of having been adapted, in many respects, from the railway act of Canada, and has thus given a rather notable testimonial to the success of our northern neighbor in dealing with its railways, Prof. S. J. McLean has submitted to the Canadian government a report in which he advocates the enactment of a new statute and the creation of a railroad commission with extensive powers. Prof. McLean was appointed nearly a year ago as a special commissioner by the Dominion government and charged with the duty of investigating Canadian railway conditions with a view to recommending legislation. He has prosecuted inquiries in many different regions, has received a large number of complaints, and has evidently become an adherent of the idea that Canadian conditions require the further intervention of legislative authority in the relations between the shippers and the railways. At present such supervision as the Canadian railways receive at the hands of the government is by means of the Railway Committee of the Privy Council, which is composed of certain cabinet ministers who are associated for that purpose with the Minister of Railways and Canals. This committee fixes maximum rates which are promulgated after receiving the approval of the Governor-in-Council. The *Toronto Globe* is authority for the statement that these maxima as a rule exceed the highest rates which the traffic could bear, and are therefore higher than the railways could charge with results satisfactory to themselves. Consequently the rates actually charged are usually considerably lower than those prescribed as maxima and, within the limits fixed by the latter, the railways are at liberty to, and actually do, reduce and advance them at will. The maximum rates, therefore, serve no purpose except to provide the railways with an argument in favor of the reasonableness of their

charges, of which they are not slow to avail themselves. They can readily answer to each complaint that the rates charged are lower than those established by the government, which they might charge if they chose, and which are presumably wholly reasonable and just. Prof. McLean suggests that legislation be adopted which would apparently go quite to the other extreme, not only requiring the railways, as in the U.S., to file schedules showing the rates actually charged, but supplementing this provision by one that no change shall be made without the previous approval of the government. While the present conditions would appear to permit undesirably rapid fluctuations in rates, though perhaps not more rapid than have at times occurred in the U.S. under a law requiring the publication of those charged and fixing three days as the minimum notice of a change, it is certain that the provision suggested would abolish that elasticity in charges which is so essential to efficient service. Indeed, as between the lack of stability in the present system and the lack of elasticity in that proposed, there can be no doubt that the latter would be less desirable. Without attempting to review the evidence, most of which would have to be interpreted in the light of an intimate knowledge of the local conditions, which Prof. McLean has collected, it is perfectly safe to suggest the advisability of proceeding very slowly in the adoption of such radical changes as he proposes. Canada has been notably free from industrial depressions and her escape from the influence of the serious financial crises which have successively swept over the U.S. and given pause to its industries is nothing less than remarkable. It is not contended that the financial and industrial depressions which have recurred with such regularity in this country were caused by unwise railway legislation, but no student of the conditions which brought them about and characterized the periods of their duration is likely to deny that such legislation was one of the cumulative causes which prolonged them and added to their intensity. At the time when granger and populistic legislatures in the U.S. were doing all in their power to render the railway business unprofitable, Canada was engaged in the promotion of railway enterprises by governmental aid. Its interest in its great railway systems is still direct and very heavy, and it is more than unlikely that it can be induced to adopt measures which would seriously impair their value. If the Canadian government seriously wishes to ascertain just what forms of legislation should be avoided, it can do so by consulting the statute books of many American states.

Better Maps Wanted.—In a discussion at the Toronto Military Institute recently, Major Sankey, City Surveyor of Toronto, said that Ontario has the worst system of maps that any intelligent country could possess. No trigonometrical or topographical survey of the province exists. Actually, the level of Lake Ontario from tidewater on the St. Lawrence is not accurately known. From the commercial and industrial standpoints alone such work was urgently needed. For instance, in certain fisheries litigation which took place not long ago, the only means of ascertaining whether a certain spot was in Canadian or U.S. waters was a calculation as to the time taken by a tug to reach it from one or the other shores of Lake Erie. Again, there is not a river whose basin is accurately and definitely known, a point of much importance in such projects as the Georgian bay canal.

A plan for providing pensions for employes of the I. C. R. who have been 40 years in the service has been elaborated at Moncton, and will be laid before Parliament during the session.

*The writer has since been furnished with a sample of this water, and finds large quantities of organic matter (vegetable) present; such matter, when heated, has a highly corrosive effect on iron. The peat bog from which this supply is drawn is well known to the writer, and is an entirely unsuitable source of supply.

Dominion Securities Company.

This company issued the following prospectus dated 51 East 44th Street, New York :

The Dominion Securities Co., organized under the laws of the State of New Jersey, has a charter similar to the Harriman charter, enabling it to deal in stocks, bonds and securities of all kinds, and to loan money on the same, etc.

The Co. has acquired the franchises, rights of way, concessions and subsidies, which the Dominion of Canada and also the Province of Nova Scotia grant upon fulfilment of its undertaking to extend the Nova Scotia system of railways, under which it is estimated that 600 to 800 miles of railroad will be built within the next four years. The Co. has now 48% of the capital stock of the Manhattan Contracting Co., 95% of the capital stock of the Cape Breton Extension Co., and also \$2,400,000 bonds of said Co., and assignment of the Nova Scotia Government's subsidy for the building of the Cape Breton Ry., as the first of the series of concessions, franchises, etc., receivable on account of the construction of railroads interlacing the Province of Nova Scotia ; all subsidies and grants, etc., by enactment of the House of Parliament, as fixed under the laws of the Government, together with the whole capital stock, bonds and benefits going direct to the Dominion Securities Co. The cash subsidy granted by the Dominion of Canada and the Province of Nova Scotia are \$6,400 cash per mile. Land grants and other inducements of the Governments increase this about \$1,600 additional per mile. The Government permits and authorizes the issue of bonds upon this railroad construction as follows :

1st mortgage bonds..... \$15,000 a mile
 2nd mortgage bonds..... 5,000 a mile
 Total mortgage\$20,000 a mile

of which the Nova Scotia Government agrees to take and pay for at par, \$10,000 per mile of the above 1st mortgage bonds. In addition the Government agrees to advance one-half of the cost of building the railroad in excess of \$15,000 a mile, up to an excess of \$6,400 a mile. Thus, for example, upon railroad costing \$18,000 a mile, the Government would pay an additional \$1,500 cash a mile, i.e., one-half of the \$3,000 a mile in excess of \$15,000 a mile, cost of construction, as well as all of the \$6,400 cash a mile, already provided for. The Dominion of Canada and Nova Scotia Governments pay a cash subsidy per mile of \$ 6,400

The Nova Scotia Government takes over at par, and pays for 1st mortgage bonds per mile of construction..... 10,000

Total cash paid by Government, for construction, per mile..... \$16,400

The Government also grants lands, etc., not included above, of an estimated value per mile of at least.. \$ 1,600

Dominion Securities Co. has also the balance of 1st mortgage bonds a mile.....\$5,000

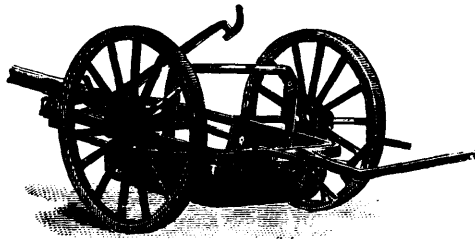
Also entire issue of 2nd mortgage bonds, i.e., \$5,000 a mile, estimated at 50%..... 2,500
 \$7,500

Total value per mile..... \$25,500
 Or omitting the land grants above of 1,600

Cash income of, per mile..... \$23,900

The maximum cost of building the railroads, according to best experts and engineers, will not exceed, including equipment..... \$15,000

Leaving net profit per mile of..... \$ 8,900
 Or for minimum of 600 miles, net profits of.....\$5,340,000



**K. & J.
 Wheel and Drag
 SCRAPERS**

Wheelbarrows, Shovels.

All kinds of Contractors' Supplies. Large Stock carried.

**CAMMELL'S MARION RODGER
 STEEL STEAM BALLAST
 RAILS. SHOVELS. CARS.**

**BARRETT TRACK JACKS.
 TRACK TOOLS.**

CANADIAN SALES AGENT :

JAMES COOPER, - Montreal.

Lubricating Oils

**MARINE VALVE, RENOWN ENGINE,
 ELDORADO ENGINE OILS and
 ARCTIC CUP GREASE.**

Durability—Reliability—Uniformity

Are points of excellence in favor of these oils and greases, which have stood the severest test for years.

These brands with a full line of oils manufactured by the **Imperial Oil Company**

FOR SALE AT ALL LAKE PORTS.

The best goods are most economical. The names of the best are well known to all marine engineers of experience.

In addition to the \$1,600 a mile of land grants, and a stock issue of \$20,000 a mile, amounting on the above minimum of 600 miles to a par value of \$12,000,000, the cash value of the stock, of course, depending on the earnings of the road, and requiring a period of two or three years, after construction, for dividends.

The capital stock of the Dominion Securities Co., is \$1,500,000.

Its directors and officers, in part, are as follows: Wm. Seward Webb, President; S. R. Callaway, J. J. Astor, H. L. Sprague, A. L. Meyer, P. Clement, T. Robertson, M.P., Shelburne, N.S.; E. Van Etten, A. Schiffer, of Pelgram and Meyer.

A correspondent of the Montreal Star says there is no agreement on the part of the N.S. Government to take \$10,000 a mile of the Co.'s bonds at par and that the Dominion Government subsidy voted is \$3,200 a mile for 30 miles only.

Dr. W. Seward Webb issued the following statement to the press in Montreal, April 22:

"My name, and incidentally the Vanderbilt interest, has been so frequently of late mentioned in the Canadian press that I feel it due the people to say that I am connected with only three enterprises in Canada, so far as the railroad situation is concerned.

"First—I built some eight years ago the St. Lawrence and Adirondack Ry., and I am President of that corporation.

"Second—At the request of some friends a year ago, I undertook, on behalf of the Dominion Securities Co., the construction of the Cape Breton Ry. in Nova Scotia. I did it because I am a strong believer in the future and the proposition interested me. The property is owned by the Dominion Securities Co.

"Third—I am interested in the purchase of the Canada Atlantic Ry. and its boat line.

"These comprise my interests in Canadian enterprises. I am not and never, in any way, was financially or otherwise connected with the South Shore Ry. I never was in any way connected with the negotiations for that property, although my name was daily associated therewith.

"As to the Quebec Southern Ry., I want to say that I have not one dollar invested in the Co., and only became a director because the Rutland Rd., of which I am chairman, has a trackage agreement with the Co., and we use their road from Noyan to Quebec Southern Jct., and to this extent only I am interested in seeing the property put in proper shape.

"I am not interested financially or in any possible way, with any bridge or tunnel scheme in Canada, nor have I ever authorized the use of my name as a director thereon.

"There is no 'Webb syndicate' in Canada or anywhere else, and I wish to say most emphatically I have no financial representative in Canada."

Qu'Appelle, Long Lake & Saskatchewan Railway.

The report for the year ended Nov. 30, 1901, states that the gross earnings, after deducting earnings from Government service, were \$133,005.58 against \$113,056.45 for the previous year, an increase of 17.64%. The expenses were \$134,283.01, against \$116,236.91, an increase of 15.53%. The percentage of expenses to earnings was 100.96% against 102.81% for the previous year. The net loss was \$1,277.43, against a net loss of \$3,180.46 for the previous year. Earnings from passenger traffic, including Government service, were \$37,781.74, against \$28,258.80, an increase of 33.70%. Freight, express, mail and miscellaneous earnings, including Government service were \$98,757.24, against \$88,328.87, an increase of 11.80%. The increase in gross earnings is fairly satisfac-

tory, though it is probable that the freight earnings would have been about \$2,000 more in Nov. had all the cars required for promptly handling last year's crop been available. The increase in expenses is large. Most of this, as in the previous year, was incurred for maintenance of way and structures. The expenditure under this heading was \$84,522.78, against \$69,959.96 for the previous year. The balance of the increase in expenses, \$3,483.28, is attributable to the increased traffic of the road. During the year the Co. put into the track 105,211 ties against 95,526 the previous year, the increased cost being \$3,849.88. The result of the operating of the road for the past year has not been as satisfactory as was hoped for; but it is expected that the gross earnings for the current year will increase considerably as there is undoubtedly a large quantity of grain still held along the line. Against this, however, the directors regret to state that the estimates of expenditure required during the current year are large, it having been found necessary to contract for 122,000 ties, also to authorize the expenditure of \$10,000 outside of ordinary track labor for ballasting, ditching, widening dumps, etc. The settlement in the districts tributary to the railway continue very satisfactory.

ASSETS.	
Cost of road.....	\$4,010,140 00
Sundry debtors.....	9,661 71
Interest deferred.....	828,487 91
Profit and loss account.....	7,604 74
	\$4,855,894 36
LIABILITIES.	
Capital stock paid up.....	\$ 201,000 00
First mortgage bonds, £782,700.....	3,809,140 00
Coupons due and not presented.....	1,812 02
Interest unpaid.....	828,487 91
Sundry creditors.....	15,454 43
	\$4,855,894 36
EARNINGS.	
Passenger.....	\$ 37,781 74
Freight.....	94,857 28
Express.....	1,302 76
Mail.....	2,063 36
Miscellaneous.....	533 84
	\$126,538 98
Less amount of Government service.....	\$ 3,533 40
	\$ 133,005 58
Balance carried to interest account.....	6,339 59
	\$ 139,345 17
OPERATING EXPENSES	
Balance brought forward.....	\$ 5,062 16
General expenses.....	1,445 19
Conducting transportation.....	13,452 57
Management expenses.....	2,129 11
Motive power.....	29,495 71
Maintenance of way and structures.....	84,522 78
Maintenance of cars.....	3,237 65
	\$139,345 17
INTEREST ACCOUNT.	
Government subsidy for year.....	\$ 80,000 00
Balance carried forward.....	7,604 74
	\$ 87,604 74
Balance from revenue account.....	\$ 6,339 59
21.18. paid on account, Feb., 1901, coupon; £1.18. paid in account, Aug. 1901, coupon	79,991 93
Expenses re service of coupon and other expenses (London).....	1,273 22
	\$ 87,604 74

Following are the officers for the current year:—President, H. C. Hammond, Toronto; Vice-President, Hon. W. Pugsley, St. John, N.B.; Secretary, R. A. Smith Toronto; other directors, E. B. and F. G. Osler, G. T. Chisholm, C. S. MacInnes, S. B. Sykes, Toronto; A. Bruce, K.C., Hamilton, Ont.

The report of the Commissioner of Public Works presented at the recent session of the Ontario Legislature, shows that at the end of 1901 there were in the Province, at the time of Confederation, 1,447.50 miles of railway: that there had since been constructed 5,571.33 miles, and that there were at the date of the report 193.50 miles under construction.

Nova Scotia Legislation.

The following acts relating to railways and other transportation interests were passed at the recent session of the N. S. Legislature:—

Respecting the Halifax and South-Western Ry. Co.

Confirming the charter of the Halifax and South-Western Ry. Co.

Amending chap. 43, of the session of 1901, as to the encouragement of shipbuilding.

Respecting the encouragement of the building of railways.

Amending the act to encourage the building of iron and steel ships in Halifax.

Enabling Halifax to vote a subsidy for a graving dock in the city.

Enabling the county of Halifax to assist the Nova Scotia Eastern Ry. to defray the cost of right of way.

Ratifying an agreement between the municipality of Guysboro and the Commercial Cable Co.

Enabling the county of Cape Breton to borrow money for the right of way for the Cape Breton Ry. Co. (Ltd.)

Respecting the assessment of railway damages in the municipality of Inverness.

Amending the act of 1901 respecting the agreement between the municipality of Inverness and the town of Port Hawkesbury as to borrowing money to pay for railway damages.

Enabling Richmond county to borrow money for railway damages.

Re appraisalment of railway damages in Richmond county.

Respecting a railway right of way through the town of Bridgetown.

Incorporating the Eastern Telephone Co. (Ltd.)

Amending the Act incorporating the Louisburg Mining and Transportation Co. (Ltd.)

Amalgamating the Musquodoboit Ry. Co. (Ltd.) with the Nova Scotia Eastern Ry. Co. (Ltd.)

Incorporating the Yarmouth and Digby Electric Ry. Co.

Incorporating the Mabou and Gulf Ry. Co. (Ltd.)

Incorporating the Cape Breton Northern Ry. Co. (Ltd.)

Incorporating the Nova Scotia Northern Ry. (Ltd.)

Respecting the Inverness and Richmond Ry. Co. (Ltd.) and the Inverness-Richmond Collieries and Ry. Co. of Canada.

Incorporating the Valley Ry. Co. (Ltd.)

Incorporating the North Mountain Ry. Co. (Ltd.)

Amending the act incorporating the Cape Breton Ry. Extension Co. (Ltd.)

Incorporating the Sydney and Glace Bay Ry. Co. (Ltd.)

Amending the act incorporating the Midland Ry. Co. (Ltd.)

Amending the act incorporating the Cape Breton Electric Tramway and Power Co. (Ltd.)

Amending the act incorporating the Halifax Electric Tramway Co. (Ltd.)

Incorporating the Maritime Engineering and Construction Co. (Ltd.)

Incorporating the Maritime Newfoundland Shipping Co. (Ltd.)

Incorporating the Egerton Tramway Co. (Ltd.)

Sites have been granted along the C.P.R. lines in Manitoba and the North-west Territories for over 100 grain elevators to be erected in time for the coming harvest. The elevators will have an average capacity of about 30,000 bush. each.

The C.P.R. Co. has placed orders for 35,000 tons of 80 lb. steel rails to be delivered this year, and 20,000 tons in Germany and 15,000 in the U.S.

Victoria Rolling Stock Co. of Ontario.

The annual report for the year ended Feb. 15, 1902, states that the Co. has not issued any new debentures, and outstanding debentures against leases have been reduced by \$448,000. All payments on leases which have matured during the year have been promptly met. Discount and commission on the series R 4% bonds sold during the year amounted to \$17,953.80. Of this amount \$7,953.80 was written off, leaving \$10,000 carried forward to next year. The full amount of this account might properly have been distributed over the balance of the term of this lease (8 years) but the directors thought it well to write off the above amount, leaving \$10,000 at debit of the account to be dealt with next year. The profit on the year's business, after charging up directors' fees, expense account and discount and commission on debentures sold, is \$20,304.02, out of which a dividend of 12% per annum on the paid-up capital stock, amounting to \$14,400 has been paid, leaving \$5,904.02 carried forward to profit and loss account, which now stands at \$80,269.64.

ASSETS.

Obligations on leases.....	\$2,589,342 89
Debentures held by Co. and accrued interest.....	250,183 54
Discount and commission on debentures sold.....	10,000 00
	<u>\$2,849,526 43</u>

LIABILITIES.

Capital stock subscribed.....	\$600,000 00
" paid-up.....	120,000 00
Debentures outstanding.....	2,605,500 00
Interest accrued on same.....	33,561 46
Coupons due and not presented.....	330 00
Advances against debentures.....	9,865 33
Balance at credit of profit and loss account.....	80,269 64
	<u>\$2,849,526 43</u>

PROFIT AND LOSS ACCOUNT.**Dr.**

Interest paid and accrued on debentures and advances.....	\$ 192,310 99
Discount and commission on debentures sold.....	7,953 80
Expense account.....	1,489 38
Directors' fees last year.....	1,355 00
Dividend account.....	14,400 00
Balance carried forward.....	80,269 64
	<u>\$297,778 81</u>

Cr.

Balance at credit profit and loss account, Feb. 15, 1901.....	\$ 74,365 62
Rents received and accrued on leases, and interest on debentures held by Co.....	223,413 19
	<u>\$297,778 81</u>

MEMORANDUM re ROLLING STOCK.

Original cost of rolling stock held under existing leases.....	\$6,279,400 03
Amount paid in on account by railway companies in addition to interest.....	3,677,159 24
	<u>\$2,602,240 79</u>
Total amount of Co.'s debentures outstanding.....	<u>\$2,605,500 00</u>

The following officers were elected for the current year:—President, John Burns, Toronto, since deceased; Vice-President, W. Hendrie, Hamilton; Managing Director, H. C. Hammond, Toronto; other directors, A. B. Lee, W. D. Matthews, E. B. Osler, H. Pellatt, D. R. Wilkie, Toronto; Secretary, R. A. Smith, Toronto.

The Co.'s operations are at present confined to the C.P.R. and its connections.

Canadian Society of Civil Engineers.

At the ordinary meeting March 27, the following applications for admission and transfer were announced:—

For admission, A. Bell, G. B. Burchall, S. H. Fillmore, W. R. Duckworth, and F. S. Keith.

For transfer from the class of associate member to that of member, E. Belanger.

A short discussion took place on Mr. Costigan's paper on "Data and notes derived from tests on cement and also on concrete taken from regular batches used in actual works."

C. E. W. Dodwell's abstract upon "A short history of the engineering works of the Suez canal" was read.

At the ordinary meeting April 10, the following applications for admission and transfer were announced:—

For admission, A. A. Blanchard, G. H. Blanchet, C. B. Brown, W. C. Carter, H. J. Deyell, F. A. Healy, G. T. Jennings, G. E. Jorgenson, B. S. McKenzie, A. P. Miller, N. L. Tooker, R. W. Miller, J. E. Cauchon, C. E. Cooper, and C. H. Wright.

For transfer from the class of student to the class of associate member, W. B. Anderson and P. W. K. Robertson.

There was a short discussion on C. H. Davis' paper on "Competition of steam vs. electric parallels."

A paper was read by Dr. Coker, M. Can. Soc. C.E., "On the measurement of water by a small Venturi meter."

The scrutineers of the ballot for the elec-

tion of members declared the following elected:—

Members—Josiah G. Sing and J. J. Taylor.
Associate Members—W. D. Baillairge, J. L. T. Bogart, W. H. Brunel, G. A. Day, L. Keller, N. B. MacTaggart, E. S. Matheson, T. A. MacLean, H. N. Putnam, J. Rainboth, D. W. Ross, H. A. Russell, J. A. Tremblay, and C. H. Vogel.

Transferred from the class of associate member to the class of member, R. W. Farley, W. J. Francis, C. H. Mitchell, H. A. Morrow, and J. H. Wallace.

Transferred from the class of student to the class of associate member, C. J. Armstrong, F. L. C. Bond, James B. Goodwin, B. Leaman, N. M. McLeod, and W. M. Scott.

Students, H. Bigger, W. H. Blanchet, H. P. Borden, H. Cohen, N. L. Crosby, L. B. Elliott, S. Gagne, A. A. Gobeil, H. J. A. Haffner, H. W. Jones, F. M. Lamb, P. A. Landry, A. R. McCleave, F. A. McKay, W. L. Matthews, H. Melancon, S. R. Newton, J. H. Preston, T. S. Scott, H. H. Shaw, and J. L. Wilson.

Canadian Railway Club.

The regular meeting was held at the Windsor hotel, Montreal, April 8, President E. A. Williams in the chair; 84 members being present.

The Treasurer reported that 97 members had paid their subscriptions, besides a number more whose applications for membership had been put in, and were waiting the approval of the executive committee.

S. King, Master Car Builder Intercolonial Ry., read a paper on standard box cars, which was discussed briefly. It is published on pg. 159.

Mr. Reed gave an interesting address on coal combustion, which he illustrated by experiments and by lantern slide views.

A meeting of the Executive Committee was held in Montreal, April 9, at which a number of applications for membership were approved, making the list of members enrolled to date 165.

The salary of the Secretary, M. P. Kelly, was fixed at \$250 for the year, and the Treasurer, S. S. Underwood, at \$75.

The day fixed by the constitution for the meetings of the Club, the second Tuesday of the month, being the same as that of the New England Railroad Club, the question of changing it was discussed, and a notice of

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General Sales Agents,
The Algoma Steel Co., Ltd.

motion to make a change will be given at the next meeting of the club, on May 13.

It was decided that two papers be read at the next meeting—one by T. McHattie, Master Mechanic G.T.R., Montreal, on modern locomotive management, and one by R. R. Neild, of the C.P.R. shops, Montreal, on the manufacture of iron and steel, also, on the chemistry of metals, and why a mechanic should know something of these important subjects.

Recent Quebec Legislation.

The following acts affecting railway, shipping, telegraph and kindred interests were passed at the recent session of the Quebec Legislature:

- Granting certain powers to municipal corporations (permission to subscribe for stock in Montreal Bridge Co.)
- Authorizing the erection of a toll bridge across the St. Francis river, between Richmond and Melbourne.
- Incorporating the Matane and Gaspé Ry. Co.
- Incorporating the Levis County Ry. Co.
- Ratifying the sale of lands in the township of Gosford by the Quebec and Lake St. John Ry. Co., to the Quebec and Lake St. John Ry. Lumbering and Trading Co.
- Amending the law relating to civil engineers.
- Amending the charter of the County of Montmorency Telephone Co.
- Respecting the Provincial Light, Heat and Power Co.
- Incorporating the Kamou-Tem Littoral Electric Co.
- Incorporating the Shawinigan Falls Terminal Ry. Co.
- Incorporating the Sorel Electric Co.
- Incorporating the St. Lawrence and Megantic Ry. Co.
- Respecting certain subsidies.

May Birthdays.

- Many happy returns of the day to
- Garnet Vliet, Assistant Master Mechanic G.T.R., at Portland, Me., born at Milwaukee, Wis., May 5, 1854.
- W. R. Baker, Assistant to 2nd Vice-President, C.P.R., at Montreal, born at York, Eng., May 25, 1852.
- S. Barker, M.P., President Muskoka Navigation Co., Hamilton, Ont., born at Kingston, Ont., May 25, 1839.
- F. T. Byrne, Commercial Agent G.T.R., at St. Louis, Mo., born at Albany, N.Y., May 3, 1859.
- G. S. Cantlie, Superintendent Car Service, C.P.R., at Montreal, born there May, 2 1867.
- M. Donaldson, General Superintendent, Canada Atlantic Ry., at Ottawa, Ont., born near Edinburgh, Scotland, May 1, 1851.
- W. C. Edwards, M.P., Timiskaming Steamboat Co., Rockland, Ont., born at Clarence, Ont., May 7, 1844.
- J. D. Evans, Engineer Central Ontario Ry., at Trenton, Ont., born at Goderich, Ont., May 27, 1843.
- E. T. Galt, President Alberta Ry. and Coal Co., and Great Falls and Canada Ry. Co., at Lethbridge, Alta., born at Sherbrooke, Que., May 24, 1850.
- A. Hardy, General Freight and Passenger Agent, Quebec and Lake St. John Ry., at Quebec, born there May 12, 1855.
- W. T. Huggan, Treasurer and Auditor Prince Edward Island Ry. at Charlottetown, P.E.I., born at Halifax, N.S., May 24, 1851.
- J. Hunter, Vice-President and General Superintendent Esquimalt and Nanaimo Ry., at Victoria, B.C., born at Aberdeen, Scotland, May 7, 1839.
- W. S. Kinnear, Assistant Superintendent Canada Southern Division, Michigan Central

Rd., at St. Thomas, Ont., born at Circleville, Ohio, May 25, 1864.

G. A. Parker, Auditor Dominion Atlantic Ry., at Kentville, N.S., born at Walton, N. S., May 1, 1855.

N. J. Power, Auditor of Disbursements, G.T.R., at Montreal, born at Rochester, N.Y., May 19, 1843.

H. B. Sherwood, Superintendent Bay of Quinte Ry. and Navigation Co., at Deseronto, Ont., born at Auburn, N.Y., May 25, 1847.

