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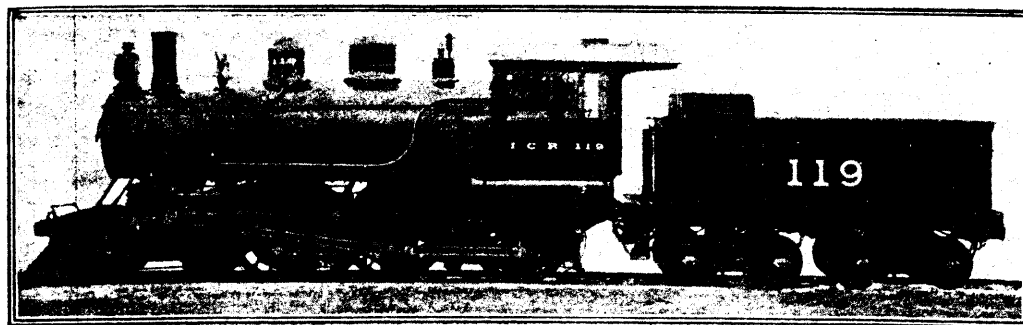
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WIRELESS TELEGRAPHY.

By H. T. Barnes, D.Sc., F.R.S.C., McGill University, Montreal.

Wireless telegraphy, or the transmission of signals through space by means of electric waves, is of comparatively recent development, although the idea of the existence of electric waves dates back some 40 years. In 1868 Clark Maxwell, then Professor of Physics in Cambridge university, first published a theory showing that an intimate relation between electricity and light existed. This theory, which has received most conclusive substantiation since then by eminent physicists, is known as the electromagnetic theory. It tells us that electric waves and light waves are similar, that they represent a transfer of energy by means of the all-pervading universal ether, that they differ radically in their effect on the physical senses, in wave length and period of vibration, and that both possess the same velocity of 187,000 miles in a second. Many of the exponents of the electromagnetic theory discussed the properties of electric waves long before they were experimentally demonstrated.

Our experimental knowledge of the existence of electric waves dates from about 1880. Hertz, a German physicist, while working under the illustrious Helmholtz discovered that small sparks could be made to pass between two conductors when held near a circuit in which electric oscillations were set up. He soon discovered that this was due to the action of electric waves, and realizing how fundamental in importance this was to the thorough knowledge of the electromagnetic theory he commenced a series of experimental researches, which were of such a brilliant and productive nature as to mark them as amongst the most important investigations in the whole domain of science. A host of experimenters then followed and amongst them Signor Marconi, who has since become so closely identified with the subject.

In 1890 the coherer was discovered by Branly and simultaneously by Oliver Lodge. Lodge's coherer was a very delicate instrument and by its means the electric waves could be detected at a much greater distance than was possible with the conductors used by Hertz. In 1895 in Cambridge Mr. Rutherford, now Professor of Physics in McGill university, first showed that the waves could be observed by a magnetic detector. He discovered that a weakly magnetised steel wire becomes instantaneously demagnetised under the influence of electrical oscillations such as

electric waves. With his detector he succeeded in establishing communication at half a mile.

In 1896 Marconi went from Italy to England, and with the help of a Government grant obtained through the instigation of Sir Wm. Preece, head of the English telegraph department, commenced a series of experiments in wireless communication. Very rapid strides were made, and the distance to which signals could be sent was very much increased. An important development soon followed

These travel out in a spherical form on all sides just as the ripples grow around the spot where a stone is dropped into quiet water. Such an oscillating current is produced when a spark passes between the metallic knobs attached to the secondary or fine wire coil of an induction coil. This oscillation produced by the sudden rush back and forth of the spark is rapidly damped and soon dies out. To increase the time of the oscillation large metal plates are connected to the knobs. The larger the plates the slower is the time of vibration and the longer the wave.

The primary circuit of the induction coil is connected with a battery of accumulators or storage cells of low voltage. These would not in themselves be sufficient to cause a spark to pass between the knobs, but by an induced action of the magnetism set up by the primary coil of the induction coil a current of very high voltage is set up in the secondary, which causes the spark and consequently the very rapid oscillations. To receive the waves and render them apparent, two metal rods are stretched for some distance. These rods terminate in knobs between which sparks are seen to pass by a passage of a current of electricity collected from the waves which impinge on the rods. Hence, whenever sparks are produced in the transmitter, as the source of electric waves may now be called, sparks of much smaller intensity are seen to pass between the knobs of the receiver. The farther away the receiver is placed the smaller the sparks between the knobs.

To detect the waves at great distances, instead of the spark gap between the metal rods, the coherer or magnetic detector must be inserted. The coherer depends in principle on the discovery of Branly and Lodge that a fine metal powder becomes a good conductor for electricity when under the influence of electric waves. When attached to a storage battery only a feeble current can find its way through the poorly conducting metal powder of the coherer, but as soon as a wave is received the resistance is

enormously diminished and a stronger current passes which is sufficient to operate a telegraphic relay. This relay brings a second and more powerful battery into play which operates a telegraph sounder or electric bell. In order to produce the telegraphic code it is necessary to produce an immediate decohering of the metal powder after the waves have ceased. This decohering may be produced by the direct action of the trembling hammer of the electric bell or by other mechanical devices. By a long continued stream of sparks from the



E. N. BENDER,

General Purchasing Agent, Canadian Pacific Railway.

in regard to the use of a vertical wire for transmitting the waves instead of a horizontal one which increased the distance still more. Although Marconi has come to be chiefly associated with developments in wireless telegraphy other systems have been established in various countries, which involve slight modifications in the apparatus employed. In Germany the Arco-Slaby system is used with success; and in the United States the DeForest is being installed in many places.

Wherever a rapidly oscillating electric current exists waves are set up in the ether.

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WIRELESS TELEGRAPHY.

(Continued from page 1.)

transmitter a continued train of electric waves
causes a continued action on the receiver. A
short stream from the transmitter causes a
short signal on the receiver. The dashes and
dots of the Morse system immediately be-
come possible. The chief modification to
the simple arrangement which was introduced
by Marconi was to replace the metal plates on

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the transmitter by two vertical wires, one con-
nected to earth and the other rising directly
into the air. By means of similarly arrang-
ed collecting wires on the receiver signals for
hundreds of miles have been accomplished
with the greatest ease.

It is at once apparent that on account of
the spreading out of the spherical waves from
the transmitter any receiver within range of
the waves will respond to the signal. Secrecy
is by this impossible. To render any one re-
ceiver or set of receivers sensitive to a mes-
sage while all the others remain silent it be-
comes necessary to arrange a form of tuned
telegraphy, by which the transmitter may be
arranged to give out waves of one particular
period. A familiar form of tuning is given
when a musical note is sounded near a piano.
The string of the piano, which vibrates in the
same period as the note will immediately
sound in sympathy, while all the others not so
tuned remain silent. Before wireless tele-
graphy becomes a commercial success a sim-
ilar result must be accomplished. Experi-
ments along this line are being rapidly contin-
ued with no small measure of success, and
already many important results have been
accomplished.

Recently Marconi astonished the world by
stating that he had received signals across
the Atlantic, a distance of over 2,000 miles.
It has been demonstrated in Europe that mes-
sages can be flashed 1,000 miles with ease
across highlands and lowlands as well as
across water. In the U.S. wireless tele-
graphy is being carefully tested by the army
and navy. Stations are to be installed at Fort

Wadsworth and Fort Hancock, where it is hoped the present cable may be superseded. The new Marconi station at Glace bay, N.S., has, it is stated, 150 aerial wires each 140 ft. long before they meet in the great central wire which runs downwards to the receiver. It is hoped to extend the distance to Cape Town in South Africa, and experience only will show whether this will be accomplished. Marconi's plans are to establish a chain of long distance wireless stations in different parts of the world. One station will be in Canada, two in the U.S., one in Central America or the West Indies, one in South Africa and one on the continent of Europe, besides the present one at Poldhu in Cornwall. Many of the great Atlantic lines have already established wireless stations on their ships, and communication is maintained far out to sea.

During the passage of the special train on the G.T.R. between Toronto and Montreal on Oct. 13, bearing the members of the American Association of General Passenger and Ticket Agents from Chicago to Portland, it was demonstrated that communication could be maintained between a station and a fast moving train by means of electric waves. No attempt was made to cover distances comparable in size with those attained by Marconi and others, but with comparatively simple laboratory apparatus it was possible to keep the train in touch with the station for from 8 to 10 miles. St. Dominique was selected as the transmitting station where two large metal plate vibrators 10x12 ft. connected with an induction coil of the usual pattern were situated. On the train itself the waves were received by collecting wires connected to a coherer of nickel and silver powder. The relay operated electric bells in three cars. The collecting wires were run through the guides for the train signal cord, and extended on both sides of the coherer for about one car length. To obtain the maximum effect it would have been better to have had a long vertical wire, but since such was impossible, the horizontal wire was used. Although these were placed INSIDE the steel frame cars strong and definite signals were obtained over the distance named. Another difficulty militated against obtaining the maximum sensitiveness as, owing to the natural vibration of the train resulting from its great speed, it was impossible to have the relay adjusted to its most sensitive point. In spite of these difficulties the distance to which signals could be sent to the train was eminently satisfactory, and with more refined apparatus greater distances could without doubt be obtained. The success of this form of wireless telegraphy, of which this was but a pioneer experiment, opens up yet another method of providing for the safety of the travelling public.

White Pass and Yukon Ry. Report.

The annual meeting was held in London, Eng., recently. The report for the year ended June 30, 1902, also contains the results of the trading of the local companies, all of whose capital is owned by the W. P. and Y.R. Co., for the year ended Dec. 31, 1901. A report by S. H. Graves, President of the local companies, and a report by G. Wilkinson, of Chicago, the Auditor of the local companies, was also submitted. The profit and loss account, after providing for debenture stock and debenture interest and all charges, shows a net profit for the year of £136,967 0s. 4d., to which is added £14,373 2s. 10d. carried forward from last year, making £151,340 3s. 2d. of profit up to June 30 last. Out of this a dividend of 10s. a share, or 5% on the share capital, was paid to the shareholders on Dec. 12, 1901. This absorbed £68,750, leaving on hand at June 30, 1902, £82,590 3s. 2d. During the year the directors resolved to create

a sinking fund to provide for the repayment of the £750,000 of debenture stock which will fall due Dec. 31, 1930. To insure such repayment on a basis of 3% per annum compound interest, a deed of trust has been entered into with the trustees of the debenture stock, the Railway Share Trust and Agency Co., which provides that £16,586 be set aside out of the profits each year and invested, or an equivalent amount of debenture stock of the Co. be transferred into the joint names of the Co. and the trustees. Out of the £82,590 3s. 2d. balance of profit shown at the credit of profit and loss in the balance sheet of June 30, 1902, there remains, after providing for such sinking fund, £66,128 2s. 4d., out of which income tax has to be paid. In view of the fact that, owing to the reduction in the rates charged during the current season of 1902, the profits for the financial year ending June 30, 1903, are expected to be less than those in the accounts now submitted, the directors do not recommend any further distribution by way of dividend out of last year's profits, but propose to reserve the undivided profits, in order to build up a strong financial position to provide for all contingencies.

PROFIT AND LOSS ACCOUNT YEAR ENDED JUNE 30, 1902.

Interest on securities of local companies paid and accrued to date.....	£ 55,522	8	9
Dividends on Shares of local companies as declared.....	159,243	2	10
Transfer fees, etc.	62	7	6
	<u>£214,827</u>	<u>19</u>	<u>1</u>
Interest on 5% 1st mortgage consolidated debenture stock.....	35,512	0	10
Interest on 6% mortgage debentures (navigation bonds).....	15,333	6	1
Directors' and trustees' fees.....	2,216	13	4
Management and London charges.....	4,597	19	6
Interest on bills and advances.....	892	13	4
Expenses Issue 5% 1st mortgage consolidated stock.....	5,108	10	0
Legal expenses and stamps.....	1,146	13	6
Audit fee to June 30, 1901.....	78	15	0
Income tax.....	12,331	19	2
Loss in exchange.....	642	8	0
Profit carried to balance sheet.....	136,967	0	4
	<u>£214,827</u>	<u>19</u>	<u>1</u>

BALANCE SHEET JUNE 30, 1902.

Shares of local companies and debentures and mortgages over railway and navigation companies, consideration for which is represented by issue of share capital, debenture stock and debentures in terms of agreements.....	£2,374,011	10	10
Balance due from local companies.....	93,224	15	5
Cash at bankers and in hand.....	1,079	17	11
	<u>£2,468,316</u>	<u>4</u>	<u>2</u>

Share capital—			
Authorized 170,000 shares of £10 each.....	£1,700,000		
Issued 137,500 shares of £10 each fully paid.....	£1,375,000	0	0
5% 1st mortgage consolidated debenture stock—authorized..	£ 750,000		
Issued.....	746,702	0	0
6% mortgage debentures (navigation bonds)—authorized and issued.....	255,555	0	0
Sundry creditors.....	8,469	1	0
Profit and loss account.....	82,590	3	2
Balance of profit per Balance Sheet June 30, 1901.....	£289,373	2	10
Less dividend of £2 10s. a share declared Aug. 9, 1901, and satisfied by new issue of Shares.....	275,000	0	0
	<u>£ 14,373</u>	<u>2</u>	<u>10</u>
Profit year ended June 30, 1902.....	136,967	0	4
	<u>£151,340</u>	<u>3</u>	<u>2</u>
Less dividend of 10s. a share paid Dec. 12, 1901.....	68,750	0	0
	<u>£ 82,590</u>	<u>3</u>	<u>2</u>
	<u>£2,468,316</u>	<u>4</u>	<u>2</u>

In moving the adoption of the report and accounts, the Chairman, Hon. S. Carr Glyn,

said that during 1901 16,472 passengers and 33,471 tons of freight were carried on the railway. S. H. Graves, President of the local companies, travelled some 25,000 miles in the Co.'s service. The purchase of the Canadian Development Co.'s fleet had proved most profitable. The net earnings on its operation during 1901 were \$276,636, and the net income, after writing off over \$100,000 for depreciation and renewals, and after providing for all expenses and mortgage interest, was \$86,842. It gave the Co. the control of the entire traffic from Skagway to Dawson, which was of the highest importance in the rate war with the Northern Commercial Co. last summer. Although receipts have fallen this year, the tonnage has shown but a slight decrease. Prior to the opening of the W. P. and Y. Ry., almost the entire Yukon traffic was in the hands of companies owning steamboats on the lower river, and connecting at St. Michael's with ocean vessels. On the opening of the railways the traffic was diverted to the Skagway-Whitehorse route, and to offset this the lower river companies, except the North American Transportation and Trading Co., consolidated last year under the name of the Northern Commercial Co. These two companies last year entered into a traffic agreement with the W. P. and Y. Co., but were disappointed in not getting as much traffic as they expected, and the result was that towards the close of last season the Northern Commercial Co. adopted the policy of selling its goods in the Dawson market at such low prices as shippers by the W. P. and Y.R. could not afford to meet while paying the tariff rates. The avowed intention was to deter the smaller merchants from shipping by the W.P. and Y.R. During the winter the Northern Commercial Co. developed this policy still further, necessitating a reduction in rates on the W.P. and Y.R. route with the opening of navigation, to enable the smaller merchants to compete in the Dawson market. This was met by further cuts in prices by the Northern Commercial Co., and further reductions in W.P. and Y.R. rates. Meanwhile the North American Transportation and Trading Co. took the benefit of the W.P. and Y.R.'s low rates and the advantages of that route, and sent a large proportion of their shipments by the W.P. and Y.R., instead of by their own boats. It is too soon yet to prophesy as to next season, but negotiations are in progress with a view to putting an end to this unsatisfactory state of affairs, which it is hoped will result in permanently improved conditions. Apart from rivalry with the lower river companies, the W.P. and Y.R. has reduced our rates to assist in developing the country. Before the railway was made, the cost of getting a ton from Skagway to Dawson was quite £200. In 1899, the year the railway was opened, the cost was reduced to about £50, the railway receiving about £30 a ton. In 1900, when the railway was extended to Whitehorse, and through bills of lading could be issued, the cost was reduced to about £25 a ton from any Pacific port to Dawson. In 1901, the W.P. and Y.R. having acquired its own fleet of steamers, the price was reduced to about £19 a ton, including ocean voyage. In 1902, in order to encourage the development of the country, the W.P. and Y. R. voluntarily reduced the average rates to about £12 a ton from Vancouver, etc., to Dawson, and, owing to the war of rates, this had to be further temporarily reduced. The Chairman referred to the mining industry, which is at present confined to placer mining and expressed the belief that quartz development would follow there, as it generally did elsewhere, over 4,000 quartz claims having been registered this year. In reference to the decision not to pay any further dividend out of last year's profits, the Chairman pointed out that dividends have been paid out of the total profits earned up to June 30, 1902,

Galena-Signal Oil Company,

Franklin, Pa., and Toronto, Ont.

**Successor to Galena Oil Company and
Signal Oil Company, sole Manufacturer
of the celebrated Galena Coach, Engine
and Car Oils, and Sibley's Perfection
Valve and Signal Oils.**

CHARLES MILLER,
PRESIDENT.

as follows:—Out of the profits from the commencement of the Co. to June 30, 1901, 5% in cash and 25% in shares, and out of the profits for the year ended June 30, 1902, 5% in cash, with a balance carried forward of £66,128 2s. 4d., equal to nearly 5% more. It is estimated that, in spite of the war of rates that has beset the Co.'s career this season, the earnings of 1902 will show a fair margin of profit after providing for all fixed charges, interest and expenses.

Alberta Railway and Coal Company.

The following report for the year ended June 30th, 1902, was presented at the annual meeting in London, Eng., recently:

The aggregate coal sales during the year were 148,059 tons, against 171,656 during the previous year, a decrease of 23,597, attributable entirely to the smaller quantity taken by the C.P.R. by reason of that Co. taking a greater portion of its supply from new mines which have recently been opened along the line of the Crow's Nest Pass Ry. in Alberta. The general coal sales show a satisfactory increase. The earnings of the railway, apart from the carriage of the Co.'s coal, show a decrease of \$2,303, the gross returns having been \$168,192, against \$170,495 for the preceding year. This decrease is owing to a much smaller quantity of Crow's Nest Pass coke having been carried to Montana for use in the smelters there, but the earnings derived from passenger and other traffic show a gratifying increase. It is not expected that the change of gauge of the Montana section of the railway will be completed by the Great Northern Ry. much before the end of the year. This Co. will continue to derive a satisfactory revenue from this portion of the line until it is taken over by the G.N.R. Good progress is being made with the changing of the gauge of the Co.'s line from Lethbridge to the boundary, and it is expected that the work will be completed by the end of Oct. After payment of the interest on the prior lien debenture stock there remains a balance of profit of £10,220 17s. 1d., which, added to the balance of £35 2s. 9d. from the previous year's accounts, amounts in all to £10,255 19s. 10d. The auditors having certified this amount, interest at the maximum rate of 4% has been paid to the "A" debenture stockholders, and £255 19s. 10d. carried forward. With regard to the 100,000 acres of land sold to the Canadian North West Irrigation Co. by this Co. and the Lethbridge Land Co., the proportion which belonged to this Co., 73,373.68 acres, having been settled for in full, the total debt to the Dominion Government for survey fees has been discharged, and £14,701 of prior lien debenture stock has been redeemed at a premium of 10%, the stock outstanding being reduced to £35,276. A further sum of £2,719 13s. 6d. has been received from the Irrigation Co., in payment for 10,647 acres of land (being a part of the additional 150,000 acres which, under its agreement with this Co. and the Lethbridge Land Co., it had the option to purchase), and this amount has been placed to the credit of the prior lien debenture stock redemption fund. As a result of the Canadian North West Irrigation Co.'s successful operations, the settlement of the district tributary to the Co.'s business has, during the year, been most satisfactory, the immigration having exceeded 4,000 souls. The various settlements have harvested very satisfactory crops this year, and a spirit of content permeates the whole community, which will, no doubt, induce further immigration, and create increased business for the Co.'s railway and coal mines. In addition to the lands sold to the Irrigation Co., about 10,000 acres have been sold to actual settlers, and the directors have every reason to believe that as a result of this year's successful crops

there will be an improved demand for the Co.'s lands next year.

The directors for the current year are:—President, E. T. Galt, Lethbridge, Alta; Vice-President, Col. Wodehouse, London, Eng.; W. Burdett Coutts, E. Crabb, E. Waterhouse, J. H. Dodgson, London, Eng.; W. M. Ramsay, H. Joseph, Montreal; J. Galt, Winnipeg. Mr. Dodgson succeeds Lord Farrer, who retired owing to pressure of the other business; the other directors are the same as last year. G. Edwards, who was Secretary for many years, died since the previous meeting, and E. H. Wilson was appointed to succeed him.

REVENUE ACCOUNT YEAR ENDED JUNE 30, 1902.

RECEIPTS.		£	s.	d.
Balance on following Accounts—				
Railway and colliery	22,875	12	6	
House rents and water privileges	516	16	11	
Interest	58	16	5	
	<u>£23,451</u>	<u>5</u>	<u>10</u>	
EXPENDITURE.		£	s.	d.
General expenses in Canada—				
Salaries of officials, stationery, printing, stamps, telegrams, rent of telephones, lighting, and other sundry general expenses, including advertising	4,556	19	7	
Insurance	815	9	7	
General law charges	488	0	10	
		<u>5,860</u>	<u>10</u>	<u>0</u>
Expenditure in London—				
Agency, including office management and rent	500	0	0	
General expenses, including advertising, printing, stationery, telegrams, postages, etc.,	123	14	10	
Law charges	263	3	9	
		<u>886</u>	<u>18</u>	<u>7</u>
Taxes	1,757	9	3	
Trustees' remuneration	200	0	0	
Directors' fees	900	0	0	
Land grant expenses	286	17	5	
Exchange on cheques and bank charges	705	12	0	
		<u>2,633</u>	<u>1</u>	<u>6</u>
Interest on prior lien debenture stock	10,220	17	1	
Carried to balance sheet	<u>£23,451</u>	<u>5</u>	<u>10</u>	

Quebec Railway, Light and Power Co.

Following are extracts from the annual report of General Manager E. A. Evans for the year ended June 30, 1902:—On the citadel division four additional open cars have been purchased and put in operation, at an expense of \$7,600, giving this division 28 open and 32 closed cars. 4,192,799 passengers have been carried, an increase of 477,127. 1,460,285 transfers have been issued, an increase of 25,559. The car mileage has been 1,112,361, an increase of 22,911. Sweeper mileage has been 5,800, a decrease of 1,173. The operating expenses have been 11.35 cts. a car mile, as against 10.5 cts. in the previous year. This slight increase is almost entirely due to increase in wages of motormen and conductors. All cars have been kept in a thorough state of repair, painted and varnished when necessary, and the electrical equipment has been kept in a high state of efficiency. On the Montmorency division there were carried on the electric trains 465,391 passengers, and on the steam trains 183,696, total 649,087, an increase of 111,154 over the previous year. The steam passenger trains made 150,160 miles, 20,168 less than the previous year; the electric cars made 150,657 miles, 39,201 more than the previous year. The double track to Montmorency was completed on Aug. 25, 1901, and the service was very considerably improved. There were 99 organized pilgrimages to Ste. Anne de Beaupré, an increase of 19 over last year, and 53 excursions by electric trains, an increase of 25. The passenger traffic on Sundays has become so heavy that it is almost impossible to despatch trains rapidly enough from the Quebec yard. To overcome this difficulty, I suggest that permission be obtained from the city authorities to put a

switch on St. Andrew st. and utilize the track on Ramsay st.—one side of the station being used to start trains from, and the Ramsay st. track being used for arrivals. The receipts from freight, whilst showing a decrease, are very satisfactory, the decrease being entirely due to the construction of the Montmorency Cotton Co.'s mill the previous year. Special facilities are now being given at Petit Pré, Rivière des Chiens and Beaupré for the shipment of freight, such as cordwood, etc., which previously had been shipped by water; these facilities will, we anticipate, bring considerably more freight during the coming year, and it will be necessary if it is desired to increase the freight business, to purchase at least six more box cars. Miscellaneous receipts have been increased by the opening of parcel offices at several of the stations on the line, and by the arrangements made with the Quebec and Lake St. John Ry. allowing the Great Northern Ry. trains to pass over the St. Charles river bridge. The road bed, fences, cars and buildings have all been maintained in a satisfactory manner, and locomotives 3 and 5 have been thoroughly overhauled and put in a high state of efficiency. All the bridges have been thoroughly scraped and repainted. Four large new cars, each capable of seating 130 passengers, have been purchased during the year and added to this division. The elevator connecting the railway with the Co.'s Kent house property at Montmorency Falls, was completed in Feb. last, and has been exceedingly well patronized by the public, and although the months of Feb., Mar. and April are the three worst of the year, the elevator showed to June 30, an earning of 6¼% on the investment. This elevator is working to our entire satisfaction, and the only cause of regret is the fatal accident which happened; which, however, cannot be attributed to any fault in either the construction or means of operation.

ASSETS.

Road and equipment, real estate, buildings, etc., etc., including Kent house	\$5,245,884	61
Cash on hand	6,843	44
Power division—operating, including accounts due, stores for operating equipment	61,393	10
Haldimand house—operating account	6,090	01
Montmorency division—operating account, stores, etc.	\$25,652	58
Add—Repairs to engines, 1902-3 account	1,083	26
	<u>26,135</u>	<u>84</u>
Accounts receivable	5,974	18
Citadel division—operating account, represented by stores on hand	11,747	26
	<u>\$5,363,168</u>	<u>44</u>

LIABILITIES.

Capital stock	\$3,000,000	00
Less—treasury stock	500,000	00
	<u>\$2,500,000</u>	<u>00</u>
Bonds	\$2,500,000	00
Less—in treasury	19,000	00
	<u>2,481,000</u>	<u>00</u>
Bills payable (loan)	188,700	00
Accrued interest on bonds and loans	9,312	46
Accounts payable	85,003	43
Profit and loss account	99,152	55
	<u>\$5,363,168</u>	<u>44</u>

PROFIT AND LOSS ACCOUNT.

