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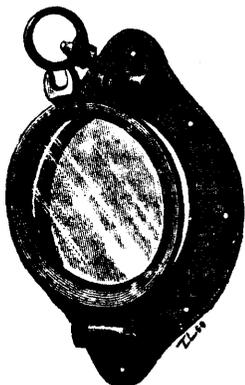
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on third page of cover. * * *

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TORONTO, CANADA, AUGUST, 1899.

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RAILWAY FINANCE, MEETINGS, &c.

Boston & Maine.—A combination on the part of the B. & M. & C.P.R. would not be the most unlikely & unnatural thing in the U.S.—Leonard's Railway News.

In a recent interview Senator Chandler, of New Hampshire, said he felt convinced that the B. & M. system would be acquired either by the New York Central, or by the C.P.R. Among other things he said: "The C.P.R. has greater need of those lines than the N.Y.C. will have after it obtains access to Boston through Albany. The C.P.R. must have access to more important seaports than those of Canada. It must have access to the ocean through New England, and it not only needs that access at Portland, but also at Boston. The C.P.R. managers have of late largely dominated the B. & M., & doubtless will soon make a move towards the possession of the latter's lines. The C.P.R. will not, indeed, dare much longer hereafter run the risk of seeing the B. & M. go into the hands of the N.Y.C. We may therefore expect to see for a little while a lively competition between the C.P.R. & the N.Y.C. for the acquisition of the B. & M., & shortly the surrender of the latter to the ownership & control of one of the great combinations. It is impossible now to tell exactly which, but the C.P.R. has the most at stake, and will make the highest bid, therefore quite likely will be the winner."

C.P.R. officials say there is nothing in the rumors above mentioned.

L. Tuttle, formerly Passenger Traffic Manager of the C.P.R., is now President of the B. & M., & T. A. Mackinnon, formerly Manager of transportation on the C.P.R., is Vice-President & General Manager.

Calgary & Edmonton.—Net earnings for June, \$12,424.66, against \$5,434.20 in June, 1898.

Canadian Northern Ry.—Notice is given that a mortgage deed, dated Feb. 1, 1899, made by the Co. to the Hon. T. Greenway & Hon. R. Watson, trustees & mortgagees, securing a bond issue named by the Co., has been deposited in the office of the Secretary of State. In a speech at Morden recently, Premier Greenway stated that the Government had not been called on to pay a cent under its guarantee of this Co.'s bonds. On Aug. 1 the Co. paid over between \$38,000 & \$39,000 as interest thereon.

C.P.R. Land Grants.—R. B. Angus, G. M. Clark, & J. Turnbull, trustees under the mortgage dated Sept. 1, 1881, securing the payment of 5% land grant bonds, desire to receive proposals for the sale to them of such bonds up to the amount of \$225,000 par value, funds for that purpose being in their hands from sales of lands. The mortgage provides that the trustees may purchase bonds at the

lowest price offered, not exceeding 10% premium on the par value & accrued interest.

Chicago & G.T.—At a special meeting of directors at the G.T.R. general offices Montreal, Aug. 1, there were present, C. M. Hays, President; C. Percy, Secretary; Messrs. Dixon & Howe, of Chicago; Skinner, of Valparaiso, Ind.; Middaugh & Spicer, of Detroit, & Reeve, of Montreal, directors.

Dominion Atlantic.—Earnings for 6 months to June 30, \$255,766, against \$234,972 for corresponding period.

A G.T.R. Suit.—Matthews Bros. & Co., Toronto, are suing for \$8,000 damages for the

the gross receipts for the year ended June 30, 1899, were \$3,738,331, & the working expenses \$3,675,686, including \$211,000 rental for the Drummond County line. This leaves a surplus of \$62,645.

Kaslo & Lardo-Duncan.—The annual meeting will be held at Kaslo, B.C., Sept. 5.

Manitoba & Southeastern Ry.—Notice is given that a mortgage deed dated Feb. 1, 1899, made by the Co. to Hon. T. Greenway & Hon. R. Watson, trustees & mortgagees, securing a bond issue named by the Co., has been deposited in the office of the Secretary of State.

Montana Railways Assessment.

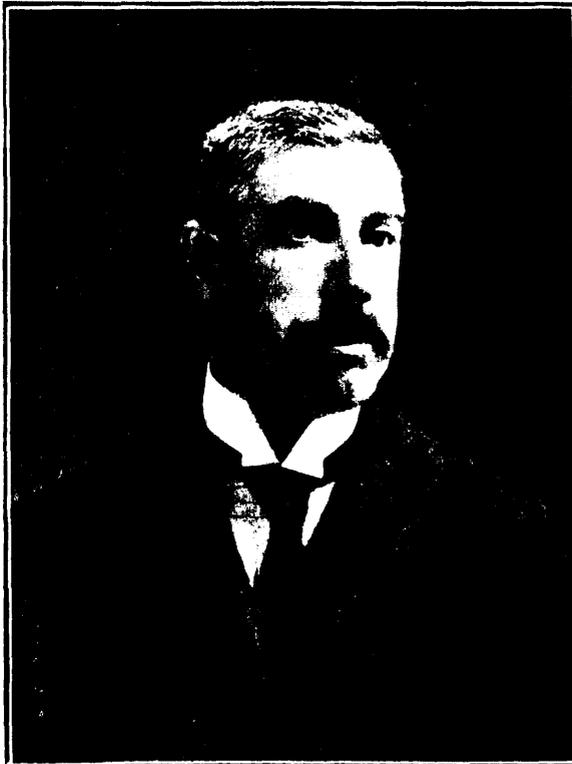
The Montana State Board of Equalization has raised the railway assessment nearly \$3,000,000, fixing it at \$16,651,821, as compared with \$13,793,581 for last year. This assessment includes only tracks, roadway & rolling stock, while the assessment upon yards, depots & other realty & improvements will bring the total taxable valuation of the several roads up to \$26,000,000. The most notable increase was on the line of the Great Northern, which was assessed at \$6,250 a mile, or \$1,550 more than last year. The Northern Pacific's assessment was raised from \$5,200 to \$6,500, an increase of \$1,300 a mile. The Burlington's assessment was raised from \$3,500 to \$5,000, & the Oregon Short Line was increased from \$6,000 to \$7,000. For the first time in its history the board assessed the Pullman Palace Car Co. Each car of the Co. in the State, except those on the Northern Pacific, was assessed at \$4,000. As the N. P. Co. claims to own one-half interest in its sleepers, the Pullman Co. was assessed \$2,000 for each car operated by that line in Montana.

New Brunswick Ry.—At the annual meeting at the C.P.R. offices, St. John, N.B., Aug. 3, the following were elected:—President, R. Meighen, Montreal; Vice-President, J. K. Todd, New York; other directors, Lord Strathcona, J. Turnbull, J. Hardisty, Montreal; J. S. Kennedy, S. Thorne, D. W. James, New York; E. R. Burpee, J. McMillan & H. H. McLean, St. John; Sec.-Treas., A. Seely, St. John; Land Agent, W. T. Whitehead, Fred-

erickton.

Pembroke Southern.—At the annual meeting Aug. 8, the following were elected:—President, T. Murray; Vice President, R. W. Kenning; Sec.-Treas., J. A. Thibodo; other directors, S. R. Poulin, I. Martin, R. W. Gordon, F. E. Fortin, W. Russell.

Port Arthur, Duluth & Western.—The official referee at Osgoode Hall, Toronto, has accepted the tender of Æ. Jarvis, of Toronto, in the neighborhood of \$500,000 for this line. The referee refused to give any information regarding the other tenders, as did Mr. Jarvis regarding who his clients were, but we have no doubt he was acting for the Ontario &



D. B. HANNA,

Superintendent Canadian Northern Ry. & Manitoba & Southeastern Ry.

destruction of their lumber mill & picture frame factory, which they claim was set on fire by a spark from an engine.

The Great Northern Ry. Co. (U. S. A.), has declared its now usual quarterly dividend at the rate of 7% per annum, payable Aug. 1.

The gross earnings for the year ended June 30 were \$24,997,013, an increase of \$2,434,812 over corresponding period.

The usual quarterly dividend, at the rate of 6% per annum, is announced on the St. Paul, Minneapolis & Manitoba, 6% guaranteed shares, payable Aug. 1.

Intercolonial.—The Minister of Railways recently stated in the House of Commons that

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ronto.

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Earls, Chairman.

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PRESIDENT, W. Shanks, Carleton Jct., Ont.; VICE-
PRESIDENT, J. Leslie, Ottawa, Ont.; SECRETARY-TREAS-
URER, J. Drinkwater, Winchester, Ont.

EXECUTIVE COMMITTEE.—The above & J. Shanks,
Montreal; W. Wallace, Ottawa; M. Keefe, Ottawa; J.
R. Brennan, Ottawa.

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Toronto.

NEXT ANNUAL MEETING at Toronto, Sep. 20, 1899.

Canadian Ticket Agents' Association.

PRESIDENT, W. E. Rispin, Chatham, Ont.; 1st VICE-
PRESIDENT, S. O. Perry, St. Thomas, Ont.; 2nd VICE-
PRESIDENT, G. Duncan, Quebec; 3rd VICE-PRESIDENT,
W. H. C. McKay, St. John, N.B.; SEC.-TREAS., E. de la
Hooke, London, Ont.; AUDITOR, S. H. Palmer, St.
Thomas, Ont.

EXECUTIVE COMMITTEE, J. A. Macdonald, Arnprior,
Ont.; W. H. Harper, Chatham, Ont.; C. E. Morgan,
Hamilton, Ont.; T. Long, Port Hope, Ont.; A. Calder,
Winnipeg.

NEXT ANNUAL MEETING at Winnipeg, Oct. 10, 1899.

Canadian Marine Engineers' Association.

HONORARY PRESIDENT, O. P. St. John, Toronto;
PRES., H. Parker, Toronto; 1st VICE-PRES., A. J. Wood-
ward, Toronto; 2nd VICE-PRES., D. F. Campbell, To-
ronto.

COUNCIL, T. W. Good, W. Harwood, R. Binch, To-
ronto; P. J. Carr, Port Dalhousie; J. E. Kane, King-
ston.

TREASURER, H. Brownley, Toronto; SECRETARY, S.
A. Mills, Toronto; GUARD, H. Bowler, Toronto; AUDI-
TORS, D. L. Foley, Toronto; E. J. O'Dell, Owea Sound.

Rainy River Ry. Co. The sale was merely a
legal formality to perfect title.

P. E. I. Ry. Losses.—The Jacques Cartier
Bank, which recently suspended payment
temporarily, lost heavily, in the seventies, in
the Prince Edward Island Ry. enterprise, &
had to suspend payment in consequence.

Qu'Appelle, Long Lake & Saskatchewan.
—With reference to this Co.'s 1st mortgage
sterling bonds, it is announced that the Gov-
ernment subsidy for the 6 months ended June
30, together with the net earnings for the 6
months ended May 31, will permit of a distri-
bution of £1 1/2% in respect of interest due Aug.
1, which is the same as last year.

Net loss in operating for June \$952.97,
against net loss of \$6,680.33 for June, 1898.

Quebec & Lake St. John.—The Railway
Share Trust & Agency Co., of London, Eng.,
states that as soon as the legal formalities
have been complied with, probably some time
during August, a meeting of the bondholders
will be held in connection with the Co.'s def-
ault in interest on its bonds.

Rutland & Noyan.—The 1st annual meet-
ing will be held at Noyan Jct., Que., Sep. 6.

St. Lawrence & Adirondack.—The annual
meeting will be held in Montreal, Sep. 6.

Tilsonburg, Lake Erie & Pacific.—The an-
nual meeting will be held at Tilsonburg Sep. 12.

Grand Trunk.—On Aug. 11 the Directors
declared a dividend for the 1/2 year on the 1st
preference stock, at the rate of 2% per annum,
increasing it from 1 1/2%, & carrying forward
£2,000. The increase caused quite an ad-
vance in the stock, & cables reported a good
deal of excitement in London. On the day of
the declaration the 1st preference opened at
83 1/4, advanced to 83 3/4, then to 84 3/16, &
wound up at 84 1/2 at the close. The 2nd pre-
ferred opened at 54 3/4, & advanced to 56 1/4,
& the 3rd preferred shares went from 22 3/4 to
23 1/8.

C.P.R. Earnings & Expenses.

Gross earnings, working expenses, net
profit and increases or decreases over 1898,
from Jan. 1, 1899.

	Earnings.	Expenses.	Net Profits.	Increase or decrease.
Jan.	\$1,864,570.36	\$1,247,036.50	\$617,533.86	\$101,906.27+
Feb.	1,753,382.82	1,153,681.34	599,701.48	176,034.12+
Mar.	2,109,667.58	1,280,772.01	828,895.57	75,662.06+
Apr.	2,196,312.40	1,276,008.01	920,303.40	203,212.80+
May	2,402,151.29	1,369,392.68	1,032,758.61	106,096.30+
June	2,362,278.67	1,339,218.47	1,023,060.20	205,664.83+
	\$12,688,363.12	\$7,666,109.91	\$5,022,253.21	\$868,576.38+

+ Increase.

Approximate earnings for July, \$2,367,000,
as against \$2,024,000 in July, 1898; increase,
\$343,000.

SUBSIDIARY LINES.

DULUTH, SOUTH SHORE & ATLANTIC.—
Approximate earnings for July, \$238,438; in-
crease over July, 1898, \$64,513.

Net earnings for May, \$74,413, against
\$60,513 for corresponding period, making for
5 months to May 31, \$282,903, against \$185-
847 for corresponding period.

MINERAL RANGE, HANCOCK & CALUMET.—
Approximate earnings for July, \$48,503;
increase over July, 1898, \$13,447.

**MINNEAPOLIS, ST. PAUL & SAULT STE.
MARIE.**—Approximate earnings for July,
\$387,324; increase over July, 1898, \$96,581.

Net earnings, for 10 months, to April 30,
\$2,232,088, against \$2,218,427, for correspond-
ing period.

Canadian Pacific Railway Land Sales.

	Acres.		Amount.	
	1899	1898	1899	1898
Jan.	14,718	22,044	\$46,411.35	\$72,924.83
Feb.	13,747	20,650	43,371.00	66,399.00
Mar.	24,045	33,421	74,430.00	109,010.00
April	36,626	43,145	116,835.00	140,276.00
May	39,573	43,148	125,862.00	137,835.00
June	54,225	49,203	169,234	160,200
July	47,402	39,512	149,546	123,010
	230,336	251,123	\$715,689.35	\$809,654.83

Grand Trunk Earnings, Expenses, &c.

The following statement of earnings sup-
plied from the Montreal office, includes the
G. T. of Canada, the Chicago & G. T., & the
Detroit, Grand Haven & Milwaukee Rys.:

	1899	1898	Increase	Decrease
Jan.	\$1,956,281	\$1,916,332	.....	\$39,949
Feb.	1,824,434	1,674,453	.....	149,981
Mar.	2,180,359	2,048,970	.....	137,389
April	1,942,543	1,918,477	.....	24,066
May	2,039,239	1,940,980	.....	98,259
June	2,062,137	1,880,402	.....	181,735
July	2,105,403	1,860,884	.....	244,519
	\$14,116,396	\$13,240,498	.....	\$875,898

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

GRAND TRUNK RAILWAY.

Revenue statement for May, 1899:

	1899	1898	Increase	Decrease
Gross receipts	£344,300	£322,932	£21,368	.....
Working expenses	208,600	197,744	10,856	.....
Net profit	£135,700	£125,188	£10,512	.....

Aggregate for 5 months, from Jan. 1 to
May 31, 1899:

	1899	1898	Increase	Decrease
Gross receipts	£1,633,200	£1,560,938	£72,262	.....
Working expenses	1,102,500	1,075,699	26,801	.....
Net profit	£530,700	£485,239	£45,461	.....

CHICAGO & GRAND TRUNK RAILWAY.

Revenue statement for May, 1899:

	1899	1898	Increase	Decrease
Gross receipts	£59,300	£61,679	.....	£2,379
Working expenses	50,500	46,669	£3,831	.....
Net profit	£8,800	£15,010	.....	£6,210

Aggregate for 5 months, from Jan. 1 to
May 31, 1899:

	1899	1898	Increase	Decrease
Gross receipts	£339,000	£317,010	£21,990	.....
Working expenses	285,300	251,764	33,536	.....
Net profit	£53,700	£65,246	.....	£11,546

DETROIT, GRAND HAVEN & MILWAUKEE RY.

Revenue statement for May, 1899.

	1899	1898	Increase	Decrease
Gross receipts	£15,400	£14,219	£1,181	.....
Working expenses	14,000	10,753	£3,247	.....
Net profit	£1,400	£3,466	.....	£2,066

Aggregate for 5 months, from Jan. 1 to
May 31, 1899:

	1899	1898	Increase	Decrease
Gross receipts	£71,800	£73,653	.....	£1,853
Working expenses	63,500	59,643	£3,857	.....
Net profit	£8,300	£14,010	.....	£5,710

DETAILS OF G. T. R. RECEIPTS JAN. 1 TO JUNE 30.

	1899.	1898.
Passengers, number	2,857,987	3,007,710
amount	£488,782	£439,421
Immigrants, number	5,310	7,659
amount	£3,414	£3,365
Mails, express, &c.	£94,007	£91,999
Freight, tons	4,841,475	4,509,058
amount	£1,329,052	£1,286,538
Miscellaneous receipts	£65,544	£49,172
Total receipts	£1,980,799	£1,870,605
Increase	£110,194	.....

TRAFFIC RECEIPTS OF THE SYSTEM.

Traffic receipts, Jan. 1 to June 30.

	1899.	1898.	In-crease.	De-crease.
Grand Trunk	£1,980,799	£1,870,605	£110,194	.....
Chicago & G. T.	397,436	380,786	16,650	.....
D., G. H. & M.	89,776	86,886	£2,890	.....
Total	£2,468,011	£2,338,277	£129,734	.....

Railroad construction in the Lardeau-Dun-
can country, the Boundary district & the
Crow's Nest Pass is stimulating the general
prosperity prevailing throughout the Koot-
enay districts. The opening up of the Crow's
Nest coal fields, & the establishment of coke
manufacture are other factors in the progress
of that section. All this activity in mining &
railroad undertakings is giving an enormous
impetus to trade generally, & is creating an
ever growing demand for the products of
British Columbia farmers.—Inland Sentinel.

RAILWAY APPOINTMENTS, Etc.

Canadian Pacific.—S. P. Howard, who has been with the Co. 16½ years & has heretofore been City Freight Agent at Montreal, has been appointed Assistant General Freight Agent, with office in Board of Trade Building, Montreal. For the present he will also discharge the duties of City Freight Agent.

W. Shanks, Roadmaster at Carleton Jct., having resigned, has been succeeded on division 4, between Brockville & Chalk River, Ont., by J. Jelly, heretofore Roadmaster of the Sault branch at Algoma. Mr. Jelly has been succeeded on the Sault branch by W. Kelly, who has been Roadmaster from Cartier to North Bay for a number of years. W. S. Smith, Section Foreman at Nairn Centre, has been appointed Roadmaster from Cartier to North Bay, succeeding Mr. Kelly.

Central Vermont.—W. T. Sutphen has been appointed Chief Despatcher, Northern Division.

J. M. Morrison has been appointed Resident Engineer. Office at St. Albans, Vt.

Duluth, South Shore & Atlantic.—C. E. Lytle, heretofore Superintendent, has been appointed General Superintendent, & has also been given a similar position on the Mineral Range, Hancock & Calumet line.

Grand Trunk.—J. E. Dalrymple, heretofore Division Freight Agent at Hamilton, has been appointed Division Freight Agent, with headquarters at Detroit, Mich., vice Sumner Hopkins, Commercial Agent, Detroit, resigned, & has been given charge of traffic as follows: Eastbound—From Detroit & Port Huron, from connecting roads at Detroit & Port Huron, or from points south of Toledo forwarded via Durand. Westbound—From points East of Niagara frontier destined to points west of Detroit & St. Clair Rivers. J. H. Hanna, heretofore Division Freight Agent at Stratford, has been appointed Division Freight Agent at Hamilton. C. E. Dewey has been appointed Division Freight Agent at Stratford. Mr. Dewey has recently been Chief Clerk to Mr. Dalrymple at Hamilton.

A joint circular signed by General Traffic Manager Reeve, of the G.T.R., & General Traffic Manager Todd, of the West Shore R. R., announces that J. E. Dalrymple has been appointed Manager of the Grand Trunk Despatch, vice Sumner Hopkins, resigned.

First Assistant General Passenger & Ticket Agent Bell, at Chicago, has appointed E. H. Hughes, heretofore Assistant General Passenger Agent there, as Western Passenger Agent, with headquarters there.

H. G. Elliott, heretofore in charge of the excursion department, has been appointed Chief Clerk of the General Passenger Department, succeeding G. W. Vaux, appointed Assistant General Passenger & Ticket Agent. Mr. Elliott was for many years City Ticket Agent of the Central Vermont in Montreal. G. A. Morency succeeds Mr. Elliott.

G. A. Mitchell, heretofore Master of Bridges & Buildings on the Northern Division, has been appointed to a similar position on the Middle Division, with headquarters at Toronto, vice J. Wilson, who has been Acting Master of Bridges & Buildings since J. A. Sheedy's resignation & who has been assigned to other duties. Mr. Mitchell is succeeded at Allandale by E. Brown as Acting Master of Bridges & Buildings. Mr. Brown has been Bridge Inspector at Lindsay.

Lake Erie & Detroit River.—T. Marshall has been appointed Assistant General Freight & Passenger Agent, & K. R. Cameron, Trainmaster; both with offices at Walkerville.

H. W. Foster, M.P., of London, Eng., Chairman of the Kootenay Valley Ry. & Navigation Co., is visiting British Columbia.

Mainly About People.

Mrs. McNicoll, wife of the Assistant General Manager of the C.P.R., has gone to Europe.

J. J. Wallace, General Freight Agent I.C. R., Moncton, N.B., has been confined to his house by illness.

Mrs. C. R. Hosmer, wife of the Manager of the C.P.R. Co.'s Telegraph, is staying at the Algonquin, St. Andrews, N.B.

D. D. Mann is accompanied on his trip to China by E. F. Fauquier, the railway contractor, & by A. M. Burns, who goes as Secretary.

Mrs. Osborne & her four children, who still reside in Montreal, are paying a month's visit to General Superintendent Osborne, of the C. P.R., at Winnipeg.

President Shaughnessy returned to Montreal July 25 from the west, after attending a meeting of the Western Traffic Association & visiting his father at Milwaukee.

E. W. Kelk, agent of the Hamilton & Dundas Ry., is said to have received an appointment on the Newfoundland Ry., to take charge of the express & telegraph business.

E. M. Taussig, Freight Superintendent of the Terminus R.R. Association at St. Louis, Mo., was married recently at Kingston, Ont., to Miss Maggie Turnbull, of that city.

Capt. A. N. McGray, former commander of the Dominion Atlantic Ry. steamer Prince Edward & Prince George, is now first officer on John Drexel's steam yacht Sultana.

General Passenger Agent McPherson & General Freight Agent MacInnes have been making their first trip over the Western & Pacific divisions, to which they were recently appointed.

J. A. Cameron, Superintendent of the C.P. R. at Fort William, Ont., has gone to California on account of ill health, accompanied by his family. W. A. Brown is acting Superintendent in his absence.

Major Percy Girouard, formerly of the C.P.R. Engineering Service, & now Director General of the Egyptian Government Railways, arrived in Montreal July 29, on a visit to his father, Judge Girouard.

On leaving Kamloops, B. C., recently, where he had been station agent, to become C. P. R. Car Service & Fuel Agent at Vancouver, W. O. Miller was tendered a steambout excursion on the Thompson River, & was given a farewell dinner by the Masonic Lodge.

Manager Whyte, of the C.P.R. Western Lines, has recently gone over all the Co.'s lines in British Columbia accompanied by Land Commissioner Hamilton, General Superintendent Marpole, of the Pacific Division, & Commissioner Chipman, of the Hudson's Bay Co.

On Aug. 1 President Shaughnessy started from Montreal for an inspection of the C.P.R. lines to St. John & other points. He was accompanied by D. McNicoll, Assistant General Manager; G. M. Bosworth, General Freight Agent; R. Kerr, Passenger Traffic Manager, & T. Tait, Manager of Eastern lines.

When Assistant General Manager McNicoll, of the C.P.R., returned recently from an inspection trip over the Atlantic division, he found at his residence at Westmount a handsome grandfather's clock with chimes, as a present from the officials of the Passenger Department, from which he was recently promoted.

E. G. Russell, formerly of the I.C.R. train despatcher's office, Truro, N.S., and later Superintendent of the Rome, Watertown & Ogdensburg Ry. until last April, when he went into the service of the Delaware, Lackawana & Western Ry., as Superintendent of

the Morris & Essex division, has been appointed General Superintendent of the D.L. & W., with headquarters at Scranton, Pa.

M. C. Laven, who died in San Francisco Aug. 6, aged 53, was once Superintendent of the Dominion Telegraph Co. for Western Ontario, but for a number of years past has been Auditor of the Pacific Postal Telegraph Co. He was a brother of J. G. Laven, of Hamilton, who until recently was Canadian Passenger Agent of the Michigan Central Ry. Deceased, who was one of the best known citizens of Hamilton in the 70's, left there in 1878 & went to Chicago as Manager of the Western Union Telegraph Co., subsequently going to San Francisco in its interest. There he left the Western Union to become Superintendent of the Postal Telegraph Co., which post he filled for a number of years until appointed Auditor. Appendicitis was the cause of death.

Before leaving Montreal recently to assume his duties as First Assistant General Passenger & Ticket Agent of the G.T.R. system, G. T. Bell was presented by the staff with a handsome tea service. Mr. Bell was born in Montreal in 1861, & commenced his railway career at London, Ont., in 1878, with the Great Western Ry. He was subsequently with that Co. at Hamilton until its fusion with the G.T.R. in 1882, when he removed to Toronto as chief clerk to the Assistant General Passenger Agent, & in 1884 was transferred to Montreal, becoming shortly thereafter chief clerk to the former General Passenger Agent, W. Edgar. Upon the latter's death, in 1892, he was made Assistant General Passenger Agent. In 1896, under the present management, he was advanced to the position of Assistant General Passenger & Ticket Agent.