E. Tiffin, Traffic Manager, I.C.R., at Moncton, N.B., born at Hamilton, Ont., May 5, 1849.

J. H. Walsh, General Freight and Passenger Agent, Quebec Central Ry., at Sherbrooke, Que., born at Quebec May 12, 1860.

H. K. Wicksteed, engineer in charge of surveys, Halifax and South Western Ry., born at Quebec May 25, 1855.

James Yeo, ex-Roadmaster Intercolonial Ry., Riviere du Loup, Que., born at Bideford, Devonshire, Eng., May 1, 1830.

Standard Box Cars.

S. King, Master Car Builder, Intercolonial Ry., Moncton, N.B., read the following paper at the last meeting of the Canadian Railway Club in Montreal:

When requested by your Executive Committee to prepare a short paper on some subject relative to cars, I considered that a subject which we could discuss with interest to-night is "The advantages and disadvantages of the standard box car which has been adopted by the American Railway Association as viewed from a common standpoint." In presenting this subject, I wish to explain that my intention is simply to outline without elaboration some of the arguments for and against the standard car, and of drawing out a general discussion from the membership. It is not many years since, when any activity on the part of a railway official, in the way of speaking at clubs or before societies would have been frowned upon by a great number of his associates, and he would probably have been dubbed as "one of those theoretical fellows." This feeling, I am glad to note, is fast disappearing, and all matters of importance are now fully and freely discussed by the various clubs, and by this means we are able to arrive at the best solution of the various problems as they come before us.

Technically educated men find it of advantage to give and take, to interchange ideas and experience in oral and written discussions and to encourage others to do the same. Now we find the men who have been doing the most and best speaking and writing forging ahead into the best positions. They are the wideawake men who think and observe, read and discuss. Men who are up with the times are wanted. Of course this rule has its exceptions on both sides, but we only require to look over the changes that have been made in official positions to prove this rule.

As many of you are aware, the question of size and capacity of freight cars has been a disputed point for years, I might almost say, as long ago as when the interchange of freight cars between railways began. Various attempts were made by local interests to arrive at a standard, but failed. The M.C.B. Association discussed the matter in convention, and although they can as a rule agree upon important points, and adopt and maintain standards, they failed in this particular. One reason of this was, that they did not have the assistance and support of the traffic and transportation departments that might have been expected. Another reason was from the fact that one railway would endeavour to outstrip its competitors in the so-called advantages which it could offer its patrons by way of larger cars and thus secure the freight. Of course, two or more could play at the

game, hence the difficulty. It was therefore a great point gained when the American Railway Association took the matter in hand, and after considerable labor obtained statistics and data as to the actual requirements of the majority of the railways, and the size which would accommodate the greatest assortment of freight with the least amount of waste space, and decided on Oct. 23, 1901, to adopt a standard box car as regards the inside dimensions, and to form such resolutions that made it practically a loss to the railway to build and operate any car of greater or less dimensions.

It is well to note, that as far as the height and width is concerned, the dimensions adopted are as great as can be operated on a number of the principal railways on account of the clearance limit. They therefore very wisely requested the M.C.B. Association to consider and adopt the required external dimensions of the standard box car, based upon the internal dimensions prescribed by them.

It is universally admitted, that one of the greatest aims of the leading railway men today, is to reduce to a minimum the operating expenses of the railway under their charge, and in the accomplishment of that purpose many factors enter into the result. Competition has become so keen, and freight rates so low, that it has become the imperative duty of all railways seeking success and large receipts, to put into service a car that will yield the largest profits consistent with operating expenses. In adopting a standard box car, an end was put to the undue competition among certain railway representatives, whose great object was to get the freight to handle at any cost, and in its place to form a basis upon which a legitimate charge for haulage could be made, and which would give a satisfactory return beneficial in every respect.

Another point which may or may not be considered an advantage is the width of the door openings. To increase the width of the door openings to 6 ft. is to invite a weakness in construction at that point, and it necessarily follows that the door posts and grain doors must be considerably strengthened in order to prevent bulging of the sides of the car, accompanied with all the unfavorable results such as the binding of the side doors, and damage done to them in consequence of irresponsible shippers. I notice that some car builders have provided against this weakness by using a flitched door post, which, though not a very sightly affair, will no doubt assist materially in overcoming the stresses at that point, due to increased width and height.

It may be argued that a considerable quantity of the freight carried does not press heavily against the sides of the car, and the apparent defect will only apply to grain and coal carrying railways. On the other hand, we all know that any car is liable to be loaded and interchanged with a grain or coal carrying railway, and it is at the option of such railway to reload it with such merchandise as is common to it, in order that it may be used to a profit when returning it to its owner, so that it is absolutely necessary to provide for all contingencies of this kind.

The extra weight of the grain door due to increased size and necessarily heavier construction will also tend to a more speedy destruction of the door. It seems to be a foregone conclusion among a certain class of shippers that permanent grain doors are only put into cars to be broken up and thrown out when occasion requires, hence some railways have ceased to equip cars with permanent grain doors, and simply use cheap and rough lumber when occasion requires. The increased cost in such cases, on account of the increased width of door opening, will be in proportion to the increased thickness and length of the material required.

The increased inside and outside dimensions require that a stiffer frame be constructed to

overcome the stresses, which consequently necessitates more material, thereby increasing the cost and weight of the car body for a given capacity. I would estimate the increased light weight of a car of 60,000 lbs. capacity, strengthened in all its parts proportionately for the increased volume as required by the recent standard adopted, to be not more than 1,500 lbs., and its original cost over that of an ordinary 35 ft. car of 60,000 lbs. capacity to be less than \$35, so that these items of cost and dead weight are more than overcome by the increased advantages previously mentioned, and is an item not worthy of serious consideration.

Another point worthy of consideration is, the necessary alteration in the usual design of side cornice and the design of the door cap, made compulsory by the requirement to construct a car which does not exceed a width of 9 ft. 7 $\frac{3}{8}$ in. at the eaves, and the height from the top of the rails to the eaves not more than 12 ft. 6 $\frac{3}{4}$ in. These dimensions do not interfere so much with those railways which adopt the double board roof as they do with the railways using the inside metal roof. It would also appear to be a matter of necessity to return to the use of the discarded brake step on account of the limited height for the brake staff.

I trust that these various points have been brought forward in such a manner that a full and free discussion may ensue.

The paper was discussed as follows:

S. S. UNDERWOOD, chief draughtsman, car department, G. T. R.—The subject of this standard box car is not a new one, as we all know, but there some new features to be considered. We have been given the dimensions of this car inside, as 36 ft. in length, 8 $\frac{1}{2}$ ft. in height, and 8 ft. from the floor to the under side of carline, as the standard dimensions that have been adopted by the A. R. A., with but one dissenting vote, and that was the New York, New Haven & Hartford Rd. Its objections were based, as I understand it, principally on account of its lower clearances, and the opinion expressed that in order to get the 8 ft. height inside the car the floor would have to be lowered below the standard of 48 ins. above the rail. I think it was Mr. Merrill, 1st Vice-President of the N. Y., N. H. & H. R., who stated in a letter last Oct. to the Secretary of the American Railway Association, that his road could take a car that was 10 ft. wide, at 12 $\frac{1}{2}$ ft. above the rail, and thus the N. Y., N. H. & H. R., if my information is correct, could take a car 9 ft. 10 in. wide, at

12 $\frac{1}{2}$ ft. above the rail. I think it is entirely practicable and possible to build a car of these dimensions: For instance, we will say that the floor is 4 ft. above the rail, add 8 ft. for inside clearance, and using 7 x 4 in. top plate, with under side of carline 3 in. above bottom of plate, this will give us 12 ft. 4 in. from rail to top of top plate, making an allowance of $\frac{3}{8}$ in. for the slope of the roof below the top of plate, this making 12 ft. 3 $\frac{3}{8}$ in. above the rail, not taking into consideration the thickness of the various roofs that might be used. I think we can safely keep within the 12 ft. 6 $\frac{3}{4}$ in. limit, as recommended by the Master Car Builders' Association pamphlet, as 3 in. should be ample allowance for roof. As far as the brake staff which they have limited to 14 ft., is concerned, I see no reason why we should not be able to keep within this limit, and make the brake staff to these dimensions. The Pennsylvania R. R., which first dissented at the 8 ft. inside height, and which afterwards withdrew its objections and gave an affirmative vote, also stated that a car could not be run over its line safely that exceeded 9 ft. 10 in. in width, at 12 ft. 3 in., which was afterwards changed to 9 ft. 7 in., at 12 ft. 7 in. from the rail. In order to get this, in building its new 100,000 lbs. box cars, I understand it has lowered the floor to 42 $\frac{1}{2}$ in. from the rail. If all other lines would do the same, it would necessitate the lowering of the platforms all over the country, which will entail a very large expense to all the railways. I think the better way is to preserve the standards now in use as far as possible, even if one or two individuals are compelled to go to the expense of extending their clearances. The American Railway Association adopted the inside dimensions, after two years' deliberation, and we will concede that its reason for doing so was well founded, and by the best advice obtainable. It says that in determining the standard "it is believed to be better to make it 36 ft., as that length has been endorsed by the master car builders as one economic in operation, and as most of the new cars now built are of that length," notwithstanding that the sum total of all the 36 ft. cars, as compared with 34 ft. cars, is about 1 to 5 $\frac{1}{2}$, i. e., there are 71,000 36 ft. cars, and 386,000 34 ft. cars now in existence. The M. C. B. Association has been asked to define the outside dimensions that will embody the inside measurements as adopted by the American Railway Association and provide a safe clearance without damage to the standard car. As far as the height is concerned, I do not see how

there will be any great difficulty in getting within the limit as recommended. The M. C. B. Association has issued a pamphlet, in which it recommends the width over eaves to be not over 9 ft. 7 $\frac{3}{8}$ in., at 12 ft. 6 $\frac{3}{4}$ above rail. In recommending these dimensions I do not think the members took properly into consideration the door hood. We can get these dimensions easily over the eaves without taking into consideration this door hood; however, if we are to conform to our present mode of construction, by letting the eaves extend $\frac{3}{4}$ in. over the hood, as we now block it out, we cannot possibly build a car to 9 ft. 7 $\frac{3}{8}$ in. over eaves. For instance, the car inside would be 8 ft. 6 in. in the clear; now, allowing $\frac{1}{8}$ in. for lining of the car, and the same for outside sheathing, with 2 $\frac{1}{2}$ in. post, which I think is as light as we can safely make them, you will see the outside width would be 9 ft. 2 $\frac{1}{4}$ in., add $\frac{1}{4}$ inch for metal door facing, 2 in. for the door, $\frac{1}{4}$ for the hanger, and $\frac{1}{4}$ for the hood clearance, you will have 9 ft. 7 $\frac{3}{8}$ in. If you use a wooden hood covering, it would be at least $\frac{3}{4}$ in. in thickness; this would add another 1 $\frac{1}{2}$ in. and your overhang for roof would be not less than 1 in. more, making in all 9 ft. 10 $\frac{1}{4}$ in. This we could reduce to some extent by using the straight metal hood covering. I think this construction would be well within the safety limit if we kept the height of the eaves down to 12 $\frac{1}{2}$ ft. above the top of rail, otherwise we will have to do as some of the other roads are doing at present, i. e., form a pressed metal door hood that has an off-set at the top extending under the eaves, which has $\frac{1}{2}$ in. or less overlap, the metal coming straight down as close to the top of the door hanger brackets as possible, then being thrown out and down again, so as to clear door brackets and protect top of roof itself. This construction is unsightly, to say the least, and I think will be expensive to maintain.

PRESIDENT WILLIAMS: I understand your figures pertain to the double boarded roof?

S. S. UNDERWOOD: Yes, not only to the double-boarded, but to all roofs, as I make an allowance of 3 in. above top of plate for same. If they keep the floor down to 48 in. from the rail, they should be able to get the roof within the limit recommended. The M. C. B. Association has recommended that the width be 9 ft. 7 $\frac{3}{8}$ in., and they get it in this way—the width between the lining is 8 $\frac{1}{2}$ ft., thickness of lining 1 $\frac{1}{8}$ in., thickness of siding 1 $\frac{3}{8}$ in., thickness of posts and braces 6 in., air space between fascia boards 1 in.,

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thickness fascia boards $1\frac{3}{8}$ in., projection on side of roof $1\frac{1}{2}$ in., this makes 9 ft. $7\frac{3}{8}$ in., but nothing is said there in regard to the door hood; of course we can get these dimensions of 9 ft. $7\frac{3}{8}$ in. if we do not include the door hood, but I see no reason why the dimensions should not be increased to 9 ft 10 in. I have a memorandum here, of some years' standing, showing the clearances on Pennsylvania lines, and New York, New Haven & Hartford Rd. I notice that the latter can pass a car 9 ft. 10 in., at 12 ft. 8 in., which substantiates my conclusion in regard to the 9 ft. 10 in. car over eaves, at $12\frac{1}{2}$ ft. The Pennsylvania shows that at a height of 12 ft. 6 in. it could handle a car at 9 ft. 4 in. over eaves on some of its lines. This would tend to show that even if the standard car was made 9 ft. $7\frac{3}{8}$ in., it would have to alter its clearances to pass it; therefore, I think that my conclusions are right when I state that the standard car should be not less than 9 ft. 10 in. over eaves at $12\frac{1}{2}$ ft. above the rail. There are some 56 different companies that voted in the American Railway Association at the time of the adoption of this standard car, and only one that voted against it, which shows very plainly that all the western roads, and the southern roads, can pass a car made to the dimensions above stated. I, therefore, object to making a car less than 9 ft. 10 in. over eaves, and if you will refer to THE RAILWAY AND SHIPPING WORLD I think you will agree that my conclusions here drawn are well founded.

S. KING: I would like to ask Mr. Underwood how he will manage the brake pawl and the ratchet wheel if he does not have a brake step?

S. S. UNDERWOOD: On the G.T.R. we are using a pawl which is worked by simply butting it with the foot, and it will fall into the ratchet wheel of its own accord. It does not require a standing position to set the brake. The ratchet is on the top, not at the side of the brake wheel, and I think a man could hold a car wheel well at 13 in. without any trouble.

W. H. ROSEVEAR, JR., Chief Clerk Motive Power Department G.T.R., Montreal: I do not think I can add anything more to this subject as Mr. Underwood's views coincide with mine; in fact, we worked this matter up together. I remember very well, a few years ago, when going through our freight yards, I discovered that our competitors had made a box car larger than our own. We, of course, then set to work to make a car just a little larger, and so in this way the different roads have gone on increasing the size of their cars until they are becoming more like moving freight sheds than box cars. This calls to mind a little rhyme which I saw chalked on one of such cars:

"Little box car, do not cry,
You will be a freight shed bye-and-bye."

There is no doubt that a standard box car built to these dimensions will prove a great blessing, especially when we have them rated at a cubic as well as tonnage capacity.

S. KING: I have much pleasure in submitting a blueprint showing the dimensions at which the Intercolonial has, in a measure, decided to build some cars, which shows the height from top of rail to the eaves 12 ft. $7\frac{3}{8}$ in., with a width over the eaves of 9 ft. $6\frac{3}{4}$ in. You will notice from the measurements given by the M.C.B. committee, the width is within the dimensions given, which will allow for the increased height at side door covering, on the same principle as Mr. Underwood was describing, and I think it is quite workable to build a car to these dimensions. The framing of the carline at the plate to be 4 in. in width. I notice that some railways are gaining $\frac{1}{2}$ in. at that point by reducing the width of the carline to $3\frac{1}{2}$ in.; I think it is rather a bad construction; I think 4 in. is small enough. I notice also the New York

Central has decreased the width of its floor sills to 8 in. in order to overcome the same difficulty. I think that is also a step in the wrong direction. We ought to maintain as far as possible the foundation of the car. If we get the foundations strong enough so that they will stand the little taps which the shunters give them in the ordinary railway yards, we will be all right, but if we reduce the construction from what it is at present, I am afraid we will have trouble. We get broken sills enough now, and if we reduce the strength at that point, we will certainly have trouble. I do not consider that we should lower the car floor either, as that would be the means of having to lower the platforms all along the railways. As far as the clearance limits are concerned, I think the Canadian railways should take the matter up with the U.S. railways and ask some two or three of the small lines, like the Pennsylvania, to increase their clearance limits in order that our Canadian cars may go through.

S. S. UNDERWOOD: I would like to ask Mr. King a question with regard to the 6 ft. door opening, and the fitted door post. I would like to know wherein he thinks the difference lies between the present door post and that recommended?

S. KING: It is only natural that if a door post constructed from a section $4\frac{3}{8}$ by 5 in. will bend with a load, when spaced 5 ft. 6 in. apart it will bend considerably easier when spaced 6 ft. apart. This is the way I determine there is a weakness at that point; if you take a grain door, as ordinarily made, and pile a weight along the center of this, say to the extent of 1,500 lbs., at $5\frac{1}{2}$ ft. apart, at the center of bearing, and then place a similar door upon bearings 6 ft. apart, putting on the same weight, and you will find that it will bend $1\frac{1}{2}$ in. more than at $5\frac{1}{2}$ ft. If a grain door will do that, the door post will do so in the same proportion. I was working out the idea of putting in a channel iron at one side that would overcome the trouble. In passing through Point St. Charles yard a month ago, I saw a car that had this fitch door post just out of the shops, it had a $\frac{3}{8}$ in. plate of iron let in the center of door post, and the same rule applied to the intermediate post; they had also made the post to answer the thickness of the sheathing, in order to get the strength.

S. S. UNDERWOOD: Do you cover the door post with the sheathing on the inside?

S. KING: We protect the door post with a rib.

PRESIDENT WILLIAMS: I would like to hear from some of the operating department officers. I am inclined to believe that our freight cars, principally on grain-carrying roads, are not loaded to the full capacity more than four months of the year, the balance of the time they are only partially loaded. Perhaps some of our operating department officers could tell us what proportion of our heavy cars are loaded to their full capacity during the year, particularly the larger cars. I do not like to close the discussion, there is so much to be said for and against it; if we could only get the discussion started I know there will be plenty to be said.

— BAKER, C.P.R., Smith's Falls, Ont.: This is a subject I am not interesting myself very much about. We are all well satisfied with the standard car as being built. We have no trouble on that head. I would like to see a stronger car, as they are sometimes shaken to pieces by the roughness of the rails, etc.

— PEARSON: I am not interested in the building of cars, as that does not come under my line of work. As to the height of the car, that is all right. There is only one point on the C.P.R. that we could not get a large car, that is the tunnel at Brockville, and we do not get many of these cars there now. What I would like to see is a standard car; we get a variety of cars that sometimes are running hot, and have not got any brasses to suit,

which is the cause of delay and a great deal of trouble. As for the other parts, I am of the same opinion as Mr. Baker, we have got all the light box cars we want.

Transmission of Niagara Power.

Two charters are being asked for at the current session of the Dominion Parliament for the incorporation of companies to develop electrical power at Niagara and deliver it in Toronto. The first charter is being applied for on behalf of W. Mackenzie, F. Nicholls, S. G. Beatty, H. M. Pellatt, Toronto, and J. Ross, Montreal, who desire incorporation as the Toronto and Niagara Power Co., while the second charter is for the incorporation of a company to be known as the Dominion Railway and Power Co., the applicants being C. D. Warren, C. H. Ritchie, R. Davies, A. H. Royce, H. Sutherland and A. W. Ballantyne. The promoters of the first mentioned company are associated with the Toronto Ry. Co. and the lines to Mimico and Scarborough, and the Toronto Electric Light Co., while the promoters of the second company are connected with the Metropolitan Ry. Co. and the Suburban Ry. Co. Both companies ask for extensive powers as to rights of way over highways, expropriation of land, etc., the Toronto and Niagara Power Co. aiming mainly to deliver power in Toronto for the street railway, and the Dominion Railway and Power Co. desiring, among other powers, to operate a system of electric railways from Niagara Falls to Toronto.

S. G. Beatty, speaking of the method of transmitting power from Niagara to be adopted by the Toronto and Niagara Power Co., recently stated that it was proposed to have a double line of poles, each set of poles to carry three wire cables. He could not say whether cables would be of copper or of aluminum, but they would not be insulated. The duplicate line was necessary as insurance against a break in the service. The great advantage of Niagara power, he said, was the continuity of service afforded by the three plants, one on the Canadian and two on the U.S. side. If the charter was granted, the work of surveying and securing right of way would be commenced at once, and, as soon as that was completed, construction would be commenced from both ends with large forces of men. The distance was 85 miles, and the work would be completed early next year. The loss of power in transmission and transforming would be about a third. On the California line it was about 10 per cent., but the dry climate there favoured it. The cost of construction of the Co.'s lines had been estimated at \$1,500,000.

Recent New Brunswick Legislation.

Among the acts passed at the recent session of the N.B. Legislature were the following:—

Incorporating the Union Telephone Co.

Providing for the adoption of standard time within the province.

Amending the act (63 Vict., chap. 30), authorizing the voting of aid for the construction and equipment of a graving dock at St. John, N.B.

Incorporating the M. Welch Telephone Co. (Ltd.)

Amending the act incorporating the Kent Telephone Lines Co. (Ltd.)

Amending an act to aid in the construction of a graving dock at St. John, N.B.

Reviving the act incorporating the Woodstock and Centreville Ry. Co., and the acts amending the same.

Incorporating the Moncton and Eastern Ry. Co.

Incorporating the Fredericton and Western Ry. Co.

Railway Operating Notes.

The Order of Railroad Telegraphers is making application to the management of the G.T.R. asking that the minimum rate of wages for operators shall be increased from \$38 to \$45 a month.

It has been decided by the C.P.R. and the I.C.R. managements that Atlantic time shall be adopted in the Maritime Provinces for operating the lines. The Dominion Atlantic Ry. is expected to join in this action.

The Minister of Railways has promised that the Government will ascertain what is the best and most effective cattle guard, and next session will introduce a bill compelling railway companies to adopt it. On this statement a bill dealing with the matter was allowed to stand over by the Railway Committee of the House of Commons.

An interesting question is being decided by the Newfoundland Courts in connection with the railway. In 1898 a second train a day was put on between St. John's and Carbonear, which the Co. now desires to cut off, but the Government declines to give permission for this to be done. The question has been referred to arbitration, but neither the Government nor the Reid Newfoundland Co. will open the proceedings, each claiming that the onus lies with the other, and the question has been carried to the Supreme Court for settlement.

The various questions on which there are differences between the C.P.R. management and the trackmen are to be settled by arbitration. F. P. Gutelius, C.E., of the Co.'s engineering staff, has been appointed arbitrator for the Co., to meet J. C. Wilson, President of the Brotherhood of Railway Trackmen, on behalf of the men of the eastern division. The third arbitrator is Sir John Boyd, Vice-Chancellor of Ontario. The arbitrators propose to take evidence on both sides and then discuss the whole matter. It is proposed that the differences on other divisions will also be settled by arbitration.

Passenger Traffic Matters.

The partnership known as Battersby's Tourist Agency, Montreal, has been dissolved, and N. L. Lusher has been registered as proprietor.

An association has been formed in Victoria, B.C., for the purpose of advertising the province as a resort for tourists on the lines of the Nova Scotia Tourists' Association.

The G.T.R. is sending round on exhibition to various centres in the U.S. the series of pictures, etc., shown at the Pan-American Exposition in Buffalo, in 1901. The object is to advertise Canadian shooting and tourist resorts.

The American Association of General Baggage Agents will meet in Chicago, May 21. The circular announcing the meeting is enclosed in a lithographed representation of a trunk in miniature, a neat and appropriate reminder to members.

Travel between Montreal and New England points has been cheapened. The Rutland Ry. Co., through its connections, the Quebec Southern and South Shore lines, made a cut, which was met by the C.P.R. and the G.T.R. The Rutland officials say they will cut the rate to Boston to 75 cents if necessary before the fight is through.

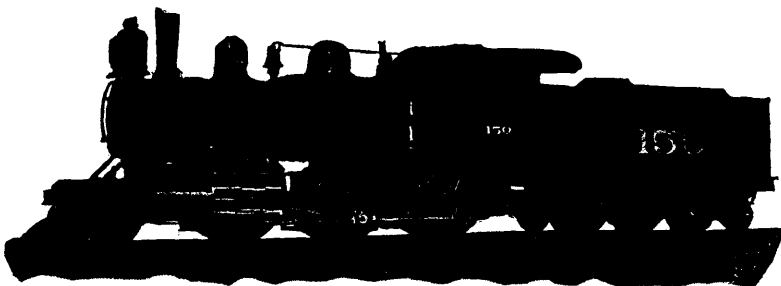
The C.P.R. and the G.T.R. have received from the Commissioners of the International Exhibition at Glasgow, Scotland, a commemorative diploma in recognition of the very handsome display made by these companies in the transportation department of the exhibition, held in 1901. The G.T.R. has also received the diploma awarded to it, in addition to the gold medal, for its exhibition at the Paris Exhibition.

In the summer of 1899 the C.P.R. started to run a daily train each way between Montreal and Vancouver, making the 2,906 miles in 100 hours. This train was run every day between early in June and the end of October, and was extensively patronized. During the rest of the year a train was run each way six days in the week, the running time being about 119 hours. The Co. proposes to continue this service throughout the summer, the train making a longer stay at Winnipeg, but making faster time between Winnipeg and Vancouver. In addition to this train, a new train will be put on, to which the name Imperial Limited, hitherto associated with the summer schedule of the daily train, has been given. Beginning June 15, the new train will leave Montreal Sundays, Wednesdays and Fridays, and Vancouver, Tuesdays, Thursdays and Saturdays, and will make the 2,906 miles in 97 hours. The details of the timetable have not yet been fully decided upon. The equipment of the new trains will consist of 2 first-class sleepers, 1 tourist sleeper, and 1 baggage car. A dining car will be attached to the train to and from Canmore, B.C., and a sleeping car will be run to and from Toronto and Winnipeg, joining or being detached from the train at North Bay.

The C.P.R.'s Latest Purchase.

The C.P.R. Co. has through friendly parties entered into an agreement to purchase the undertaking of the Ottawa Northern and Western Ry., under which title the old Ottawa and Gatineau Ry. had acquired the Pontiac Pacific Junction Ry., and the Inter-provincial bridge between Ottawa and Hull, and also secured power to acquire the Hull electric railway, on which it has an option. The transfer of the line will, it is understood, be made at an early date. The price paid for the property is said to be about \$4,500,000, but this is merely a conjecture. The total cost of the various undertakings, as given in the report of the Minister of Railways for the year ended June 30, 1901, is \$4,441,530.08, since which time the Pontiac Pacific Junction Line from Aylmer to Hull, Que., 8.50 miles, has been completed; and the same report shows that the stock, bonds and floating indebtedness of the several undertakings amounts to \$4,821,204.35. Some months ago a syndicate, composed of A. F. Gault, S. Finlay, S. H. Ewing, and Hanson Bros., was formed in Montreal to finance the undertaking, it being reported that the bonds to be issued were to cover \$3,800,000 of stock, \$1,000,000 each for the O. and G. Ry., the P.P. Jct. Ry., the Inter-provincial Bridge, and \$800,000 for the Hull Electric Ry. The O. and G. Ry. was arranging to extend its line to Miniwaki, and the Quebec Legislature has granted an extension of a year within which the balance of the bonus may be earned, and the P.P. Jct. Ry. has power to extend its line to Pembroke, for which an extension of time was granted in 1900. At the present session of the Dominion Parliament a bill amalgamating the several undertakings has been read a third time in the House of Commons.