Balance carried forward from June 30, 1901	\$	69,961	00
Net earnings for year 1901-1902	\$164,283	25	
Less—Interest on bonds and loan	135,091	70	
		<u>29,191</u>	<u>55</u>
Balance to credit profit and loss account, June 30, 1902	\$	99,152	55

Central Vermont Railway Report.

While the gross earnings of this line for the year ended June 30 were increased, the extra expense of conducting transportation, consequent on hauling a larger volume of low class tonnage than in the previous year, and competition in passenger traffic, caused a decrease in net earnings. Liberal expenditures were made in maintenance of way and equip-

ment, and there have been included in operating expenses unusual and extraordinary expenditures for new bridges, new tracks, ballasting, etc., to the extent of \$139,378.53, or 4.09% of the earnings. There was a surplus of \$142,645.94 from the operations of the year ended June 30, 1900, which was carried to an equipment renewal fund. The Co. has not facilities to construct any large amount of equipment, and the continued high prices charged by car companies have made it seem wise to defer extensive additions to the equipment for the time being, depending to a greater extent on that furnished by the parent company (the G.T.R.), and as expenditures in other directions have been liberally carried on, the amount before stated has been transferred to improvement account, to which has been debited \$83,830.69 for new bridges, and \$58,815.25 for new rails laid last year, and carried in suspense account. This disposition of the charges referred to takes care of all matters outstanding, leaving only the current expenses from month to month to be met from the revenues of the Co. The contracts which have been made for the renewal of bridges, which are expected to be in place by the end of this year, will put the road in condition for the operation of the heavier class of engines, and with the continuation of the present satisfactory earnings the results for the ensuing year are expected to be of a more favorable character than for the past one. Following is a comparative statement:—

	1901-2.	1900-1.
Receipts.....	\$3,406,431.86	\$3,262,133.85
Operating expenses.....	2,642,321.77	2,495,134.07
Balance.....	764,110.09	766,999.78
Taxes.....	103,808.91	104,702.14
Balance.....	660,301.18	662,297.64
Interest on securities held by Co.....	10,360.00	10,400.00
Total income.....	670,861.18	672,697.64
Interest on bonds and rental of leased lines.....	667,762.24	669,839.67
Net surplus.....	\$ 3,098.94	\$ 2,803.97

The Co. operates 531 miles, 36 of which, between Brattleboro and South Londonderry, are narrow gauge.

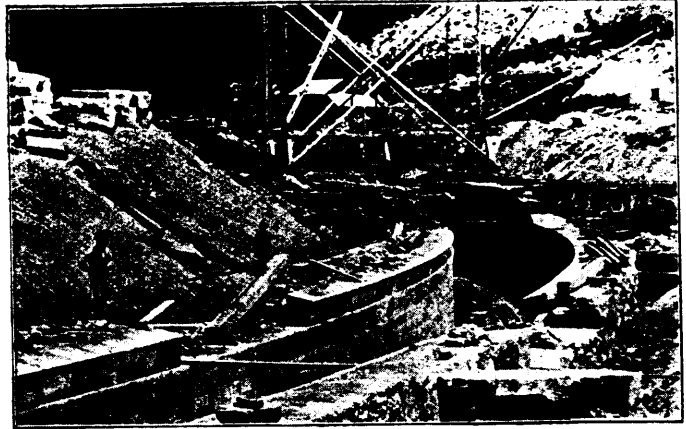
The percentage of expenses to earnings was 77.57%, against 76.58% in the preceding year. The percentage of improvements included in operating expenses, to the earnings, was 4.09%, against 6.10% in the preceding year. The percentage of ordinary expenses, to the earnings, was 73.48%, against 70.41% in the preceding year.

The number of tons carried one mile was 268,223,086, an increase of 19,326,292; the earnings per freight train mile were \$1.34, a decrease of 7c., and the earnings per ton per mile 0.85c., a decrease of 0.01c. The decrease in earnings per train and ton mile is accounted for by the fact that the Co. handled a considerably larger tonnage of low class traffic than the previous year. The number of passengers carried one mile, 41,814,796, shows a decrease of 779,889; the earnings per passenger train mile, 97c., an increase of 1c., but the earnings per passenger mile, 2.24c., are the same as previous year.

The decrease in passenger earnings is on account of Rutland Rd. competition, that Co. having discontinued handling through sleeping cars between Montreal and New York, in connection with the C.V.R. Also to decrease in through and local travel, on account of very unfavorable weather and no unusual attractions this year, while last year the travel to and from the Pan-American exposition was very heavy.

The annual meeting was held recently at St. Alban's, Vt. E. C. Smith having resigned the Presidency, C. M. Hays was elected President as well as Chairman. E. H. Fitzhugh was re-elected Vice-President and General Manager.

THOROLD CEMENT



G.T.R. TUNNEL UNDER THE NEW WELLAND CANAL,
Between Merritton and Niagara Falls, Ont., built with **THOROLD CEMENT**.

Our **THOROLD CEMENT** will do such work as is shown in these views just as well as any **PORTLAND CEMENT**.



G.T.R. ROUNDHOUSE AT SARNIA, ONT.
Capacity, 22 Locomotives. Foundations built with **THOROLD CEMENT** (250 barrels) in 1899.

THOROLD CEMENT is in price just about **ONE-HALF** the cost of **PORTLAND CEMENT**.

We can supply both **THOROLD** and **PORTLAND CEMENTS**; also **CRUSHED STONE** for **CONCRETE**.

ESTATE OF JOHN BATTLE,
(Successors to late John Battle)

THOROLD AND PORTLAND CEMENTS,
THOROLD, ONT.

WRITE US FOR PRICE AND FULL PARTICULARS.

Talks to Ticket Agents.

By F. B. Sunkey, Pittsburg, Pa.

(Continued from previous issue.)

AMBITION.—Be ambitious. Cæsar was ambitious, and most of us know what he accomplished during his life. No agent should be content to remain all his life at some small station, performing his duties mechanically, receiving the same remuneration year in and year out. Therefore, be ambitious. Look forward to promotion from the ranks. Never be satisfied until you reach the top rung of the ladder. Never let it be said that you have no life or energy in you. Every agent who applies himself has a chance to be advanced, and should always be on the alert looking forward to a larger and more remunerative agency, or to becoming a travelling, district, assistant general or general passenger agent. With each advancement comes increased opportunities and possibilities. Do not let increased responsibilities frighten you, but when they present themselves, master them. If you are not conversant with any particular subject, make that subject a study. This can be accomplished by carefully reading up on the subject, or by conversation with some one who is thoroughly posted. Do not be afraid to ask questions. This is a weakness some of us have which should be overcome. Something can be learned every day of our lives, and no one ever knew it all. It does not belittle you to ask questions, when you do not understand—it manifests the proper spirit. The lack of a good school or college education is no excuse for failure, as many of our prominent men have risen from the most obscure birth. Be not satisfied because you can perform your present duties faithfully and well, but always be on the alert to pick up something new, whether you have occasion to use it in your present position or not. There will come a time some day when it will be just what you want. When the eagle eye of your superior officer rests upon you as the man best fitted to fill some vacancy you can put it into practical use. "A faint heart ne'er won fair lady," neither will a man without ambition, and who makes no attempt to help himself be ferreted out for promotion. You may ask the question, "How do my superiors know my worth and how I perform my duties?" They know it in many ways. Your work speaks for itself. It is seen by the manner in which you send in your reports—the way your reports are gotten up, and the promptness with which they are sent in. They hear it from travelling representatives of the company and from the public generally. But, best of all, a constant increase in your office receipts from month to month makes it plain indeed. No X-ray or microscope is necessary to explain this fact. On the other hand, a decrease in your office receipts works in exactly the opposite direction. Endeavour to increase your office receipts at all times. Have you ever noticed other agents connected with your own road who have been promoted to higher positions, from smaller stations than yours? If so, have you ever wondered why they were promoted instead of yourself? There is a good reason for the selection of the other man. He has been making his work a study; he is a bright, energetic and persevering fellow and never loses an opportunity to make a good showing. Consequently his ability is recognized and he is rewarded for the faithful performance of his duties. A man who has ambition and is constantly aiming at something higher and better, is bound to reach a high standard of excellence. So can we all if we only embrace the opportunities. We cannot possess externals without exerting ourselves a little. If a thing is of value it is worth striving for. Anything which can be had for the asking certainly has no worth. It is the amount of work

performed which fixes the value of anything. Therefore, if we wish to possess a thing which is of value to us, and being of value, thus enhances our condition in life, we must necessarily broaden our intellectual capacity by hard study.

"The heights by great men reached and kept,
Were not attained by sudden flight;
But they while their companions slept,
Were toiling upward in the night."

(To be continued.)

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

Gross earnings, working expenses, net profits, increases or decreases over 1901-02, from July 1, 1902:—

	Earnings.	Expenses.	Net Profits.	Increase or Decrease
July	\$3,246,620.51	\$2,070,909.25	\$1,175,711.25	\$79,844.32+
Aug.	3,554,184.56	2,191,283.11	1,362,901.46	57,269.36+
Sept.	3,651,481.42	2,240,726.92	1,410,754.50	58,022.78+
Oct.	4,127,402.07	2,511,267.44	1,616,134.63	149,095.41+

\$14,579,688.56 \$9,014,186.72 \$5,565,501.84 \$344,231.87+

Approximate earnings for Nov., \$3,898,000 against \$3,506,000 for Nov., 1901.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Gross earnings for Oct., \$259,205.85; net earnings, \$98,800.19, against \$231,159.56 gross and \$69,106.93 net for Oct., 1901. Net earnings for four months ended Oct. 31, \$426,615.95, against \$382,063.26 for same period, 1901. Approximate earnings for Nov. \$197,175, against \$204,895.

MINERAL RANGE RY.—Approximate earnings for Nov., \$48,916, against \$48,938 for Nov., 1901.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Gross earnings for Oct., \$844,467.88; net earnings, \$519,151.85; against \$692,108.82 gross and \$423,224.22 net for Oct. 1901. Net earnings for four months ended Oct. 31, \$1,460,497.46, against \$1,200,535.75 for same period 1901. Approximate earnings for Nov. \$750,608, against \$671,731 for Nov., 1901.

Canadian Pacific Railway Land Sales.

	Acres.		Amount.	
	1902-03	1901-02	1902-03	1901-02
July	155,344.93	49,089.96	\$562,876.50	\$154,646.84
Aug.	130,723.83	50,747.82	473,064.85	165,871.16
Sept.	145,535.83	60,060.46	542,811.11	197,057.61
Oct.	270,616.23	150,572.96	952,645.35	465,655.62
Nov.	146,687.83	151,922.89	598,788.99	512,862.94
	848,908.65	462,394.09	\$3,130,185.80	\$1,496,094.17

Grand Trunk Ry. Earnings, Expenses, &c

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

	1902.	1901.	Increase.	Decrease.
Jan	\$2,278,978	\$2,242,117	\$36,861	.....
Feb	2,018,926	2,005,341	13,585	.....
Mar	2,537,873	2,386,090	151,783	.....
April	2,436,756	2,365,491	71,265	.....
May	2,574,198	2,343,535	230,663	.....
June	2,503,824	2,333,204	170,620	.....
July	2,580,422	2,365,970	214,452	.....
Aug.	2,719,303	2,645,340	73,963	.....
Sept.	2,885,405	2,628,773	256,632	.....
Oct.	2,956,358	2,740,910	215,448	.....
Nov.	2,726,450	2,464,299	262,150	.....

\$28,227,502 \$26,521,070 \$1,706,432

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

GRAND TRUNK RY. CO.

Revenue for Oct.:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£492,100	£462,800	£29,300	.....
Working expenses	323,800	298,900	24,900	.....
Net profit	£168,300	£163,900	£4,400	.....

Aggregate July 1 to Oct. 31:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£1,876,300	£1,754,900	£121,400	.....
Working expenses	1,216,600	1,134,200	82,400	.....
Net profit	£659,700	£620,700	£39,000	.....

GRAND TRUNK WESTERN RY.

Revenue for Oct.:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£91,800	£79,300	£12,500	.....
Working expenses	78,500	66,100	12,400	.....
Net profit	£13,300	£13,200	£100	.....

Aggregate from July 1 to Oct. 31:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£325,000	£297,100	£27,900	.....
Working expenses	290,400	256,800	33,600	.....
Net profit	£34,600	£40,300	.....	£5,700

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

Revenue for Oct.:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£23,400	£20,900	£2,500	.....
Working expenses	17,600	15,800	1,800	.....
Net profit	£5,800	£5,100	£700	.....

Aggregate from July 1 to Oct. 31:

	1902.	1901.	Increase.	Decrease.
Gross receipts	£88,600	£80,600	£8,000	.....
Working expenses	61,400	58,000	3,400	.....
Net profit	£27,200	£22,600	£4,600	.....

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from July 1 to Oct. 31:

	1902.	1901.	Increase.	Decrease.
Grand Trunk	£1,876,770	£1,754,076	£122,694	.....
G. T. Western	325,335	297,207	28,128	.....
R., G. H. & M.	89,090	80,795	8,295	.....
Total	£2,291,195	£2,130,078	£161,117	.....

January Birthdays.

Many happy returns of the day to

R. H. Bell, Travelling Freight and Passenger Agent, Canadian Northern Ry. at Montreal, born at Toronto, Jan. 13, 1865.

G. M. Bosworth, 4th Vice-President C.P.R. at Montreal, born at Ogdensburg, N.Y., Jan. 27, 1858.

G. McL. Brown, Superintendent of C.P.R. Dining, Sleeping and Parlor Cars and Hotels at Montreal, born at Hamilton, Ont., Jan. 29, 1865.

P. W. Brown, Purchasing Agent, Duluth, South Shore and Atlantic Ry., and Mineral Range Ry. at Marquette, Mich., born at Uxbridge, Worcester Co., Mass., Jan. 18, 1845.

N. S. Dunlop, Tax Commissioner C.P.R. at Montreal, born near Almonte, Ont., Jan. 17, 1861.

Sir Sandford Fleming, K.C.M.G., director C.P.R., promoter Pacific cable, born at Kirkcaldy, Scotland, Jan. 7, 1827.

T. A. Foque, Mechanical Superintendent Minneapolis, St. Paul and Sault Ste. Marie Ry. at Minneapolis, Minn., born at Boston, Mass., Jan. 14, 1866.

H. O. Harris, General Manager Midland Ry. of Nova Scotia at Windsor, N.S., born at Devonport, Devonshire, Eng., Jan. 16, 1857.

W. Phillips, General Agent, Passenger and Freight Departments, Canadian Northern Ry. at Toronto, born at Toronto, Jan. 31, 1870.

J. Pullen, General Freight Agent G.T.R. at Montreal, born at Shepton Mallet, Somersetshire, Eng., Jan. 23, 1863.

C. Riatt, Master Mechanic Canadian Northern Ry. at Winnipeg, Man., born at Craigs, Montrose, Scotland, Jan., 1860.

C. Shields, Second Vice-President, and General Manager Dominion Coal Co. and Sydney and Louisburg Ry. at Glace Bay, N.S., born at Albany, N.Y., Jan. 1, 1856.

J. R. Steele, Freight Claims Auditor C.P.R. at Montreal, born at St. John's, Newfoundland, Jan. 14, 1856.

W. A. Trueman, Director, Secretary and Treasurer Albert Southern Ry. at Albert, N.B., born at Wallace, N.S., Jan. 29, 1849.

F. J. Watson, Division Freight Agent G.T.R. at Montreal, born at Toronto, Jan. 12, 1866.

G. H. Webster, General Tie Agent C.P.R. at Montreal, born at Creemore, Ont., Jan. 31, 1857.

The Duff Manufacturing Co., of Pittsburgh, Pa., has brought two suits in the U.S. Circuit Court for the Northern District of Illinois against Templeton, Kenly & Co., Ltd., of Chicago, for infringement of the Barrett patent, 455,993, granted July 14, 1891, and the other for infringement of the Barrett patent, 527,102, granted Oct. 9, 1894, for the manufacture of the lifting jacks lately placed upon the market by Templeton, Kenly & Co., known as the Simplex jack. The first of these patents sued under covers the automatic lowering mechanism known as the "yielding tripping plate" embodied in the Barrett jack made by the Duff Manufacturing Co. This patent has been sustained by the circuit and appellate courts on numerous occasions, and automatic lowering jacks of the same general type as the Simplex jack have been held to infringe the patent. In the second suit it is also claimed that the Simplex jack infringes the later Barrett patent, as well as the one which the courts have previously considered. Motion for preliminary injunction restraining the manufacture of the Simplex jack pending the suit under the earlier Barrett patent has also been made.

The L'Assomption Ry., which runs from L'Epiphanie to L'Assomption, Que., has, as usual, been closed for freight traffic for the winter.

An Unrecorded Property of Clay.

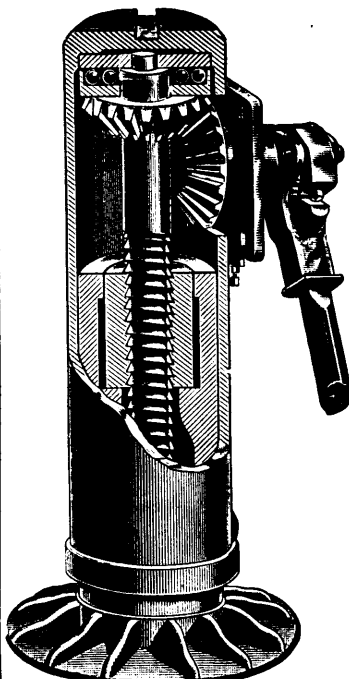
By H. J. Cambie, M. Can. Soc. C.E., Division Engineer C.P.R. Pacific Division.

Some years ago the writer found that ordinary clay, such as used in the manufacture of bricks, and commonly spoken of as plastic clay, would, if dried sufficiently to remove nearly all its moisture, lose its cohesive properties, and would, if water were afterwards applied to it in considerable quantities, become an almost liquid mud. On the other hand, clay which has not been so dried will not absorb any more water, and will lose only some of its outside particles in the washing. The writer has been unable to find any reference to this property of the material in question in the text books at his disposal. It came to his notice under the following circumstances:—

The main line of the C.P.R. runs for nearly 150 miles through a portion of British Columbia, situated between the eastern slope of the Cascade range, and the western slope of the Gold range. There is no regular rainfall over this area, and crops cannot be grown without irrigation. A good many thunderstorms do occur in the summer, but only over very limited areas, and the rainfall from them runs away quickly without soaking into the ground to more than a depth of one or two inches, and is dried off in a few hours by the rapid evaporation incident to the region. These characteristics are especially pronounced in the central part of the area mentioned. The farming lands are situated on benches, sometimes 200 ft. or more above the level of the railway, which runs along the valley of the Thompson river, and at no great distance from the bank. Hay is the most valuable crop raised, and is used to winter cattle, and, with sufficient irrigation, several crops of it can be obtained in each season. Water has, therefore, been lavished

upon the fields for nearly 40 years, and has, in the opinion of the writer, been the cause of numerous landslides, one of the greatest of which occurred in 1881, when about 100 acres slid forward for nearly a quarter of a mile, falling in that distance about 300 ft., and completely blocking the Thompson river for about three days by forming a dam 75 ft. or more in height. Many similar slides on a smaller scale have occurred since that date, but, generally, with slower movement and less disastrous effect. One of these is of large area, and includes a portion of the railway line; it has required constant watching, and has been a cause of much anxiety to the officials, because, although its forward progress has been slow, it has begun to move, year after year, at a date about three months after the beginning of the irrigation season, and has continued moving for about the same period of time. In 1886 the C.P.R. Co. took legal proceedings against the parties irrigating the fields above this slide, and it devolved upon the writer to furnish the legal advisers for the Co. with evidence to prove that the slide was due to the action of irrigation water. An investigation was made by the writer in consultation with Messrs. Stanton and Schuyler, who were employed by the Co., as experts in hydraulic engineering, and, particularly, in irrigation practice, and with H. J. Warsap, Manager of the C.P.R. Portland cement works at Vancouver, an expert in clays. At the slides were found beds of clay so exceedingly dry and hard as to have the appearance of soft sand stone, and still retaining the marks of picks in the slopes of railway cuttings, where dressed many years ago. When a block of this dry indurated clay was placed in a soup plate and water dropped upon it, the clay absorbed 50% of its own weight without any change of form or other visible effect, but when it had absorbed about 60% of water, its structure completely col-

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Sectional View of Norton Jack.

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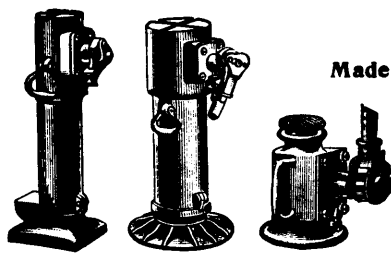
reduce the friction and increase the power of the Jack.

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are cut from solid steel forgings, thereby giving highest efficiency and greatest durability.

THE SCREW

runs in a Phosphor Bronze Nut and is covered by a sliding sleeve which takes all the side strain, prevents the Screw from bending, and protects the working parts from Grit and Rust.



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lapsed, and it became as fluid as water. This was considered by us as conclusive evidence that the irrigation water which had been poured for weeks and months on these beds of clay had been the cause of the slide, but, in court, this argument was met by a demand from the opposing counsel to be told why the bluffs of this material, which were washed at their base by the river, did not disintegrate and slide. Several ingenious theories were offered to account for this, but were not convincing, and the writer now thinks it was because these bluffs had never been dried out below high water mark, and the material in them, therefore, did not possess the property of soaking up water and of finally collapsing. In all probability the jury was influenced by the evidence that no slides had occurred before the commencement of irrigation, and that there was irrigated land in the rear of each slide.

A year or more after the trial, the writer, while experimenting with Mr. Warsap on some clay, which had been dried for other purposes, found that it gave the very same results as the dry clay from the interior of the Province. This led to experiments with other clay, and it was found that they all lost their cohesive properties when the moisture was removed. It is probable that this property of clay has been the cause of many of the landslides which occurred in 1902 in the valley of the Oldman and Belly rivers, between Medicine Hat and the Crow's Nest Pass, for there has been an exceedingly heavy rainfall over these valleys during the year for the first time since they have become known.

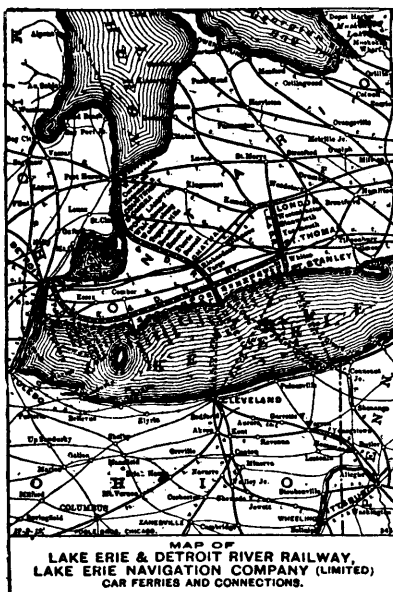
[This paper was read before the Canadian Society of Civil Engineers recently.]

Lake Erie and Detroit River Ry.

As stated in our last issue, F. H. Walker, President, announced Oct. 28 that a portion of the stock of the L.E. and D.R. Ry. had been acquired by the Pere Marquette Rd., and we are informed that it has since acquired most if not all, of the stock of the line, which has been taken over. The line passes to its new owners, it is said, at cost price, without any concessions, and the local net earnings from the road are expected to be more than sufficient to pay any fixed charges called for by the absorption of this road, not to speak of the general profit to the Pere Marquette system by reason of the 128 mile longer haul on traffic estimated at 1,400,000 tons a year. There will be several changes in the directorate as a result. The L.E. and D.R. Ry. proper extends from Walkerville to St. Thomas, Ont., 128 miles. It has absorbed the Erie and Huron Ry. from Rondeau, on Lake Erie, to Sarnia, 71.50 miles, making a total mileage owned of 199.50. The London and Port Stanley Ry. from London to Port Stanley, 24 miles, is operated under a lease. The L.E. and D.R.R. is to be extended from St. Thomas to the Niagara river, and an entrance obtained into Buffalo. (Dec. 1902, pg. 409.)

A syndicate in which N. Thayer, F. H. Prince, of Boston, Mass.; T. F. Ryan and M. T. Cox, of New York, who are now interested in the Pere Marquette Rd., are members, has purchased, through the Old Colony Trust Co., 72,717 shares of the stock of the P.M. Rd., and 20,000 shares privately, and members are depositing 28,000 additional shares, which gives the syndicate a majority of all outstanding stocks and the control of the property. The ownership of the L.E. and D.R. Ry. passes to the syndicate with its purchase of the P.M. Rd. stock. In addition to extending the L.E. and D.R. Ry. to Buffalo, N.Y., the new owners propose to extend the P.M. Rd. from New Buffalo, Mich., to Chicago, about 67 miles.

The Pere Marquette Rd. Co. was organized Nov. 1, 1899, for the purpose of consolidating the Flint and Pere Marquette Rd., the Detroit, Grand Rapids and Western Rd., and the Chicago and West Michigan Rd. companies under the terms of a readjustment agreement dated May 20, 1899. The properties of these several companies, and of the Chicago and North Michigan Rd., have been acquired by purchase under the laws of Michigan, subject to the mortgages and other liens existing on them at the time of the purchase, the P.M. Rd. Co. issuing in payment for such properties all of its common and preferred stock. The new Company began operating on Jan. 1, 1900. The Grand Rapids, Belding and Saginaw Rd., built in 1899, is leased by the P.M. Rd., and it also leased the Saginaw Tuscola and Huron Rd. for 999 years from Feb. 1, 1900, guaranteeing principal and interest on \$1,000,000 S.T. and H. 1st mortgage 4% gold bonds. The Company operates 1,746.89 miles of line, of which 199.26 miles are leased; it also operates jointly with other companies 18.97 miles of leased lines, and owns jointly with other companies .26 miles, and owns 1.88 miles of track which is leased to the Michigan Central Rd. The P.M. Rd.



system is confined to the State of Michigan, with the exception of a few miles into Ohio, at Alexis, and 38 miles in Indiana, from New Buffalo, its most easterly point, to La Crosse. The terminal points where connection can be secured with the Canadian lines are at Detroit and Port Huron, while the important terminal points on Lake Michigan are Ottawa Beach, Muskegon, and Ludington. From Ottawa Beach a steamship line is operated to Milwaukee, Wis., and to the same point car ferries are operated from Muskegon and Ludington, and a car ferry service is also operated between Ludington and Manitowoc, Wis. The gross earnings for 1900 were \$8,296,111.67, and the working expenses \$6,330,592.32, leaving net earnings of \$1,965,519.35. Out of this interest charges amounting to \$1,319,329.79 were paid, \$25,397.37 spent on improvements, and \$480,000 paid by way of dividend of the 4% preferred stock, leaving a balance to carry forward of \$140,792.19.