D. Blythe Hanna, whose portrait appears on pg. 225, was born Dec. 20, 1858, at Thornliebank, Scotland, & his railway service is as follows: 1874 to 1879, Clerk & ticket agent with the Glasgow, Barrhead & Kilmarnock Ry. of Scotland, at Kinnishead, Pollokshaws & Barrhead stations; 1879 to 1882, Cashier Stobcross station, Glasgow, Caledonian Ry. of Scotland; 1882 to 1884, Clerk in Auditors' office & Travelling Auditor G.T.R., Montreal; 1884 to 1886, Clerk General Auditor's office, New York, West Shore & Buffalo Ry., at New York, N.Y.; 1886 to 1892, Chief Accountant Manitoba & North Western Ry. Co., at Winnipeg; 1892 to 1896, Treasurer & Land Commissioner, in addition to the duties of Chief Accountant with the same Co.; 1896 to date, Superintendent of the Canadian Northern Ry. (previously called the Lake Manitoba Ry. & Canal Co.), & the Manitoba & South Eastern Ry.

Canadian Railway Appeal Cases.

Two Canadian cases came before the Judicial Committee of the Privy Council in London, Eng., July 22.

MADDEN & ANOTHER & THE ATTORNEY-GENERAL for British Columbia (intervenant) v. The Nelson & Fort Sheppard Ry. Co. & the Attorney-General for Canada (intervenant). This was an appeal from a judgment of the Supreme Court of British Columbia of Aug. 18, 1897, reversing a decision of Judge Forin in the County Court for Kootenay. The action was brought to recover \$110, the value of 2 horses belonging to the appellants, R. & A. Madden, livery-stable keepers at Nelson, which having strayed on to the respondent company's railway, were injured by a passing train. The company were liable only if they were under an obligation to fence their railway under the Cattle Protection Act of B.C. It was admitted that the railway was not fenced in accordance with the provisions of that statute. The question raised on the appeal was whether the Cattle Protection Act, 1891, was *intra vires* the Provincial Legislature to

any & what extent. The Nelson & Fort Sheppard Ry. Co. was incorporated by an Act of the Legislature of B.C., but by petition prayed that the railway be declared to be a work for the general advantage of Canada, & the Co. a body corporate within the jurisdiction of the Parliament of Canada. Accordingly the railway was so declared by statute, & it was provided that the Railway Act of Canada should apply instead of the B.C. Railway Act. In 1891 the Legislature of B.C. passed the Cattle Protection Act, which, after reciting that railway companies incorporated under the authority of the Parliament of Canada or declared to be for the general advantage of Canada, did not recognize any obligation to fence their lines against cattle, & that it was just that, in the absence of proper fences, the companies should be held responsible for cattle injured or killed, proceeded to make enactments with that view. In the present case the County Court Judge decided that the Cattle Protection Act applied, & that the Co. were liable to appellants for the loss of their horses. The Supreme Court, on appeal, reversed that decision, holding that Provincial legislation, so far as it purported to extend the liability of the Co. beyond that imposed upon them by the Canadian Railway Act, was ultra vires. From that judgment the present appeal was instituted, & the Attorney-General for British Columbia & the Attorney-General for Canada were permitted to intervene in the interests of the Province & the Dominion respectively.

The Lord Chancellor, in delivering the judgment of the Board, said their Lordships were of opinion that the judgment of the Supreme Court ought to be affirmed. The course of the argument had been rather to suggest that there was no express direction of the statute to create any erection or construction of the works of the railway & thus to avoid

the objection of its being ultra vires. But their Lordships were not disposed to yield to that suggestion, even if it were true to say that that was only an indirect mode of causing the construction to be made, because it was a very familiar principle that one could not do indirectly what one was prohibited from doing directly. It was an understatement of the difficulties in the way of the appellants to speak of it as an indirect operation of the statute to enact that the companies should erect fences & provide against the particular class of accident which had happened in the present case, because the Provincial Legislature which passed the enactment seemed to have been under the impression that they were proceeding directly, & the preamble of the statute pointed out what they were intending to do. The Provincial Legislature pointed out by that preamble that the Dominion Parliament had neglected proper precautions, & that they were going to supplement the provisions which in their view ought to have been made, & they thereupon proceeded to do that which they recited & which the Dominion Parliament had omitted to do. It would be impossible, in their Lordships' opinion, to maintain the authority of the Dominion Parliament if such a proceeding were allowed. The law seemed to have been laid down with sufficient precision in the Bon Secours case, where it was decided that, although any direction of the Provincial Parliament to create new works on the railway & make a new drain, & to alter its construction, would be beyond the jurisdiction of the Provincial Parliament, they were not exempted from the municipal law, as it then existed, that all landowners, including railway companies, should clean out their ditches so as to prevent a nuisance. In the present case there was the actual provision that there should be a liability on the railway company unless they created such & such

works upon their line. That was manifestly & clearly beyond the jurisdiction of the Provincial Legislature. For those reasons their Lordships would advise her Majesty that the appeal should be dismissed.

It was intimated by counsel that as the railway company had not entered an appearance, & the case had been argued as between the Province & the Dominion—the respective Attorney-Generals intervening—no costs would be asked for.

ESQUIMALT & NANAIMO RY. CO. v. HOBBS. This was a petition by the Esquimalt & Nanaimo Ry. Co. for special leave to appeal from a judgment of the Supreme Court of Canada of May 30, 1899, to decide whether, as petitioner contends, the mines & minerals under the land should be reserved to it. Their Lordships granted the petition, intimating that the petitioner must pay the costs if it was so decided after hearing the appeal.

Recent Dominion Legislation.

Among the acts passed at the recent session of Parliament, & assented to Aug 11, are the following:—

Respecting the Ontario & Rainy River Ry. Co.

Respecting the Temiscouata Ry. Co.
Respecting the Manitoba & South Eastern Ry. Co.

To incorporate the Niagara, St. Catharines & Toronto Ry. Co.

Respecting the Edmonton District Ry. Co., & to change its name to the Edmonton, Yukon & Pacific Ry. Co.

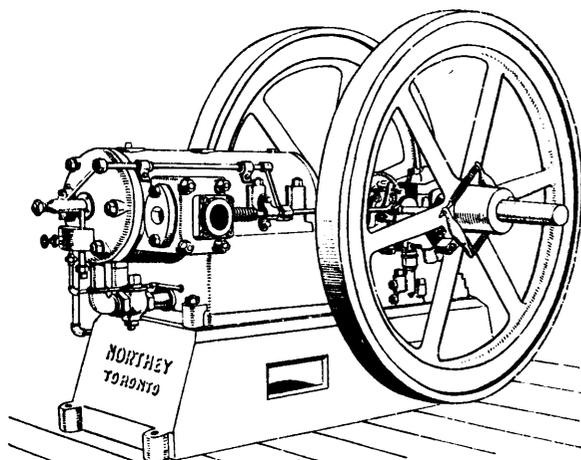
To incorporate the Algoma Central Ry. Co.

To incorporate the Belleville Prince Edward Bridge Co.

Respecting the Montreal Island Belt Line

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Ry. Co., & to change its name to the Montreal Terminal Ry. Co.

Respecting the Buffalo & Fort Erie Bridge Co.

To incorporate the Zenith Mining & Ry. Co. To amalgamate the Ottawa, Arnprior & Parry Sound Ry. Co. & Canada Atlantic Ry. Co. under the name of the Canada Atlantic Ry. Co.

Respecting the Great Northern Ry. Co., & to change its name to the Great Northern Ry. of Canada.

To incorporate the Yale-Kootenay Telegraph Co.

To provide for the establishment of direct submarine telegraphic communication between Canada & Australasia.

To encourage the construction of Dry Docks.

To amend the Act respecting the Sale of Railway Passenger Tickets.

To authorize the acquisition by the Dominion of the Drummond County Ry.

To confirm an agreement entered into by Her Majesty with the G.T.R. Co. for the purpose of securing the extension of the Intercolonial Ry. system to Montreal.

Further to amend the Act respecting the Protection of Navigable Waters.

To amend the Act passed at the present Session of Parliament intituled: "An Act respecting the jurisdiction of the Exchequer Court as to Railway Debts."

To authorize the construction of a branch railway from Charlottetown to Murray Harbor, as a public work.

Further to amend the Railway Act.

Respecting the safety of Ships.

Respecting the Quebec Harbor Commissioners.

Respecting the Harbor Commissioners of Montreal.

To authorize the granting of subsidies in aid of the construction of the lines of railway therein mentioned.

A list of acts assented to earlier in the session was given in our June issue, pg. 177.

American Railway Earnings.

The Financial Chronicle's reports of gross earnings for the first half of 1899 makes a very favorable exhibit, compared as they are with a half year of great prosperity. The largest share of the gain in railroad revenues of the half year has been due to the increased manufacturing output & general business activity. This was already marked even before 1898, but in that year, as in the two previous years, the large crops & their free movement to meet the excellent foreign demand for them, continued to be the determining factor in larger railroad revenues. In the first months of this year the movement of grain was more restricted than in 1898; although the totals have held up pretty well to the figures of previous years.

In June, however, there was a material expansion in this traffic, which accounts for the fact that the gain in gross revenues in that month, \$5,988,000, or over 14% for the roads whose returns were at hand when the figures were compiled, is about twice as large as for any other month this year. The better comparison made by the grain deliveries of June, however, is partly due to the fact that a year ago the movement of cereals was severely contracted as a result of the collapse of the Leiter speculation. That attempt to corner wheat had caused an unprecedented rush of grain to market. With the 1898 grain shipments so largely swelled on this account it is in the nature of things that a large decrease is shown in comparing this year's totals with those of last year. The receipts of grain at the seaboard in the 6 months of 1899 are reported as 184,584,000 bus., against 298,010,000 in the same period last year.

The deliveries of wheat, corn & small grains at the chief western markets reverse these comparisons, for a small gain is shown instead of a loss. The receipts are given as 298,010,000 bus. this year against 283,152,000 in the 6 months to June 3, 1898. The improvement has been due, however, to the free movement of spring wheat; other grains show a loss, corn receipts falling off nearly 7,500,000 bus. for instance, & all the markets outside of the spring wheat district reporting smaller deliveries of grains.

With the activity in industrial affairs contributing so heavily to railroad revenues, it is to be expected that the gains will be shared in pretty generally by roads in different parts of the country. This in fact is shown; no particular group makes a decidedly favorable showing as compared with any other, though the granger lines & the Southern roads, which have been benefited by the activity in the iron industry along their lines, make perhaps the largest gains. It is significant that practically every company reporting its gross earnings for the 6 months reports a higher total than in any of the previous 5 years. Since railroad revenues began to improve in 1895 the railroads whose figures are included in the reports have made an aggregate gain of fully \$120,000,000. The list of companies reporting gains for the half year in excess of \$500,000 show that railroads in every section gained by the heavier tonnage of the year. The companies which report gains of \$500,000 or over in the 6 months are the Chicago, Milwaukee & St. Paul, \$2,220,900; Southern, \$1,090,208; Canadian Pacific, \$1,082,065; Great Northern, \$937,456; Louisville & Nashville, \$895,040; Lake Shore & Michigan Southern, \$714,860; Mexican Central, \$650,499; Grand Trunk system, \$631,381; Wabash, \$606,783; N.Y. Central, \$790,887; Northern Pacific, \$555,004; Denver & Rio Grande, \$537,900. Those lines for which the June figures are not yet obtainable but which report a gain in excess of \$500,000, include the Pennsylvania, \$2,311,800; the Reading Railroad & Coal Companies, \$1,865,105; Lehigh Valley, \$1,537,756; Southern Pacific, \$926,107; Chicago & Northwestern, \$865,297; Jersey Central, \$827,055; St. Paul & Omaha, \$625,376; & Union Pacific, \$578,127.—Railroad Gazette.

A Water Diversion Case.

In the Trial Court of the High Court of Justice of Ontario, July 31, Judge MacMahon gave judgment in Ross vs. C. P. R. Co., an action tried without a jury at Rat Portage & Toronto. The plaintiffs, W. Ross & M. Brown, are owners of mill location 227 P. in the municipality of Rat Portage. They alleged that they & their predecessors in title were entitled to enjoy the free & uninterrupted flow of the waters of the Lake of the Woods into & upon the lands for all purposes, including the development & maintenance of water-power for their mill, & that the defendant, without any right or title, took possession of the lands to the south of the mill location & used them for the purposes of its railway, & constructed a bridge over the arm of the lake extending into the lands of the plaintiffs; & they claimed damages for defendant's wrongful acts. Held, that even if there was a natural watercourse across the river, & even if riparian rights existed as to the location in question prior to 1878, they were absolutely destroyed by the Dominion Government in that year, when it took possession of the ravine for the use of the railway & built the breakwater, & the rip-rap foundation for the bridge or trestle, & any damage resulting from the construction of the railway would be recoverable only by the Province against the Dominion, such damages, if any, having been caused more than three years prior to the railway being transferred by the Dominion to

defendant in 1881. Even had the plaintiffs a valid claim for damages arising out of the embankment being placed across the ravine, their action is too late, not having been brought within six months after the damages were sustained, & besides, their remedy must be by arbitration.

Freight Traffic Matters.

During June 1,665,250 lbs. of ore were shipped over the Kaslo & Slocan Ry., destined for Kaslo, B.C., Everett, Wash., & Omaha, Neb.

The Fitchburg Ry. Co.'s new elevator at Boston, with a storage capacity of 1,000,000 bus., is open & prepared to receive Canadian grain for storage.

In the middle of July the White Pass & Yukon Ry. announced a reduction in freight charges between Skagway & Bennett, of from 5c. to 3c. per 100 lbs.

The Crow's Nest Pass Coal Co. is already providing a lot of freight for the C.P.R., its shipments last month having been 10,000 tons of coal & 2,000 tons of coke.

The Canada Atlantic is carrying about 200 cars of grain a day from Depot Harbor. Up to the end of July over 5,000,000 bus. of grain had been received at Depot Harbor since spring.

The Dauphin district, tributary to the Canadian Northern Ry., has shipped 653,000 bus. of wheat of the '98 crop, a pretty good record for a district which has only been shipping for two seasons.

The British Columbia Government has approved of a freight tariff issued by the B. C. Yukon Ry. Co., for the portion of the White Pass & Yukon line, between White Pass Summit & Lake Bennett.

Freight traffic officials of the C.P.R. have been conferring with representatives of the English syndicate, which is about to erect a mammoth lumber mill at Tobique, N.B., as to the shipment of its output, which will be made either from St. Andrews or St. John, N.B.

This year's enormous harvest in Manitoba will provide a tremendous amount of freight, principally for the C.P.R., & also for the Northern Pacific. Estimates of the wheat yield range from 40,000,000 to 50,000,000 bushels, & it is said 8,000 extra laborers will be required for the harvest work.

A Chicago despatch of Aug. 10, said:—"A sensation was caused at the meeting here yesterday of executive officers of western railways by the announcement that the G.T.R., in connection with the Burlington Road & the Maine Steamship Line, has established a rate of 80c. per 100 lbs. on 1st-class freight from New York to Kansas City. This is the same as the rate from Chicago to Kansas City by the Burlington & other direct lines."

On Aug 1, eastbound freight rates from Chicago were advanced from 1½ to 5c. per 100 lbs. The latter advance is on provisions & the smaller on grain & grain products. The export & domestic provision rates are on the basis of 25c., Chicago to New York. Export corn & wheat rates went up from 9 to 11c., & export oat rates from 11½ to 14c. The domestic rate on all kinds of grain (except corn) & grain products is 17c., instead of 13c. Domestic rates on corn were put up from 11 to 15c.

Parliament has voted \$2,000 to pay expenses of witnesses before the Railway Committee of the Privy Council to give evidence regarding the alleged discriminating of Canadian railways in favor of the Standard Oil Co. Last autumn the Railway Committee cited the representatives of the C.P.R. & G.T.R. to appear & answer charges that they had been giving discriminatory rates to the Standard Oil Co. & against the smaller Canadian &

U.S. concerns. The Railway Committee will probably meet in Sept. to hear evidence in the case.

The C.P.R. has introduced a barge for live stock shipping in Montreal harbor. It is similar to the one introduced by the G.T.R. 2 or 3 years ago. Two large scows have been planked together, after the style of a catamaran, & fittings like stock fittings on a steamer, are erected for about 400 cattle, & an upper deck for sheep. The newest feature is that the Company has initiated a stock-yard in the harbor just above the coal shoots in the east end, having about 300 ft. frontage, where large numbers of live-stock may be kept until wanted. Then the barge is brought into use, & the stock may be taken quickly to any steamer desired, thus avoiding the detention of cars on the docks.

Contracts which have been signed by the G.T.R., promise to give Portland, Me., a big shipping business, the schedule as it stands at present providing for a foreign steamer every

day in cold weather. The contracts include the following: Weekly boats to Liverpool, Allan & Dominion Line; to London, Thompson Line; fortnightly boats to Glasgow, Donaldson Line; to Glasgow, Allan Line; to Bristol, Elder-Dempster Line; to Hamburg, Hamburg-American Line; to Antwerp, Leland Line, & to Manchester, Manchester Line. The fortnightly boat to Antwerp & the boat to Manchester are entirely new to Portland. Other lines not mentioned here may sign contracts later.

The General Traffic Manager of the G.T.R. says:—"It is a fact that nearly every railway in the country is short of cars, & that makes it appear so extraordinary that the roads running east of Chicago should continue the unreasonably low rates that they have had in effect for the past four years. Further, it is doubtful whether the low tariffs have been strictly maintained by some of the lines. We have ceased sending empty cars west beyond the Canadian divisions for some time, as I am

glad to say that the business throughout Ontario & Quebec is keeping our rolling stock fairly well engaged."

The Board of Trade & Town Council of Meaford, Ont., have been in correspondence with the Botsford-Jenks Co., of Port Huron, Mich., with a view to erecting a 500,000 bus. grain elevator at Meaford. Having visited Meaford, the Port Huron people offered to build an elevator to handle not less than 10,000 bus. an hour & to have storage capacity for 500,000, with power & equipment sufficient for a house of 1,000,000 bus. capacity, should the business warrant an enlargement to that size, on condition that a site on the east side of the harbor, 300 ft. square, with harbor frontage, be given free; that there be no taxes levied on the house (except for schools) for 2 years; that the town guarantee to have the harbor dredged to sufficient depth & channel width & provide railway service to the elevator, & that the town pay the Co. a bonus of \$25,000 when the elevator is ready to receive & handle

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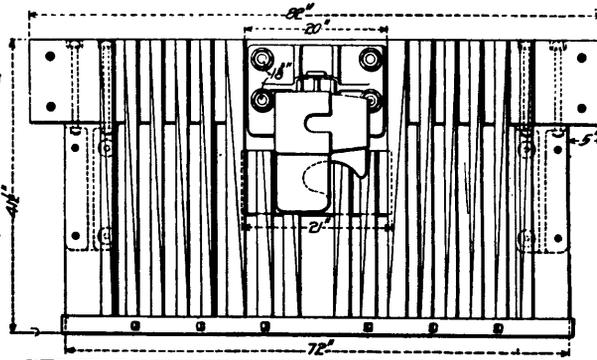
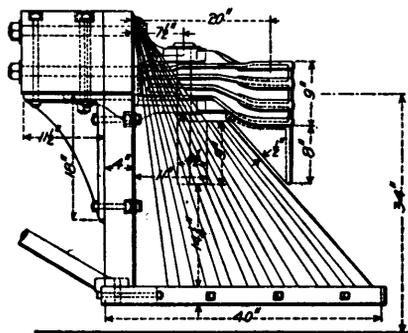
Burnham, Williams & Co., Philadelphia, Pa., U.S.A.

grain. The proposition was favorably received, & a committee was appointed to negotiate with the Government for the dredging & with the G.T.R. for the railway facilities asked for.

At a recent meeting of the Eastern Association of Officers in Charge of Car Service, of which the G.T.R. & Central Vermont Ry. are members, & of which W. H. Rosevear, of the G.T.R., is Vice-President, it was announced that about all the members of that Association had agreed to report to one another the receipt as well as the delivery of cars. This is one of the subjects the Association has been hammering at for several years, & it seems that its work has not been in vain. The new plan now only waits for the members to carry it into effect. Once fairly started by any considerable number of roads it will likely demonstrate its superior usefulness, & other roads will recognize its value & join in the agreement. The small amount of labor entailed will certainly repay the effort by vastly reducing the number of errors & avoiding much unnecessary correspondence.—Equipment Register.

Electrical Lighting of Cars.

It has long been only a question of time when electricity should invade the field of pas-



LOCOMOTIVE PILOT COUPLER, NORTHERN PACIFIC RAILWAY.

senger car lighting. Inventors have for years been working on the problem with more or less abortive results, the principal stumbling block having been the reduction of any system to a point where it would be economical as well as efficient. The progress of electrical development along other lines has been so marked & comprehensive that it would, at any time within the last decade, have been folly to assert the absolute impracticability of the application of electrical power to this purpose. Attention is now being attracted to this matter by the equipment of the better type of passenger cars with apparatus for the generation of electricity from the axle of the car, for illuminating purposes; & a large measure of success appears to have attended the application of a system in which the dynamo is mounted on the axle of the car. In this respect material advantages are gained over a preceding electrical system which used a dynamo in the baggage car operated by an engine, taking its steam from the locomotive, & over a later system of operating a dynamo in the car by a belt from the axle. The mounting of the dynamo itself upon the axle has eliminated expensive & impracticable features inherent to the earlier systems, & has proved itself so satisfactory as to have received the substantial recognition of being placed in service upon several important railroads, including the C.P.R., New York Central, Pennsylvania, B. & O., Boston & Albany, & others. The electrical current, thus generated, is available for use in operating rotary

fans for the more complete ventilation of passenger cars.—Railroad Car Journal.

Railway Equipment Notes.

Additional machinery is being placed in the Canadian Northern Ry. shops at Dauphin, Man.

Three locomotives are being built in the M. C.R. shops at St. Thomas, Ont. The shops are overcrowded with work & the men have been placed on a 10 hour a day schedule, which has not been in force since 1893. Additional hands are also being employed.

The Canadian Northern Ry. has recently purchased 100 box cars & 50 platform cars, all of 40,000 lbs. capacity, for its cordwood & sand business. The Co. has also purchased 2 additional locomotives, cylinders 16x24. These purchases are in addition to those mentioned in our June issue, pg. 169.

Following are the general dimensions of the 2 locomotives mentioned in our last issue as being built for the P.E.I. Ry..

GAUGE.....	3 ft. 6 in.
DRIVING WHEELS.....	48 in. in diameter
CYLINDERS.....	15 in. diameter, 20 in. stroke
FUEL.....	bituminous coal
WEIGHT OF ENGINE.....	65,000 lbs. in working order
TANK CAPACITY.....	1,800 Imperial gallons
DRIVING WHEEL—base.....	7 ft. 9 in.
TOTAL WHEEL—base.....	38 ft. 6 in.

Passenger Traffic Matters.

The Kingston & Pembroke Ry. has had to put on an extra train to accommodate increased travel.

The latest record in landing passengers at Dawson, Yukon, is 10½ days from Ottawa & 6 from Vancouver.

Excursion & passenger traffic is very large over the Canada Atlantic Ry., especially on the Parry Sound end where the beautiful islands of the Georgian Bay are attracting tourists from every part of Canada and the U.S.

It is probable that the C.P.R. will soon inaugurate a 2-hours service between Ottawa & Montreal, & of course the Canada Atlantic will also reduce its time half an hour. The C.P.R. short line roadbed is in excellent shape for fast running.

The British Columbia-Yukon Ry. Co., under which title the White Pass & Yukon Ry. operates on the Canadian side of the line, has issued a passenger tariff between White Pass Summit & Lake Bennett, which has been approved by the B.C. Government.

The C.P.R. time table shows that the Imperial Limited, the through daily transcontinental passenger train, runs from Montreal to Vancouver, 2,906 miles, in 102 hours 45 minutes actual time, 99 hours 45 minutes apparent time; and on the eastbound trip the train

takes 103 hours 10 minutes actual time, or 106 hours 10 minutes apparent time.

A C.P.R. train that left Vancouver July 26 is estimated to be the richest passenger train that ever pulled out of there. In the mail car alone nearly \$2,000,000 worth of gold reposed, & the 250 miners that occupied the coaches carried many small sacks of dust & good drafts. Many of them were bound for Seattle & other Puget Sound points while others went east to their homes beyond the Rockies.

The G.T.R. is erecting on the Toronto Industrial Exhibition grounds an art gallery, in which will be shown the magnificent collection of photographs which the Co. has been exhibiting in a special car throughout the U.S. The building will be of Grecian design, & will be finished in staff, the white material used extensively at the World's Fair. Its dimensions will be 120 by 50 ft., & it will be one story high.

It is said that previous to July 1 an agreement was in effect in accordance with which passengers for the Kootenay country by the way of the C.P.R. & the Soo line were privileged to return via Spokane by either the Northern Pacific or Great Northern, & that the C.P.R. has just notified the officials of the above mentioned roads of a discontinuance of this exchange of business. The difference arose over the subject of division of receipts, the C.P.R. & the Soo line claiming that under the arrangement they were required to

The C.P.R. is making extensive preparations for the moving of the Northwest grain. Twenty new locomotives have recently been sent west for service west of Fort William. The Perth shops are working night & day, turning out 15 cars a day, each of which has a carrying capacity of 60,000 lbs. The Co. is making every possible arrangement to facilitate the rapid movement of the crop.

The carferry Huron, which prior to the construction of the Port Huron Tunnel ran between Port Edward & Fort Gratiot, is being overhauled at Detroit, Mich. Everything above her deck beams will be torn away & replaced by an iron deck. The new deck will be housed over & her stern will be shaped to fit the landings at Detroit & Windsor. When all these alterations have been completed the Huron will be used to transfer trains between Detroit & Windsor.