The Ottawa and Gatineau Valley Ry. Co. was organized in 1885 under an act of the Quebec Legislature to construct a line from Hull in the direction of Desart; and was re-organized under a Dominion act of 1887, power being given to extend the projected line from the confluence of the Desart and Gatineau rivers to James' Bay, 10 years being allowed for the completion of the work. The line was completed to Wright, 51 miles, in 1894, and to Gracefield, 57.87, in 1896. In 1894 the name of the Co. was changed to the Ottawa and Gatineau Ry. Co., with enlarged powers, and in 1901 another change of name was made to the Ottawa, Northern and Western Ry. Co., and still further extending its powers for developing the resources of the district opened up, and increasing its bonding powers to \$25,000 a mile. The line is in



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President . . . S. R. Callaway | Second Vice-President . . . R. J. Gross | Treasurer . . . C. B. Denny | Mechanical Engineer . . . J. E. Sague
 Vice-President . . . A. J. Pitkin | Secretary . . . Leigh Best | Comptroller . . . C. E. Patterson | General Purchasing Agent . . . H. C. Hequemours

operation from Hull to Gracefield, Que., 57.87 miles, all of which is laid with 56 lb. steel rails; and the Co. has 3 locomotives (1 leased), 11 passenger cars, 2 baggage cars, 6 stock and box cars, 21 flat cars, 1 service car, 1 snow plow and 1 flanger. Its financial statement on June 30, 1901 was as follows:—Capital stock—authorized and subscribed, \$1,000,000, paid up, \$504,000; 5% bonds—authorized, \$12,000,000; issued, \$1,136,000, none sold; subsidies—Dominion, voted, \$384,000; earned and paid, \$284,128; Quebec, voted, \$796,520; earned and paid, \$656,853.92; total capital, \$3,316,520; floating debt, \$577,196.96 at 7%; total cost of line and equipment, \$1,194,004.28. The operation of the line showed: trains run—passenger 20,426; freight, 2,380; mixed, 40,310; total, 63,116 miles; passengers carried, 72,608; freight carried, 39,076 tons; gross earnings, \$82,033.71; net earnings, \$16,213.11.

The Pontiac Pacific Junction Ry. Co. was incorporated by the Dominion Parliament in 1880 to construct a railway from Aylmer, Que., through Pontiac county, crossing the Ottawa river, and thence to Pembroke, Ont., being given six years to complete the work. In 1882 power was acquired to construct a bridge over the river into the city of Ottawa, and in 1887 a further act was obtained giving power to extend the projected line from Pembroke to Sault Ste. Marie, Ont., and northwesterly in Quebec; to purchase the Aylmer branch of the C.P.R., and further time for construction was given. In 1890 an act was passed to facilitate the transfer of the C.P.R. branch between Hull and Aylmer, Que., and other acts granting extensions of time for the completion of the Co.'s undertakings, authorizing amalgamation with other companies, were passed. The line is now in operation between Aylmer and Waltham, Que., 70.60 miles, and the line from Aylmer to Hull, 8.50, was completed and put in operation late in 1901. There are 74.10 miles of track (70.60 being laid with 56-lb. steel), 3.50 miles being sidings. The Co. has 4 locomotives, 2 passenger cars, 1 baggage car, 5 box cars, 48 flat cars, 1 service car, 1 snow plow and one flanger. The financial statement to June 30, 1901, is as follows:—Capital stock—authorized, \$3,000,000; subscribed and paid-up, \$300,000; bonds—authorized, \$10,200,000, none issued; Dominion subsidies—voted, \$331,850, earned and paid, \$193,587; Quebec subsidies—voted, \$536,000, earned and paid up, \$497,969.63; municipal subsidies—voted, \$101,000, earned and paid up, \$100,000. Total capital—subscribed, \$1,268,850; paid up, \$1,091,547.63; floating debt, \$560,740.32 at 6½%; cost of line, \$1,648,160.33. The operation of the line showed: trains run—passenger, 1,750; freight, 420; mixed, 44,380; total, 46,550 miles; passengers carried, 32,978; freight carried, 23,656 tons; gross earnings, \$53,510.71; net earnings, \$8,895.18.

The Hull Electric Ry. Co. in 1898 purchased from the C.P.R. the branch line from Hull to Aylmer, Que., which it had previously leased. The line is 13.63 in length; there are 6.85 miles of 2nd track; and the total track is 20.48 miles, laid with 56-lb. steel rails. The Co. has 2 locomotives, 21 passenger cars, 1 baggage car, and 2 flangers. The financial statement at June 30, 1901, was as follows:—Capital, \$300,000, of which \$292,700 is subscribed and \$292,000 paid up; from other sources, \$518,297.75; total, \$810,997.75; of which \$810,297.75 is paid up; floating debt, \$518,297.75 at 5%; total cost of railway and equipment, \$768,906.64. Trains run: passengers, 853,923; freight, 19,420; total, 373,343 miles; locomotive mileage, 19,420; passengers carried, 533,328; freight carried, 111,691 tons; gross earnings, \$60,958.67; net earnings, \$30,865.78.

The Interprovincial Bridge Co. was incorporated by the Dominion Parliament in 1890,

to build a bridge over the Ottawa river between Hull, Que., and Ottawa, Ont., and power was given to any railway running into Hull or Ottawa to subscribe towards the capital stock. The bridge and approaches—about 1.30 miles in length—was opened for traffic in 1901. The financial report at June 30, 1901, was as follows: authorized capital, \$1,000,000, none reported issued; Dominion subsidy, \$212,000; Ontario subsidy, \$50,000; municipal subsidies, \$150,000; total capital, \$412,000; floating debt, \$14,671.57, at 7%; total cost of bridge \$830,458.83.

At the last session of the Quebec Legislature an act was passed extending the time within which the Ottawa, Northern and Western Ry. could be extended from its present terminus at Gracefield to Notre Dame du Desart to Dec. 31, 1903, and providing for the payment of the unearned balance of the subsidies already voted, amounting to \$118,892, as follows: \$30,340.33 when the line has been completed from Pickanock river to mileage 62; \$39,182.55 on the completion of the line to mileage 72; \$45,869.12 on the completion of the line to Notre Dame du Desart; and the balance of \$2,500 retained on the cost of Hull station, on the completion of the line. A contract is reported to have been let by the C.P.R. to H. J. Beemer, for the construction of the 25 miles of line between Gracefield and Miniwaki, on the St. Joseph river, a short distance beyond Notre Dame du Desart, and it is said that Mr. Beemer has sub-let it to R. Macdonald, of Renfrew. It is reported that the extension will be completed by Sept.

The purchase by the C.P.R. of these lines will enable a number of improvements to be made in the Co.'s transcontinental service, and allow it to give a better service to Ottawa, without the construction of the cross-town line which was reported to be in contemplation. (April, pg. 140). Leaving Montreal the transcontinental route follows the Quebec bank of the Ottawa river to Hull, 119 miles, thence crossing the river through Ottawa to Carleton Jct., 148 miles, then northerly to the Ottawa river at Arnprior, Ont., 172 miles, following the Ontario bank of the river to Pembroke, 224 miles, and thence to the coast.

By using the short line between Montreal and Ottawa, crossing the Interprovincial bridge and then using the Pontiac Pacific Jct. Ry., a large saving could be effected. One suggestion is to utilize the P.P. Jct. Ry. from Hull to Wyman, 36.1 miles, and complete the construction of the Pontiac and Renfrew Ry. A company was incorporated by the Dominion Parliament in 1888 under this title to construct a line from the P.P. Jct. line to a point between Arnprior and Braeside on the C.P.R., and 4.25 miles of track was constructed from Wyman to Bristol iron mines, Que., but is not now operated. This route would involve the construction of about six miles of line from Bristol mines to Arnprior, including a bridge over the Ottawa river, and would effect a saving of 12 or 13 miles between Montreal and Arnprior. Another suggestion is to make a connection at Pembroke. To do this the P. P. Jct. Ry. to Waltham, 80.5 miles, would be utilized, and 15 miles of line constructed, including two bridges over the Ottawa river, as Allumette island divides the river at this point. This route would effect a saving of about 18 miles in the distance between Montreal and Pembroke. Other press reports credit the C.P.R. with contemplating the construction of a line from Britannia, Ont., 5 miles west of Ottawa, to Arnprior, to do away with the run round by Carleton Jct. This would involve the construction of about 30 miles of line paralleling the Canada Atlantic Ry., and would cut off about 17 miles of the distance between the two points.

The following are the principal officials of the amalgamated companies: President, H. J. Beemer, Montreal; General Superintendent,

General Freight and Passenger Agent, P. W. Resseman, Ottawa; Chief Engineer, G. C. Dunn, Ottawa; Secretary and Treasurer, H. L. Maltby, Montreal; Master Mechanic and Car Builder, J. Kay, Aylmer, Que.; Roadmaster, J. R. Brennan, Ottawa.

It is understood that the C.P.R. assumed control on May 1, and that for the present the lines will be managed as separate companies, under the charge of C. W. Spencer, General Superintendent of the Eastern Division.

Canadian Ticket Agents' Association.

A meeting of the executive committee at the Queen's Hotel, Toronto, April 25, was attended by W. Jackson, President; M. McNamara, 1st Vice-President; C. E. Morgan, 3rd Vice-President; E. De La Hooke, Secretary-Treasurer; W. H. Harper, W. Bunton, T. Long and C. C. Young. The chair was occupied by W. H. Harper, chairman of the committee. There were also present by invitation A. A. Heard, Assistant General Passenger Agent of the Lehigh Valley Rd., M. C. Dickson, District Passenger Agent of the G.T.R., and the Editor and Publisher of THE RAILWAY AND SHIPPING WORLD.

The date of the next meeting, at Washington, D. C., was fixed for Monday, Oct. 20.

The members and their wives will rendezvous at Suspension Bridge, N.Y., on Friday, Oct. 17, and will leave there about midnight on a special Lehigh Valley Rd. train as the guests of that Co. On Saturday, Oct. 18, breakfast will be taken at the Co.'s dining room at Geneva, N.Y., and dinner at Wilkesbarre or Allentown, Pa. From South Bethlehem, Pa., the train will run over the Philadelphia & Reading Rd. to Philadelphia, thence over the Baltimore and Ohio Rd. to Washington, which will be reached on the Saturday evening. The headquarters at Washington are likely to be at either the Ebbitt house or the Riggs house, both of which have offered a rate of \$2.50 a day, with 50c. extra for bath accommodation. Sunday, Oct. 19, will be spent quietly in Washington, to give the party a rest after the trip. On Monday, Oct. 20, the annual business meeting will be held in the morning, continuing in the afternoon if necessary. An essay will probably be read, and C. S. Lee, General Passenger Agent of the Lehigh Valley Rd., will address the meeting. The annual dinner will be held in the evening. Tuesday, Oct. 21, will be devoted to seeing Washington thoroughly. Wednesday, Oct. 22, will be an optional day, to be spent either in Washington or in visiting Richmond, Va., the Richmond, Fredericksburg and Potomac Rd., through its Traffic Manager, W. P. Taylor, having tendered transportation from Washington to Richmond and return to such members of the party as may desire to go. On Thursday, Oct. 23, the party will leave Washington early by special train over the Baltimore and Ohio Rd. to Philadelphia, where they will spend the balance of the day and the night. On Friday, Oct. 24, they will go from Philadelphia to Atlantic City by special train on the Philadelphia and Reading Rd., and will leave there in the evening going direct via Philadelphia to Suspension Bridge where they will arrive on the morning of Saturday, Oct. 25, and disperse.

Members going on the trip will have to travel with the party both ways, as the courtesy extended by the Lehigh Valley, Philadelphia and Reading, and Baltimore and Ohio lines will be confined to the special trains and no transportation will be issued. Anyone, therefore, who wishes to deviate from the programme arranged will have to pay fare.

President Jackson and Secretary De La Hooke were authorized to arrange with the Pullman Co. for sleepers, also to arrange hotel accommodation and for the admis-

sion as honorary members for the current year of certain railway officials. It was suggested that coupons be issued to cover sleeping cars, hotels, meals, etc., and if practical this may be done.

RAILWAY APPOINTMENTS, ETC.

Canadian Northern.—W. Phillips, heretofore General Agent for Ontario at Toronto, has been appointed General Eastern Agent, freight and passenger departments, with territory east of Sault Ste. Marie in Ontario, and Quebec. His office has been removed from the Toronto Railway Chambers to 103 Union Station, Toronto.

R. H. Bell has been appointed Travelling Freight and Passenger Agent, in charge of the freight and passenger business of the Co. in Quebec and the portion of Ontario east of and including Kingston, Sharbot Lake and Pembroke. Office, Merchants Bank Building, Montreal. He reports to the General Eastern Agent at Toronto.

Canadian Pacific Ry.—J. C. Bennett has been placed in charge of the photographic branch of the general passenger department; office at Montreal.

M. G. Murphy, of the Co.'s Halifax ticket office, has been appointed Travelling Passenger Agent, with office at St. John, N.B., succeeding W. Howard, appointed chief clerk, District Passenger Agent's office at St. John, N.B.

F. Walker has been appointed Chief Dispatcher at North Bay, Ont.

C. Hudson, heretofore chief clerk in the General Superintendent's office, Toronto, has been appointed Car Distributer for the Ontario division, vice J. G. Wilson; office at Toronto.

A. U. Bain, heretofore secretary to the General Superintendent of the Ontario division, has been appointed chief clerk in his office, succeeding C. Hudson, promoted.

J. G. Sullivan, heretofore Divisional Engineer of Construction at Nelson, B.C., has been transferred to Winnipeg, and given charge of all construction on the Western and Pacific divisions. A. C. Dennis, heretofore Divisional Engineer of Construction at Winnipeg, has left the Co.'s service.

N. Cauchon, heretofore assistant to the Divisional Engineer of Construction at Winnipeg, has been transferred to Montreal, where he will have charge of the right of way plans for the whole system.

J. Halstead, heretofore chief clerk in the General Freight Agent's office at Winnipeg, has been appointed Travelling Freight Agent for the main and branch lines east of Regina and Estevan, and including Port Arthur. Office at Winnipeg.

E. J. Travers, heretofore enquiry clerk in the General Freight Agent's Office, Winnipeg, has been appointed Chief Clerk, succeeding J. Halstead, promoted.

W. H. Miles, Travelling Freight Agent, has resumed his duties in the territory on the main and branch lines west of and including Portal and Regina, Assa. Office at Calgary, Alta.

Central Vermont Ry.—I. W. Gantt having resigned to accept service with the G.T.R., J. E. Dalrymple has been appointed General Freight Agent, with office at St. Albans, Vt.

Grand Trunk Despatch.—A circular issued by the Freight Traffic Manager of the G.T.R. and the General Freight Agent of the West Shore Rd., states that I. W. Gantt has been appointed Manager of the G. T. Despatch, vice W. P. Fitzsimons, resigned to accept service elsewhere.

Grand Trunk Ry.—J. E. Quick, General Baggage Agent, Toronto, has been given charge of milk traffic handled in baggage cars by passenger trains. Agents and other employes will communicate direct with him upon all subjects pertaining to such traffic.

W. D. Robb, heretofore acting Superintendent of Motive Power, has been appointed Superintendent of Motive Power.

T. T. Irving has been appointed Resident Engineer of the Eastern Division, vice M. S. Blaiklock appointed Superintendent. Office at Montreal.

J. D. McDonald has been appointed District Passenger Agent at Toronto, vice M. C. Dickson, assigned to other duties.

C. L. Coon has been appointed City Passenger and Ticket Agent at Buffalo, N.Y., vice J. D. McDonald, promoted. Mr. Coon will have supervision of passenger traffic from Buffalo and that portion of New York state between Buffalo, Suspension Bridge and Lewiston inclusive, reporting to the District Passenger Agent, Toronto.

G. T. Boland, heretofore clerk in charge of the Yonge St. Freight Sheds, Toronto, has been appointed Soliciting Freight Agent at Toronto, succeeding R. H. Bell, who has entered the Canadian Northern Ry. service. W. A. Gray, heretofore clerk in the Co.'s ele-

vator at Toronto, has been given charge of the Yonge St. Freight Sheds.

Ira W. Gantt has been appointed Division Freight Agent at Detroit, Mich., with charge of all eastbound traffic from connections at Detroit and Port Huron, and all westbound traffic from connections at the Niagara Frontier destined to points west of the Detroit and St. Clair Rivers, vice W. P. Fitzsimons, resigned to accept position of Manager, Lackawanna-Grand Trunk Line. See also under Grand Trunk Despatch.

Peter Brass has been appointed Acting Master Bridges and Buildings for the Middle Division, vice G. A. Mitchell, transferred. Office at Toronto.

G. A. Mitchell has been appointed Master of Bridges and Buildings of the Western Division, in charge of maintenance and repairs of bridges and buildings, and water service department. Office at Durand, Mich. The Signal Inspector will report to C. J. Crowley, Resident Engineer, the same as heretofore.

W. G. Bierd has been appointed Trainmaster, 25th district (main line Battle Creek to Port Huron), office at Battle Creek, Mich. J. Ehrke, Trainmaster, will have jurisdiction over the 26th district only.

The following agents have been installed:—Gilead, Me., J. P. Joyce; Stratford Hollow, N.H., G. E. Twohey; Plessisville, Que., F. Houde; Pike Creek, Pass. Ont., Mrs. M. Maynard; Puce, Pass. Ont., W. Stone; Tara, Ont., J. Leismer; Neustadt, Ont., W. Middleton; Brunner, Pass. Ont., W. Peters; Fosters, Mich., C. J. Pickel; Davison, Mich., E. H. Cunliffe; Penn, Mich., B. F. Bradley; Pavilion, Mich., F. H. Brooks; Fowler, Mich., V. J. Glebe; Davisburg, Mich., W. J. Dempsey; Muir, Mich., J. H. Smith; Moorland, Mich., E. A. Dienst; Munith, Mich., C. A. Shoemaker; Washington, Mich., W. F. Harlton.

Some of the daily papers recently appointed E. G. Spencer City Passenger Agent in New York city, and W. F. Crawford Travelling Passenger Agent at Chicago. We are officially informed that neither of the persons named are in the G.T.R. service.

Great Eastern Fast Freight Line.—A circular issued by the freight traffic managers of the G.T.R. and the Boston and Maine Rd. states that the G.E. Fast Freight Line having ceased to operate via the Niagara frontier (Lackawanna Ry.), it will hereafter operate only via Montreal over the G.T.R. main line, Boston & Maine Rd., Maine Central

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Rd. and the connections of those companies. The instructions in the Agents' Guide for East-bound traffic, West-bound tariffs, and all percentage divisions of the G.E. Line in effect via Montreal will remain in force until otherwise advised by the Manager of the line. C. A. Hayes, Manager of the National Despatch Line, has been appointed also Manager of the G.E. Line, with office in the Prudential Building, Buffalo, N.Y.

See also National Despatch-Great Eastern Line.

Klondike Mines Ry.—A. Williams, engineer of the White Pass & Yukon Ry., has resigned to enter the service of the Klondike Mines Ry.

Lackawanna-Grand Trunk Line.—A circular issued by the Freight Traffic Manager of the G.T.R. and the Traffic Manager of the Delaware, Lackawanna & Western Rd. states that by agreement the Great Eastern Fast Freight Line has ceased to operate over the Delaware, Lackawanna & Western Rd., and will be confined to the main line of the G.T.R. A new line has been organized, to be known as the Lackawanna-Grand Trunk Line, which will operate a fast freight line service in connection with D.L. & W. Rd. and G.T.R. and their connections between the east and west, via the Niagara frontier, taking the place of that portion of the service formerly operated in connection with the Great Eastern Fast Freight Line. The tariffs, guide books and percentage divisions of the G.E. Fast Freight Line, applying via the Niagara frontier, will be used until superseded by a new issue of the Lackawanna-Grand Trunk Line. W. P. Fitzsimons has been appointed Manager of the Lackawanna-Grand Trunk Line, with office at 406 Mutual Life Building, Buffalo, N.Y.

Manager Fitzsimons announces the following appointments: Chicago, Ill., H. C. Martin, agent, Merchants Loan & Trust Building; Detroit, Mich., A. Z. Mullins, agent, Brush Street Depot; Detroit, Mich., H. J. Taylor, travelling agent, Brush Street Depot; Milwaukee, Wis., C. A. Gormaly, agent, Chamber of Commerce. The following representatives of the G.T.R. and Delaware, Lackawanna & Western Rd. will also act as agents of the Lackawanna-Grand Trunk Line: Boston, Mass., J. Gourley, D., L. & W. R. Rd.; Cincinnati, Ohio, A. Gazlay, G.T.R.; Los Angeles, Cal., W. H. Bullen, G.T.R.; Minneapolis, Minn., T. C. Burgess, G.T.R.; New York City, J. H. Crawford, D., L. & W. Rd.; Philadelphia, Pa., R. B. Gordon, agent; San Francisco, Cal., W. O. Johnson, G.T.R.; Seattle, Wash., L. V. Druce, G.T.R.; St. Louis, Mo., F. T. Byrne, G.T.R.

Michigan Central Rd.—H. H. Adams, of Detroit, has been appointed Assistant Engineer, vice W. S. Kinnear, appointed Assistant-Superintendent.

Midland Ry. of Nova Scotia.—R. H. Evans, heretofore of the C.P.R. general freight department at Montreal, has been appointed General Freight Agent of the M.R., with office at Truro, N.S.

National Despatch-Great Eastern Line.—Manager Hayes announces the following appointments:—H. E. Graves, general western agent, Chicago; Jas. I. Deans, agent, Milwaukee, Wis.; C. E. Wagner, agent, Detroit; C. F. Rogers, agent, Kansas City, Mo.; S. R. Stimson, agent, Omaha, Neb.; D. T. Lawrence, New England agent, Boston; R. L. Burnap, agent, National Despatch line, via C. V. Ry., New York City; G. F. Tarbell, foreign freight agent, Boston; C. J. Pierce, east-bound agent, Boston; G. L. Nelson, agent, Portland, Me.; C. D. Waters, St. Johnsbury, Vt.; Geo. Pepall, agent, Toronto. The following representatives of the G.T.R. will also act as agents of the National Despatch-Great Eastern line:—T. C. Bur-

gess, commercial agent, Minneapolis, Minn.; F. T. Byrne, commercial agent, St. Louis, Mo.; A. Gazlay, commercial agent, Cincinnati; W. H. Bullen, Pacific Coast agent, Los Angeles; W. O. Johnson, agent, San Francisco, Cal.; L. V. Druce, agent, Seattle, Wash.

New York Central Rd.—H. D. Carter, heretofore General Agent at Montreal, has been appointed Assistant General Freight Agent, with headquarters at Grand Central Station, New York, for this Co. and the West Shore Rd., succeeding George E. Terry, resigned on account of illness.

F. E. Barbour has been appointed General Agent of the Passenger Department at 2,263 St. Catherine street, Montreal, succeeding H. D. Carter, promoted.

Northern Navigation Co.—G. Ellis has been appointed Travelling Freight and Passenger Agent, with office at Toronto, succeeding F. P. Belcher, transferred to Winnipeg as agent for Manitoba and the N.W.T.

W. H. Smith has been appointed agent at Owen Sound, succeeding his brother, the late H. E. Smith.

Nova Scotia Steel and Coal Co.—J. J. Taylor, formerly of the I.C.R. engineering staff, has been appointed resident engineer of the N.S.S. and C. Co. at North Sydney, N.S.

Rutland Rd.—P. W. Clement, President, and H. G. Smith, Vice-President, have resigned. J. W. Smith, who has been Secretary to the General Manager and acting purchasing agent of the Canada Atlantic Ry. for several years, is reported to have been appointed Purchasing Agent of the Rutland Rd. at Rutland, Vt.

White Pass and Yukon Route.—P. F. Scharschmidt has been appointed Superintendent of the River Division, the British Yukon Navigation Co., Ltd., vice H. Darling resigned.

Woodstock, Thames Valley and Ingersoll Electric Ry.—R. Hill, formerly with the Hamilton Electric Street Ry., has been appointed manager of the W.T.V. and I.E. Ry.

Steamboat Commissions.—Leonard's Railway News says:—"Notice that they will be boycotted if they do not stop paying commissions to railway ticket agents has been served on the lake and river lines by the Anti-Commission Committee, composed of S. M. Felton, President of the Alton Rd.; J. Ramsey, Jr., President of the Wabash; P. Morton, Vice-President of the Santa Fe; J. T. Harahan, Vice-President of the Illinois Central, and J. M. Hannaford, Vice-President of the Northern Pacific. This Committee represents all the important roads in the West, Southwest and Northwest. The ticket agents of these lines have been warned not to accept commissions from the lake or river steamship companies, on pain of being discharged. The railways propose to boycott the steamship lines on freight as well as passenger traffic if commissions are paid to railway ticket agents."

The Ontario Court of Appeal has decided that the amendment to the Assessment Act passed in 1901 has not had the effect of repealing what is called the "scrap iron" clauses of the act as applied to street railway, telephone and other companies operating public franchises. The Toronto assessment authorities, under the amending act of 1901, made a considerable increase in the value of the Toronto Ry. Co., and on the case going before the board of county judges it was held that the new assessment could not be enforced. A similar decision was given by other county judges at Ottawa, and now the Court of Appeal has decided that the assessments of the companies must be reduced to the old figures.

Dominion Express Co.'s Appointments.

Since the "Among the Express Companies" department, on page 181, went to press, we have been advised of the following appointments, in addition to those therein mentioned:—

A. W. Lee, Route Agent, with headquarters at Winnipeg, in charge of all main line offices from Port Arthur, Ont., to Moose Jaw, Assa., inclusive, including all lines in Manitoba, all offices on Portal section, Estevan section, Yorkton section, Arcola branch, Prince Albert branch, and all offices on Canadian Northern Ry.

R. Helme, Route Agent, with headquarters at Nelson, B.C., in charge of all offices west of Moose Jaw to and including Medicine Hat, Assa., all offices on Crow's Nest branch, including offices on North Star branch, Fort Steele, and all offices south of Arrowhead, B.C.

W. J. Kirby, Route Agent, with headquarters at Vancouver, B.C., in charge of all offices on main line west of Medicine Hat, Assa., including Chilliwack, Vancouver, Victoria, Nanaimo, B.C.; Mission branch, Westminster branch, Shuswap and Okanagan Branch, Okanagan lake route, Arrowhead branch, Edmonton branch, Macleod branch (not including Macleod), and all offices in the State of Washington.

C. A. Dobson, Route Agent, with headquarters at Toronto, in charge of all offices between Toronto and Galt, Ont., not including Galt, including points on Guelph branch, Owen Sound section, Teeswater section, Elora branch, and all lines in Niagara district south of Toronto and Hamilton, including Toronto and Hamilton, Hamilton and Burlington, and Hamilton and Dundas lines.

F. G. McKay, Route Agent, with headquarters at London, Ont., in charge of all lines west of and including Galt, Ont., including offices at Preston, Berlin, Hespeler, Waterloo, and all offices on Lake Erie and Detroit River Ry.