The Spokane Falls and Northern Ry. announces a reduction in the passenger rates over its line from 5c. to 3c. a mile, to take effect early this year. The Co. operates the Red Mountain, the Nelson and Fort Shepherd, and the Vancouver, Victoria and Eastern railways in Canada.

C.P.R. Toronto-Sudbury Line.

Following the announcement of the G.T.R.'s intention to build a line to the Pacific coast came the report that the C.P.R. will build from Kleinburg to Sudbury, Ont., so as to avoid the use of the G.T.R. line from Toronto to North Bay. Such a line has long been contemplated by the C.P.R., and its route has been shown on the Co.'s maps for a number of years as a projected line. Surveys for it were made in 1888, and were referred to in the annual report for that year. About that time the G.T.R. acquired the Northern and the Northwestern railways, and an arrangement was effected between the C.P.R. and G.T.R. in regard to the former's northwest traffic going over the G.T.R. between Toronto and North Bay. In 1898, when the passenger rate war occurred between the C.P.R. and the G.T.R. companies, further surveys were made under H. D. Lumsden, C.E., from Kleinburg, on the Co.'s Owen Sound section, 21 miles from Toronto, to the main transcontinental line at a point between Romford and Sudbury Jct., about 6 1/4 miles east of the latter place, the whole distance from Kleinburg to the main line being 226 miles, making a distance of 253 miles from Toronto to Sudbury, as against 306 by the G.T.R. route via North Bay.

From Kleinburg the surveyed line runs almost due north, passing about 1 1/2 miles west of Lloydtown, thence a little east of north to near Allandale, passing about 1/2 mile west of Bondhead, and about 2 miles east of Cookstown. At Allandale it crosses the G.T.R.'s Hamilton and Northwestern branch by an overhead bridge, and the Collingwood branch on the level. After passing through Barrie the line runs almost due north to Midhurst and Craighurst, then northeast, passing Coldwater, and continuing almost in a direct line to the crossing of the Severn river, 9 miles up stream from Port Severn. From this crossing it continues a little east of north to Bala, the outlet of Muskoka lake, where it crosses the south branch below and the north branch above the falls. From Bala the course is a little west of north to Parry Sound, touching Lake Joseph at Hatherley's bay, and crossing the Canada Atlantic Ry. by an overhead bridge about 3 miles from that Co.'s Rose Point Station, running through the town of Parry Sound, and crossing the Seguin river at the falls near the grist mill where the electric light plant is located. From Parry Sound the line goes a little west of north passing through the townships of McDougall, Carling, Shawanaga, Harrison, Wallbridge and Mowat, reaching the crossing of French river on an Indian reserve near Cantin's island. The two branches of French river are crossed about 2 miles apart, and the line continues generally in a northwesterly direction to the connecting point near Sudbury, crossing the Wahnapitae river about 12 miles below Wahnapitae station on the main line.

An excellent line was obtained with maximum gradients ascending northerly of 1%. Coming south the maximum is 3/4 of a foot per 100. The maximum curvature is 6 degrees, or a radius of 955.37, but these are only at a few exceptional places in the rocky country north of the Severn. There is no rock work between Kleinburg and the centre of the township of Matchedash. From there to the northern terminus a considerable amount is met with. For the length of the line the bridging is not heavy. The heaviest bridge will be just north of Kleinburg, where the Humber valley, 1,200 ft. wide and 110 deep, has to be crossed. The only other streams of importance to be crossed are the Severn, with a span of 150 ft.; the Musquash at Bala, 1 span of 100 ft. and 1 of 150 ft.; the Canada Atlantic Ry. and adjoining stream by 2 spans of 60 ft.; the Seguin river at Parry Sound, 2 spans of 100 ft.; Shawnaga river, 1 span of

100 ft.; 2 branches of the Nosquetiwan river, spans of 100 ft. over each branch; Magneta-wan river, 1 span of 100 ft.; Key river, 1 span 100 ft.; French river, 2 branches, 1 span of 150 ft.; 1 of 250 ft.; Wahnapiatae river, 1 span of 100 ft. The line goes through the heart of the Muskoka tourist district, tapping both Muskoka lake and Lake Joseph, and it would shorten the time between Toronto and Lake Joseph by several hours.

The C.P.R. has no charter for a line from Toronto to Sudbury, but it would appear that it could be built under the powers conferred by the Co.'s original act of 1881, which gave the Co. the right, from time to time, to lay out, equip, maintain and operate branch lines of railway from any point or points along its main line to any point or points within the Dominion. In 1895 W. Mackenzie, H. D. Lumsden, C.E., G. A. Cox, F. Nichols and D. D. Mann obtained a Dominion charter for the James' Bay Ry. Co., with power to build a line from Parry Sound to Doke's Indian reserve, thence to the easterly line of Lake Wahnapiatae, and to the mouth of Moose River, James' Bay. In 1897 another act was passed, empowering the Co. to extend its line

from Parry Sound to Toronto, it being provided that the railway from Parry Sound to James' Bay, and the extension from Parry Sound to Toronto should be commenced within 2 years therefrom, and 15% of the capital stock of \$1,000,000 expended thereon. This charter is controlled by Mackenzie, Mann & Co., and work has been started by building about four miles between the Canada Atlantic Ry. and Parry Sound.

No official announcement has been made by Sir Thos. Shaughnessy as to the C.P.R. Co.'s intentions. Mr. Lumsden has, it is said, been looking over the ground again lately and plans are reported to have been deposited with the Dominion Department of Railways and with the Provincial Secretary of Ontario, also in the registry office of the County of Simcoe, but it is not likely that any further move will be made until the G.T.R. shows its hand a little more. The C.P.R. will probably wait and see what G.T.R. legislation may be secured at the next session of the Dominion Parliament. The impression is that if the G.T.R. builds from Gravenhurst or North Bay, westward, the C.P.R. will build from Kleinburg to Sudbury, to secure a shorter

route between Toronto and the west than it now has, a share of the Muskoka tourist traffic, and better facilities for handling the largely increasing business of the Sudbury district.

Since the above was put in type we have been informed that plans have not been deposited with the Provincial Secretary of Ontario.

The pension fund for the employes of the C.P.R., for which an appropriation of \$250,000 was made at the annual meeting in 1901, will be inaugurated Jan. 1, 1903. The administration of the fund will be placed in the hands of an executive body with Sir Thomas Shaughnessy at its head. The officials and employes will not be required to contribute directly out of their salaries or wages to the fund, as is the case with the pension fund scheme on the Pennsylvania Rd., the plan adopted being based on the lines of that followed by the Illinois Central Rd. The details of the plan are being worked out by W. R. Baker, Assistant to the 2nd Vice-President.

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TRANSPORTATION APPOINTMENTS.

Algoma Central and Hudson's Bay Ry.—D. H. Campbell, heretofore Chief Train Dispatcher and Car Agent of the Kingston and Pembroke Ry., has been appointed Relieving Dispatcher of the A.C. and H.B. Ry., and to perform various other duties.

Baltimore and Ohio R.I.—E. T. Horn, formerly Assistant to the Manager of the Intercolonial Ry., has been appointed Assistant to the General Superintendent of the B. and O. Rd. Office, Pittsburg, Pa. He will have special supervision over the design of and methods in effect at all freight and passenger yards and terminals.

Canadian Pacific Ry.—W. R. MacInnes, heretofore Assistant Freight Traffic Manager of the Western Lines at Winnipeg, has been appointed Freight Traffic Manager. Office at Montreal.

F. W. Peters, heretofore General Freight Agent, Pacific division, has been appointed Assistant Freight Traffic Manager, Western lines. Office, Winnipeg.

B. W. Greer, heretofore Assistant General Freight Agent, Pacific division, has been appointed General Freight Agent, Pacific division. Office, Vancouver.

W. M. Kirkpatrick, heretofore chief clerk, Fourth Vice-President's office, Montreal, has been appointed Assistant General Freight Agent, Pacific division. Office, Vancouver.

In connection with the appointment of F. Lee as Signal Engineer a circular has been issued stating that in the execution of new work, general and special repairs, and maintenance of all interlocking, switch, train order, and yard limit signals, signalmen, repairmen, bridge and building masters, will act under the direction of their superintendents, who will receive and execute the instructions of the Signal Engineer in such matters.

F. S. Darling, heretofore Division Engineer of the Northern Pacific Rd. at St. Paul, Minn., has been appointed Division Engineer of Construction of the C.P.R. Office at Montreal.

J. McLellan, heretofore Yard Agent at Winnipeg, has been appointed Trainmaster district 20. Office at Winnipeg.

A. Hutchinson has been appointed Yard Agent at Winnipeg.

J. S. Dennis, until recently Chief Engineer of the Northwest Public Works Department, has been appointed in charge of the Co.'s irrigation surveys and works, and will also make surveys of the Co.'s lands in British Columbia. Office at Calgary, Alta.

W. H. Gardiner, heretofore chief clerk to the Assistant General Freight Agent at Vancouver, has been appointed General Agent of the Freight Department at Seattle, Wash., vice J. Armstrong, resigned to become General Agent of the Freight Department of the Wisconsin Central Rd. at Seattle.

J. Halstead, heretofore chief clerk in the freight department at Winnipeg, and Travelling Freight Agent in Manitoba, has been appointed chief clerk to the Assistant General Freight Agent at Vancouver, vice W. H. Gardiner promoted.

Press reports recently stated that a change had been made in the Co.'s ticket agency at Charlottetown, P.E.I. We are advised that this is incorrect. W. C. Kennedy has been ill for a couple of months, but is improving and is still agent.

Chicago, Rock Island and Pacific Ry.—A. C. Turpin has been appointed Travelling Passenger Agent, vice A. Jackson, transferred. Office at 178 St. James St., Montreal.

Duluth, South Shore and Atlantic Rd.—W. F. Fitch, Second Vice-President and General Manager, has been elected President, vice S. Thomas, of New York, resigned. Gen. Thomas was formerly a director of the C.P.R., but was not re-elected at the last annual meeting.

Grand Trunk Ry.—C. Dallas having resigned, J. Henry has been appointed Roadmaster district 24 and those parts of districts 22 and 23, between Palmerston and Durham, and Palmerston and Kincardine. Office, Wingham.

C. O'Dell has been appointed Roadmaster on lines between Sarnia Tunnel and London, Komoka and Glencoe, Glencoe and Kingscourt and the Petrolia branch, vice J. Henry, transferred. Office, Sarnia Tunnel.

C. E. Crowley, formerly Assistant Resident Engineer at Toronto, has been appointed Roadmaster of district 16, and that part of district 15 between east semaphore York and mileage 3, west of North Parkdale, vice C. O'Dell, transferred. Office, Toronto.

G. Black has been appointed Road Foreman of Engines on districts 15, 20, 21, 22 and 23, vice W. Holmes, resigned to accept service with another company.

A. B. Atwater has been appointed Assistant to the President (C. M. Hays), of the G.T. Western Ry., Detroit, Grand Haven & Milwaukee Ry., Toledo, Saginaw & Muskegon Ry., Michigan Air Line Ry., and Chicago, Detroit & Canada G.T. Jct. Ry. Office at Detroit, Mich. He will represent Mr. Hays locally in connection with the lines above named, and will perform such duties as may be assigned to him from time to time.

The following agents have been installed: Lisgar, Que., J. A. Asselin; Lucan, Ont., A. Smith; Evergreen Park, Ill., I. F. Thomas; Vernon, Mich., C. B. Haynes; Owosso Jct., Mich., G. A. Needham; Harvard, Mich., H. E. Austin; Mount Clemens, Mich., J. C. Haynes; Fraser, Mich., H. H. Earle; Lakeland, Mich., W. W. Sigsby; Munith, Mich., F. D. Burgess.

Great Northern Ry. of Canada.—G. W. Mitchell has been appointed Purchasing Agent vice J. A. Nicole, resigned.

Guelph Street Ry.—William Brown, heretofore electrical foreman of the Metropolitan Ry., Toronto, has been appointed Superintendent and Manager of the Guelph Street Ry.

Intercolonial Ry.—Press reports say that A. W. Grass, who has been on the Cape Breton division since 1896 as Trackmaster of the maintenance department, has been retired, and that S. Fraser, Trackmaster at Sydney, has been given charge of both the maintenance and construction departments. We are advised that Mr. Grass was employed as Assistant Trackmaster, and that the work of construction in Cape Breton at which he was employed having been completed, Mr. Fraser has been given charge of the track between Point Tupper and the Sydneys.

The office of Master Mechanic at Stellarton has been abolished. N. L. Rand's jurisdiction as Master Mechanic will include the line from Oxford Jct. to Sydney, North Sydney and Truro.

B. C. Gesner, who has been Master Mechanic at Stellarton since October, 1901, has been reappointed Air Brake Inspector with office at Moncton, in place of W. C. Hunter.

Kettle Valley Lines.—W. A. Stratton is in charge of the Co.'s operations at Grand Forks, B.C. No appointment of a General Manager has been made to succeed T. N. Holland.

Kingston and Pembroke Ry.—J. H. Shibley is reported to have been appointed Chief Train Dispatcher and Car Agent, succeeding D. H. Campbell, who has gone to the Algoma Central and Hudson's Bay Ry.

Lake Erie and Detroit River Ry.—A. Patriarche, Traffic Manager of the Pere Marquette Rd., has also been appointed General Traffic Manager of the L.E. and D.R. Ry. Office, Detroit, Mich.

T. Marshall, heretofore General Freight and Passenger Agent, has been appointed

Assistant General Freight Agent, reporting to the General Traffic Manager. Office, Walkerville, Ont.

H. F. Moeller, General Passenger Agent of the Pere Marquette Road, has had his jurisdiction extended over the L.E. and D.R. Ry. Office, Detroit, Mich.

Lehigh Valley Rd.—E. B. Thomas, heretofore Chairman of the Lehigh Valley Rd. board, has also been elected President, vice A. Walter, resigned. Mr. Thomas is also Chairman of the Erie Rd. board. J. A. Middleton, Second Vice-President and Secretary of the Erie Rd., has also been appointed Assistant to the President of the Lehigh Valley Rd.

Michigan Central Rd.—S. P. Hutchinson, heretofore Superintendent of the Pittsburg division of the Baltimore and Ohio Rd., has been appointed Assistant General Superintendent of the M.C.R., vice W. S. Kinnear, appointed Chief Engineer.

R. O. St. John is reported to have been appointed Assistant to the Chief Engineer at Detroit.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—C. F. Seymour is reported to have been appointed Assistant Superintendent at Enderlin, N.D.

Pennsylvania Rd.—C. G. Cadwallader, heretofore Assistant Passenger Agent of the Philadelphia Rd. at Broad St. station, Philadelphia, has been appointed Passenger Agent in charge of the ticket offices there, vice S. H. Wallace, retired. Captain Cadwallader is Secretary of the International Association of Ticket Agents, and took a prominent part in entertaining the members of the Canadian Ticket Agents' Association during their recent visit to Philadelphia.

How a Business was Ruined.

According to Col. A. A. Pope, who has been appointed receiver of the American Bicycle Co., the downfall of that concern and the death of the bicycle business generally is due to not advertising. He says:

"The cessation of advertising killed the bicycle business, and the way to revive it is to resume that same important matter. I thoroughly believe in it. You can see how I feel in the matter when I tell you that I spent \$500,000 in one year in that sort of publicity, and that it is my idea for the future—to advertise."

M. Beatty & Sons, Welland, Ont., report the following as among some of the large orders they have filled recently: Hoisting engine to J. O. Labelle, Terrebonne, Que.; set ditcher machinery, Department Public Works, Strathcona, Alta.; 3 hoisting engines to Holme Miller & Co., Dawson, Yukon; hoisting engine to Alex. Jeffrey & Co., Montreal; 2 hoisting engines to J. & R. Miller, Depot Harbor, Ont.; 3 stone derrick swingers to J. O'Toole, Peterboro, Ont.; five ton revolving and travelling derrick to New Ontario Dock and Coal Co., Sault Ste. Marie, Ont.; special derrick car engine to Dominion Bridge Co., Montreal; hoisting engine to Cleveland-Sarnia Saw Mills Co., Nairn Centre, Ont.; 4 hoisting engines, 3 swingers, 1-6 in. direct connected centrifugal pump to North Shore Power, Railway & Navigation Co., Quebec, for use on its water power at Seven Islands, Que.

A working agreement has been entered into between the C.P.R. and the Shore Line Ry. of New Brunswick, by which the C.P.R. will use the S. L. Ry. yards at Carleton, St. John, and the S. L. Ry. will use certain portions of the C.P.R. lines in reaching its terminal.

Mainly About People.

C. C. Chipman, Commissioner of the Hudson's Bay Co., is in England on official business.

Sir T. G. Shaughnessy has given \$500 to the School of Industry at St. John's, Nfld., conducted by Rev. Mr. Slattery.

John Foy, General Manager of the Niagara Navigation Co., returned to Toronto Dec. 12 from West Baden Springs, Indiana.

W. K. Reynolds, who was Press and Advertising Agent of the Intercolonial Ry. in 1899-1900, died at St. John, N.B., Dec. 2.

C. M. Hays, Second Vice-President and General Manager G.T.R., has been elected a director of the Merchants Bank of Canada.

J. Goodfellow, Trainmaster and Chief Dispatcher C.P.R., Vancouver, was recently married at New Westminster, B.C., to Mrs. M. A. Fraser.

Mrs. E. W. Rathbun, wife of the President of the Bay of Quinte Ry., sailed from New York early in Dec., to spend the winter in Europe.

Miss A. M. Callaway, daughter of S. R. Callaway, President of the American Locomotive Co., was married to J. F. Smith recently in New York.

George Healy, baggage master at Toronto Union Station, was presented with a silver tea service by the station employes, Dec. 6, on the occasion of his wedding.

Sir Wm. Van Horne returned to Montreal Dec. 10 from Cuba, where he had been looking after the inauguration of passenger train service on the Cuba Co's railway.

J. D. Riddell, General Agent for Ontario for a number of steamship lines represented in Canada by the Robert Reford Co., Montreal, died in Stratford, Ont., recently.

J. A. Couture, C.P.R. station agent and agent Dominion Express Co. at St. Scholastique, Que., is alleged to have absconded with \$1,200 belonging to the latter company.

Mrs. T. Tait, wife of T. Tait, Manager of Transportation, C.P.R., will be one of the assistants at the great military bazaar to be held at the Montreal Armouries on an early date.

W. Petersen, President of the Canadian Lake and Ocean Navigation Co., who has been in Toronto since early last summer, sailed for England Dec. 22. He expects to return to Canada in May.

J. A. Kilpatrick, for many years Superintendent of the St. Thomas, Ont., Car Wheel Co., has been appointed Manager, vice A. E. Domville, who has been appointed Manager of works in Buffalo, N.Y.

James Ross, Vice-President Montreal Street Ry., who erected and equipped a hospital at Lindsay, Ont., in memory of his parents, recently handed it over to the Warden of the county of Victoria in trust.

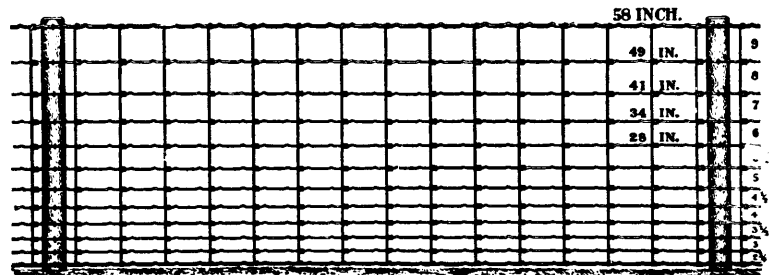
W. R. Smith, Assistant Superintendent of the Kalispell, Mont., division of the Great Northern Ry., U.S., was born at Toronto in 1867, and was in the C.P.R. and G.T.R. service prior to joining the G.N.R. in 1897.

Mrs. C. R. Hosmer, wife of C. R. Hosmer, of the C.P.R. directorate and President of the Ogilvie Flour Mills Co., gave a luncheon in Montreal, Dec. 3, in honor of Lady Eileen Elliott, daughter of the Governor-General.

Senator Thomas McKay, of Truro, N.S., commenced life as spare fireman on the old Nova Scotia Ry., at Truro, in 1859, and had been for three years freight agent at that point when he left railway service in the sixties.

W. J. Sloan, an employe of the B.C. Electric Ry. and Light Co. at New Westminster, B.C., and acting as agent for the Great Nor-

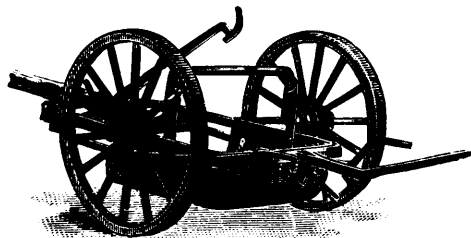
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CANADIAN SALES AGENT:

JAMES COOPER, - Montreal.

thern Express Co., was recently arrested on a charge of forgery in connection with the express portion of his duties.

W. Campbell, who has been private secretary in Montreal to C. R. Hosmer for many years, will leave there early in Jan. for Winnipeg, having been appointed to a good position in the Ogilvie Flour Mills Co.'s service.

A. J. McLellan, who died at Victoria, B.C., Dec. 1, was one of the contractors on the Pacific division of the C.P.R., and subsequently constructed portions of the Esquimalt and Nanaimo Ry., and the Lenora-Mount Sicker Ry.

Col. J. McNaught, Vice-President, Great Northern Ry. of Canada, is at the head of a syndicate, which press reports state, proposes to construct a railway from Barrios on the Caribbean sea, to San Jose, on the Pacific coast, both in Guatemala.

R. Enman, who was Secretary to J. E. Muhlfield, when the latter was Superintendent of Machinery and Rolling Stock on the Intercolonial Ry., has left Moncton for Baltimore, Md., to take a similar position with Mr. Muhlfield on the Baltimore and Ohio Rd.

J. S. Mackenzie, Managing Director of the Winnipeg Electric Power and Light Co., was presented with a gold chain and locket by the Controller's staff, and some other officials of the Toronto Ky. Co., on his leaving Toronto to take up the duties of his new position.

D. B. Hanna, Third Vice-President Canadian Northern Ry., was presented by the staff of the office at Winnipeg with a Crown Derby dinner set on the occasion of his removal to Toronto. Mrs. Hanna and family will remain in Winnipeg until the spring.

A. R. Greig, Chief Draughtsman of the Canada Atlantic Ry., Ottawa, was presented with a gold watch, chain and locket by a number of the employes of the company on his removal to Winnipeg to take a similar position with the Canadian Northern Ry.

F. L. Wanklyn, General Manager Montreal Street Ry. Co., has been elected President of the Quebec Association for the Protection of Fish and Game. C. E. E. Ussher, General Passenger Agent Eastern lines C.P.R., has been elected a member of the committee.

J. U. Shepherd, who is said to have been Purchasing Agent for Mackenzie, Mann & Co., at Winnipeg, Man., has been sued by Miss A. A. Armit, of Fort Frances, Ont., in the Minneapolis, Minn., courts, for \$10,000 damages for breach of promise of marriage.

A. G. Ardagh, who has been appointed Resident Engineer of C.P.R. districts 8 and 9 at Toronto, entered railway service in that Co.'s Divisional Engineer's office at Toronto, in a general capacity, Nov. 12, 1900, and was appointed Resident Engineer Oct. 1, 1902.

J. L. Dixon, on leaving London, Ont., to become manager of the Bell Telephone Co.'s Brantford office, was presented with a gold watch and an address by the staff of the London office, and with a set of Dickens' works by the workers of the First Congregational Church, of which he was Treasurer.

Frank Lee, recently appointed Signal Engineer of the C.P.R. at Montreal, graduated from Sheffield-Scientific in 1894, and was employed for two years in engineering work for the British government colonial railways in Trinidad. He resigned from the engineering department of the Chicago and Northwestern Ry., after six years' service, to enter the C.P.R. service.

M. J. Haney, Miss Alice Haney and Miss Tandy, who have been residing at Charlotte-town, P.E.I., where Mr. Haney is building the bridge over the Hillsboro' river, since June, returned to Toronto early in Dec. Mr. and Mrs. Haney and two daughters left

Toronto Dec. 22 for a trip round the world, expecting to return to Toronto in May or June next.

At the annual convention of the Brotherhood of Railway Trackmen held in St. Louis, Mo., which closed Dec. 9, the following Canadians were elected to office: First Vice-President, A. B. Love, of Kingston, Ont.; Secretary-Treasurer, C. Boyle, Merrickville, Ont.; R. Ferguson, Port Arthur, Ont., was placed on the Executive Committee.

D. G. Ross, formerly C.P.R. Superintendent at Fort William, Ont., who has been in ill health for some time, expected to be able to resume work last fall, but not having recovered as rapidly as he hoped to do, he has obtained further leave of absence, and has gone to California for the winter. If his health is fully re-established he hopes to resume active service in the spring.

E. T. Horn, formerly of the Intercolonial Ry., who has recently been appointed Assistant to the General Superintendent of the Baltimore and Ohio at Pittsburg, has prepared plans for new yards to be built at Connellsville, Pa. The yards will have a capacity of 2,000 cars, and will contain a sufficient number of tracks to permit the movement of 12 freight trains at one time, whereas only two movements are possible in the present yards.

H. H. Adams, who has been appointed Assistant Superintendent of the Canadian Division of the Michigan Central Rd., with office at St. Thomas, Ont., was born at Detroit, Mich., Aug. 13, 1876, and entered railway service July, 1899, as draughtsman on the Michigan Central. After serving in various capacities in the engineering department he was appointed Assistant Chief Engineer, Mar., 1902, and secretary to the General Superintendent, Nov., 1902.

Geo. Collins, heretofore General Superintendent and Secretary of the Central Ontario Ry., who was recently appointed by the Court as Receiver and Manager, was born July 20, 1860, and started his railway service with the Central Ontario in 1882 as a clerk on construction, and has been continuously with this company passing through the various positions of Agent, Train Dispatcher, Secretary and Treasurer, General Superintendent and Secretary, finally becoming the Receiver and Manager.