The standard pilot of the Northern Pacific Ry. is shown in the illustration on this page, together with the steel coupler as now used, which has replaced the cast iron drawhead, for a long time a standard of that road. The casting seen under the coupler is a guard to prevent stock from being wedged between the pilot & coupler. This guard or shield was cast solid with the pattern of drawhead, but is bolted under the new coupler & swings laterally with it, just clearing the pilot slats. The coupler does not uncouple, having simply the M.C.B. contour lines, but no knuckle. It has a limited lateral movement & is held in the central position by springs.

bear an unjust burden of the cost, which the other two roads were unwilling to share.

The first week of August, the great Canadian tourist month, is reported by Toronto railway & hotel officials to have brought forth a great influx of U.S. visitors. The registrations at the various hotels were very heavy, & almost wholly of a transient character. The objective point of the majority of the visitors was Muskoka. The traffic to the north is the heaviest in the history of railroads. Every Muskoka hotel is filled to overflowing, & the influx still continues. Up to Aug. 8 the G.T.R. had carried 13,448 passengers to Muskoka this year, an increase of 6,311 over the corresponding period of last year.

The Charlottetown Board of Trade has petitioned General Manager Pottinger for a reduction of passenger fares on the P.E.I. Ry. from 3c. a mile & for a 2nd class return fare. The petition alleges that owing to the great amount of curvature on the line, the distances to be travelled by rail are much greater than by highway, that the line did not cost anything like as much as the I.C.R. on which similar rates prevail & that the loss in operating the road is largely attributable to the rates charged. The cost of the P.E.I. Ry. is given at \$17,850 a mile & of the I.C.R. at \$59,275. Between Georgetown & Charlottetown the railway distance is 46 miles, the highway 30 miles.

Hamilton Incline Ry.—The new owners of the East End incline railway have started out on a vigorous policy & propose to make the railway & grounds attractive to the public. If business warrants it, the road will in all likelihood be kept open all the year round.

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 the Province of Manitoba average \$3 to \$6 an acre.

Lands in Assiniboia, east of the 3rd meridian, average \$3 to \$4 an acre.

Lands west of the 3rd meridian, including the Calgary District, generally \$3 per acre.

Lands in Northern Alberta and the Lake Dauphin District, \$3 per acre.

TERMS OF PAYMENT.

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 the date of purchase, the third in three years, and so on.

Interest on the outstanding purchase money is payable in one year, except in case of an actual settler who breaks up at least one-sixteenth of the land within that time. No rebate of interest is allowed on hay or grazing lands.

The following table shows the amount of the annual instalments on a quarter section of 160 acres at different prices under the new conditions:

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.

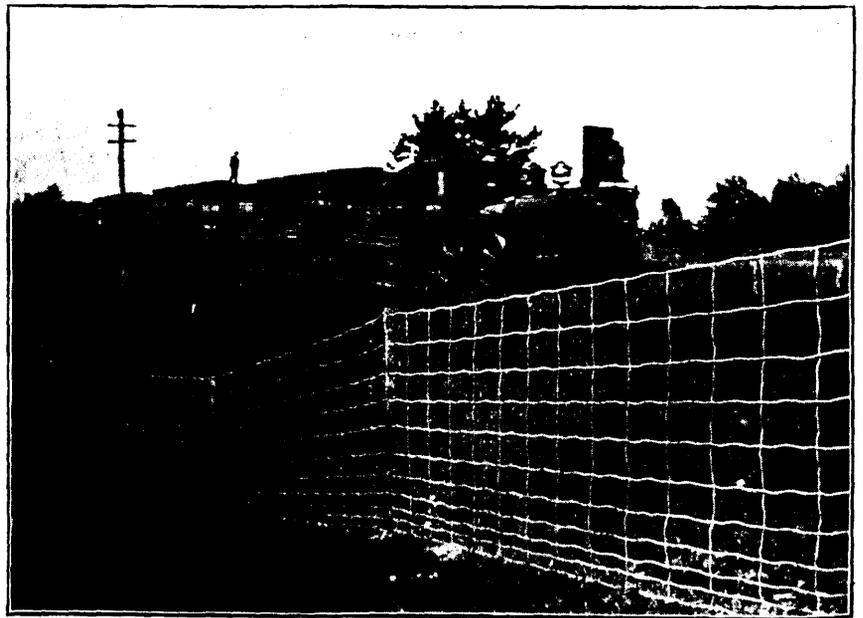
DISCOUNT FOR CASH. If land is paid for in full at time of purchase, a reduction from price will be allowed equal to ten per cent. of the amount paid in excess of the usual cash instalment.

Purchasers paying any instalment, or more, one full year before the date of maturity, will be allowed a discount on the amount of the instalment or instalments so paid at the rate of six per cent. per annum.

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General Waiting Room	Men's Toilet	Freight Office	Lunch Room
Ladies' Waiting Room	Baggage Room	Ticket Office	Smoking Room
Men's Waiting Room	Agent's Office	Telegraph Office	No Admittance

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Power to Build Branch Lines.—In the House of Commons recently J. G. Rutherford, M.P. for Macdonald, Man., asked whether the C. P. R. has the power by simply depositing plans to build branch lines from points on the main line to any point within the Dominion. The Minister of Railways replied that the question was one involving a legal interpretation, & in the absence of any judicial determination he hardly thought it well to give any decisive opinion.

Windsor St. Station. **Montreal.**—Work on the enlargement of this building shows marked progress. All the old buildings along Osborne street have been torn down, & the rubbish has been largely removed or utilized. The foundations have been begun, & the walls will soon rise, a large gang of men being engaged upon the work. The station arrangements for passenger accommodation will be greatly improved, the waiting rooms and arriving sheds both being on the plans for extensive enlargement. The illustrations on this page show the Windsor St. & Osborne St. fronts of the present building & also the building as it will be when the extension which has been decided on has been completed. A pretty full description of the general lay out of the building was given in our May issue, pg. 138. (July, pg. 207.)

Kaladar to Marble Lake.—The Railroad Gazette, New York, recently published the following:—

"It is proposed to build a branch from Kalabar (B. C.) Station to the marble quarries on Marble Lake, via

Flinton, Harlowe & Cloyne, giving access also to the gold, iron & mica mines in those regions."

There is no such place as Kalabar in B.C., but there is a Kaladar station on the Ontario & Quebec division of the C.P.R., 190 miles west of Montreal, & Flinton, Harlowe & Cloyne are points tributary to it in the counties of Addington & Frontenac. C. P. R. officials deny any knowledge of the alleged proposal & we do not think there is anything in it.

Norwood to Apsley.—A delegation will go to Montreal shortly to urge on the C.P.R. management the construction of a branch in Peterboro' County, Ont., from Norwood to Apsley. The route was gone over recently in the interest of the Co. by H. W. D. Armstrong, C.E. (May, pg. 139.)

buildings is well under way & it is expected the roofs will be on by the middle of Oct. The round-house will be provided with sufficient machinery to perform what light & specific repairs are necessary to the engines running out of Rat Portage. The freight shed will be removed to a more convenient location, & warehouse sites will be staked out so as to permit of the business men establishing themselves at convenient points to enable them to handle their goods without cartage. The freight & terminal yards will be rearranged & their capacity more than doubled. (May, pg. 139.)

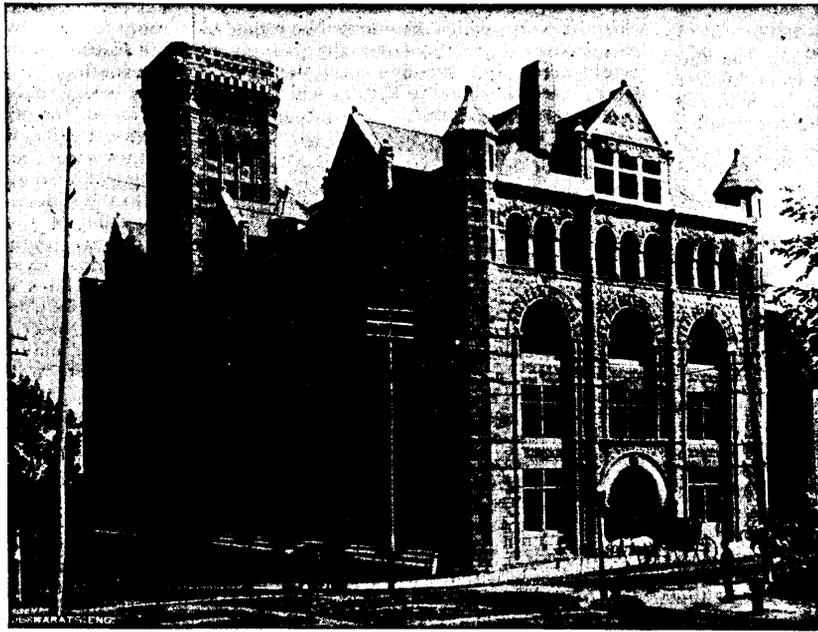
Winnipeg Station & Hotel.—Surveyors have been at work on the site. It is said two more tracks will be laid across Main St.,

Woodstock, Ont.—The handsome new station has been completed & is now occupied for business.

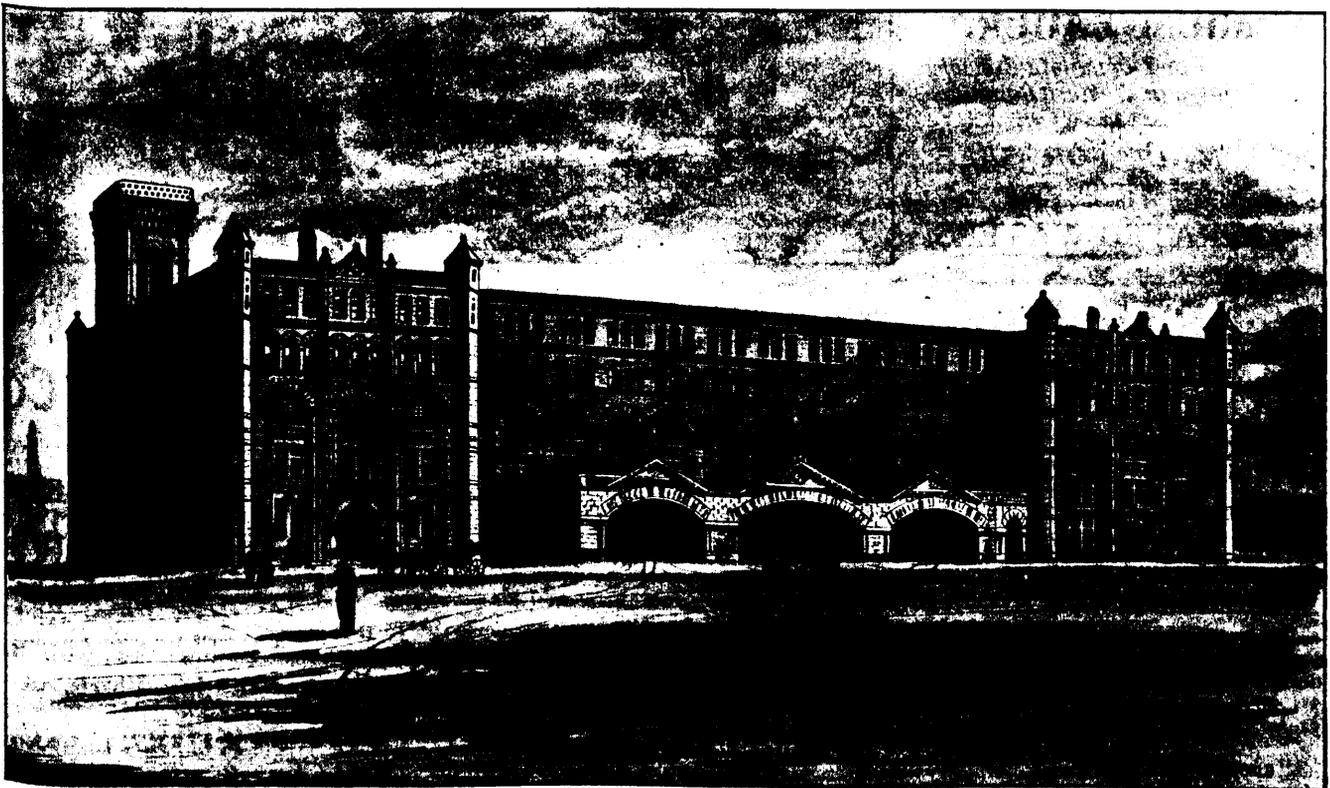
Owen Sound Branch.—It is not probable that the reduction of the grades will be gone on with this year. (June, pg. 172.)

Fort William to Winnipeg.—The sidings between these points are being extended to 4,000 ft. long, double their present length, & are so arranged that they will form part of the second track which will soon have to be built. East of Rat Portage the work will be done direct by the Co., west of Rat Portage J. Sinnot has the contract for. (May, pg. 139.)

Rat Portage.—Considerable work is being done at this division point & lake port. The wooden station is being replaced by a modern stone & brick building, & a 20 stall stone round-house is also being erected. Work on both



WINDSOR STREET STATION AND GENERAL OFFICES C.P.R., MONTREAL.



WINDSOR STREET STATION AND GENERAL OFFICES C.P.R., MONTREAL, SHOWING ADDITION TO BE BUILT.

or rather under it, as a subway is talked of. (June, pg. 172.)

Snowflake Branch.—E. C. Egan has the contract for building this branch from the first siding on the Pembina Mountain branch, 118 miles southwest of Winnipeg, to Snowflake, a distance of 16.3 miles. The character of the grading is average & the line will be completed in time to take out this year's crop. (June, pg. 172.)

Deloraine to Waskada.—It is said a contract for this branch in Manitoba, some 23 miles, has been let to E. C. Egan & that it will be built this year. (July, pg. 208.)

Pipestone Branch.—Track has been laid this season from Reston, 18 miles west to Antler, which is 49 miles from Menteith Jct. It is expected that 50 miles more will be built on this extension this year, into the Moose Mountain district. G. H. Strevel has the contract. The Dominion Parliament has voted a subsidy of \$3,200 a mile for a line from Antler to Moose Mountain, but the Government declined to name the C.P.R. in the resolution, leaving itself free to deal with the Northern Pacific if it should feel so inclined. In the course of the discussion the Premier said the C.P.R. Co. had not applied for a subsidy for this line. (July, pg. 208.)

North Star Mine Branch.—Work was started July 20th on this line, which leaves the Crow's Nest Pass Ry. 2 miles east of Cranbrook, & will be 20 miles long. The North

Star Mining Co. will contribute \$50,000 towards the cost, which amount will be refunded by a rebate of 33½% of the charges on all freight going over the line until the \$50,000 is fully repaid, when the C.P.R. will own the branch. (July, pg. 208.)

Vancouver to Steveston.—W. Whyte, manager of the Co.'s western lines, recently drove over the route from Vancouver to Steveston to see what the business prospects for a line are. He subsequently stated he could not say whether the Co. would seriously consider an extension to Steveston.

Arrowhead to Kootenay Lake.—A strike of good ore was made recently 1½ miles from Duncan City. After the men had stopped work several blasts were fired, with the result that they uncovered some fine looking gold ore. J. McVeigh, one of the contractors, located a claim, & A. L. Dolan another. Since then there have been 8 claims located on the lead, which is about 20 in. wide. Samples of the rock were sent to Nelson & high assays are said to have been obtained.

Columbia & Western Ry.—Rapid progress is being made with the extension of this line from West Robson to Midway, & work is also being pushed on the branch lines described in our May issue, pg. 139. (July, pg. 208.)

A correspondent writing from Grand Forks, B.C., says:—"After many months of surveying & the expenditure of much money, the

C.P.R. engineers have discovered a feasible route for a railway over the divide between the Kettle & Okanagan River valleys & to the south of Camp McKinney. Strange as it may seem, it is said the crossing of this divide at the point indicated has offered the greatest difficulty to engineering skill met with west of the Columbia River, & this was owing not so much to the elevation attained as to the sudden drop off from the summit to the valley of the Okanagan, necessitating a circuitous route or zig-zagging down the mountain. Even this seemed difficult to attain, until lines were run to the north of what is known as Camp McCuddy; but, as apparently engineering skill has triumphed over nature, it may be inferred that the C.P.R. will now take this route over which to build its main line from Midway to Penticton. Should such be the case, branch roads will be run to tap the main & western tributary of the Kettle River, & a junction formed at some point near to & yet east of Rock Creek."

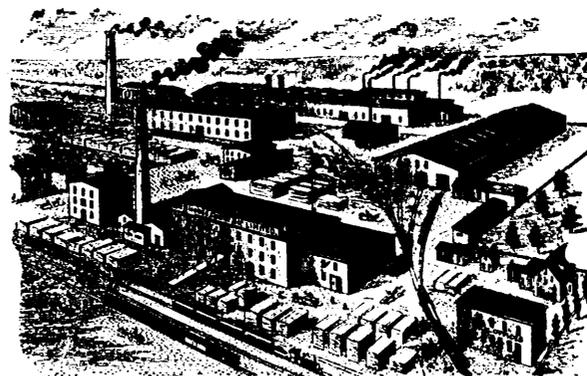
Minneapolis, St. Paul & Sault St. Marie.—Winston Bros. & Halverson have the contract for grading the branch from Rapid River, Mich., near Gladstone, to run northwest 30 miles into Alger County. The maximum grade is 35 ft., & the maximum curvature 4 degrees. There will be ordinary pile & trestle bridges. There are about 200 men & 20 teams at work. The road will tap an agricultural & hardwood timber country.—Official Railroad Gazette.

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Grand Trunk Betterments, Etc.

The two round-houses which are being built at Sarnia & Port Huron are making good progress & will be completed early in Sept. Each will contain stalls for 36 engines.

In regard to the new round-house for Fort Erie, Ont., we were officially informed on Aug. 2 that the plans & location had not been definitely decided upon, nor had it been decided when work would be commenced, but that the erection of the building might be looked upon as a certainty.

The Co. has steam shovels at work in Komaoka pit, where a mile of gravel is being removed every day. Another will be put on this work at St. Regis pit on the south side of the St. Lawrence river to provide ballast for the track between St. Anne's & Vaudreuil. Seven work trains, employing over 600 men, are thus given employment, which will continue for some time.

The galvanized iron sheeting for the completion of the Victoria Jubilee bridge has arrived, & is about to be placed in position. This structure has been finished, to all appearances, for some time past, & in use for trains, but the contractors have been waiting for galvanized iron sheeting to prevent the horses from seeing the trains while crossing on the roadways set apart for vehicular traffic. The road for foot passengers, which is on a level with the vehicle roadways, will be opened for traffic when the sheeting is completed.

Good progress is being made on the double tracking of the line between St. Anne's & Vaudreuil & between Murray Hill & Trenton. Between St. Anne's & Vaudreuil a steam shovel, 2 work trains & 75 men are employed. Between Murray Hill & Trenton there are 2 steam shovels, 3 work trains & 100 men. Some 175,000 cubic yards of earth have to be moved between the last two points, where the grades are being improved, so as to do away with the pusher engine & save at least \$10,000 a year. When double track is laid on the two sections above mentioned the only single track remaining on the Montreal-Toronto line will be between Port Hope & Port Union, 46 miles.

Improved stations are to be built at St. Anne's & Vaudreuil. They will be of limestone & pressed brick & will cost \$14,000 to \$15,000 each. Work is expected to be gone on with at once. General Manager Hays has notified the Mayor of St. Hyacinthe that the Co. cannot now undertake the construction of an improved station there, but hopes that something will be done in that respect before long. Mr. Hays suggests that perhaps the town may be prepared to make some proposals as has been done in other places of placing the assessment on a fixed basis, say for 25 years, so that the Co. would know how it stood. He is prepared to consider any offer made by the town in this respect.

Surveys, Construction, Betterment, &c.

The Alberta Ry. & Coal Co., is said to be considering the standardising of its line from Lethbridge to the International Boundary, which would of course involve the standardising of its allied line the Great Falls & Canada from the Boundary to Great Falls, Mont. All the work done & all the ties put in the line during the past five years have been such as to prepare it for widening. This has been done without any aid being solicited from the Dominion, but now that Parliament has subsidised the Alberta Southern, which is projected to run from Anthracite to the International Boundary west of range 27, it is likely the A. R. & C. Co. will ask for aid to standardise its line to the extent of the difference between the small subsidy already given to it for a narrow gauge line & that granted for standard gauge ones.

Algoma Central.—We are officially informed that 50 miles are to be built this year, 40 on the main line from Sault Ste. Marie towards Missanabie & 10 on the Michipicoten branch. Work on this branch has commenced at the Lake Superior end. About 50 men are employed & the force will be increased as fast as men can be secured. The southern terminus of the branch will be at Sand Beach, on Michipicoten Bay, about a mile east of Gros Cap & 3 miles west of the mouth of the Michipicoten River. Here, in a nice harbor, will be built a commercial dock, 50 x 700 ft., & 2 ore docks, each 100 x 800 ft. The central ore dock will accommodate 4 of the larger lake vessels & the other one 2 vessels. Work on the docks has been commenced. A large boarding house has been erected & additions will be built as needed. Temporary stables have been erected. A month ago Sand Beach was an unbroken wilderness. Now it presents a scene of great activity & enterprise. H. E. Talbot, of Dayton, Ohio, is Superintendent of Construction & E. V. Clergue, Superintendent of the line. The latter says it is expected to complete the docks & the railway as far as the Lake Superior Power Co's mine by the middle of Oct., when the shipment of ore can be commenced. (July, pg. 209.)

Atlantic & Lake Superior.—E. Berryman, C.E., arrived in Montreal Aug 4, having completed an exploration survey between Port Daniel & Gaspé Basin. The railway will reach Gaspé Basin by the valley of York River, following that stream for about 20 miles. The length of the projected railway from Paspebiac, where the rails now end, to Gaspé will be about 90 miles. Mr. Berryman says that many surprises are in store for those who visit the Gaspé peninsula for the first time, as the timber resources of that district are a revelation to even those who are familiar with the Lake St. John & St. Maurice regions. It is, he adds, a province all to itself, & with a trunk line built down through the peninsula & 2 or 3 short feeders stretching out north & south an era of remarkable development will undoubtedly set in. He added that now that the subsidies for the railway have been voted, work on both ends will be commenced at once & that he will at once locate a section westward from Gaspé. He speaks highly of the quality of the soil along the St. John & York rivers, & expresses the opinion that with a railway & a market at their back, room will be created for a large and thriving agricultural population. (May, pg. 132.)

Bay of Quinte.—Parliament having revoked \$3,200 a mile for 10 miles to enable this Co. to connect its line with iron or other mines or other mineral or wood lands in the counties of Peterboro, Northumberland, Hastings, Lennox & Addington, Frontenac or Leeds, Ont., it is said that if iron is found in paying quantity & of good quality there is a probability that the road will be extended at an early date.

The Canada Atlantic is filling up a large gully at its Rideau yards, Ottawa. It is a 2 month's job for a steam shovel & 2 trains, which are hauling the earth from Eastman's springs.

Heavy steel will soon be laid from Ottawa to Bearbrook, 20 miles, which will complete the heavy rails to Coteau & will permit of faster running time.

Canadian Northern.—Doubts are expressed in Winnipeg as to whether the 25 mile branch from Dauphin into the Gilbert Plains district, for the construction of which arrangements were made with the Manitoba Government, will be built this year. When in Winnipeg recently D. D. Mann said it would depend upon whether rails could be obtained. (June, pg. 175; July, pg. 209.)

Grading beyond Cowan, the terminus of last year's construction, is going ahead, although perhaps not with the same rapidity as

the Co. may wish, owing to heavy rains. Track laying is being proceeded with & up to Aug. 15 10 miles had been laid beyond Cowan. If the conditions continue favorable the Swan River should be reached early in Sep., & it is expected that Red Deer Lake will be reached before snow flies. Nothing definite has been decided as to the point at which the Saskatchewan River will be crossed. Surveys to decide this are being made. (July, pg. 209.)

Repair shops are being erected at Dauphin.

Central of New Brunswick.—The Dominion Parliament having voted a subsidy for an extension of 30 miles from the Newcastle coal fields to Gibson, there is a prospect of work being gone on with this year, though no definite information is obtainable. A preliminary survey has been made. (May, pg. 133.)

Coast Ry. of Nova Scotia.—We are officially informed that the grading to Barrington, on the 20 miles extension from East Pubnico to Barrington, is practically all completed & will be finished by the end of Aug. Seven miles of track have been laid from East Pubnico to Upper Wood's Harbor, & ballasting has commenced. An extra engine has recently been bought for facilitating construction work. The contract for fencing has been let, & the work is being done. Contracts for the bridges were let some time ago & the shipment of the superstructures is daily expected. Work is being pushed on the station buildings. It is expected to open the road to Barrington Passage by Oct. 1, & it is likely some work will be done beyond Barrington this season. (July, pg. 209.)

Great Northern of Canada.—Work on the extension from Shawanegan westward, is advancing rapidly. The work of the sub-contractors, who have charge of 5 or 10 mile sections along the line, is far advanced. Work on the bridge over the Ottawa River at Hawkesbury, which is the most important structure on the whole line, has been started, & although there are 7 spans of 204 ft. each, the 8 piers will be ready to receive the steel superstructure before cold weather sets in. For some time past, men have been at work preparing the stone for this bridge, & already 800 of the 2,700 yards of stone required, have been cut & put in position. Besides the stone works, about 2,000 yards of concrete will be used in the construction of this bridge. It will not be necessary to go down very far to secure rock bottom, but the water where one of the piers is to be constructed is about 15 ft. deep, & in 2 or 3 instances caissons will have to be built. The section from St. Jerome to Hawkesbury, the last portion given under contract, which is 35 miles long, & takes in 2 important bridges near Lachute, is also very far advanced. Stone is being rapidly quarried for these structures, & will be completed this season. The grading of the portion between Shawanegan & Montcalm, a distance of 53 miles, is far advanced also, & fully 9-10 of it is completed. About 11,500 tons of rails will be required & 9,000 tons have already reached Canada. The laying of them is progressing rapidly, the first having being put down east of Joliette. As fast as the rails are down the ballasting is begun by 2 ballast trains, 1 steam shovel & many laborers. The station buildings & the fencing are also being attended to. The Joliette station is to be commenced immediately. Right of way has been procured east of Montcalm, & probably for 2/3 of the remaining distance west of St. Jerome. From all indications trains will be running from the St. Maurice to the Ottawa before March, although the contractors have until May to complete the work. Had it been possible to secure the superstructure for the bridges in time, the line would have been complete before the end of 1899. (July, pg. 209.)