G. W. Liddle, Route Agent, with headquarters at North Bay, Ont., in charge of all offices west of Ottawa and east of Port Arthur, including Sudbury, Sault Ste. Marie branch, Eganville branch, Timiskaming and Kippewa branches.

G. E. Whitney, Route Agent, with headquarters at Montreal, in charge of all offices in Vermont and in the province of Quebec, west of and including Sherbrooke.

J. R. Haycock, Route Agent, with headquarters at St. John, N.B., in charge of all offices in the province of Quebec east of Sherbrooke, and all offices in Maine, New Brunswick and Nova Scotia.

M. Beatty & Sons, Welland, Ont., made the following, among other shipments, during the past month: Hoisting engine and special derrick car engine to the Dominion Bridge Co., Montreal; hoisting engine to W. Scully, St. John, N.B.; ballast unloading engine to Cape Breton Ry. Co., Port Hawkesbury, N.S. They have also completed a 2-yard clam derrick with a 110 ft. boom for Phin & Co., to be used for deepening the upper level of the Welland Canal.

The bill approved of by the Senate in 1901, amending the law relating to the granting of charters for the construction of railway companies, was reintroduced this year, and after considerable discussion was withdrawn, it being understood that the Railway Commission to be appointed would deal with the matter. The principal change proposed to be made by the bill was that applicants for charters would have to file plans and profiles of the line proposed to be constructed with their petition.

Mainly About People.

W. Apps, ex-Master Mechanic, C.P.R., will, it is said, take up his residence in Toronto.

Mrs. Goodfellow, wife of J. Goodfellow, C.P.R. train dispatcher at Kamloops, B.C., died there April 7.

C. R. Hosmer, of Montreal, a C.P.R. director, purposes building a summer residence at St. Andrews, N.B.

J. A. Boswell, Superintendent of the Dominion Ex. Co., Toronto, and Mrs. Boswell, are visiting California.

P. Gifkins, General Manager Dominion Atlantic Ry., has returned to Kentville, N.S., from a visit to England.

Sir Thos. Shaughnessy is erecting a summer residence on the site of old Fort Tipperary, St. Andrews, N.B.

Dr. W. L. Bain, son of W. Bain, city freight solicitor, C.P.R., Toronto, died suddenly in Chicago April 13.

A. Murray, electrical inspector of the G.N.W. Telegraph Co., London, Ont., died suddenly in Guelph, April 17.

Miss Marion Blair, daughter of the Minister of Railways, was married at Ottawa, April 2, to W. Clarke, of St. John, N.B.

E. I. McDonald, auditor and accountant of the Canada Atlantic and Plant Steamship Co. at Halifax, N.S., died there April 3.

R. L. Campbell, Secretary of the Dominion Atlantic Ry. Co., London, Eng., is on a visit to the offices of the Co., Kentville, N.S.

Miss Amy Blair, daughter of Hon. A. G. Blair, Minister of Railways, is to be married June 4 to Rev. Mr. Brewin, of England.

R. Marpole, General Superintendent Pacific Division, C.P.R., has returned to Vancouver after a short visit to England and Wales.

General T. T. Eckhart has retired from the presidency of the Western Union Telegraph Co., a position he occupied for nine years.

M. J. Kennedy, Superintendent Montreal Street Ry., who has been in ill health for some time past, left for a trip to Europe April 10.

M. J. Haney, has been appointed a trustee of the Toronto General Hospital, by the Ontario Government, to succeed the late J. Ryan.

J. S. Carder, who has been appointed agent of the Boston-Portland Line of the Eastern Steamship Co., is a son of R. A. Carder, of the Dominion Atlantic Ry. Co., Kentville, N.S.

John Burns, of Toronto, a director of the Dominion Transport Co., and of the Victoria Rolling Stock Co., died recently at Ashville, N.C.

J. P. Dickson, Secretary of the Canadian Railway Accident Insurance Co. at Ottawa, was married recently there to Miss Lillie Fraser.

Mrs. R. Smart, wife of the chief ticket agent at the C.P.R.'s Windsor st. station, Montreal, died at Westmount, Quebec, recently.

Lady and the Misses Van Horne are expected to take up their residence for the summer at St. Andrew's, N.B., early this month.

J. M. Daly, heretofore General Manager of the Cape Breton Ry., has been appointed Superintendent of Transportation of the Illinois Central Rd.

W. T. Payne, General Traffic Agent for Japan, for the C.P.R., is returning to Yokohama, to resume work after a six months' holiday in Europe.

D. B. Hanna, General Superintendent Canadian Northern Ry., and Mrs. Hanna, have returned to Winnipeg, after a short holiday in the southern states.

E. T. Galt, President of the Alberta Ry. and Coal Co., has returned to Lethbridge, Alta., from Montreal where he was detained for some time owing to illness.

R. F. Morkill, formerly Manager of the electric railway in St. John's, Nfld., was a member of the Canadian contingent in the action at Hart river, South Africa.

G. W. Vaux, Assistant General Passenger and Ticket Agent G.T.R. at Chicago, was elected chairman of the Chicago Railway Association at the recent annual meeting.

A booklet in memory of the late B. Fletcher, travelling passenger agent of the G.T.R. at Detroit, Mich., has been issued for private circulation among his intimate friends.

J. Malone, of Malone and Poupore, contractors, who have in hand large contracts for the improvement of the St. Lawrence, died suddenly, Mar. 31, aged 55 years.

H. Brennan, of Hamilton, Ont., was married at Toronto Apr. 2, to Miss Eunice Stout, daughter of the Vice-President and General Manager of the Dominion Express Co.

R. McColl, C.E., who has been engaged in construction work on the C.P.R., the Midland Ry. of N.S., and the Nova Scotia Steel

and Coal Co.'s railway, has been appointed Assistant Provincial Engineer of Nova Scotia with control of bridges.

C. A. Gormaly, who has been appointed agent of the Lackawanna-Grand Trunk Line at Milwaukee, Wis., is a son of W. Gormaly, Superintendent of Toronto Union Station.

F. H. McGuigan, Manager G.T.R., has been re-elected a member of the board of directors of the American Railway Engineering and Maintenance of Way Association.

James Scott, President of the Northern Navigation Co. of Ontario, and for many years associated with the navigation business on Georgian bay, died in Toronto recently.

W. P. McCaffrey, heretofore of the G.T.R. train dispatching staff at Montreal, has been appointed to a similar position on the Rio Grande Western Ry., at Salt Lake City, Utah.

J. D. Leary, dock builder, who died recently in New York, was a native of Montreal. He was associated with early projects for the building of a dry dock at St. John, N.B.

J. M. Carmichael, who was at one time a leading shipbuilder in Nova Scotia, and for a number of years a director of the Nova Scotia Steel Co., died at New Glasgow, N.S., Mar. 30.

E. Crean, one of the oldest passenger conductors of the G.T.R., died at Quebec, April 12. He was a brother of M. Crean, Superintendent of the Government telegraph lines in the Yukon.

A. V. Fabian, heretofore excursion clerk in the C.P.R. general passenger department, Montreal, has been appointed Traveling Immigration Agent of the Northern Pacific Ry. at St. Paul, Minn.

H. P. Dwight, President and General Manager of the G.N.W. Telegraph Co., who broke his leg in the Parliament buildings, Toronto, three months ago, is sufficiently recovered to be able to go about as formerly.

Robert Jaffray, Toronto, M. J. O'Brien, Renfrew, and B. W. Folger, Kingston, are reported as likely to be the commissioners to superintend the construction of the Ontario Government's Timiskaming railway.

J. E. Muhlfeld, Mechanical Superintendent I.C.R., at Moncton, N.B., was married in Chicago, to Miss M. Murphy, April 14. The officials and foremen of the mechanical department presented him with a silver tea service and a cabinet of silver tableware on the occasion.

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J. W. Brennan, who died recently at Ottawa, was a brother of J. R. Brennan, Roadmaster, Ottawa, Northern and Western Ry., Ottawa, and of M. J. Brennan, Master Mechanic, Great Northern Ry of Canada.

A. R. Evans was presented with a gold chain and a locket by his fellow employes in the C.P.R. freight department, Montreal, on leaving for Truro, N.S., to enter upon his duties as General Freight Agent, Midland Ry. of N.S.

F. W. Egan, who recently resigned the Superintendency of the Western division of the G.T.R. at Detroit, Mich., has been appointed General Superintendent of the Denver and Rio Grande Rd., with office at Denver, Colo.

Sir Wm. Van Horne is making another visit to Cuba in connection with the opening of a section of the Cuba Co.'s railway at an early date. He is accompanied by R. B. Angus, of the C.P.R. directorate, and E. S. Clouston, General Manager of the Bank of Montreal.

The Canada Northwest Lands Co.'s board for the current year was elected April 2, as follows:—President, Sir Wm. C. Van Horne; Vice-President, E. B. Osler; other directors, R. B. Angus, W. Hendrie, W. D. Matthews, R. Meighen, Sir Thos. G. Shaughnessy, T. Skinner and Lord Strathcona.

C. R. Hosmer, a director of the C.P.R., has been elected President of the W.W. Ogilvie Milling Co. (Ltd.), recently purchased by a syndicate, of which Mr. Hosmer and F. W. Thompson, of Winnipeg, were the heads. The price paid for the business is understood to have been nearly \$4,000,000.

Sir Thos. G. Shaughnessy, President C.P.R., D. F. Mann, of Mackenzie, Mann & Co., and F. Nicholls, President Canadian Northern Ry., are among the provisional directors of the Ross Rifle Co., which has entered into a contract with the Dominion Government to manufacture rifles for military purposes.

Press reports say that if the proposed sale of the Canada Atlantic Ry. is consummated, Dr. W. Seward Webb will be President and the present General Manager, E. J. Chamberlain, will be Vice-President and General Manager. Another report says Mr. Chamberlain will become General Manager of the Rutland Ry.

Eugene Duval, who has been appointed Assistant General Western Agent of the Chicago, Milwaukee and St. Paul Ry., with headquarters at Omaha, Neb., commenced railway work as night operator on the G.T.R. at Blackwell, Ont. A portrait and some biographical details of Mr. Duval, who is a brother of J. E. Duval, Car Service Agent of the Canada Atlantic Ry. at Ottawa, appear in a recent issue of the Omaha Examiner.

A. R. Evans, who has been appointed General Freight and Passenger Agent, Midland Ry. Co. of Nova Scotia, was born in Montreal Feb., 1870, and entered railway service in 1885, since which he has been consecutively to May, 1886, junior clerk, Audit department, C.P.R., at Montreal; May, 1886, to 1897, clerk in General Freight department, same road; 1897 to Mar., 1901, Travelling Freight Agent, Eastern division, same road; July, 1901, to April 15, 1902, chief clerk to the Assistant Freight Traffic Manager, same road.

G. R. Joughins, formerly Mechanical Superintendent, I.C.R., at Moncton, N.B., has been appointed Mechanical Superintendent of the coast lines of the Atchison, Topeka and Santa Fe Ry. System, with office at San Bernardino, Cal., succeeding G. W. Smith, whose office as General Master Mechanic is abolished. Mr. Joughins has about 1,800 miles of line in his division from Albuquerque to San Francisco, Cal. The work is of a very important character as the grades are very heavy over the mountains, and the heaviest

locomotives made are used for both passenger and freight service. Oil is used for fuel on nearly all locomotives. A. G. Wells, the General Manager, is a Canadian, having been born at Guelph, Ont.

J. Ryan, railway contractor, Toronto, died there Mar. 21, aged 68 years. He constructed a portion of the main line of the G.T.R. in 1860, and later built portions of the I.C.R., and portions of smaller lines in Ontario and Quebec, since incorporated with the C.P.R., and was the contractor for the first 100 miles of the C.P.R. west of Winnipeg, Man., in 1879-80. He was one of the contractors for the Sault Ste. Marie canal, and for the Cascade lock on the Soulanges canal. He retired from business in 1898, on the completion of this latter work.

C. L. Coon, who has been appointed City Passenger and Ticket Agent, G.T.R., at Buffalo, N.Y., was born at Watertown, N.Y., May 20, 1868, and entered railway service in 1886, since which he has been consecutively to 1888, clerk, city ticket office, Rome, Watertown and Ogdensburg Rd., at Watertown, N.Y.; 1888 to 1890, assistant ticket agent, New York Central Rd. at Syracuse, N.Y.; 1890, same position, same road, Buffalo; 1891 to May, 1898, in commercial business; May, 1898, to April, 1902, ticket clerk, city ticket office, G.T.R., Buffalo, N.Y.

James D. McDonald, who has been appointed District Passenger Agent of the G.T.R., at Toronto, was born there Aug. 27, 1855, and entered railway service in 1868 as a messenger in the G.T.R. service, since which he has been consecutively, 1870 to 1875, assistant ticket agent at Toronto; 1875 to 1896, ticket agent at Buffalo, N.Y.; 1896 to 1902, city passenger and ticket agent, at Buffalo, N.Y. From Jan., 1900, to date, he also acted as Secretary for the Buffalo Railway Passenger Committee; and from Dec., 1899, to date, Secretary Buffalo Westbound Passenger Committee.

W. P. Fitzsimons, who has been appointed manager Lackawanna-Grand Trunk Line at Buffalo, N.Y., was born in Detroit, Mich., Oct. 27, 1868, and entered railway service as messenger in the office of the Assistant General Freight Agent, G.T.R., at Detroit, April 15, 1884, since which he has been consecutively to Feb. 10, 1896, in various positions general freight department same road at Detroit; Feb., 1896, to Jan., 1897, Travelling Freight Agent same road; Jan., 1897, to Nov., 1898, Secretary to General Freight Agent same road at Montreal; Nov., 1898, to May, 1900, chief clerk General Freight Agent's office, same road, at Montreal; May, 1900, to April, 1902, Division Freight Agent, same road, at Detroit, Mich., and Manager Grand Trunk Despatch Fast Freight Line.

W. G. Brownlee, who has been appointed Superintendent of the G.T.R. Western division, at Detroit, Mich., was born at Lawrenceville, Ill., Sept. 9, 1858, and entered railway service in 1877, since which he has been consecutively to 1879, operator, Ohio, Mississippi Ry.; 1879 to 1881, operator and train dispatcher, Union Pacific Ry.; 1881 to 1884, train dispatcher and train master, Denver and Rio Grande Rd.; 1884 to 1887, train dispatcher, Union Pacific Ry., at Laramie, Wyo.; 1887 to 1889, train dispatcher, Missouri Pacific Ry. at Sedalia, Mo.; 1889 to 1892, chief dispatcher, same road, at St. Louis, Mo.; 1892 to Feb., 1900, Division Superintendent, same road, at St. Louis, Mo.; Feb., 1900, to May, 1901, Assistant Superintendent, Eastern division, G.T.R., at Belleville, Ont.; June, 1901, to March, 1902, Superintendent, Eastern division same road at Montreal.

Peter Brass, who has been appointed acting Master of Bridges and Buildings of the Middle Division, G.T.R., at Toronto, was born at Glasgow, Scotland, 1855, and served

an apprenticeship with Bartly, Curly & Co., shipbuilders, Glasgow. Coming to Canada in 1876 he entered the construction department of the Northern and North-Western Ry., since which his record has been: 1876 to 1879, construction work between Hamilton and Barrie, Colwell and Penetanguishene; 1879, engaged on construction work in the U.S. between Blanchard and Big Rapids, Mich., and at Valparaiso, Ind.; 1880 to 1885, construction work for Chicago and Grand Trunk Ry.; 1885 to 1895, construction work Detroit division, same road; 1898, elevator construction at Chicago; 1899, general foreman bridges and buildings, Western division, G.T.R.; 1899 to May, 1902, similar duties on Middle division, same road.

Edwin Forse, C.E., of the Algoma Central Ry. Co.'s staff at Sault Ste. Marie, met with a severe accident on Mar. 28. He left the Union Station, Toronto, for Ottawa, by the C.P.R. express on that night, and after leaving Don station, finding the sleeping car uncomfortably warm, went to the platform at the rear of the car to get some fresh air. As the train rounded a curve he was thrown off the train and was rendered insensible. He lay at the side of the track for several hours, until recovering somewhat he made his way to the Leaside Jct. station, where he remained for the night, returning to Toronto by the morning train. He soon found it necessary to go to the hospital, where it was found that a severe injury to the head had been sustained, and trepanning of the skull was resorted to. Mr Forse is making fair progress towards recovery and is now stopping at Ottawa with his son.

T. N. Jarvis, who has been appointed Assistant General Traffic Manager of the Lehigh Valley Rd., is a son of P. R. Jarvis, of Stratford, Ont., and a brother-in-law of Hon. T. Mayne Daly, K.C., ex-Minister of the Interior. He was born at Stratford, Ont., May 22, 1854, and entered railway service Sept. 1, 1872, since which he has been consecutively to Sept., 1874, clerk, freight office, G.T.R., Stratford; Sept., 1874, to Sept., 1875, clerk, freight office, same road, at Black Rock, N.Y.; Sept., 1875, to June, 1878, voucher clerk, general office, International line at Buffalo, N.Y.; July, 1878, to Dec., 1879, book-keeper, general office, Canada Southern Ry., at Buffalo, N.Y.; Jan., 1880, to Mar., 1883, accountant, Commercial Express Line; Mar., 1883, to Feb., 1898, Manager Traders' Despatch Fast Freight Line; Feb., 1898, to Mar., 1902, General Eastern Freight Agent, Lehigh Valley Rd., at New York.

Edward Averitt Williams, whose portrait appears on the first page of this issue, was born near Wiscasset, Me., Oct. 4, 1848. He entered railway service, 1865, as machinist apprentice, Milwaukee and Prairie du Chien Rd., since which he has been consecutively Aug., 1877, to Dec., 1880, roundhouse foreman, Chicago, Milwaukee and St. Paul Ry. at Prairie du Chien, Wis.; Dec., 1880, to Mar., 1886, general foreman, Southern Minnesota division, same road, at Wells, Minn.; Mar., 1886, to July, 1890, assistant general master mechanic, same road, at Milwaukee, Wis.; July, 1890, to Sept., 1893, Master Mechanic, Minneapolis, St. Paul and Sault Ste. Marie Ry., in charge of locomotive and car departments; Sept., 1893, to Jan. 1, 1901, Mechanical Superintendent, same road; Jan. 17, 1901, to date, Superintendent of Rolling Stock, C.P.R. Mr. Williams is President of the recently established Canadian Railway Club.

H. Goldmark, who has been appointed to the engineering department of the C.P.R. with special reference to the construction of the new shops, was born in New York City, 1857; is a B.A. of Harvard College, Cambridge, Mass., and has taken a course at the Royal Polytechnic School of Hanover, Ger-

many. He entered railway service in the office of the Chief Engineer of the Erie Rd., New York City, 1880, since which his record has been: 1881 to 1884, location survey, St. Louis and South-Eastern Rd., Texas, and construction, West Shore Rd., between New York and Buffalo; 1885 to 1887, various expert reports and inspections, Boston and Maine Rd., Atchison, Topeka and Santa Fe Rd., and Chesapeake and Ohio Rd.; 1887 to 1891, engineer of bridges and buildings, Kansas City, Fort Scott and Memphis Rd., and Kansas City, Memphis and Birmingham Rd. System; 1891 to 1896, engineer for Chicago Exposition, and in private practice in Chicago; 1897 to 1899, Assistant Engineer for the U.S. Government for the Board of Engineers on Deep Waterways between the Great Lakes and the sea; 1900, resident engineer in charge of bridge across the Missouri river at Atchison, Kan.

The Proposed Railway Commission.

The Minister of Railways, on April 9, introduced in the House of Commons a bill to amend and consolidate the law relating to railways. The bill abolishes the Railway Committee of the Privy Council, and establishes in its place "The Board of Railway Commissioners of Canada," to consist of three members to hold office, subject to certain conditions, for 10 years, any two of whom shall form a quorum. The powers of the commissioners are very extensive, and the Minister of Railways, in explaining the bill, stated that what were shown to be defects in the powers of other railway courts or commissions had been remedied, as far as possible, by the introduction of clauses giving new powers and extended authority. "The chief features of the bill are," he added, "the constitution of a railway commission and the regulation of the tolls." The bill, at considerable length, gives directions as to the procedure to be adopted by the commissioners in investigating the matters over which it has jurisdiction, declares that its findings shall be final, and provides penalties for violation. The decisions of the Railway Committee of the Privy Council are declared to be binding until set aside, or over-ridden by the decisions of the commissioners. All existing acts respecting railways are consolidated and simplified in a number of details, but the alterations from the existing law outside of the appointment of the commission, are not very great. There are a number of minor changes, and in the bill references are given to the existing laws, so that the effect of the proposed changes can be easily referred to. The bill was given its first reading, but it will not be proceeded with this session, as it is desired to allow members to consider its provisions, and to give the companies interested an opportunity to present their views on the projected changes.

The General Traffic Association has decided that a corpse has the same baggage rights as a regular passenger, and that a trunk can be checked through on account of the ticket held for the coffin.

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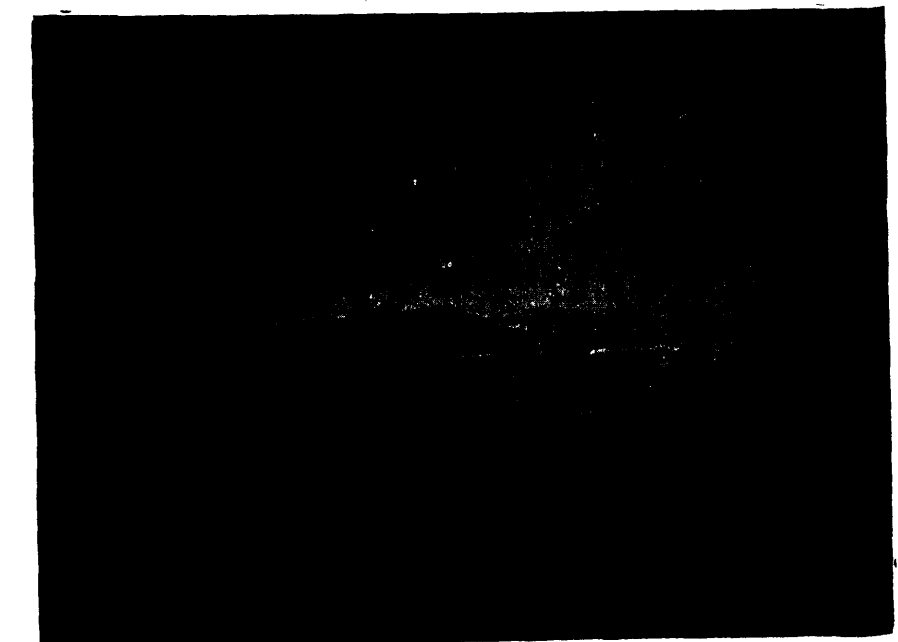
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The Canadian Northern Ry. in B.C.

The contract entered into between the British Columbia Government and Mackenzie, Mann & Co. for the construction of a railway from Yellowhead pass, on the boundary between B.C. and Alberta, and Seymour's Narrows, B.C., was actually entered into with the Edmonton, Yukon and Pacific Ry. Co. The charter of this Co. is owned by Mackenzie, Mann & Co., and a piece of line $4\frac{1}{2}$ miles in length, from a junction with the Calgary and Edmonton Ry. at Strathcona across the Saskatchewan river into the town of Edmonton, has been completed. It is proposed to amalgamate the E.Y. and P. Ry. Co. with the Canadian Northern Ry. Co., for which powers were obtained in 1901. The negotiations prior to the signing of the contract were made the subject of considerable debate in the B.C. Legislature and Smith Curtis made a number of charges against various members of the Cabinet, and more particularly against Premier Dunsmuir so far as the proposed sale of the Esquimalt and Nanaimo Ry., and the charter of the projected Comox and Cape Scott Ry. were concerned. Mr. Curtis asked that a committee of the House be appointed to investigate the charges, but it was decided to ask for the appointment of a Royal Commission. The Lieut.-Governor appointed Justice Walkem, of the B.C. Supreme Court, to hold an investigation, and the sittings were commenced on Mar. 27. J. N. Greenshields, K.C., Montreal, denied having acted in any way as between the B.C. Government and Mackenzie, Mann & Co.; in those negotiations he represented the contractors; in the negotiations with the Dominion Government, with a view of obtaining increased subsidies, he was acting for the B.C. Government. He also represented Mackenzie, Mann & Co. in the negotiations with the Dunsmuirs for the purchase of the Esquimalt and Nanaimo Ry. These negotiations were terminated because the U.S. shareholders have refused to sell. A great deal of evidence has been given, one feature being the refusal of the officials of the C.P.R. Telegraphs, and of the G.N.W. Telegraph Co. to produce copies of the telegrams that passed between the various persons interested. The investigation has not concluded.

The proposal to purchase the Esquimalt and Nanaimo Ry. not having been agreeable to the U.S. shareholders, an application has been made by J. N. Greenshields, T. G. Holt, H. B. Robertson and J. Mitchell, to the B.C. Legislature for the incorporation of a company under the title of the Victoria and Seymour Narrows Ry. Co., to construct a railway from Victoria to Seymour Narrows, on Vancouver Island, B.C. In addition to all the powers conferred by the B.C. Railways' Act, the Co. asks power to construct telegraph and telephone line, develop electric power and transmit the same, and operate steamships.

The Ontario Court of Appeal has given its opinion on the case submitted to it by the Attorney-General respecting the act passed in 1897 for preventing the profanation of the Lord's day. Of the four judges constituting the Court three have given their opinion that the act is constitutional, and that its provisions can be enforced as against running Sunday excursions by railways or steamships, and the operation of cars by street railway or tramway companies, except such as were in operation prior to April 1, 1897. The opinion of the majority of judges is further that the act cannot be made to apply to corporations operating exclusively under the legislative authority of the Dominion Government, nor to the individual employes of corporations. Chief Justice Armour is of opinion that the Ontario Legislature had no jurisdiction to pass the act in question.

Railway Equipment Notes.

The Reid Newfoundland Co. has ordered 100 flat cars in the U.S.

The C.P.R. is paying the I.C.R. \$8 a day for the locomotives recently hired.

The C.P.R. has placed an outside order in Montreal for building 6 tenders for passenger locomotives.

The Kingston and Pembroke Ry. is not, we are officially informed, in the market for additional locomotives.

The Intercolonial Ry. has recently received the fourth switching locomotive on the order placed with the Canadian Locomotive Co.

The Cape Breton Ry. is reported to have ordered in the U.S. 100 refrigerator cars, to be used in transporting fish from Cape Breton to U.S. markets.

Jas. Cooper, Montreal, has recently sold to the C.P.R. 9 large improved steam shovels to be used in the heavy work about to be undertaken by the company.

The Montreal St. Ry. is placing a number of new cars on the Montreal Park and Island Ry. They are 54 ft. long and 8 ft. wide, seating 60 people in chairs.

The I.C.R. has ordered from the Canadian Locomotive Co. 20 consolidation locomotives with Richmond compound cylinders; delivery to commence in Oct.

The Canada Southern division of the Michigan Central Rd. recently received from the American Locomotive Co.'s Schenectady works two mogul locomotives.

The G.T.R. has recently contracted with the Safety Car Heating & Lighting Co. for the equipping of 50 additional cars on its line with the Pintsch system of lighting.