B. C. Gesner, who has been appointed Air Brake Inspector on the I.C.R., at Stellarton, was born at Cornwallis, N.S., April 23, 1859. He entered railway service as messenger in the mechanical department of the I.C.R., Jan. 23, 1877, since which his record has been: fireman, same road, Mar., 1878, to Oct., 1882; locomotive driver, same road, Oct. 1882, to Sept., 1898; General Air Brake Inspector, same road, Sept., 1898, to Oct. 31, 1901; Master Mechanic at Stellarton, same road, Oct. 31, 1901, to Dec. 16, 1902.

E. N. Bender, General Purchasing Agent, C.P.R., whose portrait appears on the first page of this issue, was born in Quebec, Oct. 3, 1858, and entered railway service in the stores department of the Montreal, Ottawa and Occidental Ry., Hochelaga stores, June 1, 1880 as secretary to the General Store Keeper, since which he has been consecutively: Dec., 1880, to Jan., 1881, Assistant Accountant, stores department same road; Jan., 1881, to June, 1882, Accountant stores department same road; June, 1882, to Sept. 1, 1889, Chief Clerk purchasing department C.P.R., at Montreal; Sept. 1, 1889, to Feb. 6, 1902, Assistant General Purchasing Agent; Feb. 6, 1902, to date General Purchasing Agent.

A. B. Atwater, who has been appointed assistant to President C. M. Hays for the lines of the G.T.R. system west of the Detroit and St. Clair rivers, was born in Sheffield, Ohio, Nov., 1845, and entered railway service 1864 as telegraph operator Cleveland and Erie Ry.,

since which he has been consecutively: Oct., 1865, to June, 1885, in engineering service Jamestown division, same road; resident engineer of construction, Canada Southern Ry.; assistant engineer, Port Dover and Lake Huron Ry.; Chief Engineer, Stratford and Huron Ry.; Superintendent, Port Dover and Lake Huron Ry.; General Superintendent, Georgian Bay and Lake Huron division, G.T.R.; Chief Engineer, Chicago and Grand Trunk Ry.; June, 1885, to July, 1898, Superintendent G.T.R. lines west of Detroit; July, 1898, to July, 1902, Assistant General Superintendent, Michigan Central Rd., at Detroit.

W. R. McInnes, who has been appointed Freight Traffic Manager of the C.P.R. at Montreal, was born June 7, 1867, at Hamilton, Ont., and was educated in England. He entered railway service July, 1884, as a clerk in the purchasing department of the C.P.R., remaining there until Nov., 1885, since which his record has been: Nov., 1885, to Sept., 1886, clerk, Solicitor's office; Sept., 1886, to May, 1887, clerk, General Traffic Manager's office; May, 1887, to Mar., 1896, chief clerk same office; Mar., 1896, to June, 1899, General Agent, freight department C.P.R., and Agent Canadian Pacific Despatch at Chicago, also during same period representative Minneapolis, St. Paul and Sault Ste. Marie Ry., and Duluth, South Shore and Atlantic Ry.; July, 1899, to June, 1901, General Freight Agent, lines west of Lake Superior, June, 1901, to Dec. 31, 1902, Assistant Freight Traffic Manager, lines west of Lake Superior, at Winnipeg.

The commission appointed to gather information on the subject of cattle guards on railways spent a considerable time in visiting different points in Canada and the United States. As a result of their investigations manufacturers are asked to submit their devices to a test with a view of ascertaining if they come up to the requirements of the commissioners. For the practical testing of these devices a stretch of track was laid in one of the buildings at the exhibition grounds, Ottawa, under the superintendence of G. A. Mountain, Chief Engineer of the Canada Atlantic Ry. The particular device to be tested was fixed, and cattle were driven in at one end of the building and then left to find their way out at will. The efficiency of the different devices was thus tested. The result of the labors of the commissioners will be embodied in a report to the Minister of Railways, who promised last session that he would introduce legislation on the subject at the forthcoming session of the Dominion Parliament.

Freight trains on all the great railways have reached such proportions as to length, as well as weight, that the problem of communication between the trainmen has become a serious one. The announcement that a western road is to supply conductors with field glasses and a heliograph outfit for use by the head brakeman and the engineer brings out the suggestion from a Montana paper that while this plan will work on some parts of the line, it will still be necessary to use the long distance telephone on others, as the trains are so long that the curves shut off the view of the engine from the conductor. The heliograph, it is conceded, may work on the plains, where the vision is not obstructed except by occasional blizzards, but for mountain sinuities the trainmen are stated to prefer the far-reaching phone. Still better, perhaps, might be a narrow gauge track on top of the train, on which a light trolley car could rapidly convey the train officials in their business trips between rear and front end. —Railway Age.

G.T.R. shares have been listed on the Amsterdam bourse.

Railway Equipment Notes.

The St. John N.B. Ry. Co. has ordered six electric motors.

The Brantford Electric St. Ry. has placed four newly fitted cars on its lines.

The C.P.R. has placed new passenger coaches on the Pontiac Pacific Jct. Ry.

The Kettle Valley Lines are in the market for 20 or more hopper-bottom ore cars.

The G.T.R. has ordered materials for 25 locomotives, to be built at its Montreal shops.

The Irondale, Bancroft and Ottawa Ry. has added another locomotive to its equipment.

Rhodes, Curry & Co., car builders, etc., Amherst, N.S., have a pay roll of \$12,800 a fortnight.

The Intercolonial Ry. has added a private car, no. 75, to its equipment for General Manager Pottinger.

The Cape Breton Ry. recently added two 1st class passenger coaches and a baggage car to its equipment.

The Inverness Ry. and Coal Co. has ordered some coal hopper cars from Rhodes, Curry & Co., Amherst, N.S.

The G.T.R. has recently turned out of its Montreal shops 45 box cars, making 882 completed out of the order for 1,000.

The Cumberland Ry. and Coal Co. has ordered some 80,000 lbs. dump cars from Rhodes, Curry & Co., Amherst, N.S.

The Metropolitan Ry. is having four motor cars built in the Toronto Ry. shops. They are to be fitted with air brakes.

The New Brunswick Southern Ry. has ordered some freight cars, and will probably place an order for some passenger coaches.

The G.T.R. car shops at Montreal have recently completed an order for 10 2nd class coaches, and are now building 10 1st class coaches.

The Intercolonial Ry. has ordered from Rhodes, Curry & Co., Amherst, N.S., 300 box cars, 80,000 lbs. capacity, and 2 baggage cars.

The G.T.R. special car, 2904, has been repainted and named Muskoka. It is assigned

for the General Assistant and Comptroller, W. Wainwright.

The C.P.R. is reported to have ordered 500 flat cars to be built at the Algoma Central and Hudson's Bay Ry. shops at Sault Ste. Marie, Ont.

The Great Northern Ry. of Canada added 3 box cars, 50,000 lbs. capacity; 4 box cars, 60,000 lbs. capacity; and 6 stock cars, to its freight equipment during Nov.

The C.P.R. placed in service during Nov. the following additional equipment: 2,135 box cars, 44 refrigerator cars, 262 flat cars, 102 cabooses and 97 passenger cars.

The G.T.R. has recently turned out of its Montreal shops 6 Richmond compound locomotives, completing the order for 25, and making 42 locomotives built in 1902.

The Kingston, Portsmouth and Catarauqui Electric Ry. has refitted one of the motor cars bought from the Belleville Electric Traction Co., and put it in operation.

The Mabou and Gulf Ry. has purchased two consolidation 60-ton locomotives, and expects to shortly place an order for two more. Cars are also being purchased.

Pintsch System Car and Buoy Lighting.

This Company controls in the United States and Canada the celebrated Pintsch System of Car and Buoy Lighting. It is economical, safe, efficient, and approved by the railway managers and Lighthouse Board of the United States and Canada, and has received the highest awards for excellence at the World's Expositions at Moscow, Vienna, St. Petersburg, London, Berlin, Paris, Chicago, Atlanta and Buffalo. 112,000 cars, 4,500 Locomotives and 1,250 Buoys are equipped with this light. 160 Railroads in the United States and Canada have adopted this system of lighting, applied to over 19,000 cars.

Car Heating.

This Company's Systems have been adopted by 120 of the principal Railroads of the United States and by the great Sleeping Car Company. They consist of The Steam Jacket System of hot water circulation, The Direct Steam Regulating System and Straight Steam (plain piping).

Automatic Steam Couplers. Straight Port Type.

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CANADIAN REPRESENTATIVES

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Steel Rails.

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Axles, Crank Pins, Forgings, Etc.

FOR STEAM AND
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205 ST. JAMES STREET,

The per-diem plan is forcing the smaller line to purchase more cars, and more orders are being received by the car-builders from this class of roads than from the larger systems.

The Westinghouse Air Brake Co.'s gross receipts for the past fiscal year were \$8,550,503; expenses, \$5,621,808; net earnings, \$2,928,695; dividends, \$2,634,468; surplus, \$294,227.

The Canadian Northern Ry. placed in service during Nov. one first-class passenger car, one dining car, 21 cabooses, 34 flat cars, 40,000 lbs. capacity; and 317 box cars, 60,000 lbs. capacity.

The C.P.R. day car Cornwall, which was part of the Duke and Duchess of York's train, is being changed into a private car. A state-room with bath attached is being added, and the pantry is being made into a porter's room.

The C.P.R. has ceased building freight cars at its Hochelaga shops, Montreal, which are now entirely engaged on passenger coaches, 30 1st class, 6 sleepers and 2 parlor cars being under construction.

The G.T.R. placed the following additional equipment in service during Nov., 10 cool-air cars, 212 box cars, 60,000 lbs. capacity; 36 flat cars, 60,000 lbs. capacity; 26 coal cars, double-drop bottoms, 60,000 lbs. capacity.

The Canadian Locomotive Co. is continually enlarging and improving its shops. It has just installed a triple-headed frame slotter, built by the John Bertram & Sons Co., Dundas, Ont., which is the largest tool of this character in Canada.

The G.T.R. has placed in service five more of the 2,000 series of coaches which were built at its Montreal shops. They are 62 ft. long, accommodate 68 passengers and have a smoking-room with accommodation for 14. They are lighted by Pintsch gas.

Motor and trailer trucks for electric railways are dealt with in the Record of Recent Construction, no. 38, issued by the Baldwin Locomotive Co. The Co. has built both motor and trailer trucks for the heaviest electric cars in service up to the present time.

The Kingston and Pembroke Ry.'s passenger coaches have been overhauled in the C.P.R. Montreal shops and fitted with Westinghouse air brakes. The locomotives have also been equipped with the brakes, and the coaches are now heated with steam from the locomotives.

The Cape Breton Electric Co. has received 4 motor cars, 30 ft. long, with double trucks, for main line traffic; 4 motor cars, 24 ft. long, for town traffic; and 4 trailers, 30 ft. long, each with capacity for 100 passengers. They are handsomely fitted up, have rattan seats, and are heated by electricity.

The Michigan Central Rd. has recently placed on its Canadian division five Atlantic type locomotives from the American Locomotive Co.'s Schenectady works. They weigh, exclusive of tenders, 176,000 lbs., of which 95,000 lbs. are on the drivers. The driving wheels are 72 in. diameter.

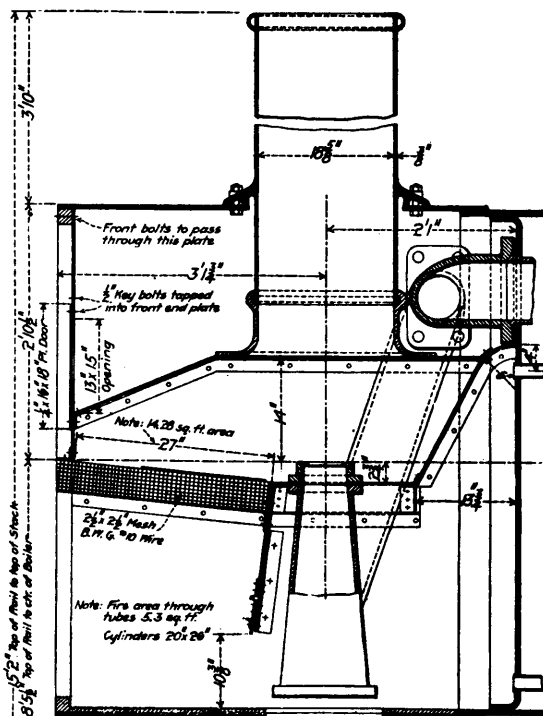
The Canadian Northern Ry. has bought the two locomotives which were built some years ago for the Chignecto Marine Ry., but which were not used owing to the failure of the project. They are being changed by the builders, the Canadian Locomotive Co., so as to be suitable for fast service.

The C.P.R. has recently added to its rolling stock 11 baggage cars, 60 ft. long, with 6 wheel trucks, having steel-tired wheels, built

at its Hochelaga shops, and 54 conductors' vans of the ordinary type, 33 ft. overend sills, built at its Farnham shops. Both baggage cars and vans are equipped with Westinghouse air brakes.

The Canadian Locomotive Co. has purchased a block of land on each side of the tract occupied by its works at Kingston, Ont. The purchase consists of about four or five acres, and, as business warrants, will give room for the expansion of the works to a capacity of about a locomotive per day. Six hundred men are now employed in the works.

The Canadian Locomotive Co. recently began delivering 10 locomotives ordered for the C.P.R. Three were delivered in Dec., and the remainder will be delivered during Jan. and early in Feb. After that the C.L. Co. will deliver 5 locomotives to the Intercolonial Ry., 2 to the Algoma Central and Hudson's Bay Ry., and 15 to the Canadian Northern.



FRONT END ARRANGEMENT, INTERCOLONIAL RAILWAY LOCOMOTIVE.

The old double-end locomotives, which hauled the coal from the Reserve mines to Sydney, N.S., before the advent of the Dominion Coal Co., have recently been taken apart at the Reserve, and will be disposed of as old junk. The machinists who took them apart say it was the hardest job they ever tackled, as the engines were very strongly built, and the parts mostly forge-made. They were built in England in 1870, and were known there as Fairlie's patent.

The Minneapolis, St. Paul and Sault Ste. Marie Ry. has ordered 20 locomotives from the American Locomotive Co., including 3 compound consolidation, 3 compound mogul, and 4 passenger locomotives. The others will probably be compound mogul. Orders have also been placed for 200 flat cars, 7 day coaches, 5 baggage, 4 sleeping, 5 tourist sleeping, and 1 dining car.

The Brockville, Westport and Sault Ste. Marie Ry. will add to its equipment 1 locomotive, 2 passenger cars, 1 combination passenger and baggage car, and a number of 34 ft. box, flat and stock cars. The sale of the

line, to take place Jan. 20, may have some effect in delaying purchases. As car builders cannot promise delivery before June, the Co. is rebuilding some of its flat cars.

The Ottawa, Northern and Western Ry. has added one box car 40,000 lbs. capacity, and one flat car, 40,000 lbs. capacity to its equipment. All the other equipment on the line is marked with the initials of the Ottawa and Gatineau Ry. and the Pontiac Pacific Junction Ry., which are now amalgamated under the above title, and the initials O.N. and W. Ry. appear on the new rolling stock.

The Reid Nfld. Co. has recently added to its equipment, or has under order, 2 consolidation locomotives from the Baldwin Locomotive Works, 6 second-class passenger coaches, 150 flat cars, 35 ft. long, 40,000 lbs. capacity, 30 flat cars same length and capacity, and 1 mail and baggage car. The flat cars and the mail and baggage car were built at the Co.'s Whitbourne car shops.

Following are general dimensions, etc., of the 1,000 flat cars for which the C.P.R. recently placed orders, delivery to be made in March and April: capacity, 30 tons; length, 36 ft. 8 ins.; width, 8 ft. 10 ins.; material wood. The special equipment comprises: axles, steel; bolsters and brake beams, Simplex; brake shoes, C.P.R.; brakes, Westinghouse; brasses, St. Thomas Brass Co.; trucks, C.P.R. metal; wheels, C.P.R.

The Preston and Berlin Ry. Co. has purchased the Baldwin compound locomotive, which was built for the Hamilton and Dundas Ry., and only used on that line for a few months. It has also purchased two passenger cars, about 40 ft. long, and is having two more built. The road is built not only for fast electric passenger traffic, but also for freight traffic, with 35 or 40 ton electric motors, which will probably be put on later in the year.

Following are general dimensions, etc., of the 500 box cars for which the C.P.R. recently placed an order at its Perth, Ont., shops, to be delivered by Feb. 14: capacity, 30 tons; length, 36 ft.; width, 8½ ft.; height, 8 ft.; American Ry. Association inside dimensions; material, wood; underframe, wood. Special equipment, axles, steel; bolsters and brake beams, Simplex; brake shoes, C.P.R.; brakes, Westinghouse; brasses, St. Thomas Brass Co.; trucks, C.P.R. metal; wheels, C.P.R.

The U.S. Treasury Department has decided that the G.T.R. must pay \$100,000 duty on 11 Canadian-built locomotives which the Co. has been using temporarily in Maine. Extraordinary shipments of cattle placed too great a strain on the regular locomotives, and an appeal was made to the Treasury Department. The Treasury officials say that while engines might run into the country to a station across the border, it was not possible to interpret laws in a way that would permit foreign-built engines to run between stations within the U.S.

The C.P.R. Co. has placed an order for 12 passenger locomotives and 38 freight locomotives, to be built at the American Locomotive Co.'s Schenectady shops. Twelve passenger locomotives have been ordered in Scotland. The following orders have also been placed: 10 1st class coaches to be built at the Co.'s Hochelaga shops, 10 1st class coaches from Rhodes, Curry & Co., Amherst, N.S.; 10 1st class coaches, 6 sleeping cars and 2 dining cars to be built in the U.S.; 100 40 ton box cars at the Co.'s Perth shops; 100 box cars from Rhodes, Curry & Co.; 1,500 30 ton box cars, of which 500 will be built at the Co.'s Perth shops and 500 by Rhodes, Curry & Co.

C. Bermingham, Managing Director of the Canadian Locomotive Co., recently returned to Kingston, Ont., from Germany, bringing with him 61 skilled machinists, whom he secured at Dusseldorf. A small newspaper advertisement yielded 1,300 personal applications, while thousands arrived by mail. Mr. Bermingham says that in Dusseldorf and vicinity 3,000 skilled mechanics are idle and ready to go where work is promising. The men he secured are the very cream of the personal applicants. It is intended to put a night force and day force at work in the works, thus doubling the output, hence the necessity of importing the German mechanics. The Co. now pays \$8,000 wages fortnightly, which will be doubled when the new double shift system is established.

Rhodes, Curry & Co., Amherst, N. S., have all the new buildings of their immense plant about completed. The plant occupies about 15 acres. They put up last year a solid brick blacksmith shop, and have just finished a brick passenger car shop, 130 by 230 ft. The plant in the car department consists of a wheel foundry, grey iron foundry, axle shop, blacksmith shop, machine shop, paint, truck, tinsmith, pattern and wood-working shops; also erecting sheds for freight cars and passenger cars. The number of men employed averages 830. On an average they turn out between eight and nine cars a day. Besides the car department they have also a factory for building materials. They expect to be working in the new axle shop very soon.

A St. Thomas, Ont., correspondent writes:—"A notable feature in the Michigan Central Rd. locomotive and car shops is the increased amount of work being done with a normal

staff of employees, as a consequence of a more systematic adjustment in the method of doing work, especially in the car shops, where, in addition to the usual amount of repair work, thirty-two 80-000 lb. freight cars have been built during the past month, the largest number ever built in these shops in one month. It is claimed that as a result of the new system, cars are now being built at a less labor cost than was offered the men in the piece work proposal of the early spring. Twelve gondola flat cars have been turned out of the local shops of the Lake Erie and Detroit River Railway Co. during the past month for use in handling sugar beets in this district."

The illustration on page 15 shows the front-end arrangement which is being used on some 25 I.C.R. locomotives, and which is said to be giving very satisfactory results. In the arrangement which was introduced by J. E. Muhlfeld, until recently Superintendent of Machinery and Rolling Stock, the height of the smokebox is cut down to limits considerably below that which the diameter of the boiler allows. At the last master mechanics' convention Prof. Goss discussed the advantages of the inside stack. The principal point made was that within limits common to practice any stack should be as long as possible. In cases where the length of exposed stack is necessarily short, the advantage of a greater length can be secured by allowing the lower end to run into the smokebox. The Railroad Gazette points out that the effect of this discussion was to commend the inside stacks.

The Canadian Northern Ry. is having 15 mogul locomotives built by the Canadian Locomotive Co. Following are the general

dimensions, etc.: Weight in working order, 133,000 lbs.; weight on drivers, 107,000 lbs.; wheel base driving, 12 ft. 6 in.; wheel base rigid, 12 ft. 6 in.; total wheel base, 22 ft. 6 in.; total wheel base of engine and tender, 50 ft. 6 in. 11-16 ins.; cylinder, 19 in. x 24 in.; driving wheels, 56 in dia.; driving boxes, 8 in. x 9 in. journal; engine truck journals, 5 in. x 9 3/8 in. BOILER—Style, Belpaire; diameter at smokebox end, 58 in.; working pressure, 180 lbs.; firebox, 107 in. x 41 3/8 in.; firebox water space (front 4 in., sides 3 1/2 in., back 3 1/2 in.); tubes, 239-2 in., 1-14 tubes; tubes, length, 12 ft. 4 in.; firebrick supported on studs; heating surface—tubes, 1,536 deg.; firebox, 144 deg.; total, 1,680 deg.; grate area, 30 deg.; grate style, rocking; smoke stack top to rail, 14 ft. 3 3/4 in.; boiler supplied by two injectors. TENDER—Weight, 40,000 lbs. light; wheels no., 8; wheel diameter, 33 in.; journals, 5 ft. 9 in.; wheels base, 17 ft. 11 1/2 in.; tender frame, 10 in. steel channels; water capacity, 4,000 imp. gal.; coal, 8 tons.

The American Locomotive Co. has more orders on its books now than at any one time in its history. The plants are being operated to their fullest capacity, and good results are being attained in the matter of making deliveries in accordance with the terms of contracts. The tremendous amount of freight being offered to the railways has made them persistent in their demands to have locomotives delivered promptly. There is no sign at the present time of any diminution in the demand for locomotives. The Co. is taking orders for delivery in 1904. It is a noteworthy fact that for months the Co. has made no effort to secure foreign business. The reason is that the domestic demand has been so great that the management felt that its first duty

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was to supply the needs of the roads in the U.S. The Co. has recently refused to name prices on some foreign orders; for this reason it was impossible to fill such orders without ignoring the demands of the U.S. lines. The earnings so far this current fiscal year are running ahead of the same period last year. The improvements during the last year have resulted in attaining greater efficiency in the operating departments, and this fact is expected to be reflected in the earnings for the current fiscal year.

The Central Ontario Ry. has recently obtained some simple 10-wheel locomotives from the Canadian Locomotive Co. Following are the general dimensions: Weight, working order, 115,000 lbs.; weight on drivers, 85,000 lbs.; wheel base, driving, 11 ft. 10 in.; wheel base, total, 21 ft. 3½ in.; cylinder, 18x24 in.; driving wheels, 57 in. dia. Boiler—style, radial stay; dia. of smokebox end, 55 in.; working press., 180 lbs.; firebox, 95½x41 in.; firebox water space, front 4, sides 3½, back 3½ in.; tubes, 239, 2 in. dia., length, 12 ft. 4 in.; firebrick supported on tubes. Heating surface—tubes, 1,235.0 sq. ft.; firebox, 119.0 sq. ft.; firebrick tubes, 14.7 sq. ft.; total, 1,367.7 sq. ft.; grate area, 27.2 deg. Tender—weight of tender, 37,000 lbs., light; wheel base, 15 ft. 4 in.; frame, 10 in. channels; water capacity, 3,800 gals.; coal, 6 tons; total wheel base of engine and tender, 48 ft. 11⅞ in. The locomotives are plain and substantially built and well adapted for the work they are expected to do. The forward driving wheel is not equalized with either of the others, but has a spring carried over the frame in the usual way. The main driver and trailer are equalized by a semi-elliptic spring placed between them, bearing up against the lower frame bar, a pair of coil springs in front of the driver and in rear of the trailer complete the spring system. The expansion link is laid out on a 48 in. radius, and this brings it well in front of the rocker arm and what is generally called the transmission bar, in this case, runs back from its hanger to the rocker. The main driving wheels are not flanged. The boiler is 55 in. diameter at the smokebox, and the top check is placed exactly on the centre line. The crown sheet is radially stayed, and the washout plugs are placed so as to follow its arched contour. The tender frame is made of structural steel, being in fact 10 in. channels. The whole is carried on diamond trucks, with wooden bolsters.

The C.P.R. has placed the following orders for rolling stock, in addition to those stated in preceding paragraphs under this heading: 20 passenger locomotives, to be built in Scotland; 100 refrigerator cars and 100 stock cars, 30 tons capacity, to be built by Rhodes, Curry & Son, Amherst, N.S.; 500 flat cars, 30 tons capacity, to be built at Sault Ste. Marie, Ont.; 100 coal cars, 40 tons capacity, and 50 ore cars, 30 tons capacity, to be built at Co.'s shops, Perth, Ont.; 1 wrecking crane, 50 to 60 tons.

Imperial Rolling Stock Co.

This company, with headquarters in Toronto, has the following officers:—President, W. Mackenzie; Vice-President, D. D. Mann; other directors, Z. A. Lash, F. Nicholls, J. M. Smith. Its capital stock is \$300,000 fully paid up. It was incorporated for the purpose of supplying railway companies, primarily the Canadian Northern, with rolling stock on the car trust plan, the I.R.S. Co. purchasing rolling stock outright and leasing it at a rental, or agreeing to sell it to the railway company, the latter contracting to pay for the rolling stock in regular instalments sufficient to meet the interest and retire the bonds as they mature. At maturity, when all the pay-

ments have been made, the ownership of the rolling stock is transferred to the railway company, but the title remains vested in the rolling stock company until all payments therefor have been made. In the meantime the railway company is required to furnish the trustees from time to time with a detailed statement as to the rolling stock, to maintain it in good repair, and to pay for or replace any stock destroyed or damaged. The rolling stock is kept insured against loss by fire, loss if any being payable to the trustees for the bondholders, to be applied in purchasing new rolling stock to replace any that may be burned.