Under power conferred on them at the re-

cent session of the Dominion Parliament the Quebec Harbor Commissioners have decided to guarantee interest on bonds for \$200,000 for the erection of an elevator by this Co. at Quebec.

Great Northwest Central.—The promise of Vice-President Shaughnessy of the C.P.R. that this line would be extended this year is being carried out. The line now runs from Chater 5 miles east of Brandon, on the main line of the C.P.R., to Hamiota 56 miles. Contracts were recently let to J. D. McArthur & A. Fisher for its extension 25 miles further, which will carry it to Parkisimo, south of the Beulah Indian reserve on the Assiniboine River. Work has already been commenced. The engineering for the construction is being done by G. H. Webster, Engineer of the Manitoba & Northwestern Ry. (June, pg. 175.)

Winnipeg advises say that construction has been started on a line from McGregor, on the main line of the C.P.R. 22 miles west of Portage la Prairie, to a point near Forrest, or Varcoc, on the Great Northwest Central. It is expected this line will be completed next year. It will run between the main line of the C.P.R. & the Manitoba & Northwestern Ry., & will occupy the ground over which the Northern Pacific intended to build a branch from Portage la Prairie. In view of this construction it is hardly likely that the Northern Pacific will extend its branch very far beyond Portage la Prairie.

Intercolonial.—After many delays work is said to be progressing rapidly on the elevator at Halifax. On July 29 the Chronicle stated the roof was on the main building & the greater portion of the frame of the cupola was in position, the lower part of it being covered in. The conveyer was also all covered in & the engine beds were nearing completion.

The crib work for the wharf at the deep water terminus at St. John, N.B., is being placed in position. When all is completed there will be a mass of birch timber $\frac{1}{4}$ of a mile long, 60 ft. deep & 50 ft. wide.

James Bay.—The Dominion Parliament having voted subsidies towards the construction of 5 miles from the main line of the Ottawa, Arnprior & Parry Sound Ry. to the town of Parry Sound, & for 20 miles from Parry Sound northerly towards Sudbury, negotiations are in progress for going on with the work. It is understood a by-law will be submitted to the rate payers of Parry Sound to grant a cash bonus of \$12,000, exemption from taxation for 21 years, & such water frontage as the town holds. (June, pg. 175.)

Kingston & Pembroke.—The Dominion Parliament having voted a subsidy towards the construction of 5 miles of branches from the main line to the iron mine at Bluff Point, & to the Martele mine, Renfrew County, it is said the work will be done at once & that ore will be moving to Kingston en route to the furnaces before navigation closes.

Manitoba & Southeastern.—Considerable work has been done lately in improving the roadbed of the completed portion, between St. Boniface & St. Anne, & it is now in good condition. Construction is in progress toward the International Boundary & it is hoped to have the line finished to that point before the close of the season. (July, pg. 209.)

Michigan Central.—A local paper says that should the proposed running arrangement be made between the L.E. & D.R.Ry. & the M.C.R., whereby the former will run over the Canada Southern from Ridgeway to St. Thomas, the M.C.R. will likely be double tracked from Dutton to Ridgeway.

Midland of Nova Scotia.—Grading is reported to be completed 45 miles from Windsor, N.S., towards Truro. It is expected the remaining 15 miles will be completed by Sep. 1. Track laying is progressing rapidly. (July, pg. 209.)

Northern Pacific.—The Railway Committee of the Privy Council having granted this Co.'s subsidiary, the Portage & Northwestern Ry., permission to cross the C.P.R. & M. & N.W. R. tracks near Portage la Prairie, a contract has been let to A. Guthrie, of St. Paul, Minn., for the construction of 20 miles of line from Portage la Prairie northwesterly & a spur to Lake Manitoba. (June, pg. 176.)

Speaking at Rapid City recently Premier Greenway said: "When the N. P. R. asked the Government for a bonus to build west from Portage la Prairie, the Government had asked for some concessions, one of which was that there must be a reduction in rates charged in distributing lumber. The Co. refused this & would rather build the road for nothing if the Government would legislate & secure the crossing of the C.P.R. track. This was done & the crossing secured at Ottawa at the instance of the Greenway Government, & this is how matters stand."

The remains of the Manitoba Hotel in Winnipeg have all been pulled down & the rebuilding of the Co.'s offices is being proceeded with rapidly. It is expected they will be ready for occupancy by Sep. 1.

The survey party working on the proposed Waskada branch in southwest Manitoba has been withdrawn, & it is understood this field will be left to the C.P.R.

Ontario & Rainy River.—Since the Dominion Parliament voted the subsidy for this line the management has been very active. Warehouses have been established for the supply of material for construction at Finmark, on the C.P.R., 30 miles from Stanley, & at Kashaboie Portage & Baril Portage, about 65 miles & 90 miles, respectively, from Stanley. Tugs have been put on Lac-des-Mille Lacs & Kushaboie Lake; scows have been built & supplies are being delivered to the above points. Contracts for grading beyond the 20 miles already under construction by E. F. Fauquier have been let as follows: John O'Neal & J. R. Turnbull, 6 miles each; A. R. Mann, 4 miles; McGillivray & Leeson, 20 miles, & 10 miles in 2 contracts; L. Madigan, 5 miles; H. Mann, 5 miles, in the order named going west; & all these are to be finished at dates to permit the track to be laid over the 1st 80 miles by next June. The first 20 miles from Stanley is graded practically now, & track-laying will be begun on it as soon as the rails arrive, which will be within a few days. Forty miles of ties are delivered ready for track-laying. The bridging has been let to J. R. Turnbull, late Assistant-Manager Crow's Nest Pass Ry. construction, & the timber is being furnished by J. Conmee, M.L.A. Owing to the impossibility of obtaining a steel bridge for the crossing of the Kaministiquia River in time to permit of proceeding with track-laying, a temporary crossing of the river has been obtained by making the false work for the steel structure strong enough to carry trains. This structure when finished will consist of two steel spans of 125 ft. each. The contractors to whom the aforementioned works are let have their outfits en route to the work, & some part has already arrived. Arrangements have been made with A. Calder, of Winnipeg, to supply the labor, & men are already arriving in considerable numbers on the work. (July, pg. 209.)

Ottawa & Gatineau Valley.—The proposed extension from the present terminus at Gracefield, 60 miles from Ottawa, to Maniwaki, 28 miles, is not likely to be built this year, but it is expected that about 15 miles will be finished, which will carry the line from Gracefield to Blue Sea Lake. (June, pg. 176.)

The Ottawa & New York Ry. expects to complete the bridge over the south channel of the St. Lawrence at Cornwall in October, which will enable it to provide a through service between Ottawa & New York. The structure is one of the largest in Canada & when completed will cost in the neighborhood of \$750,000. It would have been completed

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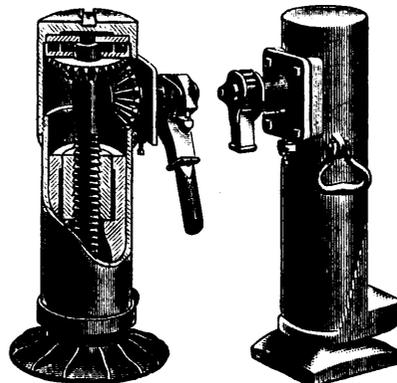
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months ago but for the accident in Aug. last when one of the piers collapsed, resulting in the death of several workmen & seriously impeding the progress of the work. Operations had to be entirely gone over & to do the work thoroughly a great deal of time & expense has been necessitated. The bridge over the north channel is completed & work is being proceeded with day & night on the remaining portion, the men working in 3 gangs, 8 hours each. It is expected that the through service will be established in Oct. or Nov. (July, pg. 210.)

St. John Valley Railway.—J. H. Miller, of New York City, states that construction will begin this fall & that it is expected to have the road finished by July 1900. The route will be from Fredericton to Lower Woodstock, thence to Houlton, Me., to connect with the Bangor & Aroostook R.R. The line will be operated as a local institution. (May, pg. 137.)

White Pass & Yukon.—We are officially informed that a large force is still at work on the line between Skagway & Lake Bennett, 42 miles, ballasting & perfecting the grade & alignment. Work has not been commenced upon construction beyond Bennett towards Fort Selkirk, but the management anticipates that a force will be located on that line before winter opens. A large amount of freight is going in over the line & there is considerable tourist travel in addition to that of miners & prospectors. The line has been built by the Pacific Construction Co., & is expected to be turned over to the railway company about Aug. 20. The 42 miles between Skagway & Lake Bennett are said to have cost about \$2,000,000 exclusive of equipment. (July, pg. 210.)

The management has no information respecting the proposed line to be built by Capt. W. Langley from Taku City to Atlin. (June, pg. 176.)

Railway Operating Flatters.

More than 2,000,000 trees have been planted along the line of the Northern Pacific in Dakota, to serve as protection from snow-drifts.

The Central Ontario Ry. has placed an order with the Acton Burrows Co., Toronto, to equip its stations & station platforms with enameled iron "No Smoking" signs.

On Aug. 2 some 250 men in the G.T.R. shops at Port Huron, Mich., struck, owing to the employment of a non-union man. They returned to work the following day without having obtained any concession.

We unhesitatingly endorse the following from the Sarnia Observer: "Now that the Port Huron, Mich., authorities are enforcing the alien labor law with respect to Canadians employed in the G.T.R. shops in that city, it behooves the authorities here to pay the same kind of attention to the men who work in Sarnia but reside in Port Huron."

The last two clauses of the Minister of Railways bill to amend the general Railways Act, which proposed to empower the Railway Committee of the Privy Council to order the location of stations to suit the public convenience & to frame running rules for use by all railways, were abandoned. The last mentioned provision should never have been introduced.

It was stated in Winnipeg on July 31, that the C.P.R. locomotive drivers & foremen had come to an amicable arrangement with general Superintendent Osborne as to the changes desired in their schedule, & the delegates were returning to their respective divisions. The trainmen were likely to settle matters that day. One of the principal points they urged, that express messengers should not be required to handle baggage, in place of the regular baggage men, was expected to be agreed to.

The locomotive drivers & firemen of the G.T.R. have been notified by their committee, which has been in almost daily consultation with F. W. Morse, Superintendent of Motive Power, for the last couple of months, that an increase of wages has been agreed to by the management. Concessions, it is said, have been made on both sides, & the good feeling existing between the employes of this branch of the railway service & Mr. Morse remains unimpaired. The members of the Grievance Committee have returned home.

The difficulty between the G.T.R. & its trackmen appears to be at an end. After the announcement of the increase of 10c. a day to the men on the main lines of heavy travel as detailed in our last issue, pg. 207, the Executive Committee of the Trackmen's Association reassembled in Montreal. Those of them who were employes of the Co. had an interview with Mr. Hays in which he stated that no further concession could be made. The Committee then issued circulars to the trackmen, but the number & tenor of responses was such that it was evident another strike was not desired & on Aug. 12 the members of the committee returned to their homes.

Quebec and Lake St. John Railway.

A meeting of the holders of the 5% 1st mortgage bonds of this Co. was held in London, Eng., Aug. 2, for the purpose of appointing a committee of holders of the bonds "to consider the position of such bondholders, to confer with the trustees, & to take such steps as the committee may think best to protect the rights & interests of such bondholders, & to organize for unity of action." C. C. Macrae, a director of the Railway Share Trust & Agency Co., (the trustees), who presided, stated that the bonds were issued in London, over the complete main line of the railway, about 10 years ago, with a guarantee of interest for 10 years, by the Province of Quebec. That period had run out, & the bondholders were now in the position of having to look for any return on their capital to the earnings of the road. The working of the railway had shown that only on something like half of the line were the prospects for earnings at all good. In addition to the 190 miles from Quebec to Lake St. John, which formed the main line, & upon which the bonds were secured, various extensions had been made, which served as feeders. The bondholders had a valuable asset in the terminal property situated in the city of Quebec. Analyzing the accounts of the railway for the past 10 years it would be seen that the line had only about paid its way, & in common with so many lines operating without working capital, the directors had been compelled to take the cost of betterments out of the revenue of each year. From all the information he could obtain he was strongly of opinion that, in this instance, there had been no bad faith on the part of any one connected with the management in Canada, everything having been done on the other side to make the line successful. The Canadian Government had not seen its way to grant any further assistance, & in view of the termination of the guarantee & the inevitable default, the trustees, through their solicitors, had done all that was needful to protect the rights of the bondholders. The effect of the action of the trustees would be to keep the railway intact. The present meeting, however, was quite informal, as no legal gathering could be held until six months after the default had taken place. The bondholders could not expect to obtain their full interest for some time, but when the Co. had turned the corner they might, he considered, obtain a return on their capital during the next year or two. Some of the gentlemen in Canada, more sanguine than he was, thought that in the near future the

actual earnings of the road would be sufficient to pay something like the full interest on the bonds. He then moved a resolution appointing a committee of bondholders.

In reply to the comments of bondholders the Chairman said that the capital stock of the Co. was given at \$4,074,000, but he had never attached any value to it, as he had always considered that much of it represented "water," as was usual with so many transatlantic railways. He did not know who were the present holders of that stock.

Mr. Hanson pointed out that the line had not been exclusively built out of the money of the bondholders, but that an appreciable portion of solid cash was put into the undertaking. He moved that F. Ross, A. S. Jecks, S. Gardiner, J. W. Ballance, & E. F. Coates be appointed as the committee for the object stated, words instructing the committee to report to the bondholders being added to the original motion. The resolution was adopted. —Railway Times.

Proposed Topographical Survey.

M. J. Butler, C.E., of Deseronto, Ont., says that a strong effort will be made to have a topographical survey made of the Dominion. The Government has been memorialized on several occasions by the Land Surveyors' Association, & the matter has been agitated in journals of scientific societies; but for the most part the public is quite ignorant of the matter.

"Canada alone among all the civilized nations I can think of," says Mr. Butler, "is without an accurate topographical map of its territory. No water-power development can be undertaken, for instance, on any intelligent basis under the present conditions. Its future must be estimated by guesswork pure & simple. The same is true of many other departments of enterprise. What is needed is a topographical & geodetic survey, which will ascertain all the physical features of each section of the country; its geology, the character of its soil, the extent & age of its forests, the areas of cleared land, the public improvements, roads, & so forth; in fact, all the features, natural & artificial. Most important of all would be exact information as to the watersheds & the catchment area in relation to statistics of the rainfall. As I have said such maps are to be found in every country except Canada; even the lesser countries of Europe & the petty Republics of South America have them. What Canada needs is an enterprise similar to the U.S. Coast & Geodetic Survey, which is conducted at the expense of the Federal Government at Washington. In the past, when Canadians did not realize the value of their natural possessions & there was little competition for their waterways, the lack of such information was not felt. From this time on the evils arising from the absence of such information will be more & more recognized. Every stream in Ontario is being studied with a view to its possibilities as a source of power, & information as to the watershed is essential. We know hardly anything about the rainfall & run-off of our waterways. The water supply of them can only be estimated on the basis of accurate information as to the catchment areas. Take the Trent Valley canal, for instance, which is to be a series of artificial waterways connecting the natural waterways already existing. So far as I can see, there is no way of knowing whether the water supply is to be permanent throughout its length as the settlement of the country increases. The matter is one of great importance in lake navigation also. Our knowledge of the coast-line of Lake Ontario is far from accurate, based as it is on old charts. Until two years ago, when Col. Anderson had a topographical survey made of the Bay of Quinte, it was impossible for a

steamer to go from Kingston to Belleville without a pilot. A chart now exists showing the shoals & indentations of the land. The scheme we propose for the accomplishment of the work is that the Federal Government should do the preliminary 'triangular' work, to use a technical term; then the data as to features, natural & otherwise, should be collected by the Provincial Governments. The new organization of engineers & members of other scientific professions recently formed in Toronto at once appointed a committee to take up the matter. This was on the suggestion of Kivas Tully, C.E., who is fully convinced of the importance of such a work."

Railways in Canada.

One of the earliest references to a transcontinental Canadian Railway was that of Carlyle. His New Downing Street, one of the Latter Day Pamphlets, published in 1850, is full of allusions to the rebellion losses bill, the annexation movement & other burning questions of half a century ago. The favorite notions of the Seer are exhibited in this essay. Of the constitutional remedies which it was proposed to apply to Canada he spoke with his usual scorn. The Governor of Canada was to be one of Carlyle's "strong men." Downing street was to be reorganized, British men-of-war were to be employed carrying to British colonies "our war soldiers industrial," & the prisoners in the jails were to be shipped off & set to work building a railway "quite across America," a suggestion which Carlyle obtained from a pamphlet by Major Carmichael Smith. "And surely were the colonies once enfranchised from red tape, & the poor mother country once enfranchised from it; were our idle seventy-fours carrying out streams of British industrials, & those scoundrel regiments all working under divine drill sergeants at the Grand Atlantic & Pacific Junction Railway, poor Britain & her poor colonies might find that they had true relations to each other; that the Imperial mother & her constitutionally obedient daughters were not a red-tape fiction, provoking bitter mockery as at present, but a blessed God's fact, destined to fill half the world with its fruits one day."

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The "Atlantic & Pacific Junction" was built, but under somewhat different circumstances from those conceived by the great philosopher. The strong Governor never arrived, while the Parliamentary institutions, for which in the colonies as in Great Britain he had so little respect, grew more powerful & more democratic. But in the strong Imperial spirit which pervades the essay, Carlyle was in advance of his day; one transcontinental railway is now an accomplished fact, & we are beginning to talk of another. The route of the new line will contribute to a new conception of the extent of this country. It has been jokingly said that it fulfilled the geometrical idea of length without breadth, or that it resembled a string of fishing-poles tied together at the ends. But recent events have been working against the scoffers. Draw a line north from Pelee Island to the latitude of Dawson, & you will find that it is not very different in length from a line drawn west from Pelee Island to the Rockies. The gap in settlement between old Ontario & Manitoba is being rapidly filled up by the development of northwestern Ontario; & the Rainy River Railway will give an immense impetus to this movement. From Lake Superior to Manitoba there will be two railways, & apparently plenty of business for both. The western peninsula of Old Ontario, extending, say, from Toronto to Windsor, has for some years been a network of railways, but the multiplication of railways in the eastern portion is a more recent development, the latest step in which is the Ottawa, Arnprior & Parry Sound. It is not many years since Gravenhurst was the terminus of the Northern Railway; to-day, at a point more than twice as far north, there is railway connection with Montreal, Toronto & Winnipeg; and it is only a question of a few years when the locomotive will reach the shores of Hudson's Bay.

The same extension of settlement north is to be seen in the prairie country. The northwestern part of Manitoba has recently been opened up, & the country is so promising that settlement has pushed on ahead of the railway, which has now reached the border of Saskatchewan. From this point

the new railway is to run to Prince Albert, & thence to Edmonton. Passing through Alberta in a north-westerly direction, the railway will strike the Yellow Head Pass in the Rockies, & then will come the most novel & difficult part of the undertaking—the construction of the line through British Columbia to Fort Simpson, some 500 miles north of the western terminus of the C.P.R. To realize what an extension of our railway system this will be, consider that a straight line drawn from Vancouver to Fort Simpson is as long as one drawn from Toronto to James Bay.

What will be the result of opening up the northern part of British Columbia, now inaccessible except to hardy explorers, is largely a matter of speculation. But when all this work is finished the possibilities of railway development in this country will be by no means at an end. A railway 150 miles long from Prince Albert to Edmonton would give communication into the great territory of Athabasca. The projectors of the new line seem to have their eye on Hudson's Bay, the western shore of which is less than 400 miles from the eastern limit. It would not be surprising if "the study of small maps," that fascinating but sometimes misleading occupation, should have suggested the dream of a transcontinental railway of an entirely new kind, connecting the Pacific Ocean and Hudson's Bay. It looks like a dream now; but perhaps not more of a dream than the C.P.R. seemed to be 50 years ago.—Globe.

The Chilkoot Pass Tramway, which has been sold to the White Pass & Yukon Ry., is said to have been closed down for a time at least.

The Great Eastern Ry., which runs from the C.P.R. at St. Michel de Yamaska to St. Gregoire on the G.T.R. in Nicolet county, Que., & is 23 miles in length, is to be sold by the sheriff at Sorel Aug. 29, at the instance of Mayor Prefontaine, of Montreal, in his suit against the Co. & C. N. Armstrong. This line is included in the Atlantic & Lake Superior system, having been purchased in 1894 for \$115,000 cash, \$150,000 1st mortgage bonds & \$420,000 in paid up capital stock.

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BARLEY.....	36.69 "	BARLEY.....	24.80 "
FLAX.....	16.08 "	FLAX.....	12.30 "

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Canadian Roadmasters' Association.

The 3rd annual convention will be held at Toronto Sep. 20 & 21. The meetings will be held in court room no. 2 of the I.O.F. Temple Building, starting at 9 a.m. daily, & the members will make their headquarters at the Grand Union Hotel, corner of Front & Simcoe streets, opposite the Union Station, where special rates will be given to them.

The special topics selected for discussion at the convention are the following, the names given being those of the committees appointed to prepare reports on each subject:—

1. TRACK TOOLS.—J. Drinkwater, A. McAuley, W. Shanks.
2. EXPANSION OF DIFFERENT WEIGHTS OF RAILS.—J. Shanks, J. Graham, J. Leslie.
3. PLACING OF TIES & TRIMMING BALLAST.—E. Murphy, T. Hickey, J. Malloy.
4. RAIL JOINTS.—J. Drinkwater, W. Shanks.

This matter was reported on at the last convention & partly discussed, to be again taken up at the forthcoming meeting.

A number of other subjects will, doubtless, be discussed, & exhibits will be made by railway supply manufacturers. There is every reason to believe that the meeting will be an interesting & useful one, & we hope to see a good attendance, not only of those who are already members of the Association, but of all roadmasters who can be present & who will join, as we are satisfied they will find the membership of advantage to them. Roadmasters are invited to contribute papers on any subjects they choose, whether on the programme or not.

The following reports of committees are given in advance, so that they may be considered before the meeting by the members, who will thus be in a better position to discuss them.

EXPANSION OF DIFFERENT WEIGHTS OF RAILS.

The committee, J. Shanks, J. Leslie & J. Graham, report as follows: The expansion required in 30-ft. rails at different temperatures is as follows:

30° below zero,	5-16	of an inch.
0°	1-4	" "
30° above zero,	3-16	" "
60°	1-8	" "
90°	1-16	" "

The above expansion applies to rails from 56 to 73 lbs. per yard.

PLACING OF TIES AND TRIMMING BALLAST.

E. Murphy, Roadmaster C.P.R., Woodstock, Ont., Chairman of the Committee, reports as follows. Thirty-foot rails should have ties uniformly spaced as follows:

70 lbs. a yard or lighter,	18	ties
70 to 80 "	16	" "
80 to 100 "	14	" "

Ties in main side tracks should be 24 in. centres, & in other than main side tracks 30 in. centres. In reference to trimming ballast I cannot give a better idea than to consult the C.P.R. standard. I have had my ballast for the past 16 years trimmed according to our present standard, & have found a great benefit from it. We all agree that the quicker we can get the water from the roadbed the better it is for the road.

RAIL JOINTS.

The committee, J. Drinkwater & W. Shanks, reported last year as follows, the discussion on the report being adjourned until this year: In connection with our work there is no one thing of so much importance or that affects tracks so much as the joints. Considering from this fact the importance of the subject & the amount of money, time & study that has been expended on attempting to perfect rail joints, & yet your committee are strongly of the opinion that the best that has been produced that they have had practical experience with is still lacking, or has failed to

fully meet the requirements. Our experience is from the old wrought iron chair to the plain fish plate with the tie directly under the joint. Then came the 2-tie angle bar, & later the 6 hole 40 ins. angle bar supported with 3 ties, & later still the 44 ins. angle bar supported the same as the 40 ins. with 3 ties, & at present we have a 4 hole angle bar supported on 2 ties.

Our experience has been that wherever joints have been supported with a tie directly under them, whether with the plain fish plate or the 3 tie 6 hole angle bar, the results have been better than with the 4 hole angle bar with the joint suspended between ties. The new angle bar with 4 bolts & 2 ties suspended joint is, we consider, a decided improvement over the old one in its general make up. Instead of slats in the edges for spikes the holes are through the web or flange. This gives the full benefit of the 4 spikes against spreading, but with the improvements in this joint over the old 2 tie suspended joints we have been unable to see where the defect has been remedied, or the cause removed, or the necessity provided for that we have found to exist with a suspended joint.

The 40 & 44 ins. angle bars have the appearance of a waste of material & this, of course, means expense for which no benefit is derived.

Up to the present our experience is, & we beg to report based on experience, that the suspended joint has been a failure & even with the improvements on the present suspended joint we do not feel free to recommend it as being all that it should be, but, to the contrary, believe that they must get their support from underneath & we consider that the energy spent & the efforts put forth to produce a satisfactory joint have not been productive of the result desired.

The annual convention of the Roadmasters' Association of America will be held at Detroit, Mich., Sept. 12, 13, & 14. The Hotel Cadillac will be the headquarters of the members.

Railway Projects.

Burk's Falls to Sallsburg.—R. Forbes, of Duluth, Minn., Vice-President of the Parry Sound Copper Co., states that the Co. thinks of building a railway to Loring, Ont., by way of Burk's Falls & Sallsburg where it has properties.