The G.T.R. is reported to be building at its London shops 300 flat cars of 60,000 lbs. capacity, 36 ft. $9\frac{3}{4}$ in. long, 9 ft. $\frac{3}{4}$ in. wide, and 4 ft. high, for July and Aug. delivery.

The Pintsch gasworks at Moncton, N.B., which has been in the course of construction for the past two months, is now completed, and gas is being made there for use in the I.C.R. cars.

The Nova Scotia Steel and Coal Co. has ordered from Rhodes, Curry & Co., Amherst, N.S., 100 16-ton coal cars for use on the line between its colliery at Sydney Mines and North Sydney.

The Canada Atlantic Ry.'s car repair shops in Ottawa were damaged by fire recently, 2 passenger cars, a combination passenger and baggage car, 2 freight cars, and a wrecking derrick being destroyed.

The Metropolitan Ry., Toronto, Ont., has been notified by York County Council that improved cars must be provided by June 6, with cushioned seats running crosswise, and with provision for carrying baggage.

The G.T.R. is reported to have placed an order for 100 coal cars of 80,000 lbs. capacity; weight, 36,200 lbs., length, 38 ft.; width, 9 ft. 1 in.; height of sides, 4 ft. $2\frac{1}{2}$ in., to be built of wood for Aug. delivery.

The Government railways have, according to a statement made in the House of Commons recently by the Minister of Railways, ordered 121 locomotives since July 1, 1896, of which 84 had been delivered up to March 1 last.

The Alberta Ry. and Coal Co. has not placed any orders for equipment in connection with the widening of its gauge except for the three locomotives previously mentioned. It is the intention, as far as possible, to utilize the present narrow gauge equipment.

The Dominion Iron and Steel Co. Sydney, N.S., has not recently received a switching locomotive from the U.S., as stated in the daily papers. The Co. is having two 50-ton

switching locomotives built by the Canadian Locomotive Co., as stated in our April issue.

The equipment of the Inverness and Richmond Ry., as reported to the Nova Scotia Legislature at the recent session, consisted of 4 locomotives, two 1st class coaches, 2 composite cars, 75 flat cars, 25 30-ton coal hopper cars, 10 box cars, 1 conductor's van, and 1 snow plough.

The C.P.R. now has on order and undelivered, including orders placed to April 30, the following locomotives:—16 passenger at Co.'s Montreal shops, 54 freight, 3 switching, and 3 passenger at American Locomotive Co.'s Schenectady works, 10 freight at Canadian Locomotive Co.'s works.

The Intercolonial Ry. has received from Rhodes, Curry & Co., Amherst, N.S., 1,000 box cars, 60,000 lbs., completing contract, and 202 box cars on the contract given for 500. It has also received from other works 50 box cars of 60,000 lbs. capacity, completing a contract for that number.

The American Locomotive Co. is reported to have obtained an extension of time on an option on 200 acres of land adjoining the site of the new shops for the C.P.R. in Montreal. Another report credits the Co. with being in treaty for 25 acres of land at Cornwall, Ont., to establish a locomotive works.

The 1,000 box cars which Rhodes, Curry & Co., Amherst, N.S., are building for the C.P.R. have the following specifications: Capacity, 80,000 lbs.; length, 36 ft. inside; width, 8 ft. 6 in. inside; height, 7 ft. 6 in. at carline; 7 ft. 8 in. at center; Westinghouse air-brakes, St. Thomas Brass Co., brasses.

The Lake Erie and Detroit River Ry. has ordered in the U.S. three 55-ton 8-wheel locomotives; cylinders, 18 by 26 in., for immediate delivery. The L.E. and D.R.R. is in the market for gondola cars, and expects to place an order for 100 of 35 ft. or 36 ft., 60,000 lb. capacity, fitted with automatic couplers and air brakes.

During the year ended Sept., 1901, the Sydney and Louisburg Ry. added to its equipment: 1 1st class car, 1 tool car, 229 coal cars and 1 conductor's van, giving it a total equipment of 20 locomotives, 3 1st class cars, 3 2nd class cars, 2 tool cars, 1 box car, 71 platform cars, 988 coal cars, 1 flanger, 7 conductor's vans, and 1 snow plough.

A bill is before the Dominion Parliament at the current session to provide for the further protection of railway employes, by requiring that all cars be equipped with air brakes and engines and cars with automatic couplers; all box freight cars to have an end and side ladder, with a step at the bottom and an angle iron on top of the car, so as to assist the employe to reach the top.

The I.C.R. is building four 10-wheel passenger locomotives in its Moncton shops. Following are the general dimensions:—

Cylinders	20 in. diam. by 26 in. stroke.
Driving wheels	74 in. in diam.
Boiler pressure	180 lbs.
Wheel centers	66 in. diam.
Tank capacity	3,000 Imperial gallons.
Weight on drivers	113,904 lbs.
Weight of engine	145,040 lbs.
Total weight of engine and tender	240,040 lbs.

The C.P.R. has constructed at its Hochelaga shops, Montreal, an observation car for service in the Rocky and Selkirk mountains. It will be 56 ft. in length over frame, with seating capacity in the body of the car for 14 passengers, and with a cupola at each end that will seat six passengers each. It will be provided with revolving chairs, and the windows will be made as large as possible. If it proves satisfactory the Co. will probably build additional cars like it.

The C.P.R. has on order and undelivered the following rolling stock in addition to locomotives, particulars of which are given in an-

other paragraph: 24 first-class coaches, 6 combination dining cars, 2 dining cars, 12 sleeping cars, 2 parlor cars, 5 baggage cars, 1 observation car, 268 stock cars, 50 refrigerator cars, 300 coal cars, 50 ore cars, 55 vans, 1,854 box cars, 40 tons; 3 pile drivers. All of these will be built at the Co.'s shops except 1,000 box cars ordered from Rhodes, Curry & Co., Amherst, N.S

J. S. Lovell, W. Bain, E. W. McNeill, R. Richardson, and R. Gowans, of Toronto, all of whom are in the employ of Blake, Lash and Cassells, solicitors, Toronto, have been incorporated under the Ontario Companies' Act under the title of the Imperial Rolling Stock Co., (Ltd.), with a capital of \$1,000,000, to manufacture locomotives, cars and rolling stock for railways, street railways or tramways, to own rolling stock, and to sell or lease the same to railway companies as may be expedient either for cash stock or bonds. The Co. is formed in connection with Mackenzie, Mann & Co.'s undertakings, and for the present will be operated as a company owning locomotives, cars and other rolling stock.

The G.T.R. is reported to have decided to build at its Montreal shops five simple 10-wheel locomotives and 35 compound moguls. The simple locomotives will have a weight of 178,000 lbs. The moguls will weigh 163,704 lbs.; weight on drivers, 140,744 lbs.; cylinders, 22 1/2 by 26 in. and 35 by 26 in.; drivers, 63 in. The 10-wheel engines will weigh 177,772 lbs.; weight on drivers, 132,608 lbs.; cylinders, 20 by 26 in.; drivers, 73 in. Both classes of engines will have extended wagon-top boilers, with a working steam pressure of 200 lbs. The 10-wheel engines will have a heating surface of 2,460 sq. ft.; the moguls, 1,991 sq. ft. The tubes of the 10-wheel engines will be 15 ft. long; of the moguls, 11 ft. 11 in. They will be of charcoal iron in both classes of engines, with outside diameter of 2 in. Dimensions of fire-box, both classes, 120 by 40 1-8 in., inside measurement; grate area, 33.43 sq. ft.; tank capacity, 6,000 gal. of water, and 20,000 lbs. of coal.

The Quebec Central Railway recently received two 8-wheel passenger locomotives from the American Locomotive Co.'s Manchester Works. Following are the general dimensions:—

Weight on drivers	72,000 lbs.
on truck	38,000 lbs.
total	110,000 lbs.
Wheel base, driving	9 ft.
total engine	23 ft. 7 in.
total engine and tender	45 ft. 8 1/2 in.
Cylinders, dia. and stroke	18 x 24
Driving wheels, diam.	66 in.
centres diam	60 in.
centres mat'l.	Cast iron
Driving journals	8 in. x 8 in.
Engine truck wheels	3 in. x 30 in.
journals	5 1/2 in. x 10 in.
Frames, width	Ext. Wagon top
Boiler, type	diam. o.d. 1st ring
pressure	180 lbs.
Fire box, length x width	77 in. x 34 1/2 in.
Tubes, number of and diam.	245
thickness	No. 12

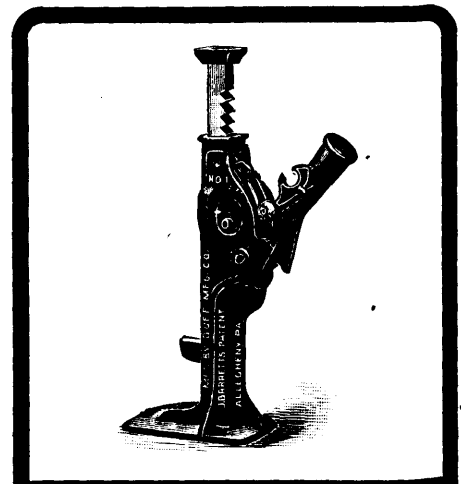
Tubes, length	11 ft. 8 1/2 in.
Heating surface, tubes	1,718 sq. ft.
fire box	163 sq. ft.
total	1,881 sq. ft.
Grate	Finger bars
Tender frame	6 1/2 x 4 x 1/2 angle
wheel diam.	33 in.
truck, type	Arch bar
journals	4 1/2 x 8
Tank, type	U shape
water capacity	4,000 gals.
fuel capacity	7 tons

The C.P.R.'s 10 wheel passenger locomotives being built at its Montreal shops are of the following general dimensions:—

Cylinders, compound	22 & 33
System	Pittsburg
Driving wheels, cast steel	69 in. dia. on tread.
base	14 ft. 6 in.
Total engine wheel base	24 ft. 11 in.
Tender wheel base	16 ft. 9 1/2 in.
Total wheel base of engine and tender	52 ft. 5 7/16 in.
weight of engine in working order	165,475 lbs.
on drivers	126,125 lbs.
tender loaded	126,600 lbs.
engine and tender	292,075 lbs.
Boiler, working steam pressure	210 lbs.
diameter at waist	64 in. I. D.
Tubes	2 in. O. D.
number	328
length	13 ft. 2 1/2 in. between sheets
Firebox, length	8 ft. 10 1/2 in. inside.
width	3 ft. 5 7/8 in.
Waterspace at foundation ring	front 4 in.
sides	3 1/2 in.
back	3 in.
Firebox plates	crowns and back 3/4 in. thick.
tubes 1/2 in. and sides	5-16 in.
Boiler shell plates	13-16 in., 1/2 in., 9-16 in., 7-16 in.
Heating surface, tubes	2,262.9 sq. ft.
firebox	152.6 sq. ft.
total	2,415.5 sq. ft.
Driving axles journal	9 in. dia. x 12 in.
Engine truck	6 in. x 10 in.
Tender	5 1/2 in. dia. x 10 in.
Main crank pin	6 1/2 in. dia. x 6 in.
Cab	steel.
Tender tank	steel.
water capacity	5,000 Imperial gals.
coal capacity	10 tons
frame	steel.
trucks	metal.
wheels	40 in. dia. W. I. disc steel tyred

At the meeting of the St. Louis Railway Club, on April 11, a letter was read from the Secretary of the Canadian Railway Club announcing its organization and extending a hearty welcome to its meetings to the members of the St. Louis Ry. Club. The President of the latter club, in referring to the letter, said:—"I am sure I voice the sentiment of our members in thanking our new sister club for their hearty welcome, and extend the same cordial greeting to their officers and members. The birth of new clubs are straws indicating the good work done by such organizations, and it is only proper that we extend the glad hand to our Canadian friends and wish them success."

The Nova Scotia Legislature has passed an act providing that in addition to subsidies of \$3,200 a mile provided for under the Railway Act of 1886, the Government may grant further aid in the form of a loan secured on a first mortgage on the line proposed to be constructed. Contracts granting this additional aid are not to be valid until ratified by the Legislature.



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RAILWAY FINANCE, MEETINGS, ETC.

British Columbia Electric Railway.—
Earnings and expenses for February:

	1901.	1902.	Increase.
GROSS EARNINGS.			
Railway—Vancouver division	\$7,432	\$8,701	\$1,269
Victoria	7,195	7,755	560
Westminster	5,864	6,338	474
Lighting—Vancouver	12,263	14,606	2,343
Victoria	6,663	7,766	1,103
Total gross earnings	39,417	45,166	5,749
Working expenses	25,732	30,944	5,212
Net earnings	\$13,685	\$14,222	\$537

Aggregate gross earnings, from April 1 to Feb. 28, \$455,071; 1901, \$514,291; 1902, \$59,220. Aggregate net earnings from April 1 to Feb. 28, \$182,680; 1901, \$203,057; 1902, \$20,377.

The Buffalo Ry. Co., a New York corporation, was in 1900 given a Dominion charter with power to acquire the rights and property of the Niagara Falls Park and River Ry., the Queenston Suspension Bridge Co., and the Clifton Suspension Bridge Co. The International Ry. Co. has since purchased the rights of the Buffalo Ry. Co., and application is being made at the present session of the Dominion Parliament for an act to give that Co. all the statutory rights of the B. Ry. Co.

The Central Ry. of New Brunswick, according to statement we recently published, showed a loss of \$35,331.98 in operating its road during the year ended June 30, 1901. In response to an enquiry we are officially informed that for nine months of the financial year referred to the road was under reconstruction operations, rebuilding of bridges, etc., and no regular trains were run.

The Calgary and Edmonton Ry.'s net earnings for Feb. 1902, were \$30,294.34, against \$17,487.33 for Feb. 1901.

Canadian Yukon Ry.—The claim of Mackenzie, Mann & Co. against the Dominion Government for \$302,717 for cash expended in connection with a contract entered into for the construction of a railway to the Yukon territory, which contract was disapproved by the Senate, was argued before Justice Burbridge in the Exchequer Court at Ottawa and judgment reserved. On May 3, the decision of the Court was announced, giving judgment for Mackenzie, Mann & Co. for the amount claimed. There was no dispute as to the amount, the practical questions to be decided being whether the contractors could recover at all, and if they could recover, would they be entitled to the percentage charged, (15%), on the total amount of disbursements. The accounts as originally filed by Mackenzie, Mann & Co. showed a total claim of \$493,785.22 which was reduced to \$302,717 by the settlement of claims at reduced figures, and the sale of provisions, steel rails, and contractors' materials.

Dominion Atlantic Ry.—Gross receipts for Feb., \$49,100, an increase of \$9,296 over Feb. 1901; making for the two months ended Feb. 28, \$108,900, gross, and an increase of \$23,578 over same period 1901.

Halifax Electric Tramway Co.—Gross receipts from railway:

	1902.	1901.	Increase or Decrease.
Jan.	\$10,764.58	\$9,543.14	\$1,221.44+
Feb.	8,498.39	8,042.11	456.28+
Mar.	9,761.57	9,448.32	313.25+
Apr.	10,025.66	9,370.98	654.68+
Total	\$39,050.20	\$36,404.55	\$2,645.65+

London Street Ry. Co.—Gross earnings for Mar., \$10,233.21; net revenue, \$3,542.42, against \$9,294.54 gross, and \$2,731.21 net for Mar., 1901.

Montreal Street Ry.—Comparative statement of earnings and expenses for March:—

	1902.	1901.	Increase or Decrease.
Passenger earnings	\$154,804.78	\$140,870.10	\$14,024.68+
Miscellaneous	1,981.61	625.27	1,356.34+
Total	156,786.39	141,495.37	15,291.02+
Operating expenses	103,846.20	98,373.35	5,472.85+
Net earnings	53,030.19	43,122.02	9,908.17+

	1902.	1901.	Inc. or Dec.
Fixed charges and interest on loans	16,175.78	9,261.14	6,914.64+
Surplus	36,854.41	33,860.88	2,993.53+
Expenses % of car earnings	67.04	69.83	2.79-

October 1 to Mar. 31:—
1902. 1901. Increase or Decrease.

Passenger earnings	\$914,881.24	\$864,100.08	\$50,781.16+
Miscellaneous	9,838.58	3,922.62	5,916.16+
Total earnings	924,720.02	868,022.70	56,697.32+
Operating expenses	595,607.43	559,649.31	35,958.12+
Net earnings	329,112.59	308,373.39	20,739.20+
Fixed charges and interest on loans	90,386.66	55,074.95	35,311.71+
Surplus	238,725.93	253,298.44	14,572.51-
Expenses % of car earnings	65.10	64.76	1.66+
Interest on M. P. & I. Ry. bonds owned by that Co., not included.			
+ Increase. — Decrease.			

Qu'Appelle, Long Lake and Saskatchewan Ry.—Net earnings for Feb., \$6,689.72, as compared with \$1,404.15 for Feb., 1901.

Quebec Central Ry.—Gross earnings for Mar., \$49,273.20; working expenses, \$32,470.73; net earnings, \$16,802.47; against net earnings \$16,564.37 for Mar., 1901. Gross earnings for three months ended Mar. 30, \$127,802.35; net earnings, \$32,215.97, against \$122,798.39 gross and \$93,388.83 net for same period, 1901.

Reid Newfoundland Co.—The Newfoundland Government issued to R. G. Reid £371,300 of 3½% bonds in payment of the contract price for the construction and equipment of certain sections of the Newfoundland Ry. These bonds have recently been sold on the London, Eng., market at £90 10s. per £100 bond.

The Governor of Newfoundland, in opening the Legislature, said:—"It affords me pleasure to be able to state that the financial obligations of the Colony to the contractor, under the Railway Act of 1901, have been fully discharged; that the railway system is now the property of the Government of the Colony; and that the lands transferred to the railway contractor by the contract of 1898 and other extensive areas held in reserve pending his selection, are now available to all those who may be desirous of investing in them."

The St. John, N.B., Ry. Co. recently offered for subscription \$25,000 of its 5% bonds maturing May 1, 1925, and not redeemable before maturity.

Toronto, Hamilton and Buffalo Ry.—Earnings for March, \$41,117; increase over Mar., 1901, \$5,020; nine months, from July 1, 1901, to Mar., 1902, \$364,755; increase over same period, 1901, \$70,258.

Toronto Ry. Co.—Gross earnings:—

	1902.	Increase or Decrease.
Jan.	\$137,135.21	\$15,478.01+
Feb.	127,981.01	18,468.50+
Mar.	141,681.22	17,182.23+
Apr.	132,946.56	9,040.56+
Total	\$539,744.00	\$61,069.30+

White Pass and Yukon Ry.—Gross earnings from Jan. 1 to Mar. 30, \$56,672.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits and increases or decreases over 1900-01, from July 1, 1901:—

	Earnings.	Expenses.	Net Profits.	Increase or Decrease.
July	\$2,851,455.31	\$1,755,588.37	\$1,095,866.94	\$211,493.04+
Aug.	3,118,551.32	1,812,019.23	1,306,532.09	251,156.49+
Sept.	3,264,024.16	1,911,292.44	1,352,731.72	292,031.71+
Oct.	3,682,403.05	2,115,363.83	1,467,039.22	388,864.81+
Nov.	3,583,383.47	2,142,505.33	1,440,878.14	375,329.82+
Dec.	3,497,733.70	1,929,042.19	1,568,691.51	170,325.90+
Jan.	2,621,791.71	1,801,330.91	820,460.80	132,264.35+
Feb.	2,349,039.34	1,674,678.66	674,360.68	53,680.84+
Mar.	2,953,769.50	1,898,854.54	1,054,914.96	106,579.23

\$27,822,151.56 \$17,041,575.50 \$10,780,576.06 \$1,983,746.19+
Approximate earnings for April, \$3,229,000, increase over April, 1901, \$581,000.

SUBSIDIARY LINES.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Gross earnings for Feb., 1902, \$195,175.03;

net earnings, \$70,558.71; against \$166,064.11 gross and \$56,016.55 net for Feb., 1901. Net earnings for eight months ended Feb. 28, \$640,392.07 against \$543,303.65 for same period 1901. Approximate earnings for Mar., \$201,021, against \$204,747 in Mar., 1901.

MINERAL RANGE Ry.—Approximate earnings for Mar., 1902, \$45,911, against \$43,565, for Mar., 1901.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Gross earnings for Feb., \$376,949.57; net earnings, \$172,895.42; against \$290,615.53 gross and \$105,943.46 net, for Feb., 1901. Net earnings for eight months ended Feb. 28, 1902, \$2,303,352.90, against \$1,215,189.82 for same period 1901. Approximate earnings for Mar., \$414,327, against \$357,346, for Mar., 1901.

Canadian Pacific Railway Land Sales.

	Acres.	Amount.		
	1900-01.	1901-02.		
July	40,714.46	49,089.06	\$129,483.42	\$154,646.84
Aug.	32,178.50	59,747.82	103,480.78	165,871.16
Sept.	21,807.57	60,060.46	69,012.54	197,057.61
Oct.	18,838.89	150,572.96	62,789.54	465,655.62
Nov.	22,408.68	151,922.89	69,627.27	512,862.94
Dec.	27,388.15	132,151.16	83,528.59	403,261.78
Jan.	27,928.80	109,846.99	86,752.54	347,761.91
Feb.	29,370.22	78,039.43	91,189.58	256,156.70
Mar.	39,346.14	101,029.22	122,362.47	333,852.22
Total	260,111.41	803,272.89	\$894,850.85	\$2,837,126.78

Grand Trunk Ry. Earnings, Expenses, &c

The following statement of earnings, supplied from the Montreal office, includes the G. T. of Canada, the G. T. Western, & the Detroit, Grand Haven & Milwaukee Rys.

	1902.	1901.	Increase.	Decrease.
Jan.	\$2,278,978	\$2,242,117	\$36,861	....
Feb.	2,018,926	2,005,341	13,585	....
Mar.	2,537,873	2,386,090	151,783	....
Total	\$6,835,777	\$6,633,548	\$202,229	....

The following figures are issued from the London, Eng., office:

GRAND TRUNK RY.

Revenue statement for Feb.:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£239,100	£237,900	£1,200	....
Working expenses	246,600	247,800	1,200	....
Net profit	£92,500	£90,100	£2,400	....

Aggregate Jan. 1 to Feb. 28, 1902:

Gross receipts	£703,100	£711,500	....	£8,400
Working expenses	500,000	508,800	....	8,800
Net profit	£203,100	£202,700	£400	....

GRAND TRUNK WESTERN RY.

Revenue statement for Feb.:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£62,400	£59,400	£3,000	....
Working expenses	50,300	55,300	4,000	....
Net profit	£12,100	£4,100	....	£1,000

Aggregate Jan. 1 to Feb. 28, 1902:

Gross receipts	£143,400	£129,700	£13,700	....
Working expenses	125,100	114,000	11,100	....
Net profit	£18,300	£15,700	£2,600	....

DETROIT, GRAND HAVEN AND MILWAUKEE, RY.

Revenue statement for Feb.:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£13,200	£14,700	....	£1,500
Working expenses	12,100	12,200	....	100
Net profit	£1,100	£2,500	....	£1,400

Aggregate Jan. 1 to Feb. 28, 1902:

Gross receipts	£36,300	£41,500	£4,800	....
Working expenses	25,300	24,600	700	....
Net profit	£11,000	£6,900	£4,100	....

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from Jan. 1 to Feb. 28:

	1902.	1901.	Increase.	Decrease.
Grand Trunk	£1,128,289	£1,097,118	£31,171	....
G. T. Western	222,080	217,207	4,882	....
D. G. H. & M.	54,233	48,672	5,561	....
Total	£1,404,601	£1,362,997	£41,604	....

Miscellaneous Notes.

The Algoma Commercial Co., which has charge of the settling of the lands granted to the Algoma Central Ry. Co., is arranging to bring out and settle on the Co.'s lands 2,000 Swedes this year.

D. N. Miller, a Hamilton, Ont., street-car conductor, is making application for a patent for an appliance for putting sand on slippery railway tracks, which it is claimed is a great improvement on the present method.

The Wire and Cable Co. of Montreal has decided to erect a storage building in the rear of the new factory on Lusignan st. for office and storage purposes. The Co. proposes to undertake the manufacture of lead cable in the new factory.

It is proposed that the G.T.R. Institute at Montreal should amalgamate with the Railway Y.M.C.A., and that the combined organization should be given accommodation in the building heretofore occupied by the G.T.R. as general offices.

W. B. Yereance, of the Brooklyn Rapid Transit Co., and Secretary of the New York Railroad Club, writes us: "You have a bright and instructive paper that should be specially valuable to the transportation men of the Dominion."

Application was made at the last session of the Manitoba Legislature for an act to incorporate the Manitoba Institute of Engineers and Architects, with power to register and examine candidates for the profession of civil, mechanical and electrical engineers and architects in Manitoba. The application was rejected in committee, it being intimated that the question was one which should be taken up by Manitoba University.

SHIPPING MATTERS.**Notices to Mariners.**

The following notices have been issued by the Department of Marine:

No. 10, Feb. 18.—Ontario—29. Lake Erie, Long Point lifeboat removed. 30. Goderich, hydrographic notes. 31. St. Joseph channel, Hilton wharf light discontinued. 32. Lake Superior, Batchawana bay, orthography.

No. 11, Feb. 21.—New Brunswick—43. Chaleur bay, Caraquet harbor, hydrographic notes. 44. Labrador—Strait of Belle Isle, Amour point, telegraph station established.

No. 12, Feb. 25.—British Columbia—45. Trincomali channel, Walker rock light improved.

No. 13, Feb. 25.—Nova Scotia—47. Bay of Fundy, basin of Minas, Wolfville lighthouse.

No. 14, Feb. 26.—Nova Scotia—48. Cape Breton, Sydney harbor, Cranberry head fog alarm discontinued.

No. 15, Mar. 4.—Nova Scotia—49. Bay of Fundy, basin of Minas, Kingsport pier, temporary light. 50. Liverpool bay, Brooklyn pier, light to be moved.

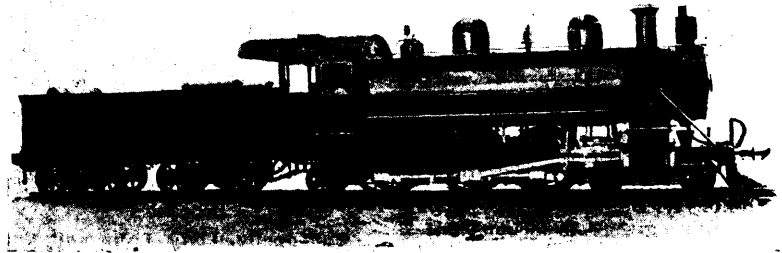
No. 16, Mar. 18.—Quebec—52. River St. Lawrence, Barrett ledge, change in color of gas and bell buoy. 53. River St. Lawrence, traverse of St. Roch, characteristic of light at upper end. 54. River St. Lawrence, Beaujeu bank, change in color of gas buoy; 55. River St. Lawrence, Grosse isle, change in color of gas buoy and character of light.

No. 17, Mar. 19.—Nova Scotia—56. Bay of Fundy, Brier island, proposed change in characteristic of light; 57. South coast, Brazil rock, position of bell buoy; 58. Canso harbor, storm signal staff, change in position. 59. Cape Breton, Barru strait, Grand Narrows railway bridge, warning.