The Imperial Rolling Stock Co. has issued \$1,330,148.21 five per cent. first mortgage gold bonds, covering rolling stock which the Canadian Northern Ry. has agreed to buy for that sum and interest. The rolling stock, which is new and was paid for in cash, consists of 29 locomotives, 1 dining car, 3 combination baggage, mail and express coaches, 828 box cars, 3 second class passenger and smoking cars. The Imperial Rolling Stock Co. retains the title to this rolling stock, and holds in addition \$440,000 mortgage bonds of the C.N. Ry. as security. The Dominion Securities Corporation, Toronto, is offering part of the I.R.S. Co.'s bonds above mentioned at a price to yield 5½% per year.

C.P.R. Superannuation Fund.

The President, Sir Thos. G. Shaughnessy, has issued a circular stating that the Co. feels that a time has arrived when some provision should be made for officers and permanent employes who, after long years of faithful service, have reached an age when they are unequal to the further performance of their duties. With this object in view, the directors have determined upon a plan of superannuation, the particulars of which are set out in the accompanying rules and regulations. The system adopted calls for no contributions from the employes. The Co. hopes, by thus voluntarily establishing a system under which a continued income will be assured to those who after years of continuous service are by age or infirmity no longer fitted to perform their duties, and without which they might be left entirely without means of support, to build up amongst them a feeling of permanency in their employment, an enlarged interest in the Co.'s welfare, and a desire to remain in and to devote their best efforts and attention to the Co.'s service.

The rules and regulations provide that the administration of the pension department shall be under the control of a committee consisting of the President, the vice-presidents and the Chief Solicitor, who shall meet monthly and shall have power to make rules for the efficient operation of the department; to determine the eligibility of employes to receive pension allowances; to fix the amount of such allowances; and to prescribe the conditions under which such allowances may inure. The proceedings of the committee shall be subject to the approval of the Board. The benefits of the pension system shall apply only to those persons who have been required to give their entire time to the Co., or to the Co. and some other railway company or railway companies jointly. In cases of joint employment, and when the whole salary is not paid by this Co., the pension to be paid by this Co. shall be estimated upon the proportion of salary or wages received from this Co. All officers and employes who have attained the age of 65 shall be retired, and such of them who have been 10 years or longer in the Co.'s service shall be pensioned. The committee, however, shall have power to retain in the service any employe who has reached the age of 65 if, in their opinion, it is in the interest of the Co. to do so; provided that no employe

who has reached the age of 65 without having served 10 years continuously in the Co.'s service, and who shall be retained in the service after he attains the age of 65, shall be eligible for pension allowance. Officers and employes between the age of 60 and 65 may, at the discretion of the committee, be retired with a pension either upon the application of such employe or upon the recommendation of the head of the department. Under special circumstances the committee shall have the power to retire with a pension employes who have not reached the age of 60, and the committee shall also have the power in special cases to add additional years to the actual term of service, provided that in each case the approval of the Board shall be obtained. Physical examination shall be made of employes recommended for retirement who are under 65, and a report with the recommendation of the Co.'s Surgeon shall be transmitted to the committee for consideration in dealing with such cases. Six months' previous notice shall be given to employes who are to be compulsorily retired. Retirement shall be made effective from the 1st days of Jan. or July in each year. The terms "service" or "in the service" shall refer to employment upon or in connection with any other railways operated by the Co., and the service of any employe shall be considered as continuous from the date since which he has been continuously employed upon such railways, whether prior or subsequent to their control or acquisition by the C.P.R. Co.; provided that in no case shall such service be counted for any period prior to the incorporation of the C.P.R. Co. In computing service it shall be reckoned from the day since which the person has been in the service to the date when retired. Leave of absence, suspension, dismissal followed by reinstatement within one year, or a temporary lay-off on account of the reduction of forces, need not necessarily be treated by the committee as constituting a breach in the continuity of the service, and the time when so laid off or absent, unless the employe has during such absence entered other employment, may be allowed by the committee to count as part of such service. Persons voluntarily leaving the employment of the Co. when their services are required thereby become ineligible for pension allowance. The pension allowance authorized shall be granted upon the following basis: For each year of service an allowance of 1% of the average monthly pay received for the 10 years preceding retirement. For instance, an employe has been in the service for 40 years and received on an average for the last 10 years \$50 a month the pension allowance would be 40% of \$50 or \$20 a month. In calculating the period of service upon which the pension allowance is based, the broken period following the completion of a year, when it is less than six months, shall not be counted, when it exceeds six months it shall count as an additional year. When pension allowances are authorized, pursuant to these regulations, they shall be paid monthly during the life of the beneficiary, provided, however, that the Co. may cancel any pension in case of gross misconduct on the part of the pensioner. Pay-rolls covering all pension allowances, showing the names of those to whom such allowances have been made and the amount of such allowances, shall be prepared at the close of each month by the Secretary of the department; shall be certified by him; shall be countersigned by at least one member of the committee; and shall be forwarded to the accounting department for registration and payment. The officer in charge of the staff records of the Co. shall report to the pension department on the 1st days of Jan. and July in each year, the names with the particulars of service of all employes who will attain, during the ensuing six months, the requisite age for consideration for a pension

allowance. The Secretary of the pension department shall keep himself informed of the whereabouts of all employes who have been retired from the service, and shall require satisfactory evidence from each of such employes, at least once a year, that he still comes within the rules of the pension department. In order that the direct personal relations between the Co. and its retired employes may be preserved and that they may continue to enjoy the benefit of the pension system, no assignment of pensions will be permitted or recognized. The acceptance of a pension allowance does not debar a retired employe from engaging in other business, but such retired employe cannot so engage in other business nor re-enter the service of the Co. except with the consent of the committee, without forfeiting his pension allowance. The establishment and continuance of this system of pensions is entirely a voluntary act on the part of the Co., and as the employes do not in any way contribute towards it neither the action of the board in establishing such a system, nor any other action now or hereafter taken by them or by the committee in the inauguration or operation of the pension department shall be construed as giving to any officer or employe of the Co. a legal right to be retained in its service, or any legal right or claim to pension allowance. While it is the policy of the Co. to encourage its employes to remain with it and do faithful service to earn a pension, the Co. expressly reserves its right and privilege to discharge at any time any officer, agent or employe when the interests of the Co., in its judgment, may so require, without liability for any claim for pension or other allowance than the salary or wages due and unpaid. These rules and regulations take effect on Jan. 1, 1903, and may be altered or repealed from time to time as the committee, subject to the approval of the board, may determine.

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Adams' River to Hectate Channel, B.C.—D. G. Macdonnell, solicitor, Vancouver, gives notice that application will be made at next session of the B.C. Legislature for an act incorporating a company to construct a railway from the mouth of Adams' river, Vancouver island southwesterly, via the Klance river valley to Gold river and Hectate channel on the western coast of the island.

Alberta Ry. and Coal Co.—It was expected that the widening of the gauge from the International boundary to Lethbridge, Alta., would be completed by Jan. 1.

Alberta Railways.—Application will be made next session of the Dominion Parliament for the incorporation of a company to construct a railway from Macleod, via Standoff and Cardston, Alta., to the International boundary, with power to connect with U.S. lines. Perkins, Fraser and Burbidge, are solicitors for the promoters.

Algoma Central and Hudson's Bay Ry.—It is reported that the grading on the right of way is completed to a junction with the Michipicoten branch, but that many of the bridges are in an unfinished condition. An interesting feature of the line between Ogidaki and the junction is the run through the Agawa river gorge. No track was laid in 1902. F. H. Clergue recently stated that none would be laid beyond Ogidaki until next summer.

Surveys are being made for the location of the line from near the Josephine mine to the C.P.R. transcontinental line at White River, 746.5 miles from Montreal. One object of this line is to touch the Frances mine, a recently discovered iron ore mine, some miles east of Dog river and south of Herrick's line. From

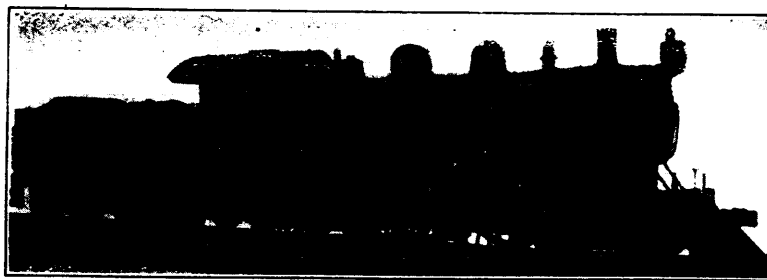
this point the projected line will run northerly to Chatonga lake, northwesterly to McMaster University lake, and to White River. The length of the projected extension is about 45 miles. (Nov., 1902, pg. 380.) See also Canadian Northern Ry.

The Atlantic, Quebec and Occidental Ry. will apply at the next session of the Quebec Legislature for an act extending for two years the time within which it may commence its line, and for five years, the time for completing it.

Atlantic, Quebec and Western Ry.—An order-in-council has been passed by the Quebec Government, bringing into effect an act passed by the Legislature in 1901, on the application of H. Higgins, A. W. Carpenter, C. E. Preston-Hillary, of London, Eng., and J. X. Lavoie, of Perce, Que., which authorizes the construction of a railway from Gaspé basin, through the centre of Gaspé county to a junction with the Intercolonial Ry. between Lake Metapedia and Causapsal, Que. Considerable opposition to the passing of the act was shown by the residents along the Baie des Chaleurs, which is served by the Atlantic and Lake Superior Ry., extending from Metapedia, on the I.C.R., to the 100th mile, 2 miles beyond New Carlisle. The A. and L. S. Ry. has power to construct a line along the coast line to Gaspé basin. A company has recently been formed in London, Eng., under the title of the New Canadian Co., with a capital of £100,000, of which £50,207 has been subscribed and 25% paid up, to take over the A., Q. and W. charter and construct the line. It is stated that the Co. will apply for a Dominion act at the ensuing session of Parliament, but no notice of such intention had been given to Dec. 20. The directors of the Co. are W. Griffiths, J. Mellowes and S. Lee, of London, Eng., and C. B. K. Carpenter, of Gaspé. The Secretary is E. S. Elvey, and the

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GENERAL OFFICES ————— **25 Broad Street, NEW YORK CITY.**

London offices are at 120 Bishopsgate st. Within. Sir Douglass Fox & Partners are consulting engineers. The solicitors in Canada are Gouin, Lemieux & Brassard, Montreal. The London officials of the Co. state that surveys will be commenced early in Jan., and the line, about 140 miles, will be completed in two years.

An application for an act to construct a line from Gaspé basin, to a junction with the I.C.R. at Fraserville, Que., was made at the last session of the Dominion Parliament on behalf of W. Barwick, Toronto; J. B. R. Fiset, Rimouski; O. E. Talbot, Quebec; J. A. Ross, St. Flavie; C. A. Gauvreau, Isle Verte; M. Connelly and J. Q. Perrin, Montreal; A. Colby, New York city. The application met with considerable opposition from the Minister of Railways, the bondholders of the Atlantic and Lake Superior Ry., and a number of private members and was abandoned.

Bangor and Aroostook Rd.—An extension of 52 miles from Ashland to Fort Kent, Me., has been completed and was put in operation Dec. 8. This extension brings the B. and A. Rd. to the St. John river, opposite Fort Kent, N.B., on the St. Francis Branch of the Temiscouata Ry. A. E. Trites, of Salisbury, N.B., had charge of the whole work, and C. Le B. Miles and J. Stewart had contracts for grading 7 miles and a number of sidings on the line.

Bay of Quinte Ry.—Press reports state that 6 miles of line have been completed, and that the new short route between Kingston and Napanee, Ont., has been opened. Hitherto the B. of Q. Ry. reached Napanee over the G.T.R. tracks from Deseronto Jct. Work has been carried on improving the line between Tweed and Yarker, a heavy grade at Enterprise being cut down among other works.

Press reports credit an officer of the Co. with stating that contracts are to be let in the near future for a line from Tweed to Bannockburn, 20 miles, by way of Actinolite and Queensboro'. (Nov., 1902, pg. 381.)

The Brandon and Southwestern Ry. Co. will apply at next session of the Dominion Parliament for an act providing for the extension of its proposed line from Gladstone to Lake Winnipegosis, thence northerly to the Saskatchewan river; to authorize amalgamation with any railway company and extending the time within which it has to commence and complete its undertaking. (March, 1900, pg. 75.)

Brantford St. Ry.—The tracks in the west Brantford section are being raised prior to the inauguration of a regular service. An 80-ft. extension is being built to the power house, in which it is proposed to install a 350-h.p. engine and additional boilers. The cost of these alterations will be \$30,000. (Nov., 1902, pg. 381.)

British Columbia Electric Ry.—The machinery in the car shops at Vancouver has been installed, and the shops will be in operation early this year.

A short extension has been completed from St. Lawrence along Ontario st., Victoria, and the Erie st. section will be torn up. (Nov., 1902, pg. 381.)

British Columbia Monorail Ry.—Application will be made at the ensuing session of the B.C. Legislature to incorporate a company to construct railways upon the monorail system in B.C. F. Moberly, C.E., is one of the promoters of the company, and the notice of application is given by C. H. Lugin, solicitor, Victoria, B.C. Notice has also been given that a Dominion charter will be applied for at the next session.

British Columbia Northern and Mackenzie Valley Ry.—Application will be made at next session of the Dominion Parliament for an act incorporating a company to construct

a railway from Nasoga gulf, at the mouth of Naas river, B.C., by way of the Naas and Stikene rivers to Dease lake; thence to Telegraph creek, and thence by the Liard, Pelly and Stewart rivers to Dawson, Yukon Territory, and a branch from Dease lake to the eastern boundary of the province of B.C. Notice has been given that application will also be made to the B.C. Legislature for an act incorporating a company to construct the line mentioned above. C. H. Lugin, solicitor, Vancouver, is acting for the promoters.

Bruce Mines and Algoma Ry.—The two-mile extension from the C.P.R. tracks to the shore of Lake Huron, via Bruce Mines village, Ont., has been completed. (Nov., 1902, pg. 381.)

Bull Park to Cowley.—Application will be made at the next session of the Dominion Parliament for an act incorporating a company to construct a railway from the North Fork river near Bull Point, to a junction with the Crow's Nest branch of the C.P.R., near Cowley, Alta.

Burke Channel to B.C. Boundary.—Application will be made at next session of the B. C. Legislature for an act incorporating a company to construct a railway from the Pacific coast at Burke channel, to the Pine river pass or the Yellowhead pass, or both, via the Bella Coola river, Palmer's trail and Black water river; thence to the eastern boundary of the province; and a railway from where the above will cross the 125th meridian, to Burrard inlet, with power to construct branches not exceeding 150 miles in length. Robertson and Robertson, Victoria, are the solicitors.

Calgary and Edmonton Ry.—In connection with the termination of the arrangement under which the C.P.R. has been operating the line, and its probable purchase by the C.P.R., extensive repairs to the track are being made. Press reports state that \$100,000 will be expended on the repairs. As to the proposed extension of the line, a number of statements are being made regarding the intention of the Co. The C.P.R. has survey parties working from Strathcona easterly. (June, 1902, pg. 189.)

Application will be made at the ensuing session of the Dominion Parliament for an act authorizing the construction of the following lines: from Wetaskiwin, Alta., easterly for 100 miles; from between Lacombe and Red Deer, Alta., easterly for 100 miles; from Strathcona, into Edmonton, Alta.; from near Edmonton, northwesterly for 100 miles. J. W. Neilson, of St. John, N.B., and T. Bowen, of Calgary, Alta., have been looking over the ground for the Co. See also Manitoba and Northwestern Ry. under C.P.R. betterments, etc.

Canada Atlantic Ry.—An agreement has been arrived at with the city respecting the Elgin st. subway, Ottawa, and a draft order-in-Council prepared. This provides for a subway 60 ft. in width, to be constructed by the C.A. Ry., the Dominion Government providing the steel girders, and the Ottawa Improvement Commission to provide for drainage, lighting and maintenance. The subway is to be completed by Aug. (Aug., 1902, pg. 262.)

Canada Central Ry.—Application will be made at the ensuing session of the Dominion Parliament for an act authorizing this Co. to construct the following additional lines: from near Sudbury to Scotia Jct., thence southerly to Toronto; from a point on the previously authorized line in Keewatin district, to Fort Churchill, on Hudson's Bay; from Tête Jaune Cache, B.C., to Vancouver; from near the Thompson river to Waddington Harbor or Bute Inlet, B.C.; from old Fort Assiniboia to Peace river, and thence to the Portland canal on the Pacific coast. The Co. also proposes to make application to the Ontario Legislature to authorize it to construct such of these

lines as are in Ontario, in addition to those authorized by the act obtained in 1902. The Canada Central Ry. Co. was incorporated in 1902. (June, 1902, pg. 189.)

The Co. has also given notice that application will be made at the ensuing session of the Ontario Legislature for an act authorizing the construction of such of the lines mentioned as are situated in Ontario.

The Canada Fish Co., the provisional directors of which are J. G. Strong, B. E. Bull, W. R. Williams, H. G. Osterhunt and W. G. Francis, all of Toronto, have obtained the right of fishing in Lake Nipigon, exclusive of bass and speckled trout, for 20 years, from the Ontario Government, one of the conditions attached to the contract being that 40 miles of railway from the C.P.R. transcontinental line to the lake is to be constructed.

Cape Breton Ry.—A construction train has been operated from Port Hawkesbury to Grand Ainsie, N.S., 20 miles, and it was expected that the track would be laid into St. Peters by Jan. 1. Stations have been built at Port Inhabitants, White Sides, Grand Ainsie, Sporting Mountain and St. Peters. A branch of about a mile to the Government wharf on St. Peters canal has been completed. The heaviest bridgework was the steel bridge over the River Inhabitants, erected by the Dominion Bridge Co., of Montreal, at a cost of about \$40,000. (Nov., 1902, pg. 381.)

Cape Breton Electric Co.—This project was promoted by B. F. Pearson, of Halifax, and was taken up by Stone & Webster, of Boston, Mass., who have built and now operate a number of street railways in the U.S. The C.B. Electric Co. owns the lighting plant in Sydney (some 9,000 lights), and has built 5 miles of line in Sydney; 3 miles more are projected, but will not likely be built before this summer. It owns the ferry service between Sydney and North Sydney (8 miles apart), and operates three steamboats, running about every half hour. It also owns the electric light plant of North Sydney, and has completed about 5 miles of electric line between North Sydney and Sydney mines. When Stone & Webster took up this project it was their intention to make extensions to Glace Bay and other mining centres in that neighborhood. The Dominion Coal Co., however, owned the bulk of the land through which the proposed extensions would pass, and also owned a steam road connecting all those points with Sydney. It raised objections to the new company invading its territory, and after some months' negotiations a compromise was effected, whereby a new company, the Sydney and Glace Bay Electric Ry., was formed, in which the C.B.E. Co. owns one half the stock, and the Dominion Coal Co. the other half. This Co. has power to extend the tracks from the limits of Sydney to Glace Bay and other points. The franchise was acquired from the municipality of Cape Breton county, and the town of Glace Bay, and runs for 30 years. The length of this road is 21 miles. It is completed from Sydney to Glace Bay, and is operated by the C.B.E. Co. The track is a good one, with favorable gradients, generally laid with 60-lb. T rails on hemlock ties, 3,000 to mile, with 1,800 yds. good broken stone ballast to the mile. The power house is equipped with two 300 K.W. generators, one for lights and the other for railway, driven by two 500 h.p. engines, also a third 500 h.p. tandem compound. This latter engine is at present running lights and also railway when temporarily operated; and is run by a battery of 6 boilers, 150 h.p. each. The smoke stack is 120 ft. high, and 8 ft. diameter. (Nov., 1902, pg. 381.)

Cardiff Ry. Co.—Application will be made at next session of the Dominion Parliament for an act incorporating a company under this title to construct a railway from sec. 31, tp. 6, range 3, west of the 5th meridian, N.W.T.,

to near Frank on the C.P.R. Crow's Nest Pass line. Latchford, McDougall and Daly, Ottawa, are the solicitors.

Charlottetown Electric Ry.—A. F. Gerald, of Fairfield, Me., has been looking over the ground with a view of building an electric railway in Charlottetown, P.E.I., and its vicinity.

Chateauguay & Northern Ry.—A contract is reported to have been let to C. E. Loss, of New York, for the construction of 35 miles of track from Joliette, on the line of the Great Northern Ry. of Canada, to Charlemagne, Que. Another is reported to be let to Shearer & Co. for the substructure of a bridge at Bout de l'Île, which will give an entrance to Montreal over the tracks of the Montreal Terminal Ry. The C. and N. Ry. will be constructed in connection with the G.N. Ry. of Canada. (Nov., 1902, pg. 381.)

Coast Yukon Ry. Co.—Application will be made at the next session of the Dominion Parliament for an act incorporating a company under this title to construct a railway from near Kitamaat inlet, Douglas channel, B.C., to Atlin lake, thence to the Yukon river, and via Dawson to the International boundary between Yukon territory and Alaska, U.S. D. G. Macdonnell, Vancouver, B.C., is the solicitor.

The Crow's Nest Pass Co. (Ltd.) has been incorporated under the B.C. Companies' Act, with a capital of \$100,000, to construct steam or electric railways or tramways in connection with its logging and development work in the Crow's Nest Pass country.

Cuba Co.—The railway from Santiago to Santa Clara, Cuba, about 335 miles, constructed for the Cuba Co., of which Sir William Van Horne is President, was formally opened Nov. 24, and a regular train service was put in operation Dec. 8. The trunk line is through rock, jungle and forest, over plateaus, rivers and valleys, and touches the main towns and native villages between the two extreme points. Later, branch lines, now in course of construction, will be opened for public traffic between Santiago and the Bay of Nipe, Jucaro and San Fernando, as well as from Santa Esperito Junction on to Santa Esperito City. A large hotel, to cost \$350,000, is projected at Havana. (Aug., 1902, pg. 263.)

Cumberland Ry. and Coal Co.—The work of strengthening the roadbed from Springhill

Jct. to Parrsboro', N.S., has been completed and 80-lb. rails have been laid. Water-tanks have been built at various points and electric lights have been installed at the switches. (Nov., 1902, pg. 381.)

Dawson to B.C. Boundary.—Application will be made next session of the Dominion Parliament for the incorporation of a company to construct a railway from Dawson, Yukon, to the northern boundary of British Columbia, where a junction will be made with the proposed Pacific, Northern and Omenica Ry.

Detroit River Bridge.—While the Michigan Central and Grand Trunk railway officials have been wrangling over the proposed site for a bridge over the Detroit river at Detroit the vessel interests have had no cause for worry. It was certain that the bridge pro-

To Contractors and Railway Companies.

CIVIL ENGINEER, with large experience in all branches of Railway work, location, construction and maintenance, American methods, is open for engagement. Address, Box 491, RAILWAY AND SHIPPING WORLD, Toronto.

NOTICE.—The Canadian Pacific Railway Company will apply to the Parliament of Canada, at its next session, for an Act amending the Act 51 Victoria, chapter 51 (Canada) by inserting the word "consolidated" before the word "debenture" where it occurs in the second section of the said Act, and authorizing the Company to issue consolidated debenture stock ranking pari passu with the consolidated debenture stock issued or authorized under other Acts relating to the Company, in lieu of bonds in respect of the Pheasant Hills Branch of the Company's Railway as constructed or to be constructed, and in lieu of bonds in respect of any branch railway constructed or to be constructed under the powers contained in the Company's charter, and in all cases where the Company is authorized to issue bonds, and for other purposes.

By order of the Board,

CHARLES DRINKWATER,
Secretary.

Montreal, 8th December, 1902.



BARRETT TRACK JACK

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The Roadmasters' Association of
America

Adopted by all the Leading Rail-
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ject would not make much progress while the railway companies disagreed and that more than one bridge would not be permitted under any circumstances. Now E. W. Meddaugh, counsel for the G. T. R., is credited with saying that the question of site has practically been agreed upon and that the congress now in session will probably be asked to pass a bill which he thinks will not meet with objection from the vessel interests on account of provisions as to height, wide river span, etc.—Marine Review.

Press reports state that a conference took place at Detroit, Dec. 18, between C. M. Hays, 2nd Vice-President and General Manager, G. T. R., and representatives of the Michigan Central, Wabash and Pere Marquette railroads in reference to a location for the projected bridge. (April, 1902, pg. 123.)

Digby and Sydney Ry.—Application will be made next session of the Dominion Parliament for an act incorporating a company to construct a railway from Digby to Windsor Jct., on the I. C. R., thence easterly to Mulgrave, and to Sydney, N. S.

Duluth, Virginia and Rainy Lake Ry.—Track was recently reported to have been laid to Tabor, Minn., 80 miles south of Koochiching, on Rainy river. Grading between track end and Koochiching will be gone on with all winter, and it is expected that the river will be reached by Sept. Nothing is decided as to the suggested connection with the Canadian Northern Ry. at Fort Frances, Ont., opposite Koochiching. (June, 1902, pg. 190.)

Edmonton and Peace River Ry.—Application will be made next session of the Dominion Parliament for an act incorporating a company with this title to construct a railway from Edmonton to Athabaska Landing, thence to Lesser Slave lake, and to its western limits, and thence northwesterly to Fort Dunvegan, on Peace river, and along Peace river to the forks of Pine river, B. C.; with power to construct a branch to Grand Prairie, B. C.; and tramways at Vermilion rapids on Peace river, and at the portages on Slave river. The application for the charter is being made on behalf of the Northern Colonization Co., of St. Paul, Minn., which has acquired considerable land in the territory to be opened up. McGivern & Haydon, Ottawa, are the solicitors.

Edmonton Street Ry.—Notice is given that application will be made next session of the Dominion Parliament for an act amending the act of incorporation by enabling amalgamation to be made with any other railway company than the Calgary and Edmonton Ry.; and authorizing the construction of lines to 50 miles beyond the limit of the town, instead of 10.

Edmonton, Yukon and Pacific Ry.—A station and engine house has been erected at Edmonton, and a station at the junction with the Calgary and Edmonton Ry. at Strathcona, Alt. The line between Strathcona and Edmonton has been in operation for some time, and is reported to be a great convenience.