Ha Ha Bay to Roberval, Que.—Among the objects of the British American Pulp & Paper Co., which is applying for a Dominion charter, is the construction of a railway from Ha Ha Bay on the Saguenay River, to Grand Falls, on the Peribonka River, thence to the first falls on the Mistassini River, thence to the Chutes a l'Ours, on the Chamouchouan River, & thence to Roberval on Lake St. John. It is further sought to run branch lines from this system, & lines connecting the various pulp & paper mills it is intended to establish at the different falls; also to generate electricity & distribute it. The capital stock is to be \$3,000,000. The applicants are R. Prefontaine, R. Bickerdeke, A. A. Thibaudeau, D. A. McCaskill & Edward Goff Penny, of Montreal.

Owen Sound to Meaford, Ont.—Although the Dominion Parliament has voted a subsidy for a line of 21 miles between these points, no company has been chartered to build it, & no application appears to have been made for the granting of the subsidy. General Manager Hays has informed the Mayor of Owen Sound that the G.T.R. is not likely to undertake the work of construction, & it is admitted that no other company could successfully operate it.

Pyramid Harbor to Fort Selkirk.—A San Francisco despatch of July 27 said:—"Pierre Humbert, jr., a Boston banker, who is at the head of a project to construct a railroad from

Pyramid Harbor to Fort Selkirk, is in the city. 'We have made our filings,' said he, 'and have practically secured a charter for that portion of the road traversing American territory. We are now waiting on Ottawa for a Canadian charter, & right-of-way from the boundary to the Yukon. As soon as this is accomplished, we will begin construction.'"

Mr. Humbert will probably have to wait some time "on Ottawa," in view of the Dominion Government's decision not to grant any more charters to lines into the Yukon, starting from ports owned or claimed by the U.S.

Trail to Sayward, B.C.—A press report credits F. A. Heinze, who built the Columbia & Western Ry., between West Robson & Rossland, & sold it to the C.P.R., with a desire to build some 8 or 10 miles of line from Trail to connect with the Spokane Falls & Northern at Sayward, the second station north of the International Boundary. As Trail is on the west side of the Columbia River & Sayward on the east a ferry transfer would be necessary.

Vancouver Island & Port Angeles.—F. Higgins, barrister, Victoria, B.C., gives notice that application will be made to the Dominion & Provincial Parliaments for the incorporation of a company to establish a railway ferry between Port Angeles, Wash., & the harbor of Victoria, Pedder Bay, or Beechy Bay, Vancouver Island, with power to build a railway from either of the named harbors to Langford Station, & along the west coast of Vancouver Island. It is said the company interested is the Port Angeles Eastern Ry., which is now building in the state of Washington.

In our June issue, pg. 171, we gave full particulars of the negotiations between the Port Angeles Eastern Ry. Co. & the city of Victoria for a railway car ferry & passenger boat service between Port Angeles, Wash., & Victoria. The committee of citizens of Victoria to which the matter was submitted had before it a proposition to bonus the Railway Co. \$17,500 a year for 10 years, on the basis of 5% on the estimated cost of the car ferry & steamboat. The committee decided against the proposition by a vote of about 2 to 1, the mayor having taken the ground that the city had no power to bonus a foreign corporation.

C.P.R. Dividend.—At a meeting of C.P.R. directors Aug. 14, a dividend for the half year ended June 30, of 2% on both preference & common stocks was declared payable Oct. 20. The earnings of the past six months would have warranted a larger dividend, but the directors considered it inexpedient to increase it. Some disappointment may have been felt, but the general opinion, both in Canada & Europe, is that the board has acted wisely in pursuing a conservative course. The Westminster Gazette voices London opinion in saying:—"The cautious policy of the directors is no doubt wiser in view of the exceptional condition of the farming industry during the past year or two, & the necessity of providing in fat years for adversities in lean years. It is better to have a safe & continuous 4% than the larger dividend now & the collapse of the latter."

Canadian Ticket Agents' Association.—Secretary De la Hooke has issued a breezy & up-to-date circular, announcing the 13th annual meeting to be held at Winnipeg Oct. 10, instead of Oct. 13, as first arranged. The members will leave Toronto, Sunday, Oct 8, at 1 p.m. via G.T.R. to North Bay, where members from the east will join them, & proceed via C.P.R. to Winnipeg, arriving there Tuesday, Oct. 10, at 6.30 a.m. The meeting will be held on that day, & a banquet will take place at the Clarendon Hotel in the evening. The party will leave Winnipeg Wednesday, Oct. 11, travelling by the Northern

Pacific, Chicago, Milwaukee & St. Paul, & Grand Trunk lines via St. Paul & Chicago. It is probable a stop will be made at Grand Forks, that Thursday, Oct. 12, will be spent in St. Paul & Minneapolis, that a stop will be made at Milwaukee, & that Chicago will be left on Friday evening, Oct. 13.

Railway Committee of Privy Council.—At a meeting of the Railway Committee of the Privy Council at Ottawa, July 29, the application of the Portage & North Western Ry. Co., a subsidiary of the Northern Pacific, to cross the C.P.R. tracks near Drummond & Brydges streets, Portage la Prairie, & to make a junction with the M. & N.W.R., was considered. The Town Council of Portage la Prairie has given the P. & N.W.R. Co. power to run along Pacific avenue, Portage la Prairie, & this has been ratified by the Legislature, subject to a provision that on a certain defined portion of the street no switches be allowed to be laid. On the application for the crossing coming up at Ottawa, counsel for the C.P.R. objected, unless the P. & N.W.R. Co. was forbidden to lay switches on any part of the street. Judgment was reserved, the matter being referred to a sub-committee to deal with, & on Aug. 10 it was announced that the Committee had decided to grant the application, without the limitations asked for.

Western Agencies of Atlantic Steamships.—For some years past the general agencies of practically all the Atlantic steamship companies for the territory west of Lake Superior have been held by W. Stitt, chief clerk of the C.P.R. Passenger Department at Winnipeg,

The Canadian Pacific Railway Company.

Dividends for the half-year ended 30th June, 1899, have been declared as follows:

On the Preference Stock two per cent.

On the Common Stock two per cent.

Warrants for the Common Stock dividend will be mailed on or about and October to Shareholders of record at the closing of the books in New York and London respectively.

The Preference Stock dividend will be paid on Monday, October 2nd, to Shareholders of record at the closing of the books at the Company's London Office, 1 Queen Victoria Street, London, E.C.

The Common Stock transfer books will close in London at 3 p.m. on Friday, 25th August, and in Montreal and New York on Friday, 8th September. The Preference Stock books will close at 3 p.m. on Friday, 1st September.

All books will be re-opened on Tuesday, October 3rd. By Order of the Board.

CHARLES DRINKWATER,
Secretary.

MONTREAL, 14th August, 1899.

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who has recently been promoted to the position of Assistant General Passenger Agent of the Western Division. Mr. Stitt has issued a circular announcing that W. P. F. Cummings has been given charge of the business in connection with the Atlantic steamship lines, that remittances must be sent to him, care of the General Passenger Agent's office, at Winnipeg, & that all communications on the business of the Atlantic steamers should be so addressed.

Dominion Iron & Steel Co.—Advices from Sydney, N.S., state that the Dominion Iron & Steel Co. has begun work at the International pier, making preparations for a railway tapping the I.C.R. so as to take building material, etc., to where it will be needed. Contractors are getting things ready preparatory to the building of the shed. Over 100 men are employed. Quarrying stone at South Bar is progressing, though it may be given up on account of the softness of the stone.

Sir Sandford Fleming Interviewed.

In a recent interview in England Sir Sandford Fleming, after referring to the position of Canada as he found it on coming to the country in 1845, dwelt on the Imperial instinct, after which the interviewer continues:—Now we come to the Pacific cable, & Sir Sandford pointed out that Canadians attach the highest importance to it as another bond of Empire. It might be expected to expand trade between Canada & Australia, not at present very extensive. That, however, was quite overshadowed by the value it would have in the Imperial sense. Sir Sandford has given years of study to this question of an all-British cable, & his ideas thereon quite girdle the globe.

"Granted the present scheme," he remarked, "& you will reach Australia without having a foot of your wire on foreign territory. Why not have another cable bringing you back to London by Western Australia, Cocos Island, Mauritius, & South Africa? At Cocos Island you could establish branch lines to Singapore & Colombo, so joining up with the whole of Asia & India. From Cape Town go to St. Helena, Ascension Island, Barbadoes, & Bermuda, where you are in near relation to the present Atlantic cables. Measuring the cable as you put it into the sea at Vancouver, you would need 23,000 knots of it to reach Bermuda. The expense would be between £5,000,000 & £6,000,000, and just think what you would have for the money."

Sir Sandford hardly needed to explain to me that he struck across the Atlantic from Cape Town in order to avoid the shallow waters of North Africa, & the shores of Europe. "In the event of war," he laid it

down, "the cables would be most likely to be cut near Europe. A home-coming cable, according to my plan, would be in deep water all the time, and therefore difficult to cut. Once at Bermuda or Halifax, you would have a number of cables to take messages on to England. They would not all be cut at once, and it might be that the getting through of a single despatch, after war had broken out, would be worth more than the whole of the cost of the suggested cable." These views have already been submitted to the Colonial Office, & Sir Sandford thinks the scheme at present in hand a basis towards a complete, all-British girdle of the globe.

"You would," he observed, "be able, having a circular line, to communicate by two ways with any part of the Empire. If one road failed, the other would be there, so making us very secure. Apart from anything else, I look forward to the electric cable becoming the great means of communication between the various quarters of the world. I can see, in the dim distance, the day when a newspaper will be able to publish intelligence concerning the most distant parts, as fully & as promptly as if it related to its own city. We do not yet fully realize the value of electricity as a means of communicating over long distances. You telephone from the Strand to Piccadilly, but you could accomplish your purpose by sending a messenger. Not so when thousands of miles intervene; then the supreme value of the electric telegraph is apparent. The expense lies in constructing a line, & that once done, all is simple. Here it is, use it to the utmost; keep it going every minute of the twenty-four. If you can send a telegram for sixpence in England, why should it so quickly cost you six shillings if you go outside England? The next great advance of the world will probably be in respect of quick and cheap communication between all parts of it."

Sir Sandford has had visions before, & happily he has lived to find some of them realized. It had been laid down by certain experts that the interior plains of Canada could not be connected by rail with the Pacific & Atlantic coasts. In 1871 British Columbia came into the Canadian Dominion, asking, as part & parcel of the bargain, for a road to unite it with the other provinces. The splendid response was the Canadian Pacific Railway, which thus had its origin.

"The thing just had to be done," Sir Sandford remarked, "& although the survey presented great difficulties in the Rocky mountains & elsewhere, there were various places at which the line could have been cut through. Every man on the survey was imbued with the importance of the task, which was not merely the finding of a way for a railway, but the seeking out of a trunk road destined to do much to build up Canada as a nation. That



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was something to think of—occasionally, anyhow, as you lay in bed after a day's work."

The last rail in the C.P.R. was laid at the point then christened Craigellachie, situated amid the lonely grandeur of the Rocky mountains. Lord Strathcona, Sir Wm. Van Horne, & others who had worked for the great venture, were there, as the sections of steel coming from east to west met, & became the Canadian Pacific. Why the name "Craigellachie"? It was identified not only with a place in Scotland, but with an old Scottish clan slogan. "Stand fast, Craigellachie!" Endless difficulties had to be faced in carrying through the Canadian Pacific scheme, & on one occasion Lord Strathcona & Lord Mount Stephen had to console each other across the Atlantic about some hitch. The word which the cable flashed from the one to the other was "Craigellachie"—that is to say, the inspiring counsel, "Stand fast, Craigellachie!" This Sir Sandford told me, & it is a picturesque footnote to history.

"The joining up of the railway," he went on, "was a ceremony very impressive & suggestive in its simplicity. Afterwards our train went down to the Pacific side, & from there there I remember sending a cable to Lord Mount Stephen in London. I wired that we had taken ten days to cross the continent—that I fancy was the time—but that the day would arrive when a passenger could journey from London to Vancouver in 10 days. As I speak, we have practically reached that celebrity in travelling, though when I telegraphed, some people in London regarded me as rather a wild prophet. Within a week of the completion of the C.P.R. several cars of naval stores for Esquimalt, the British depot on the Pacific, passed over it from Halifax. This was an object lesson on the uses of the road as an Imperial highway, & there have been many others since then."

Sir Sandford looks forward to seeing weekly lines of steamers leave Vancouver for Australia & Asiatic ports. He conceives them as connecting with the terminus of the Siberian railway, so forming a continuous trunk artery about the world. It is a fine conception, all the more that it will mean the possibility of going round the globe in less than half the 80 days which Jules Verne, in his daring narrative, allowed for the trip.

THE SOULANGES CANAL.

Lake St. Francis is 33 miles long; it is merely an expansion of the St. Lawrence River; a pool above the rapids between it & Lake St. Louis. The fall between these lakes is 82½ ft. at mean water, & in a distance of about 16 miles there are the Coteau, Cedars, Split Rock & Cedars Rapids. At extreme low water, there is a depth of not more than 6 ft. in the channel at some places, & it is to surmount these rapids that the Soulanges Canal has been constructed. The canal is 14 miles long, & leaves the foot of Lake St. Francis at Macdonald's Point, just below the village of Coteau Landing. For 1½ miles it runs straight, touching the margin of the river about a mile from the upper entrance, & from the end of this tangent the line sweeps round to the north-east, behind the village of Coteau du Lac, for about 3 miles, on a curve of 14,324 radius. It is then continued by a 2nd tangent, of some 8½ miles long, passing about a mile inland from the Cedars village. Thence, the line bends slightly to the north, & is led into the Ottawa River, about 2 miles from its junction with the St. Lawrence, at Cascades Point. The canal is, for all practical purposes of navigation, a straight line throughout, & is 2 miles shorter than the route by the river. The fall of 82½ ft. is overcome by 4 locks; 70½ ft. of this is at the Cascades end, where the bluff forming the right bank of the Vaudreuil branch of the Ottawa gives an oppor-

tunity of locating 3 of the locks in the 1st mile, each having a rise of 23½ ft. There is an interval of over 2 miles between the 3rd & 4th locks, the latter being about 3 miles from the lower entrance. Here the lift is variable; it is about 12½ ft. at mean water of Lake St. Francis, but, at extreme high periods, it would, if this water were allowed to enter the canal, be about 15 ft. About 1,000 ft. above lock no. 4, there are a pair of guard gates, placed for safety to the lower locks in case of accident. At the upper, or Lake St. Francis entrance, there is a guard lock, by which the surface level of the summit can be regulated, without interruption or danger to navigation. At periods of high water, this will be used as a lift lock, but, at ordinary stages of the lake, its surface level will be that of the canal. The distribution of lockage is supplemented by a series of weirs for the passage of the necessary supply.

There are 7 road bridges & 1 railway bridge across the canal, the latter of which traverses the lower wings of the guard lock, & carries the Canada Atlantic Ry. It swings over the lock & raceway, & is about 180 ft. long. At the head of this lock there is another swing bridge, to pass the main road between Coteau Landing & Cascades Point, & a similar structure will be erected at lock 3, in connection with the Quinze Chiens Road. The remaining 5 road bridges cross the full width of the canal & have been designed to permit a full & free flow for the water & so as not to impede rapid navigation. This is effected by building the pivot pier in a line with the toe of the south slope, between which & the foot of the north slope there is an opening of 100 feet. The bridges are 246 ft. long, & the south half swings partly over the land & partly over a channel formed in rear of the pivot pier to give additional water section. Thos. Monro, M. Can. Soc. C.E., Chief Engineer of the canal, from whose paper on the subject we quote, believes that this is a considerable improvement on the old method of placing the pivot in the middle of the canal, with a narrow channel on each side of it, where vessels have to slow up, & often find it difficult to get safely past.

To pass the drainage of the country, lying to the north, across the line of the canal, has necessitated a very large outlay. The first stream met with in descending is the River Delisle. This has its source some 60 miles inland. Its catchment basin has an area of about 180 square miles and during spring floods the flow is something over 200,000 cubic feet a minute. The river is passed under the canal through 4 lines of cast iron tubes, 10 ft. in diameter, laid in a trench 50 ft. wide, excavated in the rock to the depth required. The next stream is called the Rouge River, & its flow during floods is about half that of the Delisle. It is carried under the canal by 2 lines of tubes of the same diameter as those of the Delisle. The excavation for the foundation of this structure was carried down to the boulder clay, through a stratum of soft blue material, which gave a good deal of trouble, through sliding during the progress of the work. At the River a la Graisse, the water is carried by a single line of tubes, 10 feet in diameter. The foundation of this structure is on piles, driven some 25 or 30 ft. to hard material. There are also 2 pipe culverts of small dimensions towards the lower end of the canal.

The canal throughout is about 100 ft. wide at bottom, & was designed to have side slopes of 2 to 1, but because of the slipping of the clay banks in some places the slope is now partially 4 to 1. The banks are first formed to these slopes, & then a notch is cut to receive the stone protection lining. This is about 3 ft. wide at the base, tapering up to about 1 ft. on top, where it is finished by a rough coping. Between this coping & the top of the bank the surface is sodded, the sodding being returned about 5 ft. on the level.

On the north side of the canal a macadam road, 15 ft. in width, will be formed throughout its entire length, the centre of which is 33 ft. from the edge of the cut or bank on that side.

At the Cascades' end the excavation is in rock of the Potsdam formation, which affords a solid foundation for locks 1, 2, & 3. The upper extension walls of the latter lock are, however, of piles & concrete. The reach between locks 3 & 4 is in clay, upon which the piers & abutments of the St. Antoine road bridge are founded. The road bridges at St. Fereol & St. Dominique are also built upon clay. The surface of the blue clay along the summit reach gradually rises towards the west & culminates at the crossing of the St. Emmanuel Road, where it is almost level with the top bank, being only covered with a thin layer of sandy soil. Wherever this clay was cut into by the canal there was danger of slides, roughly in proportion to the depth of the cutting. This danger was greater on the north side, which intercepted the natural drainage towards the river, so that in time the slope became so saturated as to break loose & slip into the canal. That is to say, by the excavation of a deep trench of such dimensions a similar condition of things was set up as that existing along the bank of the St. Lawrence between Coteau & Cascades, where from time immemorial deboulements have occurred, causing in many places a wearing away, which in some places is measured by hundreds of feet. One of these slides took place in Oct. 25, 1897, when, without any perceptible warning, the north bank of the canal, for over a ¼ of a mile in length, slid into the canal, taking with it the abutment of the St. Emmanuel bridge, which was thrown bodily forward about 50 ft. into the centre of the canal. Other slides have occurred about a mile or so to the west of the St. Emmanuel road, & one of these took place only the other day. Towards the crossing of the River Delisle the surface of the blue clay lowers rapidly. At the river itself, rock of the calciferous is encountered, & this alternates with the clays & sands of the drift formation for some 2 miles to the west. At the upper entrance the guard lock & surrounding structures are all founded upon solid rocks. There are about 6,750,000 cubic yards of clay of all sorts, & 300,000 cubic yards of rock of various kinds in the excavations for the canal.

The site chosen for the power-house, to generate electricity for the operating of the docks, bridges, etc., and the lightening of the canal throughout, is where the River a la Graisse crosses under the canal & joins the St. Lawrence about 400 ft. to the south of it. The amount of electrical power required to operate the locks, bridges & other structures, & to light the canal satisfactorily throughout its entire length of fourteen miles, was carefully determined by experts, who also worked out the details of the distribution & application of this power. The power-house is connected with a regulating weir, which is intended to control the summit level of the canal, without discharging a great volume of water through the Cascade locks.

At the ordinary level of Lake St. Francis there will 189 ft. of water in the canal, equal to a cross sectional area of 2,524 sq. ft. Propellers of the type now being built on the upper lakes to navigate these canals will have a submerged midships section averaging 42 x 14 = 588 sq. ft., or less than ¼ of that of the water area at mean level. This will permit of a fairly high rate of speed, as full depth under the keel of a vessel is of great value, both for speed & safety. Mr. Monro believes that the single individual lock is better than the fleet lock & can be operated more quickly & the maximum facilities may be provided by duplicate locks. 'The lift of locks should be made as great as possible,' he says 'where conditions permit, as time is consumed by

the number of locks rather than by the lift.' And this is the policy he has pursued in building the Soulanges canal.

The general features of lock 12, which is typical of the others, are as follows: The lock is filled & emptied through culverts in the side walls, from which cast iron pipes 30 inches in diameter, 10 on each side, lead into the bottom of the chamber. The pipes have 40% greater discharging capacity than the culverts themselves. The lock will be filled in about 5 or 6 minutes, & this will be effected without subjecting the vessel to much surging or strain. At the head of each culvert there is placed in an 8 by 4 ft. shaft, operated from the coping, a 6 by 6 ft. sluice of the Stoney pattern. These are for the first time introduced into a Canadian canal, their operation is very simple, & they have given the highest satisfaction in controlling large bodies of water in Europe, where they are in extensive use, being employed for that purpose on the Manchester ship canal. The method of emptying & filling locks through tunnels in the side walls is considered to be very much the best; filling & emptying through valves in the gates, as in the Welland canal, having proven decidedly objectionable. Each lift lock is provided with a heavy breast wall at its upper end, corresponding in height to that of the lift. These walls have been reintroduced for the purpose of removing the cause of about 1/3 of the accidents that have occurred on the enlarged canals, namely, vessels carrying away the upper gates of the locks by striking them whilst entering from the lower reach. If a vessel goes ahead too far in a Soulanges canal lift lock, it will strike against the breast wall, & damage itself instead of the gates. The gates are built on what is called the 'solid' plan, which consists of a number of superimposed timbers shaped to the required horizontal pattern & fastened together. The method is simple, & in this case the strength is superabundant. One leaf of the lower gates of the high lift locks at the Cascades' end of the canal weighs over 90 tons in the air. The timber used is principally Douglas fir, which was hauled across the continent for the purpose.

It is proposed to work a lock from one point on the south side & about 20 ft. back from the coping, where a switch cabin will be placed. This will be connected with the motors actuating the sluices & operating bars. When a vessel enters the lock from the lower level & her stern is up to the breast wall she will signal & the lower gates will be closed. The machinery will effect this in a perfect manner. The gates will shut precisely & synchronously, & avoid any trouble from overlapping, which often occurs now in other locks. This should be done in 1 minute. The lower sluices are then dropped & the upper ones hoisted, the lock being filled as indicated. When the water has risen to the full height, the upper gates are opened & the vessel passes out. The lockages are expected to be made easily in from 12 to 15 minutes. The capacity of the canal, at 4 lockages an hour, on the basis

of 1/3 westbound freight, would be about 20,000,000 tons in an ordinary season.

In the construction of these locks, concrete has been used to a greater extent than in any previous works of this kind in Canada. Mr. Monro specified that cement of a certain quality should be supplied by the government to the several contractors, and should not be purchased by them at all, & thus there was no inducement on the part of the latter to use cement of an inferior quality. In the preparation of the cement some 70,000 briquettes have been made for testing purposes in a quantity of about 200,000 barrels. Good, clean sand and properly broken stone have been insisted upon, & it is believed that this work is excellent throughout. Mixing has been done both by hand & by machine, but in either case the product when carefully laid & rammed make an exceptionally good hydraulic wall, while its cost per cubic yard was less than half that of masonry, on the Soulanges canal. There its use was clearly suggested by the fact that in the excavations for the prism, about 300,000 cubic yards of rock had to be taken out which was unfit for masonry, but excellent for concrete. This supplied the 15,000 cubic yards required for concrete; also, about 120,000 cubic yards for stone protection lining; together with over 50,000 cubic yards for macadam, repairs, etc., leaving a large surplus to be thrown away.

Mr. Monro was transferred from the Welland canal at the close of 1888 & assigned the duty of determining the best location for a canal, having a navigable depth of 14 ft., between Lakes St. Louis & St. Francis. After extensive surveys & examinations, he submitted a report in 1889 to the late J. Page, Chief Engineer of Canals, in which reasons were given why the new canal ought to be constructed on the north side of the St. Lawrence. Mr. Page died in 1890, & in June of that year, a second report was addressed to the Secretary of the Department, confirming the views previously expressed. In that document the projected work was for the first time named the Soulanges canal. In a memorandum in Jan. 1891, prepared for Sir John Macdonald, by T. Trudeau, Deputy-Minister & Chief Engineer of Canals, the scheme submitted by Mr. Monro was approved of in general terms. This view was subsequently confirmed by the government, and, in Aug. 1891, \$300,000 was voted by Parliament towards the construction of the Soulanges canal, which was then estimated to cost \$4,750,000. Plans and specifications were prepared, and, in May, 1893, all the 13 sections between Cascades Point & Coteau Landing were under contract. Between the time of Mr. Monro's report of June 18, 1890, & the letting of the works, however, the bottom plan of the summit level, 10 1/2 miles long, & the foundations of the structures on it, were lowered about 1 1/2 feet, largely increasing the quantities, & adding about \$500,000 to the cost of construction, making the total estimated cost \$5,250,000, instead of \$4,750,000.

For the sake of clearness in showing the present condition of the different sections,

they will best be described in the order visited by the writer.

Section 13.—Contractors Manning & McDonald, Toronto. Date of contract, Sep. 24, 1892. Approximate value of work, \$635,000. This contract, comprising entrance walls, guard lock, waste weir & two swing bridges, is now complete, & has been partially tested.

Section 12.—Contractor M. J. Hogan, Montreal. Date of contract, April 5th, 1897. Approximate value of work \$220,000. Before Mr. Hogan took hold of it, this work had been twice under contract & in each case the contractor failed to prosecute the work to completion owing to its costly character. This work is composed of hard clay, intermixed with nests of boulders of large sizes, fissured rock & quicksand. He expects to get finished by the end of August. He is already beginning to move his machinery out of the cutting.

Section 11.—The first contractor for this was G. Goodwin, & the contract was dated May 11, 1892. This was afterwards transferred to T. Feeney, & later to Poupore & Fraser, of Ottawa. Approximate value of work, \$325,000. This section, which was composed of rock & hard material, is completed.