No. 18, Mar. 22.—Ontario—60. Georgian bay, Flowerpot island, change in characteristic of fog bell. 61. St. Joseph channel, Richard's landing, light on wharf. 62. Lake

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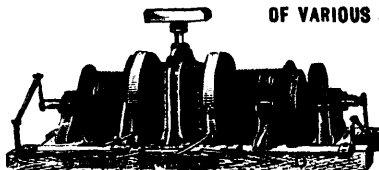
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of the Woods, Squaw island light, character of illuminating apparatus. 63. Lake of the Woods, Tomahawk island light, character of illuminating apparatus.

No. 19, Mar. 26.—Ontario—67. Lake Superior, Michipicoten harbor, little Gros Cap, temporary light.

No. 20, Mar. 29.—Prince Edward Island—68. Strait of Northumberland, Sea Cow head, temporary change in light.

No. 21, Mar. 31.—Ontario—69. Lake Erie, Kingsville, front light temporarily discontinued. 70. North channel, Narrow island, lighthouse destroyed by fire.

No. 22, April 10.—Quebec—73. River St. Lawrence above Quebec, St. Antoine de Tilly, range lights established. 74. St. Antoine upper point, old light discontinued.

The following notices have been issued by the U.S. Hydrographic Office:

No. 9, Mar. 1.—281. Lake Ontario—Oswego breakwater lighthouse.

No. 12, Mar. 22.—380. Lake Michigan, Chicago harbor light station, temporary change in character of light. 381. Lake Erie, Buffalo approach, Seneca shoal gas buoy established.

No. 13, Mar. 29.—416. The Gr at Lakes, amended pilot rules. 422. Detroit river, gas buoys, change in characteristics of lights.

426. Lake Ontario, Galloo island shoal gas buoy No. 1, change in characteristic of light.

427. St. Lawrence river, gas buoys, change in characteristic of lights.

No. 14, April 5.—468 Lake Erie, Pelee passage, south-east shoal light vessel replaced on station.

No. 15, April 12.—501. Detroit river, Limekin crossing, south light vessel replaced by relief light vessel. 502. Lake Erie, Bar point shoal light vessel station, temporary gas buoy to mark station.

No. 16, April 19.—534. St. Mary's river, changes in buoyage. 535. Lake Michigan, Strait of Mackinac, South Graham Shoal gas and bell buoy No. 18, substituted for bell buoy.

537. Lake St. Clair, St. Clair flats canal, lower entrance, east side, float light established. 538. St. Clair river, St. Clair middle ground, float lights established. 539. Detroit river, Grosse isle south channel range light station, change in color of lights.

Customs Regulations for Towing.

A special memorandum has been issued by the Customs Department to its officers at lake ports in Ontario. It mentions that complaints have been made as to the evasion of Canadian customs and coasting laws by steam tugs engaged in towing in Canadian waters on Lake Superior and other lake waters in Ontario. Customs officers are specially requested to see that the customs and coasting laws are properly observed by such steam tugs, and to warn the tugs that penalties are to be enforced on failure to observe the laws and regulations for reporting, entering and clearing with articles in tow, and for neglect to furnish proper export entries of articles intended to be exported beyond the bounds of Canada from points and places in Canadian waters.

The concessions granted July 3, 1900, exempting from report and clearance steam tugs while plying only within the limits of one port, does not apply to foreign tugs nor to the towing of articles which are to be further moved by a foreign tug beyond the limits of the port or outport. Logs or other articles destined for continuous transportation by water from one port or place in Canada are to be towed only by vessels permitted to engage in the coasting trade, in other words, by Canadian vessels.

A foreign steam tug is not permitted to move a tow in Canadian waters without report and clearance at the Customs-house, and then only when the tow is destined for a port or

place outside of Canada, in which case an export entry for the articles exported shall be furnished.

Canadian tugs must report and obtain clearance when plying and moving a tow from a port or outport in Canada to a point beyond the limits of such port or outport. The destination of the articles to be towed is to be truly stated in the report to be made by the master of the steam tug, and the collector is not to grant clearance for towing in contravention of the Customs and coasting laws. Logs and other articles transported in contravention of law, and the steam tugs illegally engaged in such transportation, are to be seized, and the seizure reported to the department.

Before granting a clearance in respect of timber cut on Indian lands in Ontario, the production of a certificate from the Department of Indian Affairs is required, to the effect that all dues and charges thereon have been duly paid. In respect of tows of logs for the U.S. from the lake ports of Ontario, the instructions heretofore issued are to be observed as to notice from the Department of Crown Lands, Ontario, regarding payment of the timber dues thereon before clearance.

Ottawa and Georgian Bay Canal.

An act extending for two years the time within which the Montreal, Ottawa and Georgian Bay Canal Co. may commence work on its projected canal from the Georgian bay, via French river, Lake Nipissing and the Ottawa river to Montreal, has been passed at the current session of the Dominion Parliament. The proposed canal has been before the country for some years, and the promoters claim to have not only spent \$90,000 on surveys and plans, but to be ready to go on with construction provided the Dominion Government will guarantee 2% on \$80,000,000, the estimated cost of completing the work, no liability to attach to the Government until the canal is completed. The Co.'s engineers have prepared plans and profiles, showing that the distance between Georgian bay and Montreal by the proposed route is 425 miles, of which 4 miles will be taken up with locks; 40 miles of canal section 22 ft. deep with a bottom width of 100 ft.; 74 miles of improved river channel with a bottom width of 300 ft., and 307 miles of open lake and river suitable for 20 ft. navigation without further improvement. P. J. Loughrin, formerly engaged in lumbering on the Ottawa river, traverses every one of these statements. He says the distance is 535 miles, of which 102 miles would have to be locked, 96 miles would have to be very deeply dredged, and the remaining 237 miles would have to be dredged 8 ft. in order to give a 20 ft. navigation; and places the cost of the work at \$300,000,000 at the very lowest estimate.

The question of whether a work of this national importance should be constructed by a private company, was mentioned in the course of the discussion, and in this connection it is important to note that while the bill was before the Senate Committee on Railways, the Minister of Public Works initiated a discussion in the House of Commons on the probability of the Government undertaking the work of improving the French river and Lake Nipissing so as to give a 20 ft. navigation from Georgian bay to North Bay, a distance of about 130 miles. In the 50 miles from the lake to Georgian bay there is a fall of 62.6 ft., so that there would be a good deal of locking to be done to get round the rapids. It was pointed out in the discussion that more information was required before any decision could be reached, and Mr. Tarte stated that he simply desired to call the attention of the country to the project so that it could be considered and discussed before any vote was asked.

The Algoma Navigation Co.

T. M. Kirkwood, A. J. H. Eckhardt, J. A. McKee, F. M. Holland, Toronto; C. A. McCool, Ottawa; A. McLeod, Bracebridge; J. W. Munro, Pembroke; J. A. McArthur, Copper Cliff; G. McCormick, Orillia, and L. J. Breithaupt, Berlin, have been incorporated under the Ontario Companies' Act as the Algoma Navigation Co., Ltd., with a capital of \$250,000, divided into shares of \$100 each. The Co. is formed for the purpose of taking over the business carried on at Owen Sound under the style of the Owen Sound, Georgian Bay and Soo Line, and operating the steamers City of Windsor and City of Owen Sound; to purchase other vessels, and to acquire summer resorts and public parks, and to carry on in connection therewith business as hotel-keepers. The new Co. has not yet been formally organized, but it is understood that there will not be any change in the management, the main object of the formation of the new Company being to secure additional capital to extend the business to meet the increasing requirements of the trade. It is said that the Co. will shortly issue \$150,000 of 1st. mortgage bonds, redeemable in 10 years, and bearing interest at 6% per annum, and that a bonus of \$100 of stock will be given with each \$300 of bonds. It is also said that G. McCormick will be President; A. J. H. Eckardt, Vice-President; and T. M. Kirkwood, Manager.

The Owen Sound, Georgian Bay and Soo Line was commenced in 1897 by D. L. McKinnon, of Sudbury, Ont., and T. M. Kirkwood, of Toronto, with one steamer, the City of Windsor. The steamer was originally the E. K. Roberts, and was built at Detroit in 1883, for E. Gauthier, who is interested in the Duck Islands, Lake Huron, and was engaged in the fish trade on Georgian Bay. She was purchased in 1896 by D. L. McKinnon, overhauled and fitted for the freight and passenger business, being given a Canadian registry at Windsor. Her dimensions are: Length, 117 ft.; breadth, 24.8 ft.; depth, 11 ft.; tonnage, gross, 511; net, 316. In 1900 it was found necessary to add another steamer, and the sidewheel str. City of Owen Sound was put on the service. This vessel has an iron hull and was originally the tug Meteor, built at Sorel, Que., in 1866, and engaged in the lumber towing business by the Cook Bros. Lumber Co. of Toronto. She was thoroughly overhauled and new upper works and interior fittings provided to fit her for the freight and passenger trade. Her dimensions are: Length, 129.3 ft.; breadth, 24.3 ft.; depth, 10.6 ft.; tonnage, gross, 336; net, 181. The Co. is in treaty for a third steamer of a larger size than either the City of Windsor, or the City of Owen Sound, but no deal has been closed.

Lake of Bays and Lake Simcoe.

A company to be called the Huntsville, Lake of Bays and Lake Simcoe Navigation Co. is being formed for the purpose of taking over the steamers and navigation business carried on by G. F. Marsh, of Huntsville, Ont., on the Lake of Bays and Lake Simcoe. The business was commenced some 16 years ago by Mr. Marsh in connection with the lumbering of the district, and as settlement proceeded, and the beauties of the Lake of Bays district became better known, and large numbers of tourists visited the district, passenger steamers were added. Mr. Marsh owns and will hand over to the company, when formed, seven steamers on the Lake of Bays, Peninsula and Fairy lakes, and one on Lake Simcoe, together with a complete machine shop for the building and repair of the vessels, wharves, etc. The new company will be capitalized at \$100,000, and Mr. Marsh, who will retain a large interest, will act as Business Manager, whilst W.

Duperow, heretofore chief clerk in the office of the District Passenger Agent, G.T.R., Toronto, will be General Manager and Sec.-Treas. He will have charge of the organization of the traffic, and the general control of the business, Mr. Marsh looking after the steamers and the general outside work at Huntsville. It is the intention of the Co. to add to the fleet as required, and to make extensive alterations in the equipment, so as to have them thoroughly up-to-date in every particular.

The following comprise the fleet:—Marie Louise: screw steamer built at Huntsville; length, 68 ft.; breadth, 15.5 ft.; depth, 6 ft.; registered to carry 40 passengers. Empress Victoria: screw steamer built at Huntsville in 1894; length, 76 ft.; breadth, 17 ft.; depth, 6 ft.; tonnage, gross, 106; register, 72; licensed to carry 100 passengers. Florence: screw steamer built at Huntsville in 1884; length, 54 ft.; breadth, 10.9 ft.; depth, 3 ft.; tonnage, gross, 27; register, 18. Enterprise: screw steamer built at Rama, Ont., 1869; length, 81.4 ft.; breadth, 23 ft.; depth, 6.2 ft.; tonnage, gross, 148; net, 99. Lady of the Lake, Phoenix, Doc, and a steam yacht let to private parties. The Enterprise is operated on Lake Simcoe; the Marie Louise, Florence, and Lady of the Lake are operated on Lake of Bays, and Phoenix, Doe, and Empress Victoria on Peninsula and Fairy lakes. With the smaller steamers a large amount of towing is done in the spring, and they make regular trips on the lakes during the summer; the passenger boats make two and sometimes three daily trips round the lakes.

Suspension of Coasting Regulations.

The Marine Journal, of New York, referring to the application made to the Dominion Government last year to relax the coasting regulations to enable U.S. vessels to carry grain from Fort William to other Canadian ports, owing to an alleged scarcity of Canadian bottoms, says: "This application was promptly refused, and Americans can find no fault because of such refusal. There is a clause in the laws governing the Canadian coast trade, which reads: 'No goods or passengers shall be carried from one port of Canada to another, except in British ships.' That is good law for Canada, and, as we have said, Americans cannot object to its strict enforcement. As in the case referred to, it may occasionally deprive American vessels of a little business that Montreal shippers are willing that they should have, but it is a protective measure for the Canadian coast trade and should be strictly adhered to."

The object of such a law is to preserve for Canadian shipowners the Canadian trade, and by so doing to encourage shipowners to have their vessels built in Canada. In 1899 the Cabinet did pass an Order-in-Council under which U.S. vessels could have carried grain from Fort William to other Canadian ports, but only one cargo was so carried, thus showing that there was no shortage of Canadian bottoms, as alleged. In the light of that experience it was a matter of surprise that a request for a similar concession was preferred last year, and of still greater surprise that the Cabinet should even have taken time to consider the request. The claim that there was a shortage of Canadian bottoms to

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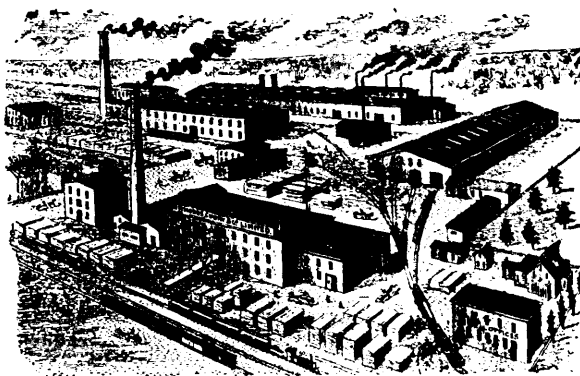
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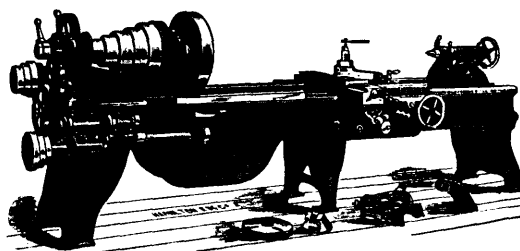
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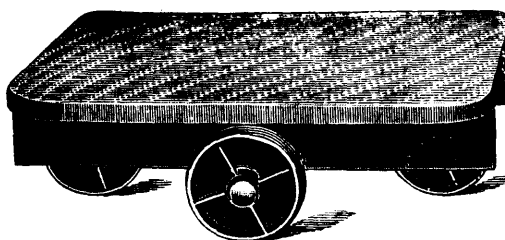
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volving.

handle the grain was again groundless, as not only did the Canadian vessels clear out all the grain in the elevators, but cargoes could not be found for the vessels offering for charter. J. S. Cuttle, General Manager of the Montreal Transportation Co., states that a number of vessels had to winter in Fort William and others had to leave light because there was no cargo to be had; and the Midland Navigation Co. has a case pending in the Courts for damages owing to breach of charter, the promised cargo not being available. There should be no further attempts to obtain a concession from the Government which past experience has shown to be unnecessary.

Niagara Navigation Company.

In connection with the recent listing of this Co.'s stock on the Toronto Stock Exchange the financial statement for the year ended Nov. 30, 1901, was issued as follows:—

ASSETS.

Steamers Chippewa, Corona, Chicora and Ongiara	\$707,500 00
Real estate, wharves, etc.	50,000 00
Stores on hand	2,000 00
Accounts receivable	8,897 05
Cash on hand and in bank	92,680 40
	<u>\$861,077 45</u>

LIABILITIES.

Capital stock authorized	\$1,000,000 00
subscribed and paid up	\$605,000 00
Debentures outstanding, 4½%	111,000 00
Interest accrued on same	2,081 25
Accounts payable	6,878 22
Directors' fees	1,400 00
Dividend and bonus payable Dec. 10, 1901	60,500 00
Balance carried forward	74,217 88
	<u>\$861,077 45</u>

PROFIT AND LOSS ACCOUNT.

Balance brought forward	\$42,899 92
Net earnings from all sources year ended Nov. 30, 1901	100,294 21
	<u>\$143,194 13</u>
Interest paid on debentures, 12 months to July 2, 1901	\$ 4,995 00
Interest accrued on debentures to Nov. 30, 1901	2,081 25
Dividend 7% payable December 10, 1901	\$42,350 00
Bonus 3% payable December 10th, 1901	18,150 00
Directors' fees	60,500 00
Balance carried forward	74,217 88
	<u>\$143,194 13</u>

The directors' report says the Co.'s business was, as usual, satisfactory, the profits for the year being exceptionally large owing to the Pan-American exposition, which enabled them to declare a bonus of 3% in addition to a dividend of 7%. In future dividends are to be paid half yearly, on July 2 and Jan. 2. In 1898 the Co. paid a 5% dividend, in 1899 6%, and in 1900 6%.

As stated in our issue of July, 1901, the estate of the late Sir Frank Smith held about \$400,000 out of the \$605,000 of stock issued, and E. B. Osler, of Toronto, and W. Hendrie, of Hamilton, \$150,000; the rest of the stock standing in the name of Jno. Foy, Jas. J. Foy, B. Cumberland, the estate of the late F. W. Cumberland, J. B. Macdonald and R. H. McBride. It is said that \$250,000 of the stock owned by the Smith estate was, prior to the listing, secured by Osler & Hammond, of Toronto, or a syndicate organized by them, at between 110 and 120. When the stock was listed Apr. 11, it opened with a sale of 10 shares at 150, advancing the same day to 160, at which 535 shares were sold. It subsequently eased off, and on Apr. 30 sold at 147. Insiders say that the Co. will pay 8% hereafter, of course barring accidents, which at the latest quotation would yield 5.44% on the investment.

Maritime Provinces and Newfoundland.

The Reid Newfoundland Co. has given notice that its steamers will not in future call at St. Pierre, Miquelon.

B. G. Burrill, Yarmouth, N.S., is negotiating with St. John, N.B., merchants with a view of putting a steamer on the Yarmouth, St. John and south shore route.

Capt. Farquhar, Halifax, N.S., purposes running the str. Acadia between Summerside, P.E.I., and Tormentine, N.B., calling at Traverse, Tednish and Crapaud, making three trips a week each way.

Albert county merchants have subscribed \$6,000 for the purpose of purchasing a steamer to trade between St. John, N.B., and ports in Albert County, and a committee has been appointed to obtain a steamer.

Navigation has opened earlier than usual this year at Charlottetown, P.E.I., the str. Prince making the trip to Pictou, N.S., Mar. 20, and the str. Northumberland going to Point du Chene, N.B., via Summerside, April 1.

The Newfoundland Legislature has amended the Shipbuilding Act providing that the decking shall be, in vessels 20 to 40 tons, 2½ ins.; 40 to 60 tons, 2½ ins., and 60 to 90 tons, 3 ins., and making a number of other changes.

The Dominion Coal Co. has chartered the Sif, a new 6,000 ton steamer, for six months, to carry coal from Sydney, N.S., to Boston, Mass.; and the Intercolonial Coal Co. has chartered two steamers for the St. Lawrence coal trade.

H. L. Chipman, manager of the Plant Line, Halifax, says that the transfer of the Plant properties to the Atlantic Coast Co. does not affect the steamers trading between Boston, Mass., and Nova Scotia points, but only applies to the railways and southern steamship lines.

The Yarmouth Steamship Co., in winding up its business, has paid \$22,500 to the Lewis Wharf Corporation for the cancellation of its 10-years' lease of wharfage space at Boston, Mass., of which six years had still to run. The str. City of St. John, a side-wheel steamer, owned by the Co., is being broken up at Yarmouth.

Four British and two Canadian shipbuilding firms tendered for the building of a steamer to replace the Dominion Government cruiser Druid. The contract went to Fleming and Ferguson, of Paisley, Scotland, the price being \$110,960. The Collingwood Shipbuilding Co. offered to build the steamer for \$170,000, and the Polson Iron Works, Toronto, asked \$173,000. The new steamer is expected to be delivered in July.

For the construction of a lighthouse tender and cable-laying steamer for the Department of Marine, to replace the Newfield, nine British and two Canadian firms tendered. The contract was placed with Fleming & Ferguson, Paisley, Scotland, for \$124,983; the prices asked by the Canadian firms being: Collingwood Shipbuilding Co., \$235,000; Polson Iron Works, Toronto, \$298,900. The new steamer is expected to be delivered in July.

The People's Line Steamship Co. (Ltd.) has been incorporated under the New Brunswick Companies' Act, and has elected the following directors and officers: President, D. J. Purdy; Vice-President, L. Jordan; Manager, J. W. McAlary; Secretary-Treasurer, W. E. Nobles; other directors: A. P. Barnhill, G. H. Perry, A. P. Belyea and P. Z. Jordan. The Co. has purchased the str. Star, and has had her thoroughly overhauled and refitted for passenger and freight traffic.

The Plant Line str. Halifax has been placed on the Halifax-Boston run again, having been

repaired and refitted after running ashore near Boston last year. The underwriters gave \$25,000 towards the repairs, and it is reported that the owners have spent a similar amount for refitting. New boilers have been put in and the whole machinery has been overhauled, while the passenger accommodation has been rearranged, and 25 additional staterooms have been provided.

C. W. Anderson, of Sherbrooke, N.S., is manager of the Sherbrooke Steamship Co., which is having a steamer built at Yarmouth, N.S., to trade between Halifax and Canso, touching at intermediate points. She is a screw steamer, with a promenade deck, 87 ft. long, with considerable accommodation for passengers, and will be fitted with electric light and cold storage. Her dimensions are: length, 120 ft.; breadth, 22 ft.; depth of hold, 8 ft.; draft, 9 ft.; capacity, 200 tons register. It is expected that the new steamer will be placed on the route early in July.

A return presented to the House of Commons shows that the contract price of the I.C.R. ferry str. Scotia, built by Sir W. Armstrong, Whitworth & Co. (Ltd.), at Newcastle-on-Tyne, Eng., was £47,000, and the Minister of Public Works, answering a question, said there had been expended on the steamer over and above the contract price, \$7,690. The landing places at Mulgrave and Point Tupper, N.S., were not completed so that the ferry had not been placed in service. The Minister of Railways, replying to additional questions on the same subject, said the cost of the improved ferry service was \$413,000.

The Fredericton and Woodstock Steamboat Co. (Ltd.), recently incorporated, has elected the following directors: President, J. S. Neill, Fredericton; Secretary-Treasurer, J. H. Barry, Fredericton; Manager, R. Scott, Dumfries; other directors: J. Palmer, G. T. Whelpley, Fredericton; D. Gilman, Pokoik; M. B. McNally, Queensbury, and W. Fisher, Woodstock. The Co. has purchased the str. Aberdeen from the Star Line Steamship Co., and is giving it a thorough overhauling. The Aberdeen is a stern wheel steamer, built at St. John in 1894, her dimensions being: length, 140.2 ft.; breadth, 22 ft.; depth, 4 ft.; tonnage gross 244, register 137. The Co. is having an additional steamer built at Southampton.

Province of Quebec Shipping.

It is reported that an additional steamer is to be placed on the Baie des Chaleurs this year. The str. Admiral commenced running from Dalhousie, N.B., to Gaspé and other ports April 9.

It is proposed to make a new entrance into the Lachine canal at Montreal, so as to permit a straight waterway for vessels up to the lock, so that only one lock will be necessary to lift vessels into the canal.

A steel steamer has been launched at Hull, Que., and named King Edward, to ply between Quebec and Natashquan on the north shore, and Quebec to Gaspé Basin on the south shore of the St. Lawrence on alternate weeks.

The Great Northern Ry. of Canada will, in connection with its export trade, operate, in addition to the Leyland steamship line service to London as last season, a service to Liverpool and Manchester, and another to Rotterdam.

C. M. Hays, Second Vice-President and General Manager, G.T.R., has asked the Montreal Harbor Commissioners to discuss with him the terms upon which an elevator could be erected by the G.T.R. on the Windmill Point pier.

The Quebec Harbor Commission will lease to the Dominion Coal Co., 65,000 square feet

of wharf space at a nominal rent, the Co. to spend \$50,000 on buildings, and to have the work completed in 1903. The site selected is at the Gashouse wharf.

Navigation opened at Quebec Mar. 26, and a few days later river boats were moving into Montreal. The first oversea steamer reached Quebec April 12. The lights were all placed in position April 14, the earliest date recorded by the Department of Marine

The Minister of Public Works recently stated in the House of Commons, on the vote for dredging in the St. Lawrence, that the Government possessed a fleet of dredges of the most modern and powerful type, of which the most efficient and modern had been completed at the Polson Ironworks, Toronto. This dredge would operate at a cost of less than a cent a yard. In two years he hoped to have a channel 30 ft. deep, 450 ft. wide in the straight stretches, and 800 ft. wide in the curves, completed between Montreal and Quebec. The amount voted for this work for the ensuing year was \$500,000.

The Great Lakes and St. Lawrence Transportation Co. has purchased the two floating elevators and other plant of the Montreal Transportation Co. at Kingston, Ont., and will take them to Quebec, pending the erection of its new elevator there. The Co. has commenced the erection of its sheds, etc., at Quebec, so as to be prepared to handle the grain business it will take in for export. There are being built for the Co. in the U.S. two barges, each 236 ft. long by 42 ft., capable of carrying 3,000 tons of grain on a 14 ft. draft; they are to be equipped with triple expansion engines, and will cost \$200,000 each. The Co. is reported to have completed arrangements by which it will have 20 steamers carrying grain between Duluth, Minn., and Quebec.

G. T. Davis & Sons, Levis, have had built at South Shields, Eng., a twin screw tug and wrecking steamer, named the Lord Strathcona, for the St. Lawrence, to replace the Lord Stanley, sold to the Government for survey work on Lake Superior. The Lord Strathcona is classed 100 A1 at Lloyds, is 160 ft. long, 27 ft. beam, and 14 ft. 3 in. deep; and besides commodious quarters for the crew has a capacity for 325 tons of coal. Water ballast is provided in double bottom and also in fore and after peak tanks. The propelling machinery, which is of 1,700 i.h.p., consists of two sets of triple compound engines, each set having cylinders 17 in., 28 in., and 46 in. diameter by 30 in. stroke. Steam will be supplied by two large marine type boilers working at 180 lbs. pressure. The Lord Strathcona was expected to reach Levis by the beginning of May.

After lengthened negotiations, the Department of Public Works and the Montreal Harbor Commissioners have reached an agreement as to elevators, and a contract has been placed to complete a steel elevator of 960,000 bush. capacity, by Aug. 1, 1903. The site is to be between the old Allan wharf and the second Allan wharf. The contract has been signed and work has been started on the site. The elevator will be of the cylindrical bin type, 189 ft. long, 84 ft. wide. There will be 82 bins, 36 of 20,000 bush. each; 24 of 7,800 bush. each, and 22 of 2,750 bush. each. The tower will be 23 ft. wide, 33 ft. long and 150 ft. high. The shipping capacity will be 80,000 bush. an hour, while the incoming capacity will be 18,000 bush. an hour from boats, and 16 to 18 cars from railway tracks. Provision is made for a second movable tower, and another marine leg. The cost of the elevator is to be \$606,000.

C. P. R. LANDS.

The Canadian Pacific Railway lands consist of the odd-numbered sections along the Main Line and Branches, and in Northern Alberta and the Lake Dauphin District. The Railway Lands are for sale at the various agencies of the company in Manitoba and the North-West Territories at the following prices:

Lands in Manitoba and Assiniboia average \$3 to \$6 an acre.

Lands in Alberta and Saskatchewan with the exception of some special locations where prices range from \$3.50 to \$5.00 per acre, generally \$3.00 per acre.

TERMS OF PAYMENT.