D. D. Mann and J. N. Greenshields, K. C., of Montreal, visited Victoria, B. C., recently, in company with the B. C. Commissioner of Lands and Works, who had been in Ottawa, consulting with the Dominion Government upon railway matters in the province. It is stated that a modification of the conditions under which the contract to construct a line from Bute Inlet via Yellowhead pass, B. C., to Edmonton, was entered into in 1902, and an increased subsidy have been asked for. In the course of an interview on returning to the east, D. D. Mann stated that no contract was made with the B. C. Government; no new arrangements had been made, and he did not expect that anything would be done until the Legislature met again. (Nov., 1902, pg. 381.)

Egerton Tramway Co. (Ltd.)—C. A. Flaherty, of Boston, Mass., has recently been in New Glasgow, Pictou, and other points in Nova Scotia, negotiating for franchises. The Co. proposes to open up a summer resort at Abercrombie, to which electric cars will be run at 5 cent fares from New Glasgow, Pictou, and all other points touched by the line. (Nov., 1902, pg. 381.)

Empire Mining and Tramway Co.—J. P. Sherry, of Memramcook; F. W. Given, W. J. Weldon, of Moncton; A. E. Brown, St. John; D. J. Patrick, Macan, have been incorporated under the New Brunswick Companies' Act with this title, with power among other things to construct steam or electric tramways in connection with its collieries at Macan, N. B.

Esquimalt and Nanaimo Ry.—We were recently advised that no decision had been arrived at respecting the projected spur 3½ miles in length, from Westholme to the Crofton smelter, and that in any event nothing would be done until next spring. (Nov., 1902, pg. 381.)

Fernie to International Boundary.—Cornwall & Rogers, solicitors, Victoria, give notice that application will be made at the ensuing session of the B. C. Legislature for an act incorporating a company to construct a railway from Fernie, via Elk river to Morrisey creek, thence to Lodgepole creek, and via the Flathead river to the International boundary; also from Fernie northerly to 28 miles north of the mouth of Michel creek, with power to construct branch lines.

Fort Frances, Manitou and Northern Rd. Co.—Notice is given by Kerr, Bull and Rowell, solicitors, Toronto, that application will be made at next session of the Ontario Legislature for an act incorporating a company with this title to construct a railway from Fort Frances, to the C. P. R. transcontinental line at Dinorwic, 193 miles west of Fort William, thence northerly to Lac Seul, with branches from Manitou lake to Dymet station, 182 miles west of Fort William; from near Manitou lake to Dryden station, 211 miles west of Fort William, as well as others not mentioned.

Fraser River Bridge.—Plans and specifications for the construction of this bridge were deposited with the Minister of Public Works at Ottawa, and application was made to the Railway Committee of the Privy Council for authority to construct the same. The application was opposed on behalf of the C. P. R., on the ground that it interfered with its right of way. The committee reserved judgment and will have an examination of the site made by an engineer before coming to a decision. The B. C. Government has made application to the Dominion Government for a subsidy of \$250,000 towards the construction of the bridge. The Provincial Commissioner of Lands and Works, Mr. Wells, stated on his recent return to Victoria, B. C., from Ottawa, that an offer had been made to the B. C. Government by a railway company to construct the bridge. (Nov., 1902, pg. 381.)

Grand Valley Ry. (Electric).—Track has been laid from Brantford to Paris, Ont., about 6 miles, but the line will not be operated until the spring. The Von Echa Co., which is building the line, proposes to construct the section of the line from Paris to Galt, via St. George and the cement works at Blue lake, in the spring, and have it completed by Sept. This section would be eighteen miles long. An entrance into Galt has not yet been arranged for. (Nov., 1902, pg. 381.)

Great Northern Ry. of Canada.—We were recently advised that no decision had been reached respecting the construction of a branch from Lachute to St. Philippe, or the projected branch to the granite quarries in Argenteuil county.

The acquisition of the Montford and Gatineau Ry. rendered it necessary to construct a line connecting it with the G. N. Ry. A line about 10 miles in length has been surveyed from St. Sauveur, 3 miles from the starting point of the line at Montford Jct., on the C. P. R. branch, to Labelle, to a junction with the Co.'s main line about 1½ miles south of St. Jerome. It is intended to extend this line from St. Jerome, about 25 miles, to a junction with the Chateaugay and Northern Ry., for the construction of which a contract is reported let. The line from St. Sauveur to St. Jerome is fairly heavy but does not present very great difficulties. There will be an average grade of 1%, and a maximum curvature of 6°. It is said construction of this line will be gone on with in the spring. (Nov., 1902, pg. 381.)

Great Northern Ry., U.S.A.—The annual report, recently issued, mentions the following among the subsidiary lines built during the past year:—Montana and Great Northern, Jennings to Gateway, Mont. (on the International boundary), 50.98 miles, opened for operation July 10, 1902; Crow's Nest Southern, Gateway to Morrisey Jct., B. C., 44.26 miles, with a spur from Morrisey Jct., to Morrisey, B. C., 4.21 miles, opened for operation on Sept. 15, 1902; Washington and Great Northern, Marcus to Boundary, Wash., 27.66 miles, and from the International boundary to Republic, Wash., 31.92 miles, opened for operation on Aug. 17, 1902; Vancouver, Victoria and Eastern Ry. and Navigation Co., from International boundary line at Rideau, B. C., to the boundary line near Carson, B. C., 14.40 miles, opened for operation on Aug. 17, 1902; a spur from the main line to Grand Forks, B. C., 1.89 miles, is under construction. The work of changing from narrow to standard the gauge of the Great Falls and Canada Ry. (now owned by the Montana and Great Northern Railway Company) from Great Falls to Sweet Grass, Mont., 134.37 miles, has been completed.

A short piece of line has been constructed connecting the lines of the G. N. Ry. at St. Vincent, Minn., with the Canadian Northern Ry. at Emerson, Man., and a traffic agreement has been entered into with the C. N. Ry. It is reported that connection will be made with the C. N. Ry. at other points on the Manitoulin border. (Nov., 1902, pg. 383.)

See also Alberta Ry. and Coal Co.; Canadian Northern Ry.

Halifax and South Western Ry.—With the exception of some minor deviations, notably at Liverpool and between Milton and Shelburne, now under consideration, the route for the H. and S. W. Ry. has been definitely settled. Commencing at a junction with the Intercolonial Ry., about one mile on the Halifax side of Bedford station, the line runs via near English Corner, to the head of St. Margaret's bay, and skirts the bay to Hubbard's cove, proceeding via Chester along the shore of Mahone bay to a junction with the Nova Scotia Central Ry., recently acquired by Mackenzie, Mann & Co. The N. S. C. line will be used to Bridgewater, and from this point the route to be followed will be cross-country to Mill village and to near Milton, then on to Shelburne and Barrington, where connection will be made with the Halifax and Yarmouth Ry. At Milton an alternative route is under consideration by which the line will run into Liverpool and will join the other survey about 14 miles north of Shelburne. L. H. Wheaton was, according to latest reports, engaged in revising location surveys between Mahone bay and Bedford, and A. Mitchell making alternate location surveys between Liverpool and Shelburne. There is a tramway in operation between Liverpool and Milton, and the location of the H. and S. W. Ry. in this section depends largely on whether this line will be acquired or not. The general character of the

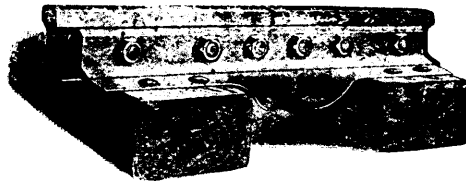
NOTICE is hereby given that an application will be made to the Parliament of Canada at its next session for an Act to incorporate a Company to be known as "The Grand Trunk Pacific Railway Company," to construct and operate a line or lines of railway from a point at or near either Gravenhurst or North Bay in the Province of Ontario; thence in a north-westerly and westerly direction through the Provinces and Territories of Ontario, Keewatin, Manitoba, Saskatchewan, Alberta, Athabasca and British Columbia, or any other Province or Territory of British North America, to the Pacific Ocean at or near Port Simpson, or at or near Bute Inlet, or such other port as may be hereafter determined by way of the Peace River or Pine River Pass, or such other Pass as may be found most convenient, or by such other more feasible route as may be hereafter more clearly defined; with power to construct, equip and operate branch lines to Winnipeg, Regina, Calgary and any other point or points in the said Provinces or Territories, and to acquire, lease, amalgamate or connect with, or otherwise make arrangements for the use of the line of any railway company in Canada, with power to build, purchase or otherwise acquire and operate upon any navigable waters in any of the said Provinces or Territories, or from any point in the Dominion of Canada to any other point or points in or beyond the same, steam or other vessels and ferries for the purposes of the Company; to engage in and to carry on an express and forwarding business on the Company's railways and vessels; to purchase, lease or otherwise acquire land and water lots and thereon erect, maintain and use wharfs, docks, dock yards, elevators, warehouses, bridges, hotels, restaurants, houses and other buildings, terminals and properties, and collect wharfage, storage, and other dues and charges for the use thereof, to acquire and utilize any property, water powers, etc., for the purposes of the Company and for the production and supply of electricity for any use, and to sell and dispose of such water and electric power; to locate, acquire, work, develop and dispose of mines and mineral lands, timber and timber lands; to crush, smelt and otherwise treat and dispose of the ore and products of any mine, and to construct and use any buildings and works necessary therefor; to construct and operate tramways and other ways, and expropriate any lands required therefor; to construct and operate telegraph and telephone lines for the purposes of the Company's business and for public use, and to connect the same with any such lines already constructed; to acquire and dispose of any rights in letters patent, franchises or patent rights for the purposes of the Company's undertaking; to acquire lands for and to lay out, establish and control parks and pleasure resorts; to acquire and utilize lands in Canada or elsewhere for the purpose of the Company's undertakings and to dispose thereof when not required; to aid settlers upon lands served by the Company's railways; to mortgage, pledge or charge any of the assets and property of the Company; to issue, sell, pledge or otherwise dispose of from time to time, bonds, common and preferred stock, debentures or other securities of the Company; to receive from any Government, corporation, company or individual, lands, loans, gifts of money or securities for money or other benefit of any kind in aid of the Company's undertakings, and dispose thereof, to make arrangements with any Government or municipality respecting exemptions from taxation; to acquire, guarantee, pledge, sell or otherwise dispose of shares or other securities of any Government, corporation or company, and to enter into contracts with any Government, corporation, company or individual in respect of such bonds, shares or other securities, or in respect of the construction, acquisition, or operation of railways, steamship, telegraph or telephone lines, or any public or private improvements in any Province in Canada or elsewhere; together with all such other powers and privileges as may have been given to any company having like purposes in view, or as may be incident to or reasonably necessary for the successful carrying out of the undertaking contemplated.

Dated this 15th day of December, A.D. 1902.

JOHN BELL,
Solicitor for Applicant.

The Association of Railway Superintendents of Bridges and Buildings will hold its next convention at Quebec on Oct. 20. A. E. Kilmam, Inspector of Bridges and Buildings, I. C. R. Moncton is Chairman of the local committee of arrangements.

BONZANO RAIL JOINT



Was Awarded the only Medal and Diploma for Rail Joints at the National Export Exposition Philadelphia, 1899;

Also the Highest Medal awarded for Rail Splices at the Paris Exposition, 1900.

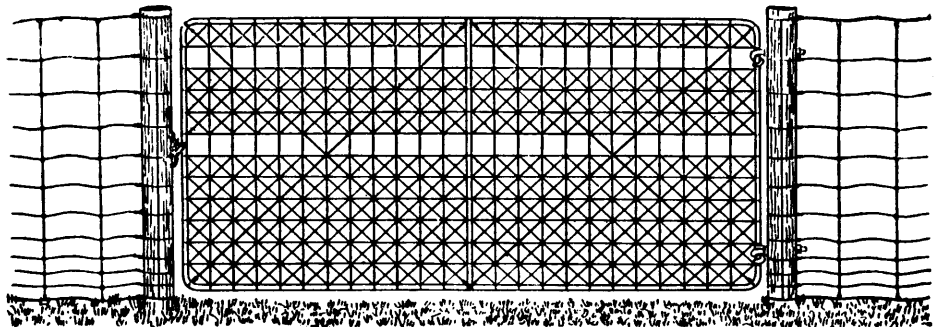
Nearly one million of these joints are now in use. None of the splices have broken, and no rails have broken inside the splices. Low joints are impossible, nor can spreading of tracks take place at the splice. The joint is absolutely as strong as the rail. By its use the track labor saved will alone amount to a sum that will pay the cost of renewals of rails and splices.

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We are now able to supply these gates at a price that will tempt almost any railway to use them. These gates possess great strength and durability. They will not get rickety, sag, rot or burn. They cost no more than any other gates, and are worth several times as much for wear. They are just as good as Page Fence.

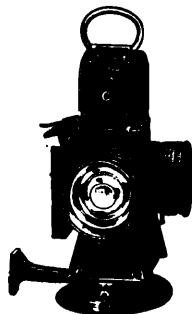
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work is rather heavy excavation in a rocky and rough country, very similar to that between Lake Superior and Manitoba. Grading operations were carried on during last fall on a 10-mile section of the line from the boundary line between Halifax and Lunenburg counties, easterly, by J. A. Wheaton. This work was put in hand in lieu of going on with grading for a similar distance from the junction with the I.C.R. near Bedford, easterly, the plans for which had not been approved of by the Government. (Nov., 1902, pg. 382.)

Hamilton and Caledonia Ry. (Electric).—Surveys are being made for the location of this projected line from Hamilton to Lake Erie at Selkirk, Ont., about 38 miles, by J. W. Tyrrell, C.E. It is intended to run the line from James St., south, through the south part of Hamilton going easterly, and then it will start ascending the mountain about Wellington st., running eastward to about Erie ave., then turning into Wentworth ave., along the Barton and Glanford road to the top of the mountain, which will be overcome by a 4% grade. At Caledonia the line will probably go under the G.T.R., and the Michigan Central Rd. will probably be crossed by an underground crossing near Dean's station. At Cayuga the Grand river will be crossed by the highway bridge, which will have to be widened and strengthened. The G.T.R. southern division tracks will be crossed at Cayuga by an overhead bridge. The line will follow the highway for the whole distance from Hamilton to Selkirk, except between Caledonia and Cayuga, where the river road will have to be departed from at several points to avoid the likelihood of damage caused by spring floods. Tenders will probably be asked for about Feb. At the Dec. session of the Wentworth county council, a right of way was given over the Barton and Glanford road in consideration of \$5,000 in the Co.'s stock. (Nov., 1902, pg. 382.)

The Hamilton Electric Light and Cataract Power Co., which controls the Hamilton street railway, the Hamilton Radial and the Hamilton and Dundas railways is making extensive additions to its power house in Hamilton. The new building is 50 by 140 ft., and the engines to be installed will develop 4,000 h.p. This additional power will be used to relieve the strain on the DeCew falls water-power supply station when the demand on it is heaviest.

Hamilton, Grimsby and Beamsville Ry.—It is proposed to take power from the Hamilton Electric Light and Cataract Power Co. at Grimsby for that end of the line.

It was expected that the extension of 4 miles to Vineland would be completed early in Dec., but some unforeseen delays occurred and it is now stated that the line will be finished early in Jan.

The Co. has, with the consent of the Beamsville council, moved the Gibson tramway from High st., to an old road allowance between Mountain st. and the intersection of King and Ontario sts. (Nov., 1902, pg. 382.)

Hamilton Radial Ry.—A spur about half a mile long is being constructed to connect with the new works being erected at Hamilton, Ont., for the International Harvester Co.

The Co.'s line now extends to Port Nelson, about 12 miles from Hamilton, and one mile beyond Burlington. It is expected that work will be commenced early in the spring to extend the line to Oakville about 11 miles further, where a junction will be made with the projected extension of the Toronto and Mimico Ry. (Feb., 1902, pg. 57.)

Hazleton to B.C. Boundary.—Application will be made next session of the B.C. Legislature for an act incorporating a company to construct railways from Hazleton to the northern boundary of B.C. via Teslin or Atlin

lake; from Hazleton to the eastern boundary of the province via the Peace River pass, the Pine River pass or both. Cornwall and Rogers, Victoria, B.C., are the solicitors.

Huntsville and Lake of Bays Ry.—Application will be made next session of the Ontario Legislature for an act extending the time within which the lines authorized may be constructed; or if necessary for the revival of the charter. The charter is owned by the Huntsville, Lake of Bays and Lake Simcoe Navigation Co. (Ltd.) (Nov., 1902, pg. 382.)

Huron, Bruce and Grey Electric Ry.—The Goderich taxpayers have passed a by-law to take \$50,000 of stock in this Co., \$6,000 as each mile is completed, track to be laid to Smith's Hill before the last payment is made. Colborne township is being asked to subscribe \$25,000 in stock. It is said that as soon as this by-law is obtained construction will be proceeded with. (April, 1902, pg. 124.)

Temiskaming and Northern Ontario Ry.—It is expected that the number of men engaged in grading will be increased during the winter to 1,000. About 10 miles of track had been graded and was ready for track laying early in Dec., and it is expected that the first 35 miles, on which there is a great deal of rock work, will be completed during the winter. The next 15 miles is principally light work, and will not be gone on with until spring. It was expected to complete the work of location to the end of the 70th mile by the end of 1902; the work of locating the line for the remaining 40 miles will not be gone on with until the summer. The Commissioners have not yet come to any decision in reference to the location of the southern terminal of the line. A contract for 175,000 ties has been let to T. Wallace, of North Bay, and the Algoma Steel Co., Sault Ste. Marie, Ont., has been awarded the contract for 8,200 tons of 80 lbs. steel rails at \$32 a ton of 2,240 lbs. f.o.b. at North Bay, deliveries to be made one-third on May 15, June 15, and July 15 respectively.

The sub-contractors are as follows: mileage 1 to 6, Douhoney and Donovan; mileage 6 to 10, Murdoch Bros.; mileage 10 to 12, J. Kirk; mileage 12 to 15, Polenzie and Curran; mileage 15 to 18, Westerdall and McDonald; mileage 18 to 21, J. Sherwood; mileage 21 to 23, Ryan and Carleson; mileage 23 to 25, W. C. Chambers; mileage 25 to 30 (not let); mileage 30 to 35, S. Swensen. (Nov. 1902, pg. 386.)

Grand Trunk Pacific Railway.

The formal notice that application will be made at the ensuing session of the Dominion Parliament in behalf of G.T.R. interests for an act incorporating the Grand Trunk Pacific Ry. Co., to construct a railway from Gravenhurst or North Bay, Ont., on the G.T.R. to the Pacific coast, appears on pg. 22 of this issue, from a perusal of which it will be seen that very extensive powers are asked, which, if granted, will put the Co. in a position to carry out the scheme on a scale commensurate with its importance.

As stated in our last issue, F. W. Morse, Third Vice-President, and W. Wainwright, General Assistant and Comptroller, left Montreal on a trip to the Pacific Coast, prior to the announcement of the intention to construct the line to the Pacific coast, and reached Winnipeg on the day when the announcement was made in Montreal. Their mission appears to have been to visit the chief places in the west and confirm the announcement in an official way and generally to look over the situation. From Winnipeg they visited Regina, Calgary, and Edmonton, and from Edmonton drove out about 50 miles in order to get an idea of the country to the north and

along the Saskatchewan Valley. In that district they found what Mr. Wainwright describes as "a perfect sea of uncultivated land." Vancouver and Victoria were also visited, and from thence Messrs. Morse and Wainwright went to Seattle, Tacoma, Portland and San Francisco, to obtain information respecting the steamship trade to China, Japan and Australasia, returning to Montreal via New Orleans, St. Louis and Chicago, making a trip of over 9,000 miles in about a month.

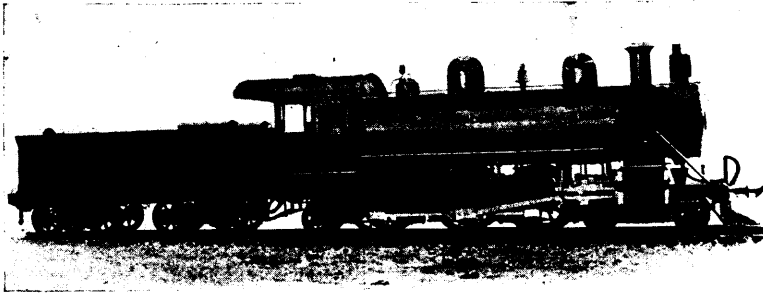
The route proposed to be followed is from either Gravenhurst or North Bay, north-westerly and westerly to the Pacific coast near Port Simpson or Bute Inlet, or any other point, via the Peace river pass, the Pine river pass, or any other pass, with branch lines to Winnipeg, Regina, Calgary or any other point. This gives the Co. a very wide latitude, but a more definite route will probably be outlined when the bill comes before Parliament, or will be decided upon in committee, where, whatever opposition on the part of the Canadian Northern Ry., the Trans-Canada Ry. or other companies holding charters to construct lines through portions of the country affected, may be expected to be fought out. At Victoria Mr. Morse is reported to have said it was the Co.'s intention to run north of the C.P.R. line all the way; that from the starting point in Ontario the line would run north to the height of land and then direct to Winnipeg. However that may be, survey parties will be placed in the field from North Bay, Winnipeg, Edmonton, and the coast, and construction will also be started simultaneously from a number of points. The time estimated for getting the line pushed through is about five years.

The position of Quebec in connection with the projected line is definitely brought before the country by the passing of a series of resolutions by the Quebec Board of Trade declaring that any new transcontinental line should traverse the country from ocean to ocean by the shortest possible route, that the location selected for the Atlantic terminal should compel the shipment of goods by Canadian ports, and that such new line should be located so as to benefit undeveloped portions of the country. The resolutions then point out that the projected line in connection with the existing G.T.R. system would not provide a shorter route than by existing lines reaching Quebec, that the tendency of the G.T.R. has been to develop trade in the direction of U.S. terminal ports, and that the route suggested for the Trans-Canada Ry. is the shortest. In conclusion, the resolutions set forth that the G.T. Pacific Ry. Co.'s plans do not commend themselves to the Board of Trade, and asks for assistance to the Trans-Canada Ry. in preference. Referring to a probable application for subsidies, the Minister of the Interior is reported to have said that the G.T. Pacific Ry. Co., or any other company applying for the same in respect of a transcontinental line would have to provide a terminus at a Canadian port, and export its freight through Canadian channels, and further that a Quebec port far enough east to be kept open all the year round, should be selected as the eastern terminal. C. M. Hays, Second Vice-President and General Manager, was interviewed upon this point, and stated that Quebec would not be left out by the Co.

Suggestions were made that the Co. would probably construct the line without Government aid, but Mr. Hays says that subsidies will be applied for in the usual way. He recently had a conference with some of the members of the Dominion Government, when it is not improbable that the matter of subsidies was discussed. The Minister of the Interior, discussing the matter of subsidies, is reported to have said that if there were any assistance given to the railway it would not take the form of land grants.

BALDWIN LOCOMOTIVE WORKS.

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Broad and Narrow Gauge Locomotives; Mine and Furnace Locomotives; Compressed Air Locomotives; Steam Cars and Tramway Locomotives; Plantation Locomotives; Oil Burning Locomotives.

Adapted to every variety of service, and built accurately to gauges and templates after standard designs or to railroad companies' drawings. Like parts of different engines of same class perfectly interchangeable.

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Eugene F. Phillips Electrical Works, Limited,
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BARE AND INSULATED ELECTRIC WIRE

Electric Light Line Wire, Incandescent and Flexible Cords,

RAILWAY FEEDER AND TROLLEY WIRE

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FOR STEAM AND ELECTRIC RAILWAYS.

C. P. R. LANDS.

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

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

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

TERMS OF PAYMENT.

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

160 acres at \$3.00 per acre, 1st instalment \$71.90, and nine equal instalments of \$60.

160 acres at \$3.50 per acre, 1st instalment \$83.90, and nine equal instalments of \$70.

160 acres at \$4.00 per acre, 1st instalment \$95.85, and nine equal instalments of \$80.

160 acres at \$4.50 per acre, 1st instalment \$107.85, and nine equal instalments of \$90.

160 acres at \$5.00 per acre, 1st instalment \$119.85, and nine equal instalments of \$100.

160 acres at \$5.50 per acre, 1st instalment \$131.80, and nine equal instalments of \$110.

160 acres at \$6.00 per acre, 1st instalment \$143.80, and nine equal instalments of \$120.

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

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

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

Write for maps and full particulars.

F. T. GRIFFIN, - Land Commissioner,

WINNIPEG.

Edward L. Drewry

**REDWOOD
BREWERY,**

Winnipeg, Manitoba

Fine  **ALES, EXTRA PORTER**

... AND ...

PREMIUM LAGER.

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CHOICE MALT FOR SALE.

Manufacturer of the Celebrated

Golden Key Brand **AERATED WATERS.**

TORONTO ENGRAVING CO.
DESIGNERS, ENGRAVERS,
ELECTROTYPERS.
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As to the personnel of the Co., Jas. Ross, of Montreal, is reported to have said that neither he nor Senator Cox, of Toronto, are in it, but the fact that Mr. Cox met Messrs. Morse and Wainwright on their return east and remained with them while they were in Toronto, Dec. 22, is not without its significance. Jos. Price, 1st Vice-President of the G.T.R., stated in London, Eng., recently, that a syndicate was taking hold of the work, and that it would work in harmony with the G.T.R., but he was not at liberty to give the names of those composing it.

C.P.R. Western Construction.