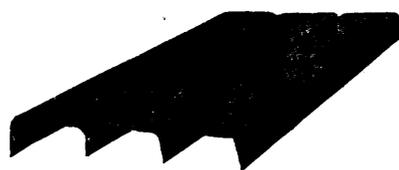
Section 10.—Contractors Rogers & Taylor, Montreal. Date of contract, Dec. 24, 1892. Approximate value of work, \$292,000. This work was practically all earth, the only structure upon it being one large road bridge, & it was completed last fall. Small slides occurred upon the north side of this section, but these were soon repaired.

Section 9.—Contractors Manning & McDonald. Date of contract, Jan. 30, 1893. Approximate value of work, \$180,000. Rather extensive slides took place on this section, but these have been repaired & the work is now finished. The restoration was effected by placing stone for support & drainage at the base of the slopes, & then filling in. The slope of the north bank was also altered from 2 to 1 to 4 to 1.

Section 8.—Contractor C. H. Raynor, Syracuse, N.Y. Date of contract, Dec. 29, 1893. Approximate value of work, \$312,000. This, with the previous section, has given the contractors & the engineers a great deal of trouble, owing to the slides. A heavy slide took place on the north side of this section on Oct. 25, 1897, at the crossing of the St. Emmanuel road. This swept the abutments of the road bridge, containing 1,100 cubic yards of concrete, off its pile foundations, & threw it bodily some 50 ft. into the bottom of the canal, where it sank into the soft blue clay for a depth of about 19 ft. About 40,000 or 50,000 cubic yards of earth accompanied it. This was being repaired & the slope was changed from 2 to 1 to 4 to 1, but, much to the surprise of all concerned, without the least warning, another extensive slide took place the day before the writer visited the canal, carrying away the bank for about 350 ft. Men & teams were working upon it at the

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time, & these were carried bodily into the canal. Fortunately, all the men escaped without injury, but one horse was smothered to death. On this section, too, the power house to operate & light the canal by electricity, is being built, & much remains to be done before this structure can be finished.

Sections 4, 5, 6 & 7.—These sections are all comprised in one contract, which was first let to G. Goodwin, & afterwards re-let to A. Onderdonk in April, 1897. Approximate value of contract, \$957,000. When Mr. Onderdonk took over the contract there were approximately 850,000 cubic yards of earthwork to complete. About 1,200,000 of the easiest part had been taken out by the previous contractors, & the work then abandoned. The masonry & concrete, of which there were about 40,000 cubic yards, were untouched, not a stone having been prepared or delivered four years after the signing of the contract. The lower part of the prism is chiefly in blue clay, difficult to handle, especially in wet or frosty weather, & in some cases the material has been hauled over 4 miles. The masonry of lock no. 4, which rests on a pile foundation, has been completed, & the work is excellent. The other masonry on these sections is about completed, but much remains to be done to the iron work, gates, etc., & there is still considerable earthwork to remove. It will be almost impossible to finish this work this season.

Section 3.—Contractors, J. & M. O'Leary, Ottawa. Date of contract, March 27, 1893. Approximate value of work, \$200,000. This work is completed, & was accepted from its contractors in the fall of 1897.

Sections 1 & 2.—This contract was first let to A. Stewart, of Ottawa, on Sept. 24, 1892, & was re-let to Ryan & Macdonell, on Dec. 1, 1897. Approximate value of work, \$83,000. Upon these sections are 3 locks, with waste weirs, basins, etc. This has been one of the heaviest pieces of work on the canal, & has been carried on very vigorously, night & day. It is hoped by the Government that these sections may be finished by about the beginning of Sep., but this is very doubtful, indeed, as much remains to be done. If, indeed, the canal is finished in time for the passage of vessels drawing 14 ft. of water at the opening of navigation next year, it will be quite as soon as is generally expected by many on the spot.

The full staff of engineers in charge of the canal is as follows: T. Monro, chief, assisted by A. J. Grant, S. J. Chapleau & R. A. Dufresne, from no. 13 to no. 7, inclusive; Mr. McNaughton, who resides at Cedars Rapids, has charge of nos. 8, 7, 6 & 5; & Mr. Coutlee, assisted by Messrs. Matthewson, Wise & Davey have charge of the remaining 4 sections & entrance at Cascades Point.—Montreal Witness.

An Ottawa despatch of Aug. 15 says:—The Minister & Deputy Minister of Railways, Mr. Collingwood Schreiber, were over the Soulanges canal works yesterday. They found that another slide has occurred in the clay banks of the prism of the canal on Raynor's section. A large quantity of clay was precipitated into the bottom. As the water has been let in the canal the slide will be taken out as soon as a dredge can be had, & it is hoped that the water in may obviate further mishaps. Should no further slide occur the canal may be opened to navigation by the end of the first week in September.

Through the St. Lawrence Rapids.

The recent trip through the rapids of the steel str. Mae, the largest vessel ever transferred from the great lakes to the Atlantic coast, via the St. Lawrence, has proven a most interesting event of the present season of navigation. The Mae was built at Toledo, Ohio, for the Porto Rico trade & is 250 ft.

keel, 42 ft. beam & 24 ft. depth. She has triple expansion engines of 19, 30 & 52 ins. diameter of cylinders & 40 ins. stroke; 2 Scotch boilers, 12 by 12½ ft., allowed 175 lbs. steam pressure. As she was too large to pass through the St. Lawrence canals she had to attempt running the rapids. After discharging a cargo of grain in Kingston, she proceeded under her own steam to Ogdensburg, arriving there July 16. From there she was taken in tow of the str. Chieftain, & proceeded as far as Coteau Landing, arriving there July 17. Something having gone wrong with the Mae's steam steering apparatus, it was given a thorough overhaul & the defective part repaired, & on July 18 the steamer, drawing 7 ft. 9 ins. of water, started on her perilous journey down the Coteau Rapids in tow of the Chieftain. She swept past the Coteau railway bridge without mishap. Upon taking her first plunge in the Coteau rapids, however, her steam steering gear again gave out, leaving her to the mercy of the waves, but the plucky commander of the Chieftain, realizing the danger, at once swung his steamer around in the current. He brought the Mae head to current & her anchors were thrown just below the big shoal known as "La bature de franc coeur," where she fetched up all safe in the eddy formed by this shoal. The steering gear was once more put in repair, & on July 20 the anchors were raised & another start made. Arriving opposite the great swells known as La chute aux bouleaux (the largest in the whole chain of rapids), the vessel took a sheer northwards, straight for the big shoal where the Standard Oil Co.'s barge stranded a year ago, but the Chieftain crowded on full steam & pulled her clear of it. The next place where trouble was expected is called La bature a Lachine, but the steamer, as if to atone for her previous shortcomings, made this winding descent as beautifully as any of the mail steamers could have done. Split rock, Grecian's shoals & Cascades were then successively passed in safety, & without further adventure the largest & deepest draught steamship ever attempted through the rapids glided safely into the still waters of Lake St. Louis.—Marine Review.

Heavy Lake Traffic.

The shipping business on the great lakes has expanded enormously this year. On both sides of the lakes vessel owners are being offered more business than their boats can handle & rates have advanced considerably already, & promise to go higher. U.S. vessel owners claim to be getting higher rates than in any year for 10 years back. Coal & ore shipments seem to engage most of the vessels from southern parts. The boom in the iron & steel trades has no doubt brought about this activity. Iron mining companies are endeavoring to get as much ore as possible to points of manufacture before the season closes, but the consumption has increased so largely that the furnaces are devouring shipments almost as fast as they are unloaded. One Chicago concern is said to be 250,000 tons short of its usual stock of ore at this time of the year, & other companies are no better off. It is predicted that when navigation closes it will be found that stocks of coal at north-western & western lake ports are not nearly adequate to the demands which will be made upon them next winter. Coal shippers have been very reluctant to pay the rates being asked by vessel owners this year, & in consequence, the boats are going in for other more profitable business. Vesselmen say that it is now impossible with the ships available to replenish the stocks of coal at the head of the lakes before navigation closes. How far this is true remains to be seen.

Canadian vessel owners are experiencing a no less active demand for their services than

their U.S. competitors, & are making substantial profits out of the business. No one will begrudge them this, as the business has been to a large extent unprofitable for a number of years. Sailors & all classes of employes are also benefited by the increased business, as wages have been advanced 10 to 15%. The carrying of Canadian lumber to U.S. ports is a new source of revenue this year, due to the new regulations of the Ontario Government regarding log exports. Hitherto the logs have been rafted to U. S. ports & sawn there. Now they are being sawn in Canada & Canadian vessels get the business of carrying the lumber across. The grain carrying trade is also yielding large revenues to Canadian vessels this season, & the delays caused by the backward spring & the Buffalo strike are now being fully compensated for.

Dominion Notices to Mariners.

The Department of Marine has issued the following notices:—

No. 47, July 24, Quebec.—St. Jean semaphore again in operation.

No. 48, July 26, Nova Scotia.—Liscomb whistling buoy.

No. 49, July 27, U.S.A.—Inland waters contiguous to International Boundary Line. 1. Galloo Island shoal gas buoy no. 1; 2. Presqu'île fog signal station; 3. Kelley's Island south shoal gas buoy no. 2; 4. Peach Orchard point gas buoy; 5. Detroit River—Limekiln Crossing channel—depth signals; 6. Lake St. Clair twenty-foot channel lights; 7. Lake St. Clair—Grosse point—new buoy; 8. River St. Mary—Lightbuoy established off Gros cap; 9. Light buoys in Vidal shoal channel.

No. 50, July 27, Newfoundland & Labrador.—Improved fog signals at Belle Isle.

No. 51, July 27, Ontario.—Improvements in Rainy River range.

Richelleu & Ontario Navigation Co.

The Co.'s hotels are reported to be all doing well, including the new one at Tadousac.

The directors have decided to invite plans for an hotel at Murray Bay, to be built next year.

On July 16 the Co. inaugurated its double service between Montreal & Quebec, adding a day service to the night one. The day service is performed by the strs. Columbian & Caspian.

On the str. Toronto's trip from Toronto to Prescott & return, Aug. 1 to 3, her coal consumption was tested. On the down trip it was 1.80 per horse-power per hour on a speed of 17 miles, & the up trip was 1.76 on a speed of 17.6 miles.

A union wharf at Montreal for the Co.'s boats is talked of, so that shippers may have the advantage of cheap freight transfers, light storage & sharp connections. The Toronto & Hamilton steamers now dock in the canal basins, & the other boats at another wharf. Through freight for points below Montreal could be much more easily transferred by all boats going to one wharf.

At a meeting July 20, the General Manager informed the directors of a marked increase in receipts, which, owing to the lateness of navigation opening, were about \$20,000 behind at the start. In comparison with last year, the boats had been running less time, yet the receipts were not only sufficient to recoup the \$20,000 loss at the beginning, but to place \$20,000 additional to the amount.

Levels of the Great Lakes.

L. E. Cooley, C. E., Chicago, estimates 10,000 cubic feet a second as the probable outflow of water at Chicago, for the sanitary

canal. Prof. Abbe, Chief Meteorologist of the U.S. Weather Bureau, who has been making a study of the rainfall & outflow of the Great Lakes, says, in this connection:—"The effect on the general level of Lake Michigan & Lake Huron, practically the same body of water, will be to increase the present outflow about three inches annually, so that the future outflow will be about 70 instead of 67 inches a year. The effect upon the depth of water & navigation in Lake Michigan & Lake Huron, & on the outflows of the Lakes St. Clair, Erie & Ontario will be barely appreciable & of no practical importance whatever in comparison with the uncertainty, the variability, & the great importance of the rainfall & evaporation. This slight drain upon Lake Michigan will be supplied by Lakes Superior & Huron, without affecting the surface level of St. Clair or Erie by more than a small fraction of an inch. The deepening of the channel through St. Clair & Detroit rivers will diminish the resistance to the flow of water, so that more will pass per second than before, provided the head of water, viz., the difference in level between Lakes Huron & Erie, remains the same; but this will not be the case. The effect will be felt at first mostly in the very center of the channel, & the total annual discharge at first will be much less than 1% more than at present. It may increase from 230,000 to 232,000 cubic feet a second, or from 67 to 67.6 inches a year, but the final result will be the same as if we opened a wider & easier communication between the two lakes, & they will come to the same level & act as one lake just as Huron & Michigan do now. As the influence of these two proposed engineering improvements on the regime on the lake is so small compared with that of the natural forces at work, it is especially important to accumulate & improve the climatological data, rainfall & evaporation, barometric pressure & winds, all of which affect the supply & the outflow."

Favors the Montreal Route.

The committee on canals appointed by Governor Roosevelt, of New York State, has been asking representatives of the transportation interests: "What is best to be done about the canals?" President J. J. Hill, of the Great Northern Ry. (U.S.A.), replied as follows:—

"The entire question of canal communication between the great lakes & the port of New York is one that deeply interests the whole country north of the Ohio river, & particularly the north-western states. A canal which would take less time & greatly less money to build would follow the River St. Lawrence to the vicinity of Montreal, & there turn south by way of Lake Champlain, but during the time of open water for such a canal the port of Montreal would be open to seagoing vessels, & I see no reason when a canal was built to within sight of Montreal harbor, where it could reach seagoing ships & with harbor dues much less than those in the

port of New York, why any traffic other than such as might be locally required for consumption at intermediate points or in the city of New York should bear the additional expense of transportation for say 400 miles from Montreal to New York. I do not think the national sentiment would be enough to pay the financial cost. If the present Erie canal were enlarged & deepened to a depth of 10 ft., so that canal boats of 3,000 tons might be used, it is more than likely that the best practical results would be obtained in this way. I do not know whether it would be possible to take water from Lake Ontario by way of the Oswego & Erie canals to the Hudson river. The low rates of rail transportation have at times made it impossible to operate the canal boats now in use profitably in the grain traffic between Buffalo & New York, & it is not by any means certain that with improved facilities for handling grain at terminal points & other favorable conditions, the rail rates have reached their lowest limit."

The Deep Water Ways.

The U.S. Deep Water Ways Commission is approaching the completion of its work, a large force being engaged at Detroit, tabulating & arranging results, and it is expected the final report will be presented early next year. Major Raymond, C. E. of the Commission, estimates the cost of the proposed waterway at about \$200,000. In a recent interview he said:—

"The route to be followed will be through the Sault St. Marie Canal to Lake Huron, through the river to Lake Erie, thence by ship canal around Niagara Falls to Lake Ontario. The question confronting the commission at this point is whether or not the Welland Canal, which is Canadian property, should be utilized by deepening, as it is now totally inadequate for use in ships of deep draught, or a new canal built in U.S. territory. This may be found the more desirable for international reasons. A depth of 30 ft. through the waterway should be sufficient to carry any vessel to the ocean. The entire scheme contemplates some very serious engineering problems, partly as to the system of locks. From the point above mentioned, two canal routes are suggested, both using the Hudson River. One is known as the Oswego-Mohawk Route, and the other as the Champlain-St. Lawrence Route. The Oswego-Mohawk Route is to start at Oswego & proceed along the Mohawk Valley, taking in such cities as Syracuse, Rome, & Utica, going thence to Troy, where it will connect with the Hudson, necessitating a deepening of the Hudson. This route will practically obliterate the Erie Canal, though it will take up some of its waterways. The Champlain-St. Lawrence Route has been surveyed from Lake St. Francis, which is an arm of the St. Lawrence River, diametrically across to the Richelieu River, which flows into Lake Champlain, & through this lake by means of a

canal to Troy. In addition to the consideration of the above suggestions, the commission will discuss the question of an increase of the locks of the Sault St. Marie Canal."

Province of Quebec Shipping.

The Montreal Warehousing Co. has installed a conveyor at its elevator there with which vessels can be loaded at the rate of 8,000 to 10,000 bus. an hour, without lighterage.

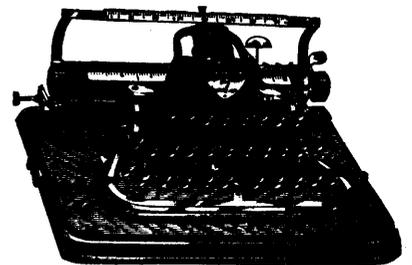
The twin screw ferry steamer Levis, to ply between Quebec & New Liverpool or St. Romuald, 8 miles above Quebec on the south side of the river, has been launched at Levis.

The str. Majestic, built by the Polson Iron Works, Toronto, for the Richelieu River Navigation Co., of St. Johns, Que., & which was described in our June issue, pg. 184, was launched at the Polson shipyard, Toronto, July 13. Her trial trip was made July 26; a few days later she left for the east to start running on the Richelieu River.

The str. Mistassini was burned to the water's edge at her wharf at Roberval, Lake St. John, July 24. She was owned by H. J. Beamer, said to be valued at \$50,000 & not insured. The press despatches spoke of her as a new boat, which is probably a mistake, as the only str. Mistassini registered up to Dec. 31, 1898, was built in 1891, at Roberval. She was a side-wheeler, 130 ft. long, 22 ft. 4 ins. wide & 8 ft. 2 ins. deep, gross tonnage 249.

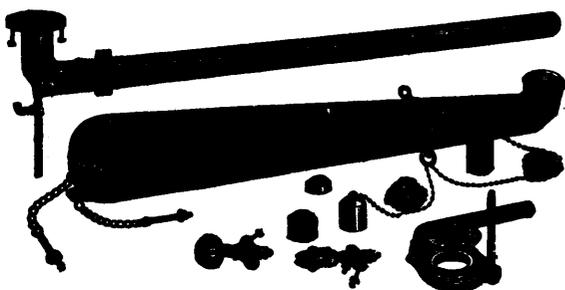
There is to be another shake up in the underwriters' rates for the St. Lawrence, & when the various agents receive notification of the customary increase for Sept., they will notice a decided excess over the rates of any previous year. This was stated to a Witness representative by one of the leading insurance representatives in the marine business. Some

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of the elements explained as partly responsible for the increase were reports of heavy ice, numerous misfortunes continuing during the season, & the autumn weather setting in shortly after September.

The shipping season of 1899, at Montreal, which gave so much promise at its opening is not turning out so busy as was confidently expected at the outset. Business is especially dull about the wharves. Up to the end of July both the number of ships, their tonnage, as well as the harbor revenue, has fallen off considerably, when compared with the business up to the corresponding date last year. Some blame the exceedingly low freight rates prevailing as the cause of the business inactivity. Prominent shippers complain especially of the manner in which the trade with London has fallen away.

The new pier at the foot of Jacques Cartier square, Montreal, is ready on the upper side to accommodate a vessel. The wharf, which is part of the harbor improvement scheme embraced in plan 12 a-2, will be 850 ft. long on the upper side, 850 ft. long on the lower side & 300 ft. in width. The pier will accommodate 5 large vessels. The crib work was begun last spring, & the superstructure about the middle of June. Over 800 ft. of crib work has been placed in position on the upstream side & about 600 ft. on the lower side. The pier, when completed, will be covered by 8 inches of black rock & 4 inches of macadam.

British Columbia Shipping.

The C.P.R. steamship Athenian is said to have been chartered to take a load of U.S. cavalry horses from Seattle to Manila.

Capt. McCroskie is now in charge of the C.P.N. Co.'s str. Princess Louise, while Capt. Foote will have command of the Danube, vice Capt. Meyers, who leaves shortly for England.

Capt. Cates has returned to steamboat business at Vancouver, after two years in the Yukon. In partnership with W. Haywood he has bought the Puget Sound str. Defiance, which has been transferred to the Canadian registry & will be used for short up the coast trips.

Now that traffic is increasing to points on the west coast, the necessity for its improved lighting is becoming more urgent. At present there are no light-houses on the whole western Island Coast north of Cape Beale, & mariners are strongly commenting on the fact. A light, they say, at the entrance to Barclay Sound, on Amphrite Point, would be of incalculable value to shipping, for, though right on the seaboard, Barclay Sound is one of the most difficult pieces of navigation to be found on the B.C. coast, for the entrance presents a perfect archipelago. There is a strong current setting towards Ucluelet, & it not infrequently happens that a sailing vessel is carried up to this locality & loses herself completely for a time. In foggy weather especially does this happen, & in nine cases out of ten the only thing that saves her is the deep channel. —Victoria Colonist.

Yukon & Northern Navigation Matters.

Passenger traffic is reported as very evenly divided between the upper and lower Yukon River boats.

The str. Bailey, a sternwheeler, built last year for the Bennett-City White Horse run, by S. S. Bailey, has been sold.

A boat is running between Taku Arm & Atlin City, & a tramway, two miles across, connects with Captain John Irving's str. Gleaner.

The str. Olive May, is said to have been purchased by the Bennett Lake & Klondike

Navigation Co., & is to be refitted & named the Dora. She will run on the upper Yukon.

The steamers of the Alaska Commercial Co. on the Yukon are now burning coal. Several thousand tons of good coal taken from a newly-discovered mine on Nation River, have been stowed in bunkers on the Yukon.

At the recent annual meeting of the Hudson's Bay Co., in London, Lord Strathcona said:—"The steamers Caledonia & Strathcona have been put on the Stikine river again, but the Co. can hardly expect the same profitable results from them this year, as the proposed railway from Glenora to Teslin Lake has not been proceeded with, although the line may probably ultimately be carried out."

U. S. Consul Cook, in a report from Dawson to the State Department, says:—"There is a great deal of activity in shipping here. At one time there were 17 steamboats at the various landings. The boats are providing improved accommodations for passengers & I do not see why excursion parties are not organized to come & see this land of gold, now that travelling is made comfortable. I should think a trip up the Yukon would be more interesting to Americans than a trip up the Rhine."

The International Navigation Co., owners of the St. Paul & other ocean steamers of the American & Red Star lines, is said to have organized the Empire Transportation Co. to operate a fleet of ocean steamers between Seattle & St. Michael, & 18 river boats between St. Michael & Dawson & intermediate points on the Yukon River. The transatlantic steamers, Ohio, Illinois, Indiana, Pennsylvania & Conemaugh, heretofore employed in the Liverpool & Antwerp trade, are said to have been secured for this route. It is also said the Empire Line will introduce a novelty in the shape of a river boat, so far as the Yukon is concerned. It will be patterned after Stanley's Congo light draft steamers with 6 small propellers in the stern, each one in its own compartment.

At a recent meeting of the Victoria Board of Trade it was decided to write the Canadian Pacific Navigation Co., requesting an improvement in the Northern Steamship service, & on receipt of the Co.'s reply to make a thorough enquiry as to what is required & what can be done. In introducing the subject A. G. McCandless said it was impossible to have a satisfactory service while the present plan of calling at Northern B. C. salmon ports was continued. The conditions of the two traffics were eminently different, & outbound Klondikers cannot be expected to take a steamer that will delay them in a section where they have no interest for days, while the steamer loads a few cases of salmon. Nor can the B. C. company expect to command the passenger business unless it provides vessels to handle it that will compare in speed, comfort & appointments with such craft as the Humboldt & the City of Seattle. He made an interesting statement when he said that the time had not long passed when the merchants of Victoria came to the rescue of the C.P.N. Co., & by signing a round-robin declaring an intention to boycott the road, prevented the C.P.R. placing a fast passenger steamer on the Victoria-Vancouver route.

The river ice in front of Dawson moved out May 17, & was soon followed by the arrival of a number of barges which started from the foot of Lake Laberge, & travelled in the rear of the ice floes. These were followed by the str. Flora. On account of low water considerable difficulty was experienced by steamers in getting down the river in the early part of June, much damage to hulls being done by shoals in Thirty Mile Creek & Teslin River. The str. Jas. Domville was totally wrecked at Thirty Mile, the steering gear not answering quickly enough for a sharp turn in the rapids. She was built last year for the

Klondike & Stewart River Pioneers, Ltd., an English Co., & was towed to St. Michael's whence she ascended the Yukon. Up to June 20 the following boats that wintered in the Yukon, from Rampart to Dawson, had arrived at the latter point:—Sovereign, Monarch, Victoria, J. J. Healy, Rideout, Mary E. Graff, Robert Kerr, Seattle, Arnold, J. C. Barr, Seattle No. 3, Lightning Clara, Oil City, Pilgrim, Herman, U. S. Stratton, Reindeer, J. C. Power, & John J. Cudahy. From the headwaters the following arrived at Dawson: Flora, W. K. Merwin, Columbia, Pingree, Tyrell, P. B. Lowe, Gold Star, Canadian & Ora. The Ora was the first boat to arrive with connection from the outside.

An informal meeting of Alaska Steamship Association was held in the office of the Canadian Pacific Navigation Co. at Victoria, July 25, & the representatives of the different companies included in the association proffered the fatted calf to the C.P.N. Co., which had given notice of withdrawal from the combine. The notice was given by letter which was read at a meeting of the association held at Seattle July 19. According to one of the Sound steamboat men present at the meeting the reason of the threatened withdrawal is said to be the same that nearly resulted in similar action several weeks ago. Both of the Canadian companies, the C.P.N. & Union, have threatened to pull out of the organization, unless the Seattle companies stop calling at B. C. ports while their vessels are en route to or from Alaska. So determined were they upon that move, that it was several days before the prospective trouble was obviated, & it was even necessary to have several conferences between the companies of the association. But even with the present stated withdrawal of the C. P. N. Co., it is believed that moral suasion will again result in drawing the recalcitrant members back into the fold. It is expected that after further discussions participated in by the members of the association, in the two countries, the body will be kept intact, & the C.P.N. people induced to reconsider their action.—Victoria Times.

Ontario & The Great Lakes.

The Thousand Islands passenger traffic has never been heavier than it is now.

W. Power, the veteran ship builder, is reported seriously ill with cancer at Kingston.

The Rainy River Navigation Co. has been incorporated under the Dominion Companies Act, capital \$99,000; headquarters, Rat Portage.

Captain Johnston, of the str. Princess Louise, is said to be negotiating for the purchase of another boat to ply between Ottawa & Thurso, Que.

Capt. J. Robertson, of the str. Darius Cole, is credited with being the oldest commander in active service on the lakes. He will be 73 next Dec. He began sailing 57 years ago.

The wreck of the old str. Rothesay is giving annoyance in the vicinity of Blalay's Point, near Prescott. The iron skeleton of the wheels stands only a few inches below the surface.