In the case of an actual settler who goes into residence upon and cultivates the land, the aggregate amount of purchase money and interest is divided into ten instalments, as shown in the table below; the first to be paid at the time of purchase, the second two years from date of purchase, and the remainder annually thereafter.

- 160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.
- 160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.
- 160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.
- 160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.
- 160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.
- 160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.
- 160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

Purchasers who do not undertake to go into residence on the land within one year from date of purchase are required to pay one-sixth of the purchase money down and the balance in five equal annual instalments with interest at the rate of six per cent. per annum.

DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Interest at six per cent. will be charged on overdue instalments.

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Grand Trunk Elevators, No. 1 and No. 3, Portland, Me.	"	2,500,000 "
Export Elevator, Buffalo, N.Y.	"	1,000,000 "
J. R. Booth Elevator, Depot Harbor, Ontario	"	1,000,000 "
Cleveland Elevator Company's Elevator, Cleveland, O.	"	500,000 "
Eric R. R. Transfer & Clipping House, Chicago, Ill.	"	100 cars in 10 hrs.
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.	"	1,500,000 "
Burlington Elevator Co., Peoria, Ill.	"	600,000 "
Canada Atlantic Railway Elevator, Coteau Landing, Que.	"	500,000 "
Northern Grain Co., Manitowoc, Wis.	"	1,350,000 "
Union Elevator, East St. Louis, Ill.	"	1,100,000 "
Montreal Warehousing Co.'s Belt Conveyor System		

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Ontario and the Great Lakes.

The Oakville Navigation Co. has chartered the str. White Star for the Toronto-Oakville route this year.

The Toronto Ferry Co. is having built at Oakville, Ont., a screw ferry steamer 95 ft. long, and 15 ft. beam.

J. Playfair & Co., of Midland, Ont., have purchased the tug Traveler for use in connection with their lumber business.

The str. Edna, which was burned in 1901, is being rebuilt at Parry Sound, and will have a new boiler, tested to 150 lbs. pressure.

The Midland Navigation Co. has been granted supplemental letters patent authorizing it to increase its capital from \$200,000 to \$400,000.

The gates for the Port Colborne lock of the Welland Canal have been put into position, and it was expected that the canal would be opened for traffic April 28.

The liquidator of the Prescott Elevator Co. (Ltd.) is offering for sale by tender the elevator at Prescott, together with the 8 barges and a steel tug owned by the Co.

Press reports state that Folger & Co., of Kingston, will inaugurate a daily passenger and freight service between Toronto and Montreal in June, the steamers leaving Toronto in the morning.

We are officially informed that there is no truth in the press report that the steamers of the Canada Atlantic Transit Co. will carry passengers this season between Parry Sound, Ont., and Chicago, Ill.

The str. Montauk, recently purchased by the Algoma Central Ry. Co.'s steamship line, for the upper lakes, has reached St. John's, Nfld., where her registry has been changed from a U.S. to a British one.

The Trent Valley Navigation Co. has placed an order with a Kingston firm for a 55 ft. tug, and is having the str. Ogemah widened to the full width of the guardrails. The latter work is being done at Bobcaygeon.

W. A. Duperow, heretofore chief clerk in the office of the District Passenger Agent G.T.R. at Toronto, has been appointed General Manager and Secretary-Treasurer of the Huntsville, Lake of Bays and Lake Simcoe Navigation Co.

A. P. Cockburn, manager of the Muskoka Navigation Co., has issued a letter to the shareholders which occupies 16 pages of printed matter. It deals with the history of the Co. and with his business and political biography since 1865.

A new company to be called the Ottawa and Rideau Lakes Rapid Transit Co. is in course of formation at Kingston with the object of operating a daily service between Kingston and Jones' Falls. J. C. Judd is one of the promoters of the Co.

The Port Stanley Navigation Co.'s steamer, which is being built at Port Stanley, is expected to be ready by May 24. The launch took place early in April, when the vessel was named the J. Ellison. She is 100 ft. in length, and will carry 300 passengers.

L. D. Holden, Cleveland, Ohio; J. M. Diver, E. C. Barre, F. Coleman, and F. F. Pardee, Sarnia, Ont., have been incorporated under the Ontario Companies' Act as the Sarnia Log-towing Co., with a capital of \$1,000, to carry on a towing business.

It is reported that the Lake Erie and Detroit River Ry. has decided to abandon Port Stanley as the terminal for the coal ferries from Conneaut, Ohio, and to make Rondeau its port. A contract for a coal hoist to cost \$50,000 at the latter point has been let.

The steamers Lakeside and Garden City, owned by the Niagara, St. Catharines and Toronto Ry., have undergone extensive re-

pairs and refitting during the winter, the former at St. Catharines and the latter at the yard of the Polson Iron Works, Toronto.

The str. Rival, of Kingston, has been purchased by A. W. Hepburn, of Picton, for the Bay of Quinte service. The Rival was built at St. Colomin, Que., in 1873, her dimensions being: length, 120 ft.; breadth, 23 ft.; depth, 8 ft. 4 in.; tonnage, gross 125, register 35.

The Minister of the Interior in the House of Commons recently informed M. K. Cowan that permission had been given for the U.S. to proceed with the improvements to the channel in the Detroit river without regard to the exact location of the international boundary line.

A new company purposes to operate steamers between Toronto and Port Dalhousie this season in competition with the Niagara, St. Catharines and Toronto Ry. Co. It is reported that the A. J. Tymon has been chartered for the line, and that a second steamer will be brought in from New York.

The Owen Sound and Georgian Bay Park and Summer Resort Co. (Ltd.) has purchased from the assignee of the Toronto Navigation Co. the screw str. Canada, operated last year between Toronto and Youngstown, the price paid being about \$6,000. The Canada was formerly the Queen City, and was originally the Steinhoff.

J. J. McCaffery, Toronto, has purchased the Mazeppa, at one time owned by the Hamilton Steamboat Co., and will, it is reported, put the steamer on the Bay of Quinte run. The Mazeppa was built at Toronto in 1884, her dimensions being: length, 101 ft.; breadth, 20 ft.; depth, 5 7/10 ft.; tonnage, gross 146, net 87.

At the last session of the Ontario Legislature an act was passed confirming a by-law of the township of Pelee authorizing the issue of \$7,000 debentures for the purpose of subsidizing by way of loan C. Wigle, Amherstburg, to enable him to establish an efficient steamer service between Pelee island and the mainland.

The Lake Carriers' Association of the U.S. is protesting against the projected new power canal at Sault Ste. Marie, Mich., and has induced the War Department at Washington to send a committee of engineers to investigate water levels at that point. The Consolidated Lake Superior Power Co. is building a dam with a view of preserving the levels.

J. Parkin and J. Carew, of Lindsay, have purchased the screw str. Sunbeam, hitherto running between Lakefield and Chemung, and will put her on the service on the Trent Valley canal to open up new routes through the Rosedale lock. The Sunbeam is licensed to carry 220 passengers, her dimensions being: length, 85 ft.; breadth, 18 ft.; depth, 4 ft.

The investigation ordered by the Department of Marine into the loss of the Marine City in Georgian Bay, and of the conduct of Capt. Malone, of the steamer India, in relation thereto, has resulted in Capt. Malone being exonerated from all blame, as he had done all that was possible to rescue the crew. One of the three members of the court dissented from this finding.

The Canada Atlanta Transit Co. will operate the following steamers from Depot Harbor, Ont., to Duluth and Chicago, during the season: Yale, 200,000 bush. capacity; Kearsarge, 150,000 bush.; Arthur Orr, 145,000 bush.; George N. Orr, 142,000 bush., and Ottawa, 110,000 bush. The fleet is the same as last year with the exception of the Yale, which replaces the W. L. Brown.

The Minister of Marine recently stated in the House of Commons that four or five new lights were to be placed in the Georgian bay district during the year, and work on the

hydrographic survey of Lake Superior would be prosecuted this season. The survey of lake Huron had been completed and the charts were being engraved at the hydrographic office in London, Eng.

The Minister of Public Works recently informed E. F. Clarke in the House of Commons that the deep-water channel at Sault Ste. Marie had been dredged by the U.S. Government in Canadian waters with the approval of the Canadian Government. The work of completing the Canadian channel and constructing a pier for steamers at Sault Ste. Marie, Ont., would be shortly completed.

The Collingwood Shipbuilding Co. has elected the following officers for the current year: President, J. J. Long; Vice-President, A. McDougall; Secretary-Treasurer, T. Long; other directors: C. Cameron, P. M. Campbell. The Co. has made arrangements to commence work at the dry dock at once, increasing its size to 530 ft. by 76 ft., so as to accommodate the largest vessels on the lakes.

The Rockport, Ont., Navigation Co.'s officers for the current year are:—Directors, G. H. Burrows, D. Wilson, J. Cook, A. E. Haffie, J. A. Davis; Manager, J. A. Carnegie, Rockport; Sec.-Treas., R. Poole, Poole's Resort. The Co. was rather unfortunate last year, having several breakdowns, but the boat is being repaired, and under the new management better results are hoped for this year.

The Midland Navigation Co. has placed an order for a steel steamer of the following dimensions: length, 369 ft.; breadth, 48 ft.; depth, 28 ft. The engines are to be triple expansion, the cylinders being 20 ins., 33 1/2 ins., and 55 in., with a stroke of 42 in., to which steam will be supplied by two boilers 12 ft. 10 in. by 13 ft., tested to 185 lbs. The steamer will be named the Midland King, and is to be delivered in 1903.

A controlling interest in the Rideau Lakes Navigation Co. is said to have been acquired by the New York Central Rd., and it is stated that a new steamer to be named the Rideau Prince is to be built, so that with the Rideau King and Rideau Queen, a daily service between Kingston and Ottawa can be operated. The new steamer will be 112 ft. long, 28 ft. beam, draft 4.6 feet, speed 14 miles an hour, and will be completed in about ten months.

The Minister of Public Works recently stated in the House of Commons that the following sums had been expended on harbor improvements in Ontario:

	Harbor works.	Dredging.	Total.
Collingwood.....	\$280,203	\$138,274	\$418,477
Meaford.....	97,499	26,602	104,101
Owen Sound.....	262,693	39,104	301,797
Warton.....	71,579	.....	.....

Of these sums \$25,161 was expended at Collingwood during the present financial year; \$18,380 at Meaford, and \$13,516 at Owen Sound.

The Dominion Court of Appeal sitting at Ottawa has heard the arguments and reserved judgment in the appeal by the Crown against the judgment of the Exchequer Court in the case of the King vs. the Algoma Central Ry. Co., to recover the amount of duty at the rate of 35 % on the value of the Minnie M., a steamer purchased in the U.S., which the A. C. Ry. Co. claims can be given a British registry in Canada without paying duty. This contention was upheld by the Exchequer Court, on the ground that the duty on vessels was not specifically imposed by the Customs Tariff Act. (Feb. pg. 75.)

W. Southam, R. O. MacKay and A. B. MacKay, of Hamilton; R. H. Knight, J. C. Boyd and W. B. Rosevear, of Sault Ste. Marie, have been incorporated under the Ontario Companies' Act, as the New Ontario Dock and Coal Co. (Ltd.) with a capital of \$100,000. A plan of the dock proposed to be built at Sault Ste. Marie has been deposited

with the Registrar of Deeds, and application has been made to the Government to approve of the site. It is proposed to provide docks with two slips so that a water frontage of 750 ft. will be obtained; a depth of 20 ft. of water will be provided alongside.

The str. Lincoln has been sold to A. G. Knowles, Sault Ste. Marie, Ont., where she will be engaged in freighting. The Lincoln, which was originally known as the Greyhound, was built at Hamilton in 1888, and was run for a time between Toronto and Oakville. In 1899 she was purchased by R. W. Hamlin and W. G. Thurston and chartered by them to the Lakeside Navigation Co., running in 1899 and 1900 to Port Dalhousie.

Last season she was chartered to the International Navigation Co. and was run between Buffalo and Chippawa. Her dimensions are: length, 130 ft.; breadth, 25 ft. 2 in.; depth, 9 ft.; tonnage—gross 337, register, 219.

The Northern Navigation Co. of Ontario, as foreshadowed in our March issue, has secured the balance of the capital stock of the Northwest Transportation Co. For the present, at least, the N.W.T. Co. will be operated separately under the control of the N.N. Co. I. J. Long, heretofore Vice-President of the N.N. Co., has been elected President, succeeding the late J. Scott. He is also President of the N.W.T. Co., and will take the general management of both companies,

pending the appointment of a general manager, which is talked of. W. Askin is Assistant Manager of the N.W.T. Co. at Sarnia, and A. B. Pratt Assistant Manager of the N.N. Co. at Collingwood. W. D. Matthews, Toronto, has been elected a director in place of the late J. Scott.

The Northern Navigation Co.'s steamers Majestic, City of Collingwood and City of Midland will make weekly trips from Collingwood to Sault Ste. Marie and Mackinac, and the Atlantic will make a weekly trip to Sault Ste. Marie. The Germanic will run from Collingwood on the Killarney-French river route; the City of Toronto will run between Penetanguishene, Midland and Parry Sound, mak-

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MANITOBA

The Government Crop Bulletin issued Dec. 12th, 1901, gives the following statistics for the year:

ACRES.	CROPS.	
	AVERAGE YIELD.	TOTAL.
Wheat.....2,011,835	25.1 bus.	50,502,085 bus.
Oats..... 689,951	40.3 "	27,796,588 "
Barley.... 191,009	34.2 "	6,536,155 "
Potatoes.. 24,429	196. "	4,797,433 "

STOCK.
Number of stock in the Province, July 1, 1901:
Horses..... 142,080 Sheep..... 22,960
Cattle..... 263,168 Pigs..... 94,680
Value of Dairy Products..... \$26,314

18,375 FARM LABORERS
Came from Eastern Canada to assist in the harvest fields of Manitoba in 1899—and the demand was not fully satisfied.

MANITOBA FARMERS ARE PROSPEROUS.
Farmers erected, this year, farm buildings valued at one and one-half million dollars.

MANITOBA LANDS—For sale by the Provincial Government. Over 1,600,000 acres of choice land in all parts of the Province are now offered at from \$2.50 to \$5.50 per acre. Payments extend over nine years. **Special Attention** is directed to 500,000 acres along the line of the Manitoba and Northwestern Railway at \$3.50 and \$4.00 per acre.

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Memphis, Tenn.	Nashville, Tenn.
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Louisville, Ky.	Jacksonville, Fla.
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ing daily trips, and during July and August the Britannic will make three trips a week between Parry Sound and Killarney. The Northwest Transportation Co.'s steamers, United Empire and Monarch, will be on the route between Sarnia, Port Arthur, Fort William and Duluth, as last year. The new str. Huronic will be placed on the service early in the season. These vessels will make connection with the Canadian Northern Ry., and will carry package freight for that Co.

The following vessels will form the fleet of the Algoma Central and Hudson Bay Ry. Co. on the upper lakes this year: Passenger steamers—Minnie M., Ossifrage, and King Edward; freight steamers—Pretoria, 4,000 tons; Matanzas, 3,600 tons; Rappahannock, 3,500 tons; Sacramento, 3,500 tons; Paliki, 2,300 tons; Monkshaven, 2,300 tons; Leafield, 2,300 tons; Theano, 2,300 tons; schooners—J. J. Barlum, 2,000 tons; and H. A. Barr, 1,700 tons. The Minnie M. will be on the run between Sault Ste. Marie and Michipicoten; while the other two passenger steamers will give a weekly service between Toledo, Ohio, Kincardine and other Lake Huron ports to Sault Ste. Marie. Of the freight steamers the four 2,300 ton steamers were in the service last season, the other four steamers representing 14,600 tons, and the two schooners have been chartered in the U.S. The list does not include the two barges operated last year, or the barge now under construction at Collingwood.

Manitoba and the Northwest Territories.

A company has been formed in Winnipeg to operate an excursion steamer on the Red River. The Hudson's Bay Co.'s str. Marquis, which has been laid up for several years at Prince Albert, Sask., is reported to have been purchased by Capt. Bellefeuille and Mr. Cuthbertson for the Co. It is reported that new engines will be placed in the steamer, and she will be taken to Winnipeg for the summer trade. The Marquis is 226 ft. over all, 30 ft. wide, and draws only 2 ft. of water.

The Hudson's Bay Co. is having built in Ontario a small steamer for use on Athabaska lake, Atha. The hull is built of white oak, and has the following dimensions:—Length, 42 ft., breadth, 9 ft., depth, 5 ft. The engine is being constructed by the Polson Iron Works, Toronto, and consists of a vertical marine engine, 6 by 7, and Clyde boiler, 5 ft. 5 in. long, by 3 ft. 9 in. diameter, tested to 150 lbs. After being tested, the hull and engine will be taken apart, numbered, and packed for shipment by rail to Edmonton, Alta., thence by cart to Athabaska Landing, 90 miles, and then by steamer to Athabaska lake, 600 miles, where the steamer will be put together again.

Application is being made at the current session of the Dominion Parliament for an act to incorporate the Lake Superior and Rocky Mountain Navigation Co. The project outlined is to connect Lake Superior with the waterway leading into Rainy Lake, and via the Lake of the Woods to the Red River, and from the Red River through Lake Winnipeg to the headquarters of the north branch of the Saskatchewan. An alternative route is suggested via the Assiniboine river and lakes Manitoba and Winnipegosis to the Saskatchewan river. It is claimed that the only really heavy portion of the work lies in the 20 miles at Lake Superior. McLeod Stewart, Ottawa, is one of the promoters. This project was advocated before the Royal Geographical Society in London, Eng., Feb. 12, 1892, by Captain Sygne, of the Royal Engineers, and the suggested water route was commended by Sir R. Murchison and Major C. Smyth, while a Mr. Crawford thought the scheme "wanting in definiteness and practical character."

B.C. and Pacific Coast Shipping.

The Canadian-Australian line steamers have again commenced calling at Fiji on the run between Vancouver, B.C., and Australian ports.

It is proposed to place the str. North Star on the route between Golden and Windermere lake in connection with the Upper Columbia Navigation and Transport Co.'s fleet.

A contract has been placed with a U.S. firm by Lloyds, for the raising of the C. P. Navigation Co.'s str. Islander, which was sunk, after collision with an iceberg, in Lynn Canal, Aug. 15, 1901.

The Admiralty Tugboat Co. has been formed at Victoria, B.C., with Capt. J. Libby as Manager. Three of the Puget Sound Tugboat Co.'s steamers are to be taken over and two more will be built.

Two stern-wheel steamers have been shipped from Victoria, B.C., to Whitehorse for Capt. E. J. Smith. They will be named Thistle and Caledonia, and will be operated on the Yukon with the Oro, Flora and Nora.

The C.P.R. has ordered at its yard at Nakusp, B.C., a dredge for use in clearing the narrows on the Upper Columbia river between the Upper and Lower Arrow lakes. The dredge is to be completed in the summer.

Two new tugboats are to be built at Vancouver for the Admiralty Tug Boat Co. at a cost of about \$100,000. Their dimensions are: Length, 90 ft.; breadth, 19 ft.; depth of hold, 7 ft. 6 in.; and the engines are to be of 385 h.p.

The U.S. authorities have refused to grant a register to the British steamer Manueaux, owned by E. E. Caine, of Seattle, Wash., which was recently practically rebuilt at Seattle in order to trade from that port to Alaskan points.

The B. C. Salvage Association purposes building a marine railway at Victoria, B.C., and to add machinery for shipbuilding and repairing. W. F. Bullen, manager, recently returned from England where he purchased the necessary plant.

The Victoria Machinery Depot Co. (Ltd.), of Victoria, B.C., has been given permission by the Dominion Government to occupy certain foreshore and submerged ground on the Victoria harbor estate for the construction of a marine railway and wharf.

The Dominion Government purposes erecting a number of beacons on the north shore of Vancouver inlet to allow the deviation of ships' compasses to be ascertained and adjusted. Six beacons are to be erected for this purpose at different points.

The Revelstoke, B.C., Navigation Co. has elected the following officers for the current year: President, M. McCarthy; Vice-President, A. E. Kincaid; Secretary-Treasurer, G. S. McCarter; other directors: T. Kilpatrick, D. Robinson, T. Downie, and T. E. L. Taylor.

It is reported that the C.P. Navigation Co. has prepared plans, and will shortly place an order for a steamer for the route from Victoria to Naas and way ports. She will be built of wood with two decks, and propelled by a single screw. The cost of the new steamer is placed at \$150,000.

The Victoria and Vancouver Stevedoring and Contracting Co. (Ltd.) has been incorporated under the B.C. Co.'s Act, to acquire and carry on the businesses of A. J. C. McDermott, and J. S. Gibson, of Victoria, Vancouver and Chemainus, B.C., and to engage in business as shipowners, shipbuilders, etc.

The arrangement between the trading companies on the lower Yukon river which was in operation last season, will not be renewed this year, and the North American Transpor-

tation and Trading Co., the Alaska Exploration Co., and the Alaska Commercial Co. have announced that they will carry on their business this summer independent of each other.

The Northern Navigation Co., which conducted a navigation and commercial business on the Yukon river, has been incorporated with the Northern Commercial Co., a San Francisco corporation, which also controls the Alaska Commercial Co., the Alaska Exploration, the Empire Transportation Co., and the Seattle-Yukon Transportation Co.

The C.P.R. sectional steamer York, the hull of which was built at the Polson Iron Works, Toronto, and put together at Okanagan Landing, B.C., has been placed in service. The Aberdeen, which has hitherto been on the run to Pentiction, is undergoing extensive repairs. As soon as these are completed the York will be taken to pieces again and removed to Trout lake.

The improvements on the Yukon river are to be continued by the Dominion Department of Public Works, this year. P. Mercier, C.E., has reached Whitehorse, Yukon territory, to take charge of the work. The works to be carried out will improve the channel of the river at lake Laberge, and at Thirty-mile, on which \$25,000 of the appropriation for 1901-2 remains unexpended; and other points on the Upper Yukon.

During the winter the C.P. Navigation Co.'s str. Hating had her engines and boilers overhauled and refitted; and was renamed the Princess May. It is the intention of the Co. to name all their coast steamers after princesses. Tenders for the construction on the Pacific coast for a steamer to replace the Islander were received early in April, but up to the time of writing the order had not been placed.

A number of steamers and barges are reported to have been destroyed in steamboat slough opposite Dawson, Yukon, where the river steamers tie up for the winter. Two vessels were destroyed and others damaged. The loss was put at \$37,000, and one report says that the fire was of incendiary origin. J. Genelle, the owner of the burned steamers, has been arrested on a charge of having procured the burning.

The Victoria Steamship Co. (Ltd.) has been incorporated under the B.C. Companies' Act, with a capital of \$50,000 in shares of \$10 each, to acquire the str. Victoria and carry on a general navigation business. The Victoria is an iron screw steamer, built at Newcastle-on-Tyne, Eng., in 1883, with engines of 300 h.p., her dimensions being: Length, 286 ft.; breadth 38.4 ft.; depth, 25.7 ft.; tonnage: gross, 2,353; register, 1,531.

The steamer being built at Victoria, B.C., for the Hudson's Bay Co.'s Skeena and Stikene river trade, the dimensions of which were given on pg. 111 of our March issue, was specially designed in order to obtain the maximum of speed when meeting the current of the river. The design includes a number of special features which many years' experience on these rivers has suggested, and the steamer in all its appointments will be far in advance of any vessel hitherto constructed for the river service.

Recent press reports states that the C.P.R. is having four steamers built on the Clyde at a cost of \$7,000,000, to have a speed of 21 knots an hour, with a view of making the run from Vancouver to Yokohama in about eight days. As a matter of fact the present shipbuilding programme of the C.P.R. for the trans-Pacific trade contemplates the building of one steamer only, somewhat larger and faster than the Empress fleet, but the order for its construction has not yet been placed.

The steamer being built for the C.P. Navigation Co. by C. S. Swan & Hunter at Newcastle-on-Tyne, Eng., for the Vancouver-

Victoria run, will have a steel hull provided with cellular double bottom, and will be propelled with twin screws, the engines being capable of driving her at a speed of 18 knots an hour. She is to be completed by the end of the year, and will be brought out by the owners. H. T. Richardson, Supt. Engineer of the C.P.N. Co., is in England superintending construction.

The C.P. Navigation Co.'s steamers Princess May (formerly the Hating), and the Amur, were put on the Skagway run on Mar. 30, and April 3, respectively. The Princess May completed her first round trip in less than seven days, making the run to Skagway in 63 hours, including stops; and on the homeward trip had a brush of speed with the Dolphin, the crack steamer running to Seattle, beating her by a considerable time. The average speed of the Princess May was 15 knots an hour, but Capt. Gosse expects to make better speed later on.

The buoying and lighting of the canal reaches between Cornwall and Montreal has been transferred from the Department of Railways and Canals to that of Marine and Fisheries.

The Marine Underwriters in the U.S. have decided not to take any more risks on steamers maintaining charthouses on the bridge,

claiming that they are an inducement to the officers to seek shelter instead of being on the look-out in stormy weather.

Hon. G. E. Foster, Toronto; F. A. Knapp, Prescott; F. Buller, M. Hutchinson, W. H. Stewart and M. J. Baker are making application at the current session of the Dominion Parliament for an act incorporating a company under the title of the Knapp Tubular Steamship Co., to build and operate the Knapp tubular steamships, to do a forwarding business, and to build docks, elevators, warehouses, etc.

The Dominion Parliament, in 1898, passed an act respecting the licensing of steamers and the examination and licensing of the engineers employed on them, under which an inspection fee of \$8 and 8 cents a ton additional is charged U.S. steamers requiring inspection in Canada, except in Ontario. The U.S. Congress has passed an act requiring that a similar charge be made to Canadian vessels requiring inspection in the U.S.

A bill to amend the Pilotage Act is before the House of Commons. It repeals paragraph c, sec. 59 of the Act as amended by chap. 36 of the statutes of 1900, and a new paragraph is inserted exempting from the payment of pilotage dues vessels employed in trading between ports in the same province, in inter-provincial trade, trading between a Canadian port and Newfoundland, or between a Cana-

dian port and New York, or any U.S. port on the Atlantic ocean north of New York; or drawing not over 16 ft. when loaded, trading on the Great Lakes and the St. Lawrence, except within the pilotage districts of Halifax, Sydney, Miramichi and Pictou.

A deputation representing lake shipbuilders recently waited on the Dominion Government to state their views on the future of steel shipbuilding in Canada. It was pointed out that Canadian shipbuilders had to contend with British vessels which had free entry, with foreign built vessels which could obtain a free British registry, and with a duty on materials going into shipbuilding. It was suggested that a duty of 10% should be imposed on foreign built hulls, and 25% on the machinery, and that a bounty of \$3 a ton should be paid on steamships built in Canada to adjust the other inequalities. The Canadian Manufacturers' Association has passed a resolution in favor of paying such a bounty.

The Polson Iron Works, Toronto, has recently received the following orders:—Clyde boiler 6 ft. 9 in., by 7 ft. 6 in. long, working pressure 140 lbs., for the Brunette Saw Mill Lumber Co., Sapperton, B.C. Fitzgibbon boiler, 3 ft. 4 in., by 7 ft. 4 in. long, working pressure, 180 lbs., for S. G. Parkin, Lindsay, Ont. Clyde boiler, 6 ft. 6 in., by 9 ft. long, working pressure, 140 lbs. Fitzgibbon boiler, 6 ft. by 10 ft. long, working pressure, 150 lbs.