W. Whyte, Assistant to the President; on his return to Winnipeg after a recent visit to Montreal, stated that there were to be heavy outlays in the building of new lines west of Winnipeg, with a view of opening up large sections of the Northwest Territories hitherto untouched by railways. Of the extensions in view the completion of the Manitoba and Northwestern Ry., and the construction of a number of branches therefrom, to connect with the Calgary and Edmonton Ry. at different points, or with branches to be constructed easterly by the Calgary and Edmonton Ry., is, perhaps, the most important. The M. and N.W. Ry. has been in operation from Portage la Prairie, Man., to Yorkton, Assa., 222.9 miles, for several years, and its powers to extend to Prince Albert, Sask., were kept alive from time to time. In 1902 work was commenced upon an extension from Yorkton, and during the season 50 miles were graded, and it was expected to have track laid on the whole of it by Dec. 30. From Yorkton the line parallels the White river, passes between the Yellow Quill Indian reserve and the Little Quill lake, beyond which construction has been carried for a short distance. Surveys for the extension of the line to Prince Albert were prosecuted during the fall of 1902, and we are advised that construction will be commenced as early as possible in the spring. The route surveyed is along the Quill plains, thence skirting the Pasquia hills, south of Waterhen lake, and Kinisteno, crossing the proposed route of the Canadian Northern Ry. line from Grand View westerly, in the vicinity of Dead Moose lake, thence through the Carrot river plains, along the valley of the Red Deer river, and into Prince Albert, but whether the final location will follow it or not has not been definitely decided.

Application will be made at the ensuing session of the Dominion Parliament for an act authorizing the construction of a branch line from the main line of the Manitoba and Northwestern Ry. between Yorkton, Assa., and Prince Albert, Sask., to Battleford, Sask., thence to Wetaskiwin, on the Calgary and Edmonton Ry.; and a branch from Churchbridge, southerly to a junction with the C.P.R. Pheasant Hills branch, near Esterhazy. Survey parties are reported to be traversing the country between the route of the line under construction to Prince Albert, and the Calgary and Edmonton Ry. with a view of locating the branch lines indicated. The several branches projected will open up a large area of country into which settlement has been directed of late. (Nov., 1902, pg. 379.)

The construction plans of the C.P.R. for the western division for 1903, decided upon by the management, are very comprehensive and include the carrying on of works which will open up a wide stretch of country hitherto undeveloped and without railway accommodation. The plans include the irrigation of about 2,500,000 acres between Medicine Hat and Calgary; the reduction of gradients, the extension of sidings, and the building of new lines into the country from various points. The thing to do, said W. Whyte, Assistant to the President, in a recent interview, is to an-

ticipate the needs of the settler, who will not come into the country in large numbers until railway facilities are provided. The C.P.R. has always had its thought directed to the increase of facilities in the Northwest Territories, and the opening up of every portion of the country which promised a future for fresh populations. The recent visit of E. H. McHenry, Chief Engineer, to Manitoba and the N.W.T., was in connection with the plans for the work proposed to be carried out during the season of 1903. In connection with these plans Mr. McHenry said there would be considerable double-tracking in the west, and that the new lines west of Winnipeg would be pushed forward with activity.

The Calgary and Edmonton Ry. Co. has given notice of application to Parliament for an act to authorize the construction of the following lines:—a branch from Wetaskiwin, on its main line, easterly for 100 miles; a branch from between Lacombe and Red Deer, on its main line, easterly 100 miles, a line from Strathcona, the present terminus of its railway, to Edmonton; a branch from or near Edmonton north or northwesterly for 100 miles.

Canadian Northern Railway.

D. D. Mann, in the course of a recent speech at Edmonton, stated that the Canadian Northern Ry. would not sell out to the G.T.R., as was suggested. It had been said at one time that the C.N.R. was the agent of the C.P.R., and would sell out to that Co. That event had not happened yet, and it was not the intention to sell out to the G.T.R. either. There was room enough for both the C.N.R. and the G.T.R. in the new country that would be opened up. In regard to the future of the C.N.R., its operations would be much slower if it was not given subsidies, but according to present plans it was expected to reach Edmonton in the fall of 1904. The surveys had been completed and the plans showed a maximum gradient of 1%, or 52 ft. to the mile going west, and a maximum gradient of ½%, or 26 ft. to the mile going east, as between Port Arthur and Edmonton. These were the easiest grades on the continent and would enable the C.N.R., with its low bonded indebtedness, to haul grain more cheaply than any other road in western Canada. As to route by which the line would enter Edmonton, Mr. Mann is reported to have said in an interview at Winnipeg, it would be by the Grand View extension, as well as by the Erwood extension to Prince Albert, the two lines meeting about midway between Edmonton and Winnipeg.

Transportation Appointments, Etc.

Following are appointments which have been announced since the list on page 11 went to press:—

Canadian Northern Ry.—A. R. Greig, formerly of the Canada Atlantic Ry., has been appointed draftsman in the C.N.R. mechanical department at Winnipeg.

Canadian Pacific Ry.—F. S. Darling has been appointed Division Engineer of Construction on all lines east of Winnipeg, vice A. C. Dennis resigned. He will report to the Assistant Chief Engineer. Office, Montreal.

C. N. Monsarrat has been appointed Engineer of Bridges, vice H. E. Vautelet, resigned.

Grand Trunk Ry.—F. R. Porter, heretofore Travelling Freight Agent at Hamilton, Ont., has been appointed Assistant Foreign Freight Agent at Toronto, vice D. O. Wood, resigned to enter the Robt. Reford Co.'s service.

F. J. Henstridge, heretofore Travelling Freight Agent on the eastern division, has been appointed Travelling Freight Agent at

Hamilton, Ont., succeeding F. R. Porter, promoted.

Halifax and Southwestern Ry.—J. D. Morton has been appointed Accountant and Paymaster at Bridgewater, N.S.

Illinois Central Rd.—A. J. McDougall, heretofore General Eastern Passenger Agent at New York, whose jurisdiction included Canada, has been appointed Division Passenger Agent at New Orleans, La.

Intercolonial Ry.—Thos. Dunning, of St. John, N.B., has been appointed Cashier, vice C. D. Thompson, deceased.

The Robt. Reford Co., Ltd.—D. O. Wood, heretofore Assistant Foreign Freight Agent of the G.T.R. at Toronto, has been appointed Western Agent for the Robt. Reford Co., Ltd., Montreal, Canadian agents for the Donaldson, Thompson and Lord steamship lines. Office, Toronto. Mr. Wood succeeds J. D. Riddell, who was located at Stratford, Ont., and died there recently.

White Pass and Yukon Route.—The general offices of the White Pass and Yukon Route will be removed from Seattle, Wash., and located in the MacKinnon Building, Vancouver, B.C., on Jan. 1, 1903.

J. F. Lee, Traffic Manager, having resigned, all communications regarding traffic, etc., should, until his successor is appointed, be addressed to "Traffic Department, W.P. and Y.R., Vancouver, B.C."

H. Weig, heretofore Passenger and Freight Agent, has been appointed General Agent, with office at 1016 Chamber of Commerce Building, Chicago, Ill.

S. P. Brown, heretofore Travelling Freight and Passenger Agent, has been appointed General Agent, with office at 30 Dexter Horton Building, Seattle, Wash.

C.P.R. Employes' Wages Advanced.

The C.P.R. conductors, trainmen and yardmen, east of Fort William, have had their wages advanced, the advances reaching well up to 15 per cent. The increases were granted by the Co. after six weeks' negotiations with a joint committee of the Order of Railway Conductors and the Brotherhood of Railroad Trainmen. Passenger conductors north of Lake Superior will receive \$125 a month, instead of \$108; on lines east of the lake they are increased from \$100 a month to \$110 and \$115. Passenger conductors on branch lines will be paid \$90 instead of \$80 a month. Through freight conductors who were paid \$2.70 per 100 miles will receive \$2.90. Through freight brakemen are increased 8 cts. per 100 miles, making the rate \$1.95. The increase on way freight trains is about 10% all round. Baggage men receive 8% advance. Their wages will range from \$53 to \$70 a month. Yardmen's wages are advanced about 15%. In the larger yards foremen will receive 25c. an hour and others 21c. In the smaller yards the rates will be 23 and 29c. Roughly estimated the advances granted mean about \$250,000 a year to the Co.

Niagara Navigation Co.'s Report.

The report for the year ended Nov. 30, 1902, presented at the adjourned annual meeting Dec. 17, states that the result of the season's work was satisfactory, considering the cold, wet weather which prevailed in the early part of the season, and which caused so much loss to summer resorts and to many steamers engaged in the excursion and tourist business. The receipts for 1902 were the largest in the history of the line, with the exception of 1901, the year of the Pan-American Exposition, but the expenses were also large, owing to the increased price of coal and labor and the cost of docking the Chippewa and the

Corona at Kingston dry-dock. Two half-yearly dividends of 4% were declared for the year. The financial statements were as follows:—

ASSETS.	
Steamers Chippewa, Corona, Chicora and On-giara	\$707,500.00
Real estate, wharves, etc.	52,725.51
Stores on hand	1,940.00
Accounts receivable	3,209.01
Cash on hand and in bank	51,731.69
	\$817,106.21

LIABILITIES.	
Capital stock subscribed and paid-up	\$605,000.00
Debentures @ 4½%	111,000.00
Interest accrued on same	2,081.21
Accounts payable	1,843.45
Dividend 4%, payable Jan. 2, 1903	24,200.00
Balance carried forward	72,981.51
	\$817,106.21

PROFIT AND LOSS ACCOUNT.	
Balance from previous years	\$ 74,217.88
Net earnings from all sources	52,158.63
	\$126,376.51

Interest on debentures, 12 months to Nov. 30, 1902	\$ 4,995.00
Dividend 4%, paid July 2, 1902	24,200.00
" payable Jan. 3, 1903	24,200.00
Balance carried forward	72,981.51
	\$126,376.51

In 1901—the Pan-American year—the net earnings were \$100,294.21.

The officers elected for the current year are:—President, James J. Foy, K.C.; General Manager, John Foy; Auditor, R. H. McBride; other directors, Barlow Cumberland, W. Hendrie, J. B. Macdonald, E. B. Osler.

Prior to the annual meeting Jno. Foy tendered his resignation as General Manager on account of ill-health, but no action was taken on it by the directors, who are anxious for him to remain, at least for some time.

RAILWAY FINANCE, MEETINGS, ETC.

Alberta Ry. and Coal Co.—Application will be made at the next session of the Dominion Parliament for an act empowering the Co. to lease or amalgamate with the St. Mary's River Ry. Co. The St. M. R. Ry. extends from Sterling on the A. Ry. and Coal Co.'s line to Spring Coulee, Alta., 30 miles.

British Columbia Electric Ry. Co.—Earnings and expenses for Oct., 1902:—

	GROSS EARNINGS.		
	1901.	1902.	Increase or Decrease.
Railway—Vancouver division	\$10,308	\$12,429	\$2,121+
Victoria	11,086	10,410	676-
Westminster	11,530	13,829	2,299+
Lighting—Vancouver division	14,208	17,125	2,917+
Victoria	7,941	8,734	793+
	55,073	62,527	7,454+
Less Working expenses	30,625	36,121	5,496+
	24,448	26,406	1,958+

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Railways, Steamboats, Express and Telegraph Companies.

MILITARY AND POLICE HELMETS.

Embroidery in Gold and Silver
Bullion for all Purposes.

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DOMINION BRIDGE CO., Limited
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BRIDGES **TURNTABLES : : : :**
ELECTRIC CRANES
ROOF TRUSSES : : :
STEEL BUILDINGS
Structural METAL WORK of All Kinds

Beams, Channels, Angles, Plates, Etc., in Stock

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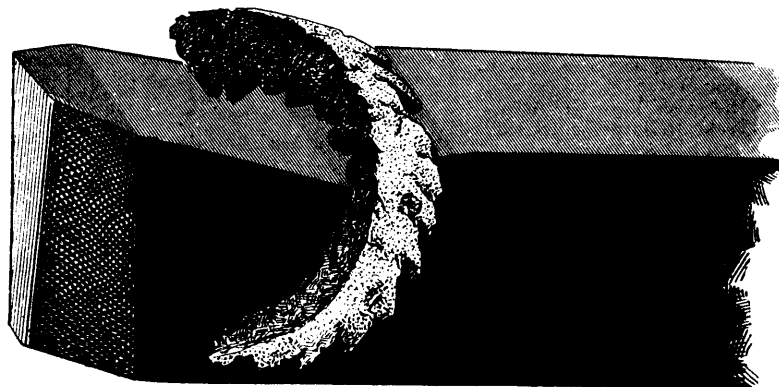
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The **JESSOP** High-Speed . . . **TOOL STEEL**
Self-Hardening



Is Unexcelled for Turning Locomotive Tires, Car Wheels, Shafting, Etc.

½-inch cut, ¼-inch feed. Speed 20 to 40 feet per minute. Tools hardened by heating white hot and cooled in air.

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CROSS ARMS, TOP PINS, AND SIDE BLOCKS,

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TEMPLE BUILDING — TORONTO

BOOKBINDING

GROSS EARNINGS.	1901.	1902.	Increase or Decrease.
Renewal funds.....	3,458	4,222	764 +
Net income.....	20,990	22,184	1,194 +
Gross earnings, July 1 to Oct. 31.....	193,469	217,684	24,215 +
Net earnings, July 1 to Oct. 31.....	\$68,789	\$73,134	\$4,345 +

The Brockville, Westport and Sault Ste. Marie Ry., extending from Brockville to Westport, Ont., about 45 miles, with its rolling stock, etc., is to be sold by auction at Brockville, Jan. 20, at the instance of the Knickerbocker Trust Co., of New York, trustee for the bondholders. The proceedings initiated by C. N. Armstrong, will, it is claimed, have no effect on the sale. (Dec., 1902, pg. 407.)

Calgary and Edmonton Ry.—Net earnings for Oct., \$20,563.28 against \$14,576.61 for Oct., 1901. Net earnings for 10 months ended Oct. 30, \$224,868.24 against \$138,928.21 for same period 1901.

It is reported that about three-fourths of the total issue of bonds have been deposited with the bondholders' committee in London, Eng., recently appointed to make arrangements in regard to the future of the line. The Stock Exchange committee has directed that the deposit certificates in respect of \$640,000 of these 6% bonds be quoted in the official list in lieu of the bonds now quoted. It is stated that negotiations are in progress with a view of the line being acquired from the bondholders, and it is expected that the C.P.R. Co. will secure it. (Dec. 1902, pg. 429.)

Canada Eastern Ry.—The papers asking for the incorporation of the new company to take over the business of the Alex. Gibson Ry. and Manufacturing Co. have been completed, and application is being made for a New Brunswick charter. The provisional directors will be Alex. Gibson, sr.; Alex. Gibson, M.P., of Marysville, N.B.; J. F. Stairs, G. Stairs, and R. E. Harris, of Halifax, N.S. The name of the new company will be Alexander Gibson, Limited, and its chief place of business will be Marysville, N.B. (Dec., 1902, pg. 411.)

Canadian Northern Ry.—Gross receipts are as follows:—

	1902.	1901.	Increase.
July.....	\$132,300	\$ 87,200	\$45,100
Aug.....	130,900	97,000	33,900
Sept.....	209,300	103,300	106,000
Oct.....	190,200	120,610	69,590
	\$662,700	\$408,110	\$254,590

The gross earnings in Oct., 1902, were \$152,76 a mile, against \$145.66 in Oct., 1901. The net earnings were: July, \$50,723; Aug., \$50,376; Sept., \$69,285; Oct., \$83,800. Total, \$254,184. The Pond interest for the same period was \$202,880, leaving \$51,304 surplus.

A deed of mortgage securing the issue of second mortgage bonds was given to the National Trust Co., Nov. 1, 1902, and a copy has been filed with the Secretary of State at Ottawa.

Canadian Pacific Ry.—Notice is given that application will be made at the ensuing session of the Dominion Parliament authorizing the Co. to issue consolidated debenture stock in lieu of bonds, in respect of the Pheasant hills branch, and other branch lines, such stock ranking pari passu with the consolidated debenture stock issued or authorized under other of the Co.'s acts.

Cape Breton Ry.—M. E. Evans, President, and others who are interested in the reorganization of the Dominion Securities Co., New York, which issued the bonds of the C.B.Ry. Co., have returned to New York from in-

specting the line, and report that the plan of reorganization will be announced shortly. (Dec., 1902, pg. 408.)

Central Ontario Ry.—Application will be made at the next session of the Dominion Parliament for an act re-arranging the bonded indebtedness of the railway, vesting the voting power in the bondholders instead of the shareholders, authorizing the sale of the line, and incorporating the purchasers as the Central Ontario Ry. Co. (Dec., 1902, pg. 408.)

Chateauguay and Northern Ry.—A certified copy of the sale and conveyance from the Montreal Terminal Ry. of certain properties to the C. and N. Ry. Co. has been deposited with the Secretary of State at Ottawa.

A special meeting of the shareholders was called for Dec. 22 for the purpose of authorizing the issue of bonds on the security of a mortgage of the line to be constructed, etc., to authorize the issue of paid-up shares, and to confirm a number of sales, purchases, contracts and agreements.

Dominion Atlantic Ry.—Gross earnings for Oct., 1902, \$97,600, against \$104,016 for Oct., 1901; making for 10 months ended Oct. 30, 1902, \$854,000, against \$859,272 for same period 1901.

Elgin and Havelock Ry.—The contract for the sale of this line was arranged with Harris, Henry and Cahan, solicitors, Halifax, N.S., who also acted for the interests of the N.S. capitalists interested in the purchase of the Canada Eastern Ry. and the other Gibson properties in N.B. (Dec., 1902, pg. 409.)

Esquimalt and Nanaimo Ry.—The following were elected at the annual meeting recently held: President, J. Dunsmuir; Vice-President, J. Hunter; Treasurer, A. Lindsay; Secretary, C. E. Pooley. Other director, F. D. Little. R. W. Dunsmuir, formerly Treasurer, and G. Crocker, of San Francisco, Cal., have retired, their places being filled by A. Lindsay and C. E. Pooley, the latter of whom previously acted as Secretary, but was not on the board.

Great Northern Ry. of Canada.—At the annual meeting recently held the following were elected: President, Hon. P. Garneau; 1st Vice-President, J. McNaught, New York; 2nd Vice-President, H. H. Melville, Boston; 3rd Vice-President, V. Chateaubert; General Manager, J. G. Scott; Treasurer, E. E. Ling; other directors, Hon. J. Tessier, Hon. S. N. Parent, J. T. Ross, W. L. Bull, New York; H. E. Mitchell, Philadelphia; and J. Joyce, Boston; Secretary, L. G. Scott.

At a special meeting subsequently held, a resolution ratifying the agreement to purchase the Montford and Gatineau Colonization Ry., was passed. (Dec., 1902, pg. 409.)

Halifax Electric Tramway Co.—Gross receipts from railway:

	1902.	1901.	Increase or Decrease.
Jan.....	\$10,674.58	\$9,543.14	\$1,131.44 +
Feb.....	8,408.39	8,042.11	436.28 +
Mar.....	9,761.57	9,448.32	313.25 +
Apr.....	10,025.66	9,370.08	655.58 +
May.....	11,126.66	9,467.15	1,659.51 +
June.....	11,528.19	11,339.52	188.67 +
July.....	14,834.69	14,203.82	630.87 +
Aug.....	17,177.12	16,330.23	846.89 +
Sept.....	17,494.21	16,547.68	946.53 +
Oct.....	11,382.25	12,581.23	1,198.98 -
Nov.....	9,945.68	9,675.33	270.35 +
	\$122,359.00	\$116,584.41	\$5,810.59 +

Intercolonial Ry.—Operations for year ended June 30, 1902.

	1902.	1901.
Passenger receipts.....	\$1,770,941	\$1,607,166.79
Freight.....	3,644,512	3,121,006.15
Mails and sundries.....	255,932	244,062.93
	\$5,671,385	\$4,972,235.87
Working expenses.....	5,574,563	5,460,421.10
Balance.....	\$ 96,822 +	\$488,186.77 -
+ Surplus. - Deficit.		

In connection with the above statement the Minister of Railways, Mr. Blair, says:— "The business of the I.C.R. has, during the past five years, been growing with very great rapidity; the increase has been in the neighbourhood sometimes of a little over \$500,000 a year, as nearly as I can state it, and I think, after I shall have completed the improvements which I have in contemplation and have entered upon, the Intercolonial will establish its capacity to do business at a profit. It is a large scheme to re-construct and re-organize the whole line, almost like building a new road, and takes time and, I need not add, money. I think that five years of progressive action, such as has been taken, with such necessary and proper extensions as might be adopted, will make the I.C.R. one of the best paying roads in the Dominion."

Lake Erie and Detroit River Ry.—The Michigan Central Rd. has issued a writ against the L.E. and D.R. Ry. Co. to recover \$140.84 said to be due for running its trains over the M.C.R. tracks.

London, Ont., Street Ry.—Traffic receipts:

	1902.	1901.	Increase or Decrease.
Jan.....	\$ 9,080.93	\$ 9,255.74	\$ 725.19 +
Feb.....	8,740.45	8,145.76	594.69 +
Mar.....	10,108.54	9,294.54	814.00 +
Apr.....	9,645.42	9,495.68	150.74 +
May.....	11,970.88	10,003.16	1,967.72 +
June.....	12,819.56	13,917.23	1,097.67 -
July.....	15,215.04	14,241.13	973.91 +
Aug.....	14,768.20	14,958.55	190.35 -
Sept.....	17,784.19	14,612.46	3,171.73 +
Oct.....	11,645.46	10,104.69	1,540.77 +
Nov.....	12,355.65	12,084.23	271.42 +
	\$135,935.32	\$126,113.88	\$8,921.44 +

There was one working day less in 1902 than in 1901 during Nov.

Montreal Street Ry.—Earnings and expenses, Oct., 1902:

	1902.	1901.	Increase.
Passenger earnings.....	\$179,432.86	\$164,174.56	\$15,258.30
Miscellaneous earnings.....	1,972.77	1,886.08	86.69
Total earnings.....	181,405.63	166,060.64	15,344.99
Operating expenses.....	96,428.92	85,210.49	11,208.43
Net earnings.....	84,986.71	80,850.15	4,136.56
Fixed charges.....	15,991.62	15,383.84	607.78
Surplus.....	68,995.09	65,466.31	3,528.78
Expenses % of car earnings.....	53.74	51.90	1.84

Interest on M.P. & I. Ry. Co.'s bonds owned by this Co. not included.

New York and Ottawa Rd.—The order of the court directing the sale of this line, which connects at Cornwall, Ont., with the Ottawa and New York Ry., has been appealed against, and the sale, which was fixed for Nov. 30, 1902, did not take place. (Oct., 1902, pg. 339.)

Ottawa, Northern and Western Ry.—A mortgage has been given to the Royal Trust Co. to secure an issue of bonds for the purpose of retiring the bonds issued by the Ottawa and Gatineau Valley Ry. Co., and the Pontiac Pacific Jct. Ry. Co., prior to their amalgamation as the O. N. and W. Ry., and to provide for the extension from Gracefield to Maniwaki, Que. A separate mortgage has also been given to the Royal Trust Co. on the Interprovincial bridge and approaches to secure an issue of bonds in respect thereof. The signing of these mortgages was authorized at a special meeting recently held, and copies of the same have been deposited with the Secretary of State at Ottawa.

Qu'Appelle, Long Lake and Saskatchewan Ry.—Net loss for Oct., 1902, \$330.06, against net earnings of \$1,257.98 for Oct., 1901. Net earnings for 11 months ended Oct. 31, 1902, \$63,066.95; against \$5,929.93 for same period 1901.

Quebec Bridge Co.—At a meeting of directors held Dec. 5, a deputation was appointed

to go to New York with authority to arrange for the issue of the Co.'s bonds.

Quebec Central Ry.—Gross earnings for Oct., 1902, \$58,160.24; working expenses, \$41,493.93; net earnings, \$16,666.31, against \$52,993.48 gross and \$15,838.11 net for Oct., 1891. Gross earnings for 10 months ended Oct. 30, 1902, \$567,007.91; net earnings, \$184,528.82, against \$534,217.36 gross and \$180,546.32 net for same period 1901.

Quebec and Lake St. John Ry.—Gross earnings for Sept., 1902, \$39,300, against \$37,000 for Sept., 1901; making for 9 months ended Sept. 30, 1902, \$302,945, against \$267,571 for same period 1901.

Quebec Southern Ry.—Officials of the First National Bank of New York city state that it has not bought this railway, either for Dr. W. Seward Webb, or for anyone else.

Sherbrooke St. Ry.—At the annual meeting, held Dec. 3, the following were elected: President: J. W. Burke, New York; Vice-President, P. W. Clement, Rutland, Vt.; other directors: E. Harding, Boston, Mass.; S. L. Clough, Lennoxville, and Dr. P. Pelletier, M.L.A.

St. John Ry.—A dividend of 3% for the half year ended Oct. 31 was paid Dec. 17.

The **St. Thomas St. Ry.** is being operated by the city council, the Treasurer and Engineer being given authority to purchase supplies and make necessary repairs, etc. Power was also given the Mayor and Treasurer to borrow \$3,000 for street railway purposes. (Dec., 1902, pg. 411.)

Temiscouata Ry.—At the annual meeting, held in Quebec Dec. 2, the following were elected: President, F. Grundy; Vice-President, J. H. Walsh; other directors: A. Steele; W. Cook, K.C.; A. H. Cook, K.C.; A. Laurie and N. Campbell; Secretary and General Manager, D. B. Lindsay; Engineer and Superintendent, G. G. Grundy. The report of the Secretary and General Manager upon the operations for the year ended June 30, 1902, showed an increase of \$30,125 in the receipts over 1901, and of \$47,789 over those for 1900 when the line passed under control of the bondholders. The expenditure showed an increase of \$12,237 over 1901, and the percentage of working expenses was at the rate of \$78.50 in 1902 as compared with \$90.45 in 1901, a reduction of \$11.95%. No serious accident occurred during the year either to persons or property, and the prospects of the line were considered good. The Engineer and Superintendent submitted reports upon the state of the track and the rolling stock which were considered satisfactory.

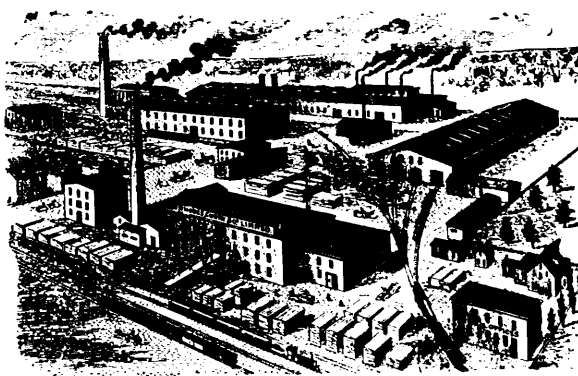
Temiskaming and Northern Ontario Ry.—The commissioners propose, with the approval of the Provincial Treasurer, to issue debentures for the purpose of providing funds for the construction of the line, the debentures to be a charge on the line and the land, 20,000 acres a mile, set apart by the Legislature for its construction. The Ontario Premier stated that the Government has no intention of selling the line to the G.T.R., in order that it might form part of the new G.T. Pacific Ry., as had been suggested in press reports.