A survey of the proposed route of the Montreal, Ottawa, & Georgian Bay Canal is being made under W. Shanley, C.E., in order to satisfy the Government as to the estimated cost of the work.

Capt. Reynolds' str. Empress, built to replace the Golden City, burned last year, was launched at Lakefield July 17. She is 93 ft. over all, 16 ft. beam, has an 85 ft. keel & a promenade deck 78 ft. long.

The Western peninsula will hereafter have first-class service across Lake Erie to Cleveland, from Port Stanley & Rondeau. Tri-

weekly trips will be begun at once, the first steamer of the Lake Erie Navigation Co., the Urania, having arrived at Port Stanley.

On July 20 fire broke out in the hold of the C.P.R. str. Athabasca, which was tied up at the dock at Owen Sound. It was caused by an explosion of patent medicines. Efforts to subdue the flames by steam proving futile, the hold had to be flooded with water & the damage to the cargo was considerable.

The U.S. Treasury has remitted the penalty of \$3,200 imposed on the Canadian str. Comfort for carrying coastwise passengers. She carried a Fourth of July party from Marine City, Mich., to another point in the U.S., via a Canadian port. The captain said that he did not think he was violating any law, inasmuch as he touched at a point in Canada en route.

It is stated that the small passenger steamer Unique is to be put in service again, after being in limbo at Sarnia, Ont., on account of debt. An arrangement has been arrived at whereby she comes into the possession of an eastern syndicate. She is being fitted up & painted & will go into the excursion trade among the Thousand Islands of the River St. Lawrence & vicinity.—Marine Record.

The Northern Navigation Co.'s str. Germanic was launched at Collingwood July 20. She is 190 ft. long over all, 32 ft. beam, depth of hold 12½ ft., registered tonnage 1,300. She has state room accommodation for 200 1st class. Vice-President Long, in referring to the Co.'s increase of capital to \$1,000,000 said that the unexpended \$600,000 would be used in building large vessels suitable for the requirements of the increasing trade; also, that in conjunction with the Dry Dock Co. the N. N. Co. had in view the establishment of a large ship-building industry that would give constant employment to a large number of men.

June touched the high water mark at the Canadian & U.S. canals at Sault Ste. Marie, the freight tonnage of over 3,000,000 tons for the month breaking all records. This tonnage was not only greater than that of any previous

month in the history of the canals, but it exceeded by 244,390 tons the total traffic of St. Mary's canal during the entire year of 1885. Nothing further is needed to demonstrate the marvellous growth of lake commerce during the past 15 years, & the growth during the present year indicates that it will be but a few years when the three locks at St. Mary's Falls will be taxed to their utmost capacity in carrying for it.

In the charge against Capt. McIntyre, of the str. Ongiara, for Sabbath profanation, brought at Niagara recently, judgment was reserved. The defence put in a number of pleas, but it is held that the magistrate has no jurisdiction. The remedy, if any, is a civil one by action only. The Provincial Legislature can make a crime of it or amend the Lord's Day Act, which was in force at Confederation. It is claimed that the Legislature has no jurisdiction in respect to the Niagara River, as it is an international highway, & that the Dominion Parliament alone has jurisdiction. The Niagara Navigation Co. has a Dominion charter, & when a corporation is not liable its servant is not liable.

Six or eight months ago the wooden steamer of 2,500 to 2,800 tons capacity, of which there is quite a large number on the great lakes, & most of them not very old, was not looked upon as very valuable property. Now these vessels are held in some cases at prices 50% above what they could be bought for last winter. Several wooden steamers of moderate size that were on the market just before the opening of navigation, were offered at \$55,000 to \$65,000; now \$80,000 & \$85,000 are the prices asked for them. Negotiations are pending for the transfer of several vessels that would be considered almost worthless a short time ago, but the parties are slow in coming to terms on account of the general advance in values.—Marine Review.

There is said to be no truth in a report which recently emanated from Toronto to the effect that the G.T.R. authorities were considering the advisability of establishing a line of steamboats from either Owen Sound or Goderich in opposition to the C.P.R. steam-

boat service. The G.T. authorities have heard nothing of such a project. The G.T.R. has its affiliated steamboat connections with the great lakes from both Owen Sound, Goderich & Collingwood, to Chicago, Duluth & other lake centres, & it needs no other. The existing service is sufficient for the present requirements of the traffic. Some newer boats will, no doubt, in due course, take the place of the older ones now in the service, but that is a matter of time. The service as it is now conducted is satisfactory.

The proposed St. Clair & Erie Ship Canal involves the building of a canal across the narrow neck of land separating Lakes St. Clair & Erie. The distance is 13 miles. The construction of a canal of this length would save 79 miles of dangerous lake & river navigation. The canal would undoubtedly be of great advantage to U.S. shipping, more so than to Canadian. The shipping passing Detroit amounts to 32,000,000 tons a year. It is estimated that at least two-thirds of this amount would use the canal, & that charges on this tonnage, at 2½c. a ton, would produce a revenue of \$550,000 a year, enough to finance the enterprise. In addition to this, it is claimed there would be a saving of \$1,014,200 a year to the vessel owners by reason of the shorter & safer route via the canal. The promoters do not ask for a subsidy.

The question as to the date on which the St. Lawrence canals will be available for the passage of vessels of 14 ft. draught is one on which officials do not feel like making any definite statement, though all indications point to the completion of all the pending improvements, with the exception of those on the Cardinal section of the Galops canal, by the latter part of August. The Soulanges is reported as practically ready & the other works are understood to be in such an advanced stage as to justify the hope that the enlarged & deepened channel may be thrown open by the date mentioned or by Sept. at the latest. The contractors for the Cardinal section have agreed to take all vessels of more than 9 ft. draught up the river by means of strong tugs, so that the opening of navigation from the

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Probably a month will elapse before the consolidation of towing & wrecking interests on the great lakes is fully effected, but it is not at all probable now that there will be any hitch in the plans, as enough has been done to insure the success of the new company. Even after the money required for this undertaking had been subscribed by some 50 of the leading U.S. vessel owners of the great lakes, including the managers of all the principal ore companies & several representatives of the line-boat interests in Buffalo, & it was found that the stock could be sold four or five times over, it was still agreed that unless the property of the various harbor tug lines could be brought into the combination at such prices as to insure sound business methods, the scheme was not to be carried out. The plan of organization, which involves a certain amount of stock to be taken by the several companies entering into the organization, is so conservative as to appeal to the tug owners as well as to the vessel owners.—*Marine Review*, July 13.

Maritime Provinces Shipping.

The steamers of the Dominion Atlantic Ry. & of the Yarmouth S. S. Co. have been doing some racing lately between Yarmouth & Boston.

Superintendent Chipman has made some changes in the Plant line offices in Halifax: R. H. Humphrey becomes Agent in charge of accounting department; F. H. Chipman, City Passenger Agent; J. A. Lane, Chief Freight Clerk; F. F. Coates, Secretary & Assistant to Superintendent.

ELECTRIC RAILWAYS.

The Lines in Western Canada.

British Columbia Electric Ry.—In Victoria the Co. will shortly inaugurate reduced fares for workmen going to & returning from work on the Esquimault branch, & will also correct some anomalies in the present system of transfers.

Earnings & expenses for June:

	1898.	1899.	Increase or Decrease.
GROSS EARNINGS.			
Railway—Vancouver branch	\$6,450	\$7,661	\$1,211+
Victoria "	7,189	6,540	649-
Westminster "	6,181	7,036	855+
Lighting—Vancouver	5,119	5,363	244+
Victoria "	3,397	3,596	199+
Total gross earnings	\$28,336	\$30,196	\$1,860+
Working expenses	\$17,826	\$18,402	\$576+
Net profits	\$10,510	\$11,794	\$1,284+
Gross earnings April 1 to June 30	\$87,763	\$92,344	\$4,581+
Net earnings April 1 to June 30	\$31,780	\$35,981	\$4,201+
+Increase. -Decrease.			

Nelson Electric Tramway.—The first spike was driven Aug. 1st, by C. S. Drummond, a director of the British Electric Traction Co. It was a gold one & was afterwards presented to him by the Mayor. Construction will be proceeded with at once. A line will run from the C.P.R. station to Baker St., thence to Bogustown, if pending negotiations are successfully concluded. A branch will run up Stanley St. as far as Mines road, thence to Kootenay St., & from there to the skating rink, at the corner of Houston & Stanley Sts., which belongs to the Co. A line will also run along Observatory St., or possibly Robson St. to Josephine St., thence down to the main line on Baker St. A considerable quantity of rails, etc., has arrived. Power will be supplied by the West Kootenay Power & Light

Co., from Bonnington Falls. Halifax Hall is engineer in charge of construction. It is said that the British Electric Traction Co. (the parent company) had such faith in the future of Nelson that it has decided not to place the tramway shares on the market, but to keep them.

Re Sunday Cars.—At the recent session of the Manitoba Legislature, a bill introduced by R. P. Roblin, to amend the Municipal Act by allowing the council of any city to submit to a vote of the people the question of running electric cars on Sunday, was defeated.

Ontario Electric Railways.

Barrie.—With reference to the paragraph in our last issue, pg. 218, we are informed that the Royal Electric Co. did not make application to the Barrie town council for a franchise for an electric railway between Barrie & Allandale, as the Co. manufactures only; but its general agent at Toronto, J. A. Kammerer, wrote making enquiries from the council as to what franchise or encouragement would be given to a syndicate which would be willing to build an electric railway. The enquiry was made for outside capital, but up to July 25 no reply had been received.

Berlin to Port Dover.—There are said to be prospects of a line being built between these points.

The Hamilton Consolidations.—At the time of writing (Aug. 7) there is very little to add to what was said in our last issue, pg. 221. There appears to be no doubt that the Cataract Power Co., represented by J. Patterson, has secured control of the Hamilton & Dundas line, the Manager having been notified to that effect by the owners. It is said the wide cars now on that line will be transferred to some other road & replaced by narrower cars which can be run over the double tracks in Hamilton. A rumor that Mr. Patterson's backers would take over the Hamilton, Grimsby & Beamsville line is again denied, with the statement added that the new company proposes to build a fast freight line to Toronto. Mr. Patterson had some people from New York, Chicago & Boston looking over the field during the third week in July. It was announced that the Hamilton St. Ry. & the Hamilton & Dundas Ry. would be transferred on Aug. 2, but for some reason not made public the transfer did not take place. It is said Mr. Patterson has to pay 125 for the Hamilton St. Ry. stock held by the shareholders who pooled their interests.

London St. Ry.—Earnings for July, \$1,056.13; operating expenses, \$5,531.14. Loss, \$4,475.01. In July, '98, the earnings were \$10,809.31; operating expenses, \$6,000.52. Net earnings, \$4,808.79. The strike still continues, with occasional disturbances by some of the citizens.

The Ottawa Electric Ry. Co. donated \$400 to the Associated Charities of the City out of the proceeds of the first Sunday's traffic on July 23. The row in the City Council over the by-law granting the Co. permission to run on Sundays has ended, the by-law having been finally passed.

The Port Arthur Electric Ry. has had a lot of improvements made recently in the wires & roadbed.

Toronto Railway.—The gross earnings are:

	1899.	1898.	Increase.
Jan.	\$95,690.12	\$86,502.36	\$9,187.76
Feb.	91,860.30	82,402.19	9,458.11
Mar.	103,234.88	92,318.42	10,916.46
April.	95,212.37	86,898.83	8,313.54
May.	104,806.62	92,670.35	12,136.27
June.	109,063.18	94,119.32	14,943.86
July.	116,824.94	104,302.92	12,522.02
	\$716,692.41	\$639,214.39	\$77,478.02

There has been very little change in the position of affairs respecting the building of radial railways by this Co. east & west from To-

ronto since the matter was referred to at length in our April issue, pg. 121. A short time ago Manager Keating met the Peel County Council with reference to crossing the Etobicoke River, when the matter was referred to a committee of the Council to meet on the spot & settle the conditions under which the Council will allow a railway bridge to be built. It is understood that the question of the extensions will be considered at the next board meeting of the Co., but this may not be held for some little time as a number of the directors are away.

It is reported that the franchise of the Toronto Baseball Club has been sold by A. Irwin, C. A. Campbell & T. G. Soole, to the Toronto Ferry Co. The Toronto Ry. Co. is said to have been negotiating for it with the intention of removing the games from the Island to the city side, & this forced the Ferry Co. to protect itself. The price is said to be about \$10,000.

Woodstock to Ingersoll.—Dr. Ickes, the promoter of this proposed line, was in Woodstock recently & expressed himself as satisfied with the 50 years franchise offered by Woodstock.

Quebec Electric Railways.

Montreal St. Ry.—The gross earnings are:

	1898-9.	1897-8.	Increase.
Oct.	\$133,419.69	\$116,093.09	\$17,326.60
Nov.	125,126.10	110,698.98	14,427.12
Dec.	127,678.00	113,029.33	14,648.67
Jan.	125,276.04	110,155.96	15,120.08
Feb.	113,838.02	102,425.99	11,412.03
Mar.	123,754.11	114,476.98	9,277.13
April.	130,405.96	110,619.27	19,786.69
May.	145,466.38	123,308.08	22,158.30
June.	156,858.34	132,964.61	23,893.73
July.	154,048.07	143,986.63	10,061.44
	\$1,335,870.71	\$1,177,758.92	\$158,111.79

The Verdun extension has been completed to the western limits of the village. The line runs along the Lower Lachine Road, right beside the river, as far as the Lachine Rapids, & to within a quarter of a mile of the Lachine Rapids Hydraulic & Land Co.'s power house. Between the Queen's Park & the end of the route an extra fare is charged each way. The route chosen is one of the prettiest on the island of Montreal.

The Co. is arranging to build a second street car line into Westmount, having concluded an arrangement with the Seminary of Saint Sulpice, by which it secures the right of way over 30,625 ft. of land, running through the Seminary's property. The portion purchased is bounded by Sherbrooke st., Cote des Neiges road, Cote des Neiges corporation & Westmount. Thirty cents a foot is the price agreed upon, bringing the total up to \$9,187.50. The Co. intends to build the line from the present terminus of the Guy st. line up the Cote des Neiges road, a short distance beyond Cedar avenue, through the seminary grounds, on what was at one time intended for Elm avenue. It is said this line will ultimately be extended to the cemeteries, so that funeral cars may be run.

The cars are being equipped with life-saving fenders which are being made at the Co.'s works.

The Co. has placed an electric pay car in service, so that the men, in place of receiving their wages at the Co.'s office, are now paid at the various centres. This greatly facilitates matters, as the men are spread out in their various occupations over a large area. The car is constructed much on the same principle as the regulation mail car used in many sections of country in the electric railway service. It is divided into two compartments. One is merely a passage way through which the person receiving money passes, entrance being made at one end of the car & exit by the other. In the other compartment, which is entirely closed in, are the paymaster & the checker. These two officials have

four drawers at their disposal, but only one wicket witnesses the giving of envelopes. Of course there are a conductor & motorman. The windows on both sides of the car are protected by wire netting.

Under a by-law recently passed by the City Council, when a car stops at an intersecting street, it is stopped at the near corner instead of the far one, as heretofore. The speed of cars is limited to 8 miles an hour & 4 miles an hour when turning street corners & at intersecting lines.

The Co. is contemplating the erection of a club-house for its men at the corner of Harbor & St. Catherine streets. The plans show a building modern in all respects, with every convenience for the welfare of the men.

The Montreal Park & Island Ry. Co. is seeking to restrain the town of St. Louis from interfering with its tracks on Park Avenue. The Co. alleges in substance that it has acquired by transfer the franchise granted to A. J. Corriveau in 1893 to construct & operate an electric railway in St. Louis & that since then this particular branch of its system has been declared to be a road to the general advantage of Canada by the Dominion Parliament, & that the defendant had no right on any pretext whatever to interfere with it & tear up the tracks as it did. Substantially the defence is that by its charter the corporation has the power conferred upon it to level, pave or macadamize any street in its limits, to level the ground for sidewalks, etc., that the work done with that end in view on Park avenue was done in the regular way by a resolution of the Town Council, adopted on a report of the town engineer, to render Park avenue fit for traffic & this in view of the selling of the exhibition grounds in lots. Moreover, if the tracks were removed it was because they were above the level of the street. The corporation denies that it is in contempt, & alleges that

when the writ was served all work was stopped.

The following notice to conductors & motormen has been issued:—On & after Aug. 1, motormen & conductors who have been in the Co.'s employ for 2 years or over will receive 15c an hour. There will also be \$100 distributed at Christmas in prizes to motormen & conductors holding the best records, as follows:—\$20 each for the motorman & conductor having worked 350 days or more during the year & having the best record. \$15 each for the motorman & conductor having worked 200 days or more during the year & having the best record. \$10 each for the motorman & conductor having worked 100 days or more during the year & having the best record. \$5 each for the motorman & conductor having worked 60 days or more during the year & having the best record. The records will be based upon the carrying out of the orders entered in the order book, obedience to the rules of the Co. & the care of the Co.'s property.

Rumors have been revived lately as to the absorption of the M. P. & I. Ry. by the Montreal St. Ry. Co. It is said that the M. P. & I. Co.'s property can be had for \$800,000 but that the M. St. Ry. Co. is not inclined to give that amount at present.

Quebec Electric Ry.—The Quebec, Montmorency & Charlevoix Ry. Co. has paid the City of Quebec \$2,365, being 4% on the earnings of the line in the city for the 6 months ended June 30, which amounted to \$59,141.

The Queenston-Lewiston Bridge.

The suspension bridge across the Niagara River, between Queenston, Ont., & Lewiston, N.Y., was opened July 21, under the auspices of the International Traction Co., which has built it through its subsidiary companies,

the Queenston Heights Bridge Co., of Canada, & the Lewiston Connecting Bridge Co., of New York State. The location of the bridge is on the site of a suspension bridge erected in 1850-51, & adheres pretty closely to the lines of the old bridge, which was wrecked by a hurricane on Feb. 1, 1864, & not rebuilt, because it was an unprofitable investment. As the great suspension bridges which stood further up the gorge have given place to new steel arches, this suspension bridge is the only structure of the kind spanning the Niagara. The cable span of the new bridge is 1,040 ft., & the span of the stiffening truss 800 ft. From center to center of trusses the width is 28 ft. clear, & the roadway has a clear width of 25 ft. The versed sine of the cables is 87 ft., & the height of the superstructure above high water mark is 65 ft. The height of the bridge above the tracks of the Niagara Gorge R.R. is about 15 ft. The stiffening truss extends about 4 ft. above the floor, & the only railing is light strips of iron flats reinforced by oak half-rounds. The floor is of 2 in. oak plank laid crosswise. A single track for trolley cars is laid through the center, the width of the bridge affording ample room for vehicles to pass on either side of the track. There is no walk for pedestrians, as the point of the bridge's location is such that there is not likely to be much travel on foot.

There are 4 towers, 2 on each side of the river. The towers on the New York side have a height of 26 ft., bases of 13 ft. square, & are located 28 ft. back from the edge of the bluff. The towers on the Canadian side have a height of 18 ft., with bases 12 ft. square, & are located 15 ft. back from the edge of the bluff, the ledge on the Canadian side being more firm than on the New York side. In the construction of these towers it was found possible to use a great part of the old towers in the new bases, & the old inscription stones

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of the towers on both sides of the river were preserved, & have place in the new towers. The new stone used in the towers on the New York side came from Buffalo quarries, & that in the Canadian towers from Queenston quarries.

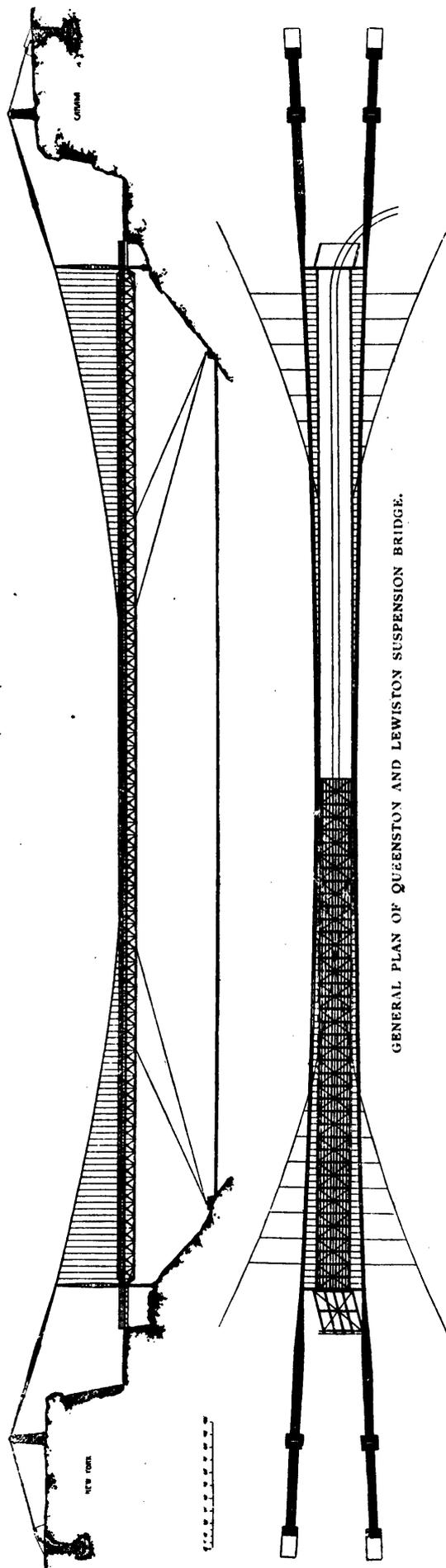
Four cables form the main support of the bridge. Each of these is composed of fourteen $2\frac{1}{4}$ in. galvanized cast steel wire ropes. These cables once formed a part of the old suspension bridge that stood close to the falls, & which was taken down in the early part of last year. The span of the upper suspension bridge was so great, & the anchorages so far back from the towers, that it has been found possible to cut the old cables in half, & thus use them on the shorter span of this new bridge. However, when so cut they are hardly long enough to fill out the entire span & reach back to the anchorages, & for this reason about 75 ft. at each end of the cable span is made up of eye-bars. The cables are anchored in solid rock about 150 ft. back from the towers, the shafts being filled with concrete. The suspended span is connected to the river banks by 2 approach spans, the one on the New York side being 34 $\frac{1}{2}$ ft. long, & the one on the Canadian side 19 $\frac{1}{2}$ ft. long.

On each side of the river the bridge has long approaches on which double tracks are laid for electric cars passing on & off the bridge. These approaches are about 25 ft. wide; the one on the Canadian side is about 1,000 ft. long, & the one on the New York side about 800 ft. long. Both approaches have face walls to prevent the native shale disintegrating under the weather. The approach wall on the New York side runs close beside the tracks of the Niagara Gorge R.R. Its highest part is about 19 ft., & for 660 ft. it drops at a 1% grade, & then for 200 ft. at a 2% grade. The high part is laid in cement, & the remainder is laid dry. These approach walls form the bridge landings. Gorge R.R. tracks are connected with the bridge on the New York side, & the Niagara Falls Park & River Ry. tracks with the bridge at the Canadian end. This makes it possible for passengers to travel around the beautiful gorge without leaving their seats in the electric cars. Starting, for instance, from the New York State Reservation, at Niagara Falls, N.Y., the trip consists of crossing the river over the new upper steel arch in a car of the Niagara Falls Park & River road; passing down that line along the top of the high bank on the Canadian side to Queenston, there crossing on the new suspension bridge to the New York side, where the tracks of the Niagara Gorge R.R. are taken back along the water's edge & up the bank to the point of starting, thus allowing passengers to view the river & banks from above & below, all forming a most delightful trip.

The capacity of the new Suspension bridge is such that it will accommodate the heaviest of trolley cars, together with a uniformly distributed load of 40 lbs. to the square foot over the entire structure. About 800 tons of metal have been used in its construction, & the cables weigh about 200 tons.

Canadian Enterprise in Brazil.

Comparatively few northern people know that in the southern part of Brazil lies one of the richest & most rapidly growing cities of South America, the capital of the state of Sao Paulo, & most advantageously situated as regards climate, elevation, railway connections & seaport facilities. The city of Sao Paulo is situated about 40 miles from the seacoast, directly under the tropic of Capricorn, 23 $\frac{1}{4}$ degrees south of the Equator. About 5 miles from the ocean hills rise abruptly to the height of 2,000 ft., & from this point a tableland extends inland for many miles. Sao Paulo is one of the highest points on this table land, its eleva-



tion being 2,500 ft. above the sea level. The climate is, for a tropical country, cool, bracing & healthful, & is not characterized by that depressing tropical humidity which is felt in the seacoast cities of Brazil. The latest estimates place the population at not less than 250,000, the growth having been extremely rapid during the past ten years. It is to this city that the attention of a number of Canadian & New York capitalists has been directed for some time, with the result that a syndicate has been formed, consisting of F. S. Pearson, Chief Engineer of the Metropolitan Street Ry. Co. of New York; W. MacKenzie, who is largely interested in many Canadian street railway properties; B. F. Pearson, of Halifax, N.S., & others, to develop the street railway, light & power interests of Sao Paulo. Franchises have been obtained for street railway lines covering all desirable routes in the city, including a few miles of street now traversed by a mule railway which has been in existence for some years. R. C. Brown, whose management of the Halifax property was such as to win him the entire confidence of its owners, has gone to Sao Paulo with a large consignment of electric railway apparatus, & is in full charge of construction, equipment & temporarily, of the operation of the system. He is accompanied by F. S. Pearson, who will determine the main outlines of the installation, locate power stations, etc.