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It was lately awarded the only Gold Medal in its section at the Pan-American Exposition, and was a prize winner at Paris.

The Mica Covering is largely used by Railways in Canada, Great Britain and India, also by the British Admiralty.

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THE
Bell Telephone Company
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**Long Distance Metallic
Circuit Lines**

Connecting all the principal Cities, Towns
and Villages in the Provinces of

ONTARIO AND QUEBEC
and the
UNITED STATES.

Sound proof Cabinets at principal
offices and public telephone stations.

Prompt and perfect service at rea-
sonable rates.

The Direct Line

To New York, Philadelphia, Atlantic City,
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The Grand Trunk Railway in connection
with the

LEHIGH VALLEY RAILROAD

Forms the Direct Line from Toronto, Ham-
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the above cities.

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"Black Diamond Express"
(Handsomest train in the world.)

The Great double-track scenic highway,
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Parlor and Sleeping Car Service, Dining
Car Service à la carte. Everything first
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"PHENIX" Loco. Spring Steel is the
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New and Second-hand Rails
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**Locomotives, Cars, Derricks,
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Old Material Bought and Sold.

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MONTREAL**

A beautiful new hotel just built by the Canadian
Pacific Ry., in connection with their new passenger
station. The building occupies an entire block and
the style of architecture is that of the Chateau period
of the French Renaissance. The hotel faces the
Viger Gardens, and is thoroughly up-to-date in all
its appointments. American tourists will find the
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RATES: \$3 UPWARDS.

Special arrangements with large parties and those
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CROSS ARMS, TOP PINS,
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BOOKBINDING

LELAND HOUSE, Winnipeg Man., W.
D. Douglas, Proprietor. Rooms en suite with baths
and all modern conveniences. Rates \$2 to \$4 a day.
Special rates for families and large parties, according to
accommodation and length of time. Though moderate in
price the Leland is first-class in every respect. It is es-
pecially adapted to please the commercial trade. It is in
the centre of the wholesale and retail district. It is in
direct communication with all parts of the city by car
lines. It is supplied with the purest spring water from
flowing well on the premises.

Firebox boiler, 15 in. long, cylindrical part, 8ft. 6 in., diameter, working pressure, 140 lbs., for the Goderich Engine Works. Mosher boiler, 4 ft. 8 in. long, working pressure, 225 lbs., to replace a smaller boiler on T. Eaton's launch, Muskoka lakes. Machinery outfit for a 1 1/4 yd. marl dipper dredge, consisting of a pair of 10 by 12 high pressure engines.

Among the Express Companies.

The Dominion Ex. Co. has moved from the C.P.R. offices at Halifax, N.S., to its new offices on Granville st.

R. B. Colwell, heretofore cashier of the Dominion Ex. Co. at St. John, N.B., has been appointed agent for the Co., at Halifax, N.S.

Navigation to Cape Nome, Alaska, reopened in April, and the Alaska Pacific Ex. Co. is again handling business to that territory.

W. A. Hart, heretofore chief clerk of the Canadian Ex. Co. at Halifax, N.S., has been appointed cashier in the Halifax office of the Dominion Ex. Co.

The Dominion Ex. Co. has moved into its new offices on King St., St. John, N.B. Extensive alterations have been made in the premises to fit them for the Co.'s business.

The Dominion Ex. Co. has opened a route on the Grand Forks and Republic Ry. (Kettle Valley Lines), with offices at Curlew, Danville, Lambert, Republic, and Summit, Wash.

The Dominion Ex. Co. has opened offices at Dearn's Spur, Haslem's Siding, and Winlow's Siding, B.C.; Arrow river, Man.; Crosby, Rockliffe, and Ryerson, Ont.; Quebec Southern Jct., Que.

G. H. McLeod, heretofore cashier of the Great Northern Ex. Co., at Seattle, Wash., has been appointed agent of the Alaska Pacific Ex. Co. at Skagway, Alaska, succeeding E. W. Gideon, resigned.

The American Express Co. has extended its service over the Quebec Southern Ry. between Noyan and Quebec Southern Jct., from which portion of the Q.S.R. the Dominion Express Co. recently withdrew.

J. N. Whitehead, formerly Dominion Ex. Co.'s messenger running between Toronto and Montreal, has succeeded D. J. McFeggan as agent at Parkdale, Mr. McFeggan having been appointed acting Route Agent.

The Alaska-Pacific Ex. Co. gives notice that navigation on the Yukon will open about June 1, and that express matter for Dawson and other river points via Skagway will make quick time. Rates have been reduced materially.

The Dominion Ex. Co. recently handled an express train of nine cars of fresh halibut, one car of canned salmon and one car of hops from Vancouver, B.C., to Boston, Mass. This is the largest single shipment of fresh fish that has ever left the Pacific coast.

The Dominion Ex. Co. has withdrawn its service from the portion of the Quebec Southern Ry. between Quebec Southern Jct. and Noyan Jct., and now transfers express matter to the Q.S.R. Co.'s freight department at Quebec Southern Jct. The Dominion Ex. Co. still operates over the Q.S.R. between Quebec Southern Jct. and Sorel.

D. J. McFeggan has been appointed acting Route Agent of the Dominion Ex. Co. with headquarters at Smith's Falls, Ont. He will relieve G. W. Liddle of, and have charge of, the following territory: all offices on C.P.R. in Ontario Division from Toronto to Green Valley, Ont.; Ottawa to Brockville, Prescott and St. Eugene, Ont.; all offices on Central

Ontario Ry., Kingston and Pembroke Ry., Brockville, Westport and Sault Ste. Marie Ry., Bay of Quinte Ry.; offices on Bay of Quinte boat routes; and following stage routes: Green Valley and Alexandria, Ivanhoe and Belleville, Havelock and Campbellford, Norwood and Warkworth, Myrtle and Oshawa.

Telegraph and Cable Matters.

The Dominion Government telegraph line is to be extended to the Skeena river, B.C., near the Aberdeen cannery.

It is reported that the new owners of the Quebec Southern Ry. will construct and operate a telegraph line along it.

The C.P.R. Co.'s Telegraph is not about to be extended from North Sydney to Sydney Mines, N.S., as recently stated in daily press reports.

The Western Union Telegraph Co. has recently strung an additional copper wire from St. John, N.B., to New Glasgow, N.S., to give increased facilities for the Cape Breton business.

A. M. MacKay, who is connected with the Anglo-American Telegraph Co. at St. John's, Nfld., and who was the first Canadian to copy messages by sound, recently celebrated his 68th birthday.

The C.P.R. Co.'s Telegraph has just completed a wire from Nelson, B.C., to Winnipeg, Man., for commercial purposes. The Co. contemplates making considerable additions to its lines in the Kootenay and Yale districts.

The new telegraph line to Murray, N.S., has been completed, and the office opened. This is an extension of the Dominion Government telegraph lines in Cape Breton. It connects with the Meat Cove line at Barrasois and is eight miles long.

The Dominion Department of Public Works has under consideration the construction of a telegraph line from St. Peters to Minadiou, N.S., with a cable connection to Scatarie island, and a line about 35 miles in length between Gabarus and North Sydney, N.S.

The rates for telegrams on the C.P.R. Co.'s Telegraph from Winnipeg, Man., and Port Arthur, Ont., to all points in Ontario and Quebec has been reduced from 75c. to 50c. for 10 words, and 4c. for each additional word, day rate, and to 40c. for 10 words, and 3c. for each additional word, night rate.

A bill recently introduced by the Government dealing with telephones and telegraphs, was discussed in the House of Commons and withdrawn, but will be reintroduced next year. So far as telegraph companies were affected the bill provided for the consolidation of the law now in force, and for the control of the rates by the railway committee of the Privy Council.

W. Mackenzie, D. D. Mann, Z. A. Lash, E. W. McNeill, Toronto; and R. J. Mackenzie, of Winnipeg, are applying at the current session of the Dominion Parliament for an act incorporating the Canadian Northern Telegraph Co. to construct telegraph lines anywhere in Canada, or to acquire lines already constructed. The capital of the Co. is proposed to be fixed at \$5,000,000.

The all-Canadian telegraph line to the Maritime Provinces now being strung by the C.P.R. Co.'s Telegraph is expected to be completed this summer. The line has already been constructed from Montreal to Quebec, and from Woodstock to St. John, N.B. The route of the portion to be constructed is from Quebec to Levis, thence following the I.C.R. to Riviere du Loup, then following the Tem-

iscouata Ry. to Edmundston, and on to Woodstock.

The all-British Pacific cable has been laid between Australia and New Zealand, and preparations are being made for the laying of the section to Fanning island. At this point about \$125,000 is being expended on buildings and equipment. The Colonia, which will lay the long section between Vancouver island and Fanning island is being fitted out at Newcastle, Eng., where she was launched in Feb. She is the biggest cable steamer in the world, being 500 ft. long, with a capacity of 10,000 tons.

The Dominion Minister of Public Works, in the course of a recent debate in the House of Commons on telegraph facilities in Prince Edward Island, said that the people there had a grievance, and he would see what could be done with the Anglo-American Telegraph Co. when he was in England during the summer. If that Co. would not give improved facilities the Government system might very well be extended, and something might be done with wireless telegraphy under the Marconi agreement.

The Governor of Newfoundland, in his speech at the opening of the Legislature, said: "The government telegraph lines were taken over from the contractor in Oct. and placed under the control of the Post Office Department. My ministers hoped to have been able to arrange with the Anglo-American Telegraph Co., for the erection of a Government line between St. John's and Whitbourne, thus completing the connection of the government system of telegraphs, but I regret to state that the Co. has expressed its inability to meet this desire."

The estimates for the year ending June 30, 1903, passed by the Dominion Parliament provide for the expenditure of the following sums on capital account: to improve roadways and increase operating facilities on the St. Lawrence lines, east of Godbout, \$1,000; for the Alberni-Clohoquot line, B.C., \$2,500; and for a line from Golden to Windermere, B.C., \$1,500. The following amounts chargeable to revenue were also voted: line between Prince Edward Island and mainland, \$2,000; lines in Maritime Provinces, St. Lawrence, Belle Isle cable, and wireless telegraph system at Belle Isle, \$70,000; lines in North-West Territories, \$20,000; lines in B.C., \$15,000; Ashcroft-Dawson line, \$87,500; telegraph service generally, \$2,500.

The Commercial Cable Co.'s report for the year ending Dec. 31, 1901, is as follows:

	1901.	Increase.
Gross earnings.....	\$3,371,063	\$74,913
Expenses.....	1,111,166	94,683
Net.....	\$2,259,897	*\$19,770
Bond interest.....	783,694	63,694
Balance.....	\$1,476,203	*\$83,464
8 per cent. dividend.....	1,066,664	.....
Balance.....	\$ 409,537	*\$83,464
Previous surplus.....	221,066	*7,997
Total.....	\$ 630,603	*\$90,463
Reserve fund.....	500,000	.....
Surplus.....	\$ 130,603	*\$90,463

* Decrease.

Gross earnings as above include the gross of cable and the net earnings of land lines, while the expenses are of the cable lines only. The general balance sheet shows: Assets—Cables, land lines, electric plant, office fixtures, etc., etc., \$35,539,220; supplies on hand, \$352,714; patent rights, \$564; investments in stocks and bonds \$4,449,796; sundry debtors, \$733,688; cash in hands of agents, \$88,909; cash in banks, \$675,745; total, \$41,840,638. Liabilities—Capital stock, \$13,330,300; bonds, \$20,000,000; credit balances, \$649,050; dividend, \$366,665; revenue applied for extension of cables prior to 1895, \$2,250,000; reserve fund,

ASSESSMENT SYSTEM



INDEPENDENT ORDER OF FORESTERS.

THE BEST FRATERNAL BENEFIT SOCIETY IN EXISTENCE.

Cost to Join the I.O.F.

(For \$1,000 Mortuary Benefit.)

Initiation fee (minimum).....	\$1 00
Certificate fee.....	1 00
Registration fee.....	1 00
Medical Examination fee.....	1 50

Total minimum cost..... \$4 50

(For more than \$1,000 Mort. Benefit.)

Cost to take \$2,000 Mort. Benefit..	\$6 00
" " \$3,000 " " "	7 00
" " \$4,000 " " "	9 00
" " \$5,000 " " "	10 00

Sick benefits, when required, cost extra.

Benefits given by the I.O.F.

- 1.—The Mortuary Benefit of \$500, \$1,000, \$2,000, \$3,000 \$4,000 or \$5,000.
- 2.—A Total and Permanent Disability Benefit of one-half of face value of policy, with exemption from further payment of premiums or Court Dues.
- 3.—An Old Age Benefit consisting of exemption from payment of premiums and Court dues after age 70.
- 4.—An Old Age Disability Benefit of one-tenth of face value of policy payable yearly for ten years, on being declared totally and permanently disabled by infirmities of age after the seventieth birthday.
- 5.—An Old Age Pension payable during disability, which may be taken as a substitute for the Old Age Disability Benefit.
- 6.—Free Medical Attendance by Court Physician where not dispensed with by Court by-law; also trained nurses in certain cases.
- 7.—A Sick Benefit of \$3 to \$5 per week, subject to provisions of the Constitution and Laws of the Order; optional, and when taken costs extra.
- 8.—A Burial Benefit of \$100 at death of a Pensioner.
- 9.—A Funeral Benefit of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
- 10.—Social and Fraternal Privileges of the Court Room.

The Members, the Benefits, and the Surplus

At 31st December Each Year.

Year.	Total Membership.	Benefits Paid.	Total Surplus.	Surplus per Capita.	Death Rate per 1,000.
1881	1,019	\$ 1,300 00	\$ 4,568 55	\$ 4 48	4.50
1882	1,134	12,058 80	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	23,499 82	53,981 28	9 30	4.85
1887	7,811	59,014 67	81,584 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,150 36	10 84	5.83
1890	24,604	181,846 79	283,907 20	11 54	6.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	590,597 85	13 49	6.25
1893	54,484	392,185 93	868,857 89	15 76	6.47
1894	70,055	511,162 30	1,187,225 11	16 94	5.67
1895	86,521	685,000 18	1,500,733 46	18 03	5.50
1896	102,838	820,941 91	2,015,484 38	19 60	5.58
1897	124,685	992,225 60	2,558,832 78	20 52	5.67
1898	144,000	1,176,125 14	3,186,370 36	22 12	6.30
1899	163,610	1,430,200 33	3,778,543 58	23 09	6.58
1900	180,717	1,545,145 64	4,483,364 44	24 81	

For Further Information Respecting this Great Fraternal Benefit Society, Apply to

Oronhyatekha, M.D., S.C.R., Toronto, Ont.

John A. McGillivray, K.C., S.S., Toronto, Ont.

James Marshall, 24 Charing Cross, London, Eng.

A. E. Stevenson, 431 E. Sixty-Third St., Chicago, Ill.

Or Any Officer or Member of the Order.

\$4,421,208; reserve for insurance, \$689,809; surplus, \$130,604; total, \$41,840,638. It was decided to increase the number of directors to 15. The retiring directors were re-elected and W. S. Webb and E. Hawley were elected to fill the new positions. G. G. Ward, Vice-President, speaking of wireless telegraphy, said he had every confidence in the ability of the submarine cables to maintain their supremacy in competition with wireless telegraphy, even should it extend beyond its present experimental stage.

The agreement giving the Marconi Wireless Telegraph Co. \$80,000 towards the erection of a station in Canada for sending messages across the Atlantic, in return for certain rights has been ratified by the Dominion Parliament. It provides among other things that any lighthouse in Newfoundland is to be deemed a part of Canada for the purposes of the agreement, and that when the Co. is asked to do so it must provide at lighthouses or life-saving stations a complete installation, or the Government may do so, the Co. being bound to supply the apparatus free of royalties. Such stations, when established, may be used for receiving and despatching messages from and to vessels, each party collecting for its own benefit whatever charges may be made, but the Co. is not bound to accept messages in the United Kingdom for transmission to U.S. points via Canada. A site for the station has been selected at Tablehead, near Glace Bay, N.S., and a contract placed with Rhodes, Curry & Co., Amherst, N.S., for the erection of the buildings.

General Telephone Matters.

A new telephone office is being built at Canning, N.S.

The Bell Telephone Co. recently declared the usual quarterly dividend of 2% payable April 15.

The Bell Telephone Co. has a bill before the Senate to increase its capital to \$10,000,000 in order to extend its system.

The plant for the N. B. Telephone Co.'s new exchange and offices at St. John, N.B., is being installed (Mar., pg. 116).

Crofton, B.C., is being connected with the telephone system of Vancouver island. W. J. Johnson has charge of the work.

The Independent Telephone Co., operating in Victoria County, Ont., is arranging to extend its system cuts Eden and Thorah.

The Bell Telephone Co. has reached an agreement with the town of Sudbury, Ont., to establish an exchange with a long-distance connection.

The Boundary Creek Telephone and Telegraph Co., B.C., has given an absolute bill of sale to the Columbia Telephone and Telegraph Co., for \$3,985.

Application is being made for a charter under the Quebec Companies' Act, for a company to be called the Telephone Co. of La Petite Nation, with head office at Cheneville, Que.

The Victoria and Esquimalt Telephone Co. is stringing cables on its system as far as possible, in order to do away with single wires, 25,000 ft. of cable having been imported for this purpose.

A movement has been started at Stony Creek, near Hamilton, Ont., for the establishment of a local telephone system. J. B. Davis is secretary of the committee having the matter in hand.

The North Bay, Ont., town council has decided to take a vote to decide whether an agreement should be entered into with the Bell Telephone Co., or a local system at \$10 a year should be installed.

At the recent annual meeting of the Valley N.S. Telephone Co., the retiring board of directors was re-elected. The capital has been increased to \$100,000.

The Rat Portage, Ont., town council's agreement with the Citizens' Telephone and Electric Co. for the purchase of the Co.'s undertaking, was ratified at the recent session of the Ontario Legislature.

R. T. Hamilton, heretofore local manager for the Bell Telephone Co. at Owen Sound, Ont., has been appointed Assistant District Manager at Guelph, Ont. He is succeeded at Owen Sound by C. Wildern, of London.

The Kamou-Tem Littoral Electric, which has been incorporated by the Quebec Legislature, has power among other things to operate telephone lines in the counties of l'Islet, Kamouraska, Temiscouata and Rimouski.

The New Brunswick Legislature has passed acts incorporating the M. Welch Telephone Co. (Ltd.), to do business in Carleton County, and the Union Telephone Co. (Ltd.), to do business in York, Carleton and Madawaska Counties.

C. Hancock, who had charge of construction in connection with the Bell Telephone Co.'s improvements at Brockville, Ont., has been given a similar position at Winnipeg, Man. He is succeeded at Brockville by R. W. Leach.

The Bell Telephone Co., in return for a five years' renewal of the present lease, will give Orillia, Ont., business telephones at \$20; house connection at \$15 on a ground circuit; and house and business telephones for \$35 a year on metallic circuit.

The Luther Telephone Co. is being organized, with a capital of \$1,800, to construct a telephone line from Grand Valley to Monticello, Dufferin county, Ont., a distance of 12 miles. A rate of \$10 a year is quoted. Dr. Campbell, of Grand Valley, is President.

A. T. Andrews, W. Williams, M. Wilson, T. L. Morton, R. Galloway, J. W. Armstrong and D. Smith, of Gladstone, Man., are applying for incorporation under the Manitoba Companies' Act, as the Gladstone Electric Light and Telephone Co. (Ltd.), with a capital of \$5,000.

By-laws will shortly be voted on in Fort William and Port Arthur, Ont., providing for the establishment of a local telephone system. The proposed charge is \$24 for business telephones and \$12 for house connections, but the committee claims it may be reduced to \$20 and \$10 respectively.

The Eastern Telephone Co., of Nova Scotia, has issued a circular giving notice that all contracts will be terminated on June 1, and that new contracts will be submitted for signature at new rates adjusted to meet the altered conditions. The new rate for phones in residences will be \$25 a year.

The Vernon and Nelson Telephone Co. proposes making extensive improvements on its lines in the Phoenix, B.C., district. A metallic circuit will be provided, a new main line built on Upper Dominion Avenue, and a new building provided. A number of old lines not now in use will be taken down.

There is being installed in the Windsor Hotel, Montreal, a complete telephonic system by which all the 400 rooms can be connected with each other as required, and connection made with the city and long distance systems. The rooms are to be connected with a switchboard in the hotel, and a connection will be made with "Central" as required.

The Minister of Agriculture recently stated in the House of Commons that there were 55 telephone companies in Canada, of which 44 are in operation, 25 in Quebec, 7 in Ontario, 6 in Nova Scotia, 5 in New Brunswick, 8 in

B.C., 2 in the Northwest Territories, and 1 in P.E.I. The total telephone mileage in the Dominion was 113,294, of which the Bell Telephone Co. owns 94,314 miles.

The Farmers' Electric, Water and Telephone Co. (Ltd.), of Cardston, Alta., has been organized with a capital of \$50,000 to operate a telephone system, etc. The officers are: President, J. W. Woolf; Vice-President, J. A. Hammer; Secretary-Treasurer, M. Woolf. Other directors, A. Archibald, M. Spencer, S. Malkin, T. H. Welford, of Cardston; V. I. Stewart, of Mountain View; and F. Leavitt, of Leavitt.

O. W. Rogers, New York city, has been visiting Toronto, Hamilton, Ottawa and other places in Ontario on the telephone question. He claims to be in a position to establish a cheap system and has offered to install telephones at \$18 a year for business places, and \$12 a year for residences in Toronto; and for \$15 and \$10 a year respectively in Hamilton. He is endeavoring to organize a company in Canada.

The Ottawa City Council has decided to invite offers for installing a telephonic service capable of serving 4,000 subscribers at a rate not exceeding \$20 a year, the service to be equal to that given by the Bell Telephone Co., the new service to be in operation by April, 1903. Ottawa is at present served by the Bell Telephone Co., but the agreement expires in April, 1903, and the citizens recently voted in favor of a corporation-owned telephone service.

Some years ago a telephone line subsidized by steamship agents and merchants was constructed from Halifax, N.S., to Sambro, with pay stations at Ferguson's Cove, Chebucto Head lighthouse, Herring Cove, and Sambro. There is very little local work, and as the annual subsidy from the shipping men is about to expire it is feared the line will be closed down. As the line is mainly used for reporting vessels, an effort will be made to secure a vote for maintenance from the Department of Marine.

E. Ducretet, a French electrical engineer, claims to have invented a system for telephoning without wires. He says: "The transmitter and receiver are much like those in daily use for the ordinary telephone. There is the difference that a small coil is introduced, and the electrical intensity is slightly increased. When the instruments are put down deep in the earth messages can be transmitted over enormous distances. Voices are transmitted without the least difficulty, and the most delicate articulations reach the ear."

In an action brought against the Bell Telephone Co. by the Toronto city council, Judge Street recently decided that the Co. has not power to erect poles and string wire thereon within the city boundary without the consent of the city council. The Co. contended that the Dominion charter under which it operates overrides and nullifies the act of the Ontario Legislature which gives municipalities complete control of its streets. The Judge held that the Dominion act incorporating the Co. was simply a re-enactment of the original act of incorporation, and did not expressly provide that it was no longer subject to the provisions of the Ontario act. The Co. proposes to appeal against the decision.

The bill "Respecting Telephones" introduced into the House of Commons by W. F. Maclean, M.P., has been laid over for a year after having been referred to the committee on railways, telephones, etc. Some of the principles in the bill were objected to by E. F. Clarke, M.P. for West Toronto, on behalf of a number of municipalities. A bill introduced on behalf of the Government was also laid over for a year. The Minister of Justice, Mr. Fitzpatrick, stated that the Government

measure made applicable several provisions of the railway act to both telegraph and telephone companies, and made applicable to telephone companies several provisions of the existing telegraph acts. The new features of the bill are control by the railway committee of the Privy Council of the rates to be charged both by telegraph and telephone companies and also regulations for the exchange of business between the different companies. In order to make the bill one of general application it was necessary to make special reference to existing telephone companies, that is to say as the law now stands there is

but one telephone company in Canada that is at the present time under the legislative jurisdiction of the Federal Parliament, that is the Bell Telephone Company. "My desire," said Mr. Fitzpatrick, "is to make this law one of general application, applicable, as far as possible, to all telephone companies in Canada, and provision has been made in the bill for that purpose. The attempt which I have made to have the provisions of this bill applicable to all the telephone companies in this country is one that will necessarily deserve very serious consideration on the part of the House."

PURCHASING AGENTS' GUIDE.

(Continued from third page of Cover.)

- Trucks (Electric Car)** Montreal.
- Canada Switch and Spring Co.
- Trucks (Warehouse and Express)** Toronto.
- Rice Lewis & Son.
- Varnishes** Montreal.
- McCaskill, Dougall & Co.
- Vessels** Toronto.
- Polson Iron Works.
- Waste** Toronto.
- Rice Lewis & Son.
- N. L. Piper Ry. Supply Co.
- The Queen City Oil Co.
- Wheelbarrows** Montreal.
- James Cooper.
- Rice Lewis & Son.
- Window Blinds** Toronto.
- The Hudson's Bay Company.
- Wines and Liquors** Montreal.
- The Hudson's Bay Company.
- Wire & Wire Rope** Montreal.
- Rice Lewis & Son.
- W. H. C. Mussen & Co.
- The Wire and Cable Co.
- Yachts** Toronto.
- Polson Iron Works.

CANADIAN PACIFIC RAILWAY COMPANY.
TENDERS FOR TRACK TIES, ETC.

Sealed tenders for the supply of track ties, fence posts, telegraph poles and piling required by the company for the next three or five years for the Ontario division will be received up to

THURSDAY, MAY 15TH, 1902.

For specifications and other information apply to John Wanless, Tie Inspector, C.P.R., Parkdale, or to the General Tie Agent, C.P.R., Montreal.

The company does not bind itself to accept the lowest or any tender.

Tenders must be addressed to Geo. H. Webster, General Tie Agent, C. P. Ry., Montreal, and envelopes must be endorsed, "Tenders for Ties, etc."

Three or five years.

GOD SAVE THE KING.
Ontario Jockey Club

WOODBINE PARK, TORONTO
May 22, 23, 24, 26, 27, 28, 29, 30, 31.

The King's Plate, Toronto Cup, Minto Handicap, Red Coat Race, Woodstock Plate, May Handicap, Alexandra Purse, Hopeful Stakes, Liverpool Cup, Stanley Stakes, Valley Farm Handicap, Gimcrack Purse, Thorncliffe Chase, Waterloo Handicap, Street Railway Steeplechase.

Six or More Races Each Day.

Wm. Hendrie, W. P. Fraser,
President. Secretary-Treasurer.

The Northern Electric and Manufacturing Co., Limited

MONTREAL

Contractors for and Dealers in

Electrical Apparatus and Supplies

Experimental and Model Work, Fine Machinery, Special Tools, Patterns, Gear-Cutting, Specialties, Repairs, Etc.

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The Purchasing Agents' Guide

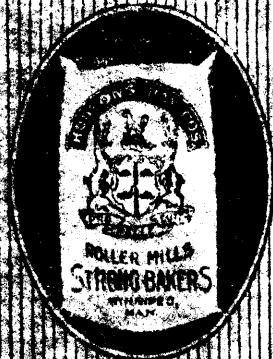
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