The syndicate has obtained a concession for a number of lines laid out in such a way as to give the whole city a good service, but it is not believed that the development of the system will stop with the completion of these lines, for there are desirable suburbs to be reached. Coal in Sao Paulo sells for \$10 a ton, & wood is equally costly. As a consequence, the price of gas & electric lighting is high, & none of the city lighting is as yet done by electricity. Five thousand commercial incandescent lamps are, however, supplied from the present station. The electric light service begins at sundown & except for a few large customers, extends only until 10 o'clock in the evening. About 20 miles west of the city of Sao Paulo is the only large water power near the city, with a profitable minimum supply of 10,000 h.p., to 20,000 h.p. This has been secured by the syndicate, which intends developing power & transmitting it to Sao Paulo for furnishing the lighting, railway & power service. The introduction of cheap power into a city where steam power at present costs from \$100 to \$150 a year will mean a great deal to its industries & to the lighting & railway enterprise. The right to build a transmission line has been obtained & this line will pass through the town of Augua Branca, where there are at present several factories.

The syndicate has obtained the government approval for a type of street car which is almost an exact duplicate of the Broadway, New York, car. At present there has been shipped to Sao Paulo 10 miles of track, with necessary ties & other railway iron; 15 cars, Broadway pattern; two 225 kw. generators for direct connection with the engines & boilers. By the end of the year it is expected that 35 miles of track & 75 cars will be in Sao Paulo, & within a short time thereafter the temporary steam power station, now building, with apparatus described above, will be re-

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(For \$1,000 Mortuary Benefit.)

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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.—Social and Fraternal Privileges of the Court Room.
- 2.—Free Medical Attendance by Court Physician where not dispensed with by Court by-law; also trained nurses in certain cases.
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- 9.—A Funeral Benefit of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
- 10.—The Mortuary Benefit of \$500, \$1,000, \$2,000, \$3,000 \$4,000 or \$5,000.

The Members, the Benefits, and Their Assurance

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 86	2,967 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.75
1884	2,558	13,914 31	23,081 85	9 01	4.25
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.86
1887	7,811	59,014 67	81,384 41	10 44	5.78
1888	11,800	89,018 16	117,821 96	9 98	6.43
1889	17,349	116,787 82	188,130 36	10 84	5.18
1890	24,604	181,846 79	283,967 20	11 54	6.40
1891	32,303	261,436 21	408,798 20	12 65	5.47
1892	43,024	344,748 82	580,597 85	13 49	5.17
1893	54,484	392,185 93	858,857 89	15 76	5.47
1894	70,055	511,162 30	1,187,525 11	16 94	5.67
1895	86,521	685,000 18	1,560,733 46	18 03	5.60
1896	102,838	820,941 91	2,015,484 38	19 60	5.66
1897	124,085	992,225 60	2,558,832 78	20 52	5.67
1898	144,000	1,176,125 14	3,186,370 36	22 12	

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

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

James Marshall, 24 Charing Cross, London, Eng.

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

A. E. Stevenson, 6436 Kimbark Ave., Chicago, Ill.

Or Any Officer or Member of the Order.

placed by power electrically transmitted from the waterfalls by the three-phase system. At this waterfall a brick and cement dam, 40 ft. high & 400 ft. long, will be constructed. The following particulars are given of the Co.'s method of construction. The standard 7-in. girder rail, which is used for city streets, weighs 90 lbs. a yard & is mounted on steel ties spaced every 10 ft. The ties are set in concrete, the latter being carried a distance of 4 11-16 ins. below the base of the rail. The rails are connected with the ties by clips & are bonded to them, making a cross connection. The joints are also bonded by the Anderson west end bond. The guard rail weighs 110 lbs. a yard, & the T rail for suburban service 62 lbs. a yard.

W. Kelly, for many years eastern passenger agent of the Chicago, Milwaukee & St. Paul Ry., has been appointed general passenger agent of the Niagara Gorge R. R.

Judge Lillibridge, of the U.S. Circuit Court, at Detroit, Mich., recently delivered a decision permanently enjoining the street railway companies from carrying freight over their lines within the city. Hitherto the suburban companies' cars have carried freight over the city companies' lines, although there has been no special authority for doing so.

At the beginning of Oct. electric traction will be installed on the lines of the Metropolitan Ry. Co., in London, Eng. The newspapers unanimously applaud the change from steam power. The system is entirely underground, & the smoke & gases from the engines have always been a most objectionable feature, preventing many persons from riding on the lines. This handicap will be entirely removed by the use of electricity.

The All-British Pacific Cable.

The Act passed by the Dominion Parliament at the recent session provides that the Governor in Council may enter into an agreement with the Governments of the United Kingdom & of the Australasian colonies, for the purpose of securing the construction & operation of a cable between Canada & Australasia. A Board of Commissioners, composed of 8 members, shall be created by authority of the Imperial Parliament of the United Kingdom. The cable & all property acquired for the undertaking shall vest in this board, in trust, to carry out the undertaking for the benefit of the Governments sharing in it. To carry out the undertaking, the board may issue debentures, payable at not less than 25 years nor more than 50 years from issue, & bearing interest not exceeding 3% per annum, the total amount of debentures not to exceed £1,700,000. Subject to the cost of operation, maintenance & management, & the setting apart of a sinking fund to provide for renewals, the principal & interest shall be a 1st charge on all the property & earnings of the undertaking. The cable shall be laid between Canada & Australasia via the Pacific Ocean, & may be in sections, but all points of its landing shall be on British territory. The Governor in Council may appoint, & shall be entitled to appoint, 2 of the commissioners, who shall, with the remaining 6 members appointed, 3 by the United Kingdom & 3 by the other contributing governments, constitute the board. The respective governments joining in the agreement shall be interested in the profits & losses of the undertaking in proportion to the amount of their liability as aforesaid. The Governor in Council is authorized, on behalf of Canada, to guarantee payment of five-eighths of the principal of the debentures, & of interest thereon.

In introducing the bill the Postmaster-General said that as to the extent to which the

scheme would involve Canada financially, it was impossible to give anything but estimates. The line would have to be laid in places at a depth of 3,000 fathoms, which exceeded the depth of any cable at the present time, but once it was laid this circumstance would help to preserve it. The estimate of cost made by the Imperial Pacific Cable Committee was £1,422,000. Since then the cost of material had appreciated to the extent of about £170,000, making the total estimated cost £1,592,000. To this it was proposed to add £108,000 as a margin, & to figure the total cost at £1,700,000. It was confidently anticipated by all that the cable would become a paying enterprise within a very few years. The cost of maintenance, repairs, sinking fund & interest, would be £144,886, & it was believed by experts that, after paying all these charges, there would be a surplus for the 1st year of operation of £11,114, which would increase by the 5th year to £124,565.

General Telegraph Matters.

Advices received at Vancouver, July 31, stated that the Dominion Government telegraph line from Bennett had been completed to Little Salmon. It was expected that it would reach Fort Selkirk by Aug. 25 & Dawson by Oct. 15.

The G.N.W.T. Co. has opened the following offices:—Cacouna, Que.; Ekfrid, Ont.; Forestdale, Que.; Glanworth, Ont.; Grimsby Park, Ont.; Roberval Hotel, Que.; Seeley's Bay, Ont.; St. Leon Springs, Que. The office at Stittsville, Ont., has been closed.

A telegraph line is being built by the C.P.R. along the Columbia & Western Ry., from West Robson to Midway, B.C., & will be completed simultaneously with the track. It is already in operation between West Robson & Gladstone, about 45 miles. Pending the completion through to Midway, the Vernon & Nelson Telegraph Co.'s line from Rossland to Greenwood is to be used for telegraphing as well as telephoning.

It is said that when the Government telegraph line is completed between Bennett & Dawson, Yukon, the rate for a 10 word message will be \$2.75, or 27½c. a word. It will be remembered that the Canadian, British Columbian & Dawson City Telegraph Co., in its debenture prospectus, gave an estimate of a revenue of 5 shillings, or \$1.22 a word, between Dawson City & Quesnelle, B.C., the extravagant absurdity of which was pointed out at the time.

The C.P.R. Co.'s Telegraph has closed these offices.—Wawanesa, Man.; Otter Lake, Ont.; South March, Ont. The following offices have been opened:—British Columbia: Gladstone, Kuskanook, McLean's Tunnel, West Robson, Kootenay Landing, Material Yard, Republic. North-West Territory: Bowell, Strathcona. Ontario: Jordan, South Lancaster. Quebec: Coteau, Fairfax, Heathton, Kateville, Massawippi, Mulvena, St. Edwards, Trenholmvile, Cassville, Granite Quarry, Johnville, Kingsey Siding, Marlow, Norton Mills, St. Milo, Tuck's Landing.

The Dominion Department of Public Works is asking tenders for 165 tons of no. 8 S. W. G. galvanized iron telegraph wire (354 to 365 lbs. a mile), delivered in bond at the C. P. R. station at Vancouver, B.C. The quality of the wire & galvanizing must be such as will afford a test corresponding to the Felton-Guilleaume standard EBB; having a constant (resistance x weight, per mile) under 5,700; breaking strain, over 1,100 lbs., & taking not less than 20 twists in 6 ins. Weight of lengths, without joint, 90 to 112 lbs. Also for delivery with the above 5 tons no. 9 soft annealed galvanized iron tie wire.

A Skagway, Alaska, telegram of July 18 said:—"Two representatives of a company

which claims to have a concession for a cable from Vancouver, B.C., to this port are now here. They say steps will very shortly be taken to begin the laying of the cable. Much London capital is said to have been subscribed for this cable, in order that the mining market of London may be in telegraphic communication with the gold fields of the interior." In view of the fact that the Dominion Government has decided to extend its line from Quesnelle, B.C., via the Stikine River & Teslin Lake, to connect with the line being built from Bennett to Dawson, it is not likely a cable will be laid. In any case, cable experts say the route is almost impracticable for a cable.

The Spokane & Northern Telegraph Co. will, it is said, make some extensions into the Boundary Creek country. When D. C. Corbin sold the Spokane Falls & Northern Ry. system to the Great Northern Co. he retained the telegraph line which runs from Spokane to Rossland, & from Northport to Nelson. He has been granted a Dominion charter for a telegraph line into the Boundary Creek country. The new line will, it is said, be constructed from Marcus, where connection will be made with the line running to Rossland, Spokane & Nelson. It may be extended to Cascade, Grand Forks, Columbia, Greenwood & Midway. From the latter point it may go down the Kettle River to Curlew & thence to Republic. The latter place would thus be given direct communication with the leading Boundary points.

A London, Eng., despatch of July 30 says:—"Some very interesting tests of wireless telegraphy were tried last week, Maskelyne, the famous wonder worker of the Egyptian Hall, being the experimenter. On Wednesday a balloon was sent up. When almost out of sight messages were sent from the earth to the balloon & replied to. Then at a distance of 400 yards a powder magazine was, by means of wireless telegraphy, blown to pieces. Maskelyne affirmed that the effort would have been quite the same at a distance of 10 miles. It would be interesting to hear Marconi's opinion about this, but as he is with the manoeuvring fleets we must wait for that to test the theory. Still, a further test. Another balloon was sent up, but carried no people this time, only a tail of cartridges of gun cotton. After waiting till the balloon was but a speck in the sky a button was pressed. There was a flash, a very distinct boom, & the speck disappeared."

A. E. Porter & W. A. Ander, of Bennett, will apply at the next session of the British Columbia Legislature for an act to incorporate a company to construct & operate a system of wireless telegraphy for the transmission of messages from some place near Bennett, Cassiar District, by the most direct route southeasterly through the Province to some point on or near the C.P.R. in the Province, with power to build branches to some point on Vancouver Island, & to other points in the Province. Speaking of this application, the Railroad Gazette says:—"Is a charter necessary for the right to put up a pole on a quarter acre of private ground once in a hundred miles? Must authority be got from the Government to sling electricity through the air? We shall next be told that the inhabitant of New York must get a charter in New Jersey to look at summer sunsets or to smell the fertilizer factories. Perhaps, however, our Canadian friends are simply aiming to stake out a claim to sufficient aerial territory to prevent intrusion by rival ether-disturbers. The annoyances so prevalent in various parts of the country during the past few years in consequence of the disturbance of railroad signal circuits, by stray electricity from street-car lines, suggest that doing business in the sky may not be so free from the sordid elements of earthly life as the poets & electricians would have us think."

General Telephone Matters.

Rossland, B.C., has given a franchise to the Columbia Telegraph & Telephone Co.

In Moncton, N.B., 26 telephone instruments were burned out during a thunderstorm on July 19.

The business of the Bell Telephone Co. at Brockville, Ont., has increased rapidly lately, 6 operators being now employed.

In the Imperial House of Commons, Aug. 1, the telephone bill passed its 3rd reading with only 20 dissentients. It continues the franchise of the present company until 1911.

On July 24 poles were reported as being up for 10 miles on the new Brunswick Telephone Co.'s extension from Moncton to Buctouche, & it is expected to have the work completed during Aug.

Winnipeg City Council has authorized a committee to make the best terms possible with the Bell Telephone Co. to carry on the fire alarm system until the city is ready to take it over in about 6 months' time.

The Western Union Telegraph Co. & several other companies, have brought suit against the American Bell Telephone Co., under the Western Union-Bell contract, in which they seek an accounting in stocks & dividends amounting in the aggregate to about \$10,000,000. This suit not only directly affects the A.B.T. Co., but also all its sub-companies' stock & holdings.

S. L. Dakin, Beaver Harbor, N.B., & others are applying for incorporation under the N.B. Companies Act, as the Penfield & St. George Telephone Co., capital \$2,000, headquarters at Beaver Harbor, to establish telephone communication between St. George & Black's Harbor, Penfield, Penfield Ridge, Bonny River, Le Tete Harbor, Mascarane, Back Bay & West Isles.

T. T. Bailey, Portage la Prairie, Man., is said to have received intimation from the Bell Telephone Co. that a petition from Portage la Prairie, asking for the establishment of a long distance system, has been favorably consider-

ed, that estimates will be made of the cost & probable revenue, & if these are favorable the work will be proceeded with between Winnipeg & Portage la Prairie, with a possible extension to Brandon & other towns.

Prof. A. G. Bell is reported to have explained in a lecture how he came to invent the telephone as follows:—"My father invented a symbol by which deaf mutes could converse, & finally I invented an apparatus by which the vibrations of speech could be seen, & it turned out to be a telephone. It occurred to me to make a machine that would enable one to hear vibrations. I went to an aurist, & he advised me to take the human ear as my model. He supplied me with a dead man's ear, & with this ear I experimented, & upon applying the apparatus I found that the dead man's ear wrote down the vibrations. I arrived at the conclusion that if I could make iron vibrate on a dead man's ear I could make an instrument more delicate which would cause those vibrations to be heard & understood. I thought if I placed a delicate piece of steel over an electric magnet I could get a vibration, & thus the telephone was completed. The telephone arose from my attempts to teach the deaf to speak. It arose from my knowledge, not of electricity, but as a teacher of the deaf. Had I been an electrician I would not have attempted it."—Electrical World.

Among the Express Companies.

The B.C. Express Co. reports business as very fair.

D. C. Jackson has been appointed Superintendent of the Alaska Pacific Ex. Co., with headquarters at Skagway, Alaska.

W. M. Gordon has been appointed Route Agent of the Dominion Ex. Co., with headquarters at Winnipeg, with charge of all offices between Moose Jaw, Assa., & Fort William, Ont., inclusive, & all intermediate branch lines.

R. E. Helme has been appointed Route Agent of the Dominion Ex. Co., with head-

quarters at Nelson, B.C., vice A. Devitt resigned, with charge of following territory: all offices on main line of C.P.R. west of Moose Jaw, Assa., to & including Revelstoke, B.C.; Edmonton branch; Macleod branch; Lethbridge branch to & including Kootenay Ldg.; all offices south of Revelstoke, B.C.

F. G. McKay has been appointed Route Agent of the Dominion Express Co., with headquarters at London, Ont., vice R. E. Helme transferred, with charge of following territory: all offices on C.P.R. between Galt, Ont., & Detroit, Mich., inclusive; Ingersoll branch; Lake Erie & Detroit River Ry., & the following stage routes: between Galt & Hespeler; between Galt & Waterloo; between Ayr & Brantford; between St. Thomas & Aylmer.

On July 27 Acting Chief of Ontario Police Mains arrested, at Niagara Falls, A. Nixon, who gave St. Catharines as his residence, & J. Chrysler, who gave his residence as Allandale, but claims he has been teaching school at Elmsdale the past year. He is well known at Niagara Falls, & it is alleged that he has a criminal record. The two were charged with conspiring to defraud the Canadian Ex. Co. It is stated that they signed an order at Niagara Falls & forwarded it to the St. Catharines agency, to forward any money package from St. Catharines to Port Robinson. To this, the charge is, they signed the fictitious name of C. N. Hutton. The sequel to this was a check for \$200, supposed to be forged on the Bank of Commerce, Collingwood, made in favor of C. N. Hutton & signed, in supposed forgery, with the name of G. Logan, there being, it is said, over \$300 in that bank in favor of G. Logan, which has been, it is said, advertised as unclaimed. When the bank received the check, purporting to be signed by Logan, with a request from "Hutton" to forward the money to St. Catharines, the bank authorities handed the matter over to their St. Catharines agency, the arrest of Chrysler & Nixon following. The men were brought before the Police Magistrate at Niagara Falls, & were committed for trial.

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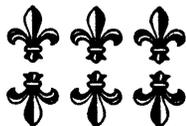
197 Lombard Street, Winnipeg—S. A. Erskine, Resident Agent.

The Purchasing Agents' Guide

To the Manufacturers of & Dealers in Steam & Electric Railway, Steamship, Express, Telegraph & Telephone supplies, &c.

Accident Insurance		Foghorns		Shipbuilders' Supplies	
Travelers' Insurance Co.....	Montreal.	Rice Lewis & Son.....	Toronto.	Rice Lewis & Son.....	Toronto.
Aerated Waters		Forgings		Ship Carpenters' Tools	
E. L. Drewry.....	Winnipeg.	Rhodes, Curry & Co.....	Amherst, N.S.	Rice Lewis & Son.....	Toronto.
Air Brakes & Fittings		Gas & Gasoline Engines		Ships	
Westinghouse Mfg. Co.....	Hamilton, Ont.	Northey Manufacturing Co.....	Toronto.	Polson Iron Works.....	Toronto.
Ales		Gates		Shovels	
E. L. Drewry.....	Winnipeg.	Page Wire Fence Co.....	Walkerville, Ont.	Rice Lewis & Son.....	Toronto.
Aluminum		General Supplies		The Hudson's Bay Company.....	
Rice Lewis & Son.....	Toronto.	Grease		Signal House Numbers	
Anchors		Eureka Min. Wool & Asbestos Co.....	Toronto	Acton Burrows Co.....	Toronto.
Rice Lewis & Son.....	Toronto.	Groceries		Signals	
Asbestos		The Hudson's Bay Company.....		Noah L. Piper & Sons.....	Toronto.
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Axles		Acton Burrows Co.....	Toronto.	Acton Burrows Co.....	Toronto.
Rhodes, Curry & Co.....	Amherst, N.S.	Hardware		Snow Ploughs	
Babbit		Rice Lewis & Son.....	Toronto.	Rhodes, Curry & Co.....	Amherst, N.S.
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Beltling		Iron Signs		Polson Iron Works.....	Toronto.
Eureka Min. Wool & Asbestos Co.....	Toronto.	Acton Burrows Co.....	Toronto.	Steamboat Signs	
Rice Lewis & Son.....	Toronto.	Japans		Acton Burrows Co.....	Toronto.
Blankets and Bedding		McCaskill, Dougall & Co.....	Montreal.	Steam Whistles	
The Hudson's Bay Company.....		Lager Beer, &c.		Rice Lewis & Son.....	Toronto.
Block & Tackle		E. L. Drewry.....	Winnipeg.	Steel	
Rice Lewis & Son.....	Toronto.	Lamps		W. G. Blyth.....	Toronto.
Blocks		Rice Lewis & Son.....	Toronto.	Rice Lewis & Son.....	Toronto.
Rice Lewis & Son.....	Toronto.	Noah L. Piper & Sons.....	Toronto.	Switch Targets	
Boat Fittings & Hardware		The Hudson's Bay Company.....		Acton Burrows Co.....	Toronto.
Rice Lewis & Son.....	Toronto.	Lanterns		Tanks and Tank Fixtures	
Boiler Covering		Rice Lewis & Son.....	Toronto.	Ontario Wind Engine & Pump Co.....	Toronto.
Eureka Min. Wool & Asbestos Co.....	Toronto.	Launches		Telegraph Office Signs	
Mica Boiler Covering Co.....	Toronto.	Polson Iron Works.....	Toronto.	Acton Burrows Co.....	Toronto.
Boilers		Life Insurance		Telegraph Spoons	
Polson Iron Works.....	Toronto.	Independent Order of Foresters.....	Toronto.	Rice Lewis & Son.....	Toronto.
Boiler Tubes		Travelers' Insurance Co.....	Montreal.	Telephone Office Signs	
Rice Lewis & Son.....	Toronto.	Linoleum and Floor Coverings		Acton Burrows Co.....	Toronto.
Bolts		The Hudson's Bay Company.....		Tie Plates	
Rice Lewis & Son.....	Toronto.	Locomotives		F. E. Came.....	Montreal.
Bridge Numbers		Baldwin Locomotive Works.....	Philadelphla.	Tobacco and Cigars	
Acton Burrows Co.....	Toronto.	Lubricators		The Hudson's Bay Company.....	
Buckets		Rice Lewis & Son.....	Toronto.	Tollet Paper	
Rice Lewis & Son.....	Toronto.	Matches		Rice Lewis & Son.....	Toronto.
Bunting		E. B. Eddy Co.....	Hull, Que.	The Hudson's Bay Company.....	
Rice Lewis & Son.....	Toronto.	The Hudson's Bay Company.....		Tools	
The Hudson's Bay Company.....		Milepost Numbers		Rice Lewis & Son.....	Toronto.
Carpets		Acton Burrows Co.....	Toronto.	Track Jacks	
The Hudson's Bay Company.....		Mohair		Duff Manufacturing Co.....	Allegheny, Pa.
Cars		The Hudson's Bay Company.....		A. O. Norton.....	Coaticook, Que.
Rhodes, Curry & Co.....	Amherst, N.S.	Numbers		Track Tools	
Car Wheels		Acton Burrows Co.....	Toronto.	Rice Lewis & Son.....	Toronto.
Rhodes, Curry & Co.....	Amherst, N.S.	Oakum		Trucks	
Castings		Rice Lewis & Son.....	Toronto.	Rice Lewis & Son.....	Toronto.
Rhodes, Curry & Co.....	Amherst, N.S.	The Hudson's Bay Company.....		Typewriters	
Chains		Oils		Creelman Bros. Typewriter Co.....	Toronto.
Rice Lewis & Son.....	Toronto.	Eureka Min. Wool & Asbestos Co.....	Toronto.	Uniforms	
Cross Arms, Top Pins & Side Blocks		Galena Oil Co.....	Franklin, Pa.	John Martin, Sons & Co.....	Montreal.
The Firstbrook Box Co.....	Toronto.	Office Signs		Uniform Caps	
Curtains		Acton Burrows Co.....	Toronto.	W. H. Coddington.....	Hamilton, Ont.
The Hudson's Bay Company.....		Packing		John Martin, Sons & Co.....	Montreal.
Cuts		Eureka Min. Wool & Asbestos Co.....	Toronto.	Valves	
Acton Burrows Co.....	Toronto.	Pipe		Rice Lewis & Son.....	Toronto.
Door Signs		Rice Lewis & Son.....	Toronto.	Varnishes	
Acton Burrows Co.....	Toronto.	Pipe Covering		McCaskill, Dougall & Co.....	Montreal.
Dry Goods		Eureka Min. Wool & Asbestos Co.....	Toronto.	Vessels	
The Hudson's Bay Company.....		Mica Boiler Covering Co.....	Toronto.	Polson Iron Works.....	Toronto.
Electric Car Route Signs		Plushes		Waste	
Acton Burrows Co.....	Toronto.	The Hudson's Bay Company.....		Eureka Min. Wool & Asbestos Co.....	Toronto.
Electric Car Trucks		Porter		Rice Lewis & Son.....	Toronto.
Baldwin Locomotive Works.....	Philadelphla	E. L. Drewry.....	Winnipeg.	Noah L. Piper & Sons.....	Toronto.
Enameled Iron Signs		Portland Cement		Water Meters	
Acton Burrows Co.....	Toronto.	Rice Lewis & Son.....	Toronto.	Westinghouse Mfg. Co.....	Hamilton, Ont.
Rice Lewis & Son.....	Toronto.	Printing		Water Supply Material	
Engines, Stationary & Marine		The Hunter, Rose Co.....	Toronto.	Ontario Wind Engine & Pump Co.....	Toronto.
Polson Iron Works.....	Toronto.	Mail Job Printing Co.....	Toronto.	Wheelbarrows	
Engraving		Pumps		Rice Lewis & Son.....	Toronto.
Acton Burrows Co.....	Toronto.	Ontario Wind Engine & Pump Co.....	Toronto.	Windmills	
Toronto Engraving Co.....	Toronto.	Rice Lewis & Son.....	Toronto.	Ontario Wind Engine & Pump Co.....	Toronto.
Express Office Signs		Rails		Window Blinds	
Acton Burrows Co.....	Toronto.	Rice Lewis & Son.....	Toronto.	The Hudson's Bay Company.....	
Fencing		Rivets		Wines and Liquors	
Page Wire Fence Co.....	Walkerville, Ont.	Rice Lewis & Son.....	Toronto.	The Hudson's Bay Company.....	
Ferry Signs		Rope		Wire & Wire Rope	
Acton Burrows Co.....	Toronto.	Rice Lewis & Son.....	Toronto.	Rice Lewis & Son.....	Toronto.
Flags		The Hudson's Bay Company.....		Yachts	
Rice Lewis & Son.....	Toronto.	Semaphore Arms		Polson Iron Works.....	Toronto.
The Hudson's Bay Company.....		Acton Burrows Co.....	Toronto.		
		Shafting			
		Rice Lewis & Son.....	Toronto.		

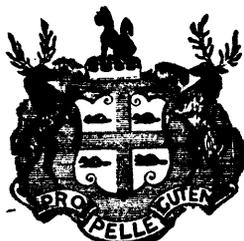
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