NOTICE.—The Great North West Central Railway Company will apply to the Parliament of Canada, at its next session, for the passing of an Act extending the time within which it may finish the construction of its railway.

By order of the Board,

H. CAMPBELL OSWALD,
Secretary.

Montreal, 13th November, 1902.



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Street Cars**

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Special Cars for Coal, Ore,
Lumber, &c., with Ball-
Bearing Wheels.

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	Capacity
Burlington Elevator, St. Louis, Mo.	1,300,000 Bushels
Grand Trunk Elevators, No. 1 and No. 3, Portland, Me.	2,500,000 "
Export Elevator, Buffalo, N.Y.	1,000,000 "
J. R. Booth Elevator, Depot Harbor, Ontario	1,000,000 "
Cleveland Elevator Company's Elevator, Cleveland, O.	500,000 "
Erie R. R. Transfer & Clipping House, Chicago, Ill.	100 cars in 10 hrs.
Manchester Ship Canal Co.'s Elevator, Manchester, Eng.	1,500,000 "
Burlington Elevator Co., Peoria, Ill.	500,000 "
Canada Atlantic Railway Elevator, Coteau Landing, Que.	500,000 "
Northern Grain Co., Manitowoc, Wis.	1,350,000 "
Union Elevator, East St. Louis, Ill.	1,100,000 "
Montreal Warehousing Co.'s Belt Conveyor System	

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Toronto Railway Co.—Car earnings compared with previous year:—

	1902.	Increase or Decrease
January	\$137,135.21	\$15,478.01+
February	127,981.01	18,468.50+
March	141,681.22	17,182.23+
April	132,946.56	9,940.56+
May	145,595.54	17,634.60+
June	132,265.85	5,888.74
July	162,472.12	12,840.88+
August	165,164.57	11,683.95+
September	196,010.37	35,578.48+
October	155,150.17	2,636.66+
November	151,032.84	20,416.78+
	\$1,647,435.46	\$155,972.82+

The Co. has increased its capital stock by \$1,000,000, and has offered \$600,000 of the same at par among shareholders on record on Dec. 3, 1902, in the proportion of one share for every 10 shares of stock held. Payments for every 10 shares extend up to Sept., 1903.

A dividend of 1¼% for the quarter ended Dec. 31, 1902, was declared payable Jan. 2, to shareholders of record of Dec. 16.

Toronto, Hamilton and Buffalo Ry.—Earnings for Nov., 1902, \$40,414.34 against \$39,924.21 for Nov., 1901, making for six months ended Nov. 30, 1902, \$216,995.59 against \$243,099.05 for same period 1901.

White Pass and Yukon Ry.—Gross receipts for Oct., 1902, \$204,000, making for five months to Oct. 31, \$1,100,155. Receipts Nov. 1 to Nov. 14, \$10,381.

Grain Elevator Notes.

The Ogilvie Flour Mills Co. have agreed to erect a 500,000 bush. elevator at Fort William, Ont., and in connection therewith operate a flour mill to have a capacity of 1,500 barrels a day. The elevator will be erected in the spring.

The H. D. Metcalfe Co. (Ltd.), has been incorporated under the Dominion Companies' Act, with a capital of \$100,000, to deal in grain, and in connection therewith to build, or acquire by lease or otherwise, elevators, wharves and vessels. H. D. Metcalfe, C. P. Metcalfe, J. E. Riley, Jr., and H. H. Snowden, of Montreal are the provisional directors.

A. St. Laurent, engineer in charge of the erection of the elevator for the Harbor Commissioners at Montreal, reports that the construction is proceeding satisfactorily. A number of the steel tanks have been erected. They are 85 ft. in height above the concrete base, and each has a capacity of 24,000 bush. There will be 36 of these steel tanks, and the spaces between them will also be used for storage purposes.

SHIPPING MATTERS.

Notices to Mariners.

The Department of Marine has issued the following notices to mariners:—

- No. 106. Nov. 10—Ontario—351. Lake Erie, Port Colborne, light changed, improvements in harbor. 352. Georgian bay, Parry Sound, Depot harbor, breakwater under construction, marking buoys placed.
- No. 107. Nov. 11—Nova Scotia—353. Cape Breton, west coast, Port Hood, Henry island, light established. 354. South coast, Cape Sable, light changed.
- No. 108. Nov. 11—Ontario—358. River St. Lawrence, St. Regis dyke, changes in lights and buoys, sailing directions.
- No. 109. Nov. 13—Ontario—359. River St. Lawrence above Prescott, removal of wreck. 360. Georgian bay, east side, approach to Parry Sound, Seguin bank, gas buoy removed, spar buoy placed.
- No. 110. No. 14—Quebec—361. River St. Lawrence ship channel, Varennes traverse, Ile à l'Aigle, range lights replace day beacons. 362. River St. Lawrence ship channel,

Ile Ste. Thérèse channel, and Ile aux Vaches traverse, changes in buoyage.

No. 111. Nov. 19—Nova Scotia—363. Bay of Fundy, Chignecto channel, Apple river lighthouse, Capstan or Hetty point, change in character of illuminating apparatus. 364. Halifax harbor, position of inner automatic buoy. 365. Cape Breton, south coast, Petit-degrat lighthouse, change in character of illuminating apparatus.

No. 112. Nov. 24.—British Columbia—366. Burrard Inlet, Point Atkinson, fog signal intervals. 367. Burrard Inlet, Vancouver harbor, Brocton point, fog bell intervals. 368. Seaforth channel, uncharted rock. 369. Seaforth channel, beacon marking Regatta rock. 370. Seaforth channel, beacon erected on White Stone. 371. Lama passage, new Indian village of Bella Bella, position of wharf, hydrographic notes. 372. Lama passage, non-existence of charted rock. 373. Lama passage, beacon on White point to mark Walbran rock. 374. Seaforth channel, Joassa passage, hydrographic note.

No. 113. Dec. 2.—Ontario Lighthouse division—375. County of Vaudreuil, lake St. Louis, Soulanges canal, lower entrance, aids to navigation. 376. Lake Ontario, Port Credit, sand bar reported.

No. 114. Dec. 3.—Nova Scotia—378. Cape Breton, Louisburg harbor, buoyage. 379. Atlantic ocean, Sable island bank, uncharted rock. Newfoundland—380. East coast, Cape Spear, fog alarm.

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

No. 47. Nov. 22—Lake Superior—1812. Apostle Island group, shoal reported off York Mackinac, Lake Michigan. 1815. Strait of Mackinac, Wangoshance point, new shoal reported.

C.P. Navigation Co.'s Steamer.

The steamer being built at Wallsend-on-Tyne, Eng., for the C.P. Navigation Co., for the Vancouver-Victoria run, was launched Nov. 18, and was christened Princess Victoria by Mrs. Archer Baker, wife of the European Traffic Manager of the C.P.R. The Princess Victoria is a steel twin-screw steamer having the following dimensions: length between perpendiculars, 300 ft.; extreme breadth, 40 ft. 6 in.; moulded depth, 18 ft. 6 in.; and is built to the highest class of the British corporation. She is constructed with cellular double bottom, with additional watertight flats, and a number of additional watertight compartments, which make the vessel practically unsinkable. The Princess Victoria is fitted with three smoke stacks, and has two pole masts. The motive power consists of two sets of triple expansion engines, working on four cranks, balanced; cylinders 24, 40, 43½ and 43½ in., with a stroke of 33 in.; to which steam will be supplied by six single-ended boilers, each 15 ft. by 11 ft. long, working at a pressure of 160 lbs. a square inch. A modified force draught will be fitted. The engines are expected to develop 5,500 h.p., and to drive the vessel at a speed of 18 knots an hour. The internal arrangements of the steamer have been so arranged as to economise space, while at the same time giving every possible space and accommodation for passengers and crew. On the upper deck aft is a large deck house containing the dining saloon, with seating accommodation for 90 saloon passengers, and also the galley and pantry. From the after end of the engine casing to the stem the plating is carried up to the hurricane deck, and in this space, at the after end, are the rooms for the engineers, petty officers, etc., whilst forward the space is reserved for second class passengers. On the hurricane deck is placed a large house almost the whole width of the vessel and 245 ft. in length, at the sides of which are the state

rooms for the first-class passengers. The space between these cabins is fitted up as a sitting-room, access being obtained to the dining saloon below by a commodious staircase aft of the engine-room. At the forward end of this house a good space is reserved for the second class entrance and smoke room. At the forward end of this house also is the main staircase for first-class passengers to gain access to the deck above. This deck has a large opening, which gives the sitting-room below a very lofty and handsome appearance. The house on this deck extends for a length of 170 ft., and is arranged on the same principle as the house below it, with state rooms at the sides and sitting-room between. At the after end there is a comfortable smoking room, whilst the space at the forward end will be fitted as an observation room with large square windows. The Princess Victoria was built under the superintendence of J. B. Cousins, of Glasgow, Scotland, acting for the C.P. Navigation Co. T. G. Mitchell, Chief Engineer of the Co.'s str. Charmer, is superintending the installing of the engines, and it is expected that the Princess Victoria will reach Vancouver early in spring.

Maritime Provinces and Newfoundland.

The str. Dolphin, of Central Chebogue, has been sold to Roberts & Lee, of Halifax, N.S.

The past season of navigation on the St. John river, N.B., extended over seven months, establishing a record.

The steamship service hitherto maintained by the Reid Newfoundland Co. to St. Pierre, Miquelon, has been withdrawn.

The Fredericton Boom Co. has had built a 60 ft. steamer, the Latonia, at St. Mary's, N.B. She is fitted with compound engines, and can steam 13 miles an hour.

The Princess Steamboat Co.'s new steamer the Queen, of Montreal, has been laid up at Quebec for the winter, the owners declining to take the risk of taking her down to St. John, N.B., so late in the season.

The str. Pro Patria has been purchased by J. Legasse & Co., St. Pierre, Miquelon, and was placed on a run between St. Pierre and Halifax early in Dec. She has a subsidy from the French Government for carrying mails.

The Insular Steamship Co. has placed an order at Shelburne, N.S., for the hull of a steamer to replace the Westport on the St. John-Yarmouth run, her dimensions being: length of keel, 88 ft.; over all, 108 ft.; breadth, 21 ft.; depth of hold, 9 ft.

The Dominion Coal Co. has chartered six additional steamers for its coal-carrying fleet, and will employ an ice plough to break up ice in Louisburg harbor, so as to be able to continue shipping coal all through the winter. The fleet now comprises 16 steamers, having a total tonnage of 83,500 tons.

The sidewheel str. Jacques Cartier, owned by the Inland Navigation Co., Charlottetown, P.E.I., lost her rudder during a heavy gale, and went ashore at Cape John, Nov. 29, while on a trip from Charlottetown to Crapaud. The Jacques Cartier was built at Levis, 1888, and had the following dimensions: length, 117.6 ft.; breadth, 23 ft.; depth, 7.4 ft.; tonnage, gross 380, net 239. For the last ten years she has been on the Charlottetown-Orwell-Crapaud run.

The People's Line Steamship Co. has purchased the sidewheel str. Crystal Stream for its Washademoak route. The Crystal Stream was formerly the Nelson P. Hopkins, and was built at Bull's Ferry, N.J., 1873, and has the following dimensions: length, 132 ft.; breadth, 25 ft.; depth, 9 ft. 3 in.; tonnage—gross, 268; register, 167. She is fitted with

a 1 cylinder vertical beam engine 34x96. The price paid is understood to be about \$9,000, the principal value being in the hull. Extensive repairs will be made during the winter.

Province of Quebec Shipping.

The affairs of the Montreal Coal and Towing Co. are being wound up in liquidation, G. H. Savage, of Montreal, having charge.

The Leyland liner Iberian, which ran ashore on Red island reef early in Nov., will be repaired in the Levis dry-dock during the winter.

An estimate of the loss to the underwriters

by stranding of steamers in the St. Lawrence during the past season places it at \$500,000 on hulls and \$400,000 on cargoes.

For the season of navigation of 1902, closed Dec. 1, there arrived in Montreal 757 oversea vessels, having a tonnage of 1,453,048 tons, an increase of 15 vessels and 75,000 tons over 1901.

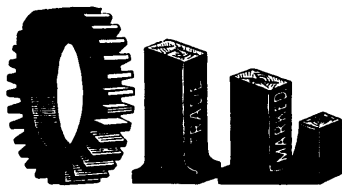
The Dominion Government has made arrangements for a steamship service between New Carlisle and Gaspé Basin, with a view of testing the practicability of the winter navigation in the Baie des Chaleurs.

An investigation in Liverpool Eng., into the stranding of the Elder-Dempster str.

Monteagle, near Fame Point, in the St. Lawrence, June 12, resulted in the suspension of the certificate of the captain for three months.

The question of providing a dry dock at Montreal is being considered by the Harbor Commissioners and by the Department of Marine. Three engineers are to undertake an investigation into the question and to prepare plans.

An investigation is being made at Quebec by Commander Spain, R.N.R., and J. U. Gregory, agent for the Department of Marine, into the circumstances attending the stranding in the St. Lawrence of the Iberian and other vessels.



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TORONTO and QUEBEC.

MANITOBA

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

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

STOCK.
Number of stock in the Province, July 1, 1901:
Horses..... 142,080 Sheep..... 22,960
Cattle..... 263,168 Pigs..... 94,680
Value of Dairy Products..... \$926,314

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

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

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

FREE HOMESTEADS are still available in many parts of the Province.

For full information, maps, etc., FREE, address HON. R. P. ROBLIN, Minister of Agriculture and Immigration, Winnipeg, Manitoba.
Or JAMES HARTNEY, Manitoba Emigration Agt., 77 York Street, Toronto, Ont.

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BRITISH COLUMBIA**

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New Orleans, La.

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St. Louis, Mo.
Peoria, Ill.
Evansville, Ind.
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The contract for the lengthening of locks 1 and 2 of the Lachine canal has been let to Coulson, Quinlan & Robertson, of Montreal. The new locks are to be 270 ft. in length, with a width of 45 ft., and a depth of 14 ft. of water on the sills.

Shipping-men at Quebec are anxious that the Government should have a new survey made of the St. Lawrence to the ocean. The part from Quebec to Point des Monts has not been surveyed since 1885, and from Point des Monts to the ocean the last survey was made by Capt. Bayfield over 50 years ago.

The Montreal Harbor Commissioners are considering an application from the C.P.R. for the privilege of running its cars on the high level tracks during the winter. The Co. offers 50c. a car for the privilege. The G.T.R. now uses the inside track, and the C.P.R. wishes to use the outside track.

The Minister of Marine, Mr. Prefontaine, proposes to continue the experiments and investigations of his predecessor in office, Mr. Sutherland, in regard to the lighting and buoying of the St. Lawrence, so as to enable navigation to be carried on by night as well as by day. It is expected that the work taken in hand by Mr. Sutherland will be completed by the end of the season of 1903.

L. Lacoste, of the Dominion Department of Public Works, Ottawa, has invented a marine brake, which was recently tested in Montreal. The apparatus consists of a fin fixed to each side of the vessel, which are opened when it is desired to stop or slow down suddenly. The test was made on the Government str. Eureka both in Montreal harbor and in St. Mary's rapids, and the steamer was brought to a stop within 100 ft. By using one of the fins only the Eureka was turned in about her own length.

Ontario and the Great Lakes.

The Hamilton Steamboat Co. has declared a dividend of 10%.

The str. Althea, of Kingston, built in 1901, recently ran ashore in the Bay of Quinte during a snow storm, and was badly damaged.

The Sylvanus J. Macy, a U.S. steamer, sank with her crew of 15 men off Port Burwell, Ont., during a heavy storm, at the end of Nov.

The str. Winona, owned by the Port Stanley Navigation Co., is to have \$1,000 expended on her in repairs and improvements during the winter.

The str. Edith, trading on the Lake of the Woods, for the Black Eagle Gold Mining Co., has been sold by the Sheriff to T. Smith, Rat Portage, for \$1,400.

The Collins Bay Rafting and Forwarding Co.'s schooner Neelon was recently towed into Kingston leaking. She had only been repaired a short time previously.

The Collingwood Board of Trade has passed a resolution calling upon the Government to place gas buoys and other aids to navigation along the shores of Georgian bay.

The Northwest Transportation Co.'s str. Huronic will be laid up at Collingwood, and during the winter a number of changes and improvements will be made to her interior arrangements.

A. Stephen, C.E., recently in charge of the harbor works at Port Colborne for the Dominion Government, has been removed to Collingwood to make surveys and plans for harbor improvements there.

The str. Jubilee, owned by Mrs. A. Roys, of Kingston, has been sold and will be placed

on Lake Timiskaming in the spring. The Jubilee's dimensions are: length, 65.8 ft.; breadth, 14.4 ft.; depth, 5.4 ft.; tonnage, gross, 54; register, 37.

The U.S. str. Hecla had to be repaired at Kingston recently, owing to there not being a dock on the U.S. side of the lake large enough, but on her return to Ogdensburg the customs authorities assessed a duty of 50% ad valorem on the cost of the repairs.

The schooner Jessie Drummond, owned in Toronto and Oakville, with 600 tons of coal, ran aground near Cobourg Dec. 3, and became a total wreck. The crew were saved by the lifeboat. The Jessie Drummond was built in 1864, and was 292 tons register.

Everything possible was done to prolong the season of navigation on the Great Lakes last season. The Department of Marine directed the lights, etc., to be left in position until Dec. 12, if necessary, and the marine insurance underwriters granted an extension of insurances.

Two new bridges, to replace the old central swing bridges, swinging the whole width of the canal, are being built on the Welland canal, and it is proposed to similarly replace the remainder of the central swing bridges, of which there are 12. It is also proposed to light the canal by electricity, 400 lights being used, of which 150 will be placed at the locks.

The Montreal Transportation Co. has placed an order for the construction, at Newcastle-on-Tyne, Eng., of a steel freight steamer to trade between Kingston and Fort William, to be ready in April. The steamer will be 248 ft. long, 48 ft. beam, with a depth of 23 ft., flush decks. The engines will be placed aft, and will be triple expansion cylinders 22, 35 and 58 in. diameter, with 39 in. stroke. Two Scotch boilers, with a working pressure of 180 lbs. to the square inch, will be installed.

The Inland Lakes Transportation Co. of Ontario (Ltd.), has been organized with the following directors and officers: President, J. W. Curry, Toronto; Vice-President, M. Straus, Chicago; other directors: H. Pedwell, Thornbury; F. A. Bassett, Collingwood; J. R. Bond, Toronto; Secretary-Treasurer, F. V. Clisdal, Toronto; General Manager, J. J. Daly, Collingwood. Mr. Daly states that three steel freight steamers, with a capacity of 150,000 bush., will be put on the route at the opening of the season of navigation.

At a fire which started in a lumber yard at Norman, Ont., recently, four steamers and two barges were totally destroyed, and one steamer was partially burned. The steamers are small ones, and were laid up for the winter in a ship yard adjoining the lumber yard. The burned steamers were as follows: Phantom, 55 ft. long, owned by C. Lewis, Rat Portage; Rambler, 46 ft. long, owned by J. S. Whiting and others, Rat Portage; Daystar, 34.5 ft. long, owned by the Presbyterian Foreign Mission Committee, Rat Portage; Spray, 32 ft. long, owned by W. A. Carter, Rat Portage; Kennia, 57 ft. long, owned by L. R. Mackey, Keewatin.

The traffic passing through the Canadian and the U.S. canals at Sault Ste. Marie, from the opening of navigation to Oct. 31, was 35,064,254 tons, against 27,817,811 tons in 1901. The following are the figures for the Canadian canal:

	1902.	1901.	Increase or Decrease.
April 5 to May 31.....	5,52,188	1,51,679	3,80,509+
June.....	1,118,564	1,235,955	116,401-
July.....	521,936	276,624	247,312+
Aug.....	639,858	295,175	344,683+
Sept.....	560,021	201,229	358,802+
Oct.....	604,713	354,383	250,330+
Nov.....	635,314	277,144	358,170+
	4,614,604	2,791,289	1,823,315+
+ Increase.	- Decrease.		

The Montreal Transportation Co.'s str. Bannockburn, from Fort William to Kingston, has been given up as lost, with her crew of about 20 men. She was last seen about 50 miles south of Passage Island, Nov. 21. The steamer was built at Middlesborough-on-Tees, Eng., 1893, entirely of steel, and equipped with the most modern machinery for loading and unloading, as well as for propulsion. Her dimensions were: length, 245 ft., breadth, 40.1 ft., depth, 18.1 ft. She was fitted with triple expansion engines, to which steam was supplied from boilers tested to a pressure of 160 lbs. to the square inch. The gross tonnage was 1620 and register 1035, and she could carry 80,000 bush. of grain. She was insured for \$100,000.

The Minister of Railways and Canals recently inspected the work being done on the Trent Valley canal, in company with C. Schrieber, Deputy Minister. Mr. Schrieber stated that during last season the work done was simply the finishing up of the previous season's contracts, and that during the season of 1903 it was expected to have completed the waterway from Peterboro' to Lake Simcoe. The important feature of the work was the liftlock at Peterboro', the steel work of which is being put in by the Dominion Bridge Works, Montreal. The lock is designed to transfer vessels from one reach of the canal to another in one lift, overcoming a difference of 65 ft. in level. The lock consists of two water-tight steel chambers or boxes 140 ft. in length, 33 ft. wide, and giving a depth of 8 ft. of water in the clear, and closed at the ends by gates, similar gates also close the ends of the reaches of the canal. These chambers are carried by means of heavy trusses supported on the top of two hydraulic rams, which work in two steel water-tight presses, one under each chamber. One chamber is at the high level and the other is at the low level. When a vessel has to be transferred from one level to the other it enters the chamber, and the gates are closed, thus confining the water in the canal and the water in the chamber. The hydraulic lift is then operated and the position of the chambers is reversed, the one at the lower level being transferred to the higher, and the upper chamber descending to the lower reach. The gates are then opened and the vessel passes into the canal again. The time occupied in passing one vessel, either up or down, or two going in opposite directions, will be 15 minutes. The weight of the chamber, rams, presses, etc., will be about 1,500 tons, and the total weight on the foundation of the presses will be 3,000 tons.

Manitoba and the Northwest Territories.

The Pioneer Navigation and Sand Co. (Ltd.) is making application for incorporation under the Manitoba Joint Stock Companies' Act, with a capital of \$75,000, to build, buy and operate steamships, vessels, tugs, barges, etc., and to carry on a general navigation and forwarding business, and to deal in sand, gravel and other builders' material. The provisional directors of the Co. will be J. S. Hall, R. Hall, W. H. Hall, McP. Howatt, J. H. Leach, and A. I. Davidson, of Winnipeg.

The advent of a railway at Athabaska Landing, Sask., will bring into prominence a great chain of inland navigation nearly as extensive as that of the Great Lakes and St. Lawrence river. From Athabaska Landing to the Arctic ocean, at the mouth of the Mackenzie river, 165° north latitude, 135° west longitude, is about 1,300 miles, and in all this stretch there are but two obstructions to continuous navigation, one of 47 miles in the Athabaska river, and the other of 20 miles, in the Slave river, connecting Athabaska lake and Great

Slave lake. The first of these series of rapids, in the opinion of navigators, could be stemmed by powerful steamers during high-water, at any rate. Vessels of 500 tons can navigate the stream from the end of the second series of rapids to the Arctic ocean for five months in the year. The Athabaska and the Mackenzie rivers are now regularly navigated by the Hudson's Bay Co.'s steamers, and U.S. whalers visit the Mackenzie river every season. In addition to the rivers, this stretch of inland navigation includes Athabaska lake, 192 miles long, and Great Slave lake, 300 miles long. Flowing into Athabaska lake is Peace river, which gives 350 miles of navigation, with but one break at Fort Vermilion, through the most promising wheatlands of the West. The development of this country will give a considerable impetus to shipbuilding as soon as a railway gets pushed through to Athabaska Landing from Edmonton.

B. C. and Pacific Coast Shipping.

The freight str. Fingal, which was sunk after collision with the str. Rosalie in Victoria harbor, Nov. 12, has been floated and will be repaired.

The steamer now under construction at the Esquimalt Marine Ry. Co.'s yard, Esquimalt, for the C.P. Navigation Co., is to be named the Princess Beatrice.

The str. Tyrrell, though tied up for two nights, made her last trip for the season from Dawson to Whitehorse in 71 hours, which Dawson papers say is the record for the time of year.

The boiler for the Dominion Government cruiser Kestrel, now being built at Vancouver, has been delivered by the Polson Iron Works, Toronto. The Kestrel was launched early in Dec.

The Tasmania, one of the Yukon river steamers, built in sections in England, and shipped to the Yukon at the beginning of the rush, has been taken to Vancouver to be sold, there being no further use for her on the river.

A stern wheel steamer, the Favourite, to run between Mission and New Westminster, B.C., has been built at Vancouver, at a cost of about \$14,000. She is owned by G. C. Harvey, and will ply between New Westminster and Mount Lehman.

The C.P. Navigation Co., Capt. Troup says, will run two steamers between Vancouver and Victoria in the near future. The fast new steamer will run directly between the two ports, and the second will touch at Steveston, connecting there with the Vancouver and Lulu Island Ry.

The C.P. Navigation Co.'s str. Willipa has been sold to U.S. owners who propose to put

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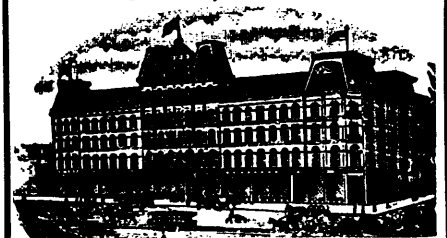
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her on a route between Whatcom, Fairhaven, Seattle and Tacoma, Wash. The Willipa was built at Astoria, Ore., 1891, and has been in the C.P.N. Co.'s service for about five years. The price paid is said to be about \$35,000.

The Pacific Towing and Lighterage Co. (Ltd.) has been incorporated under the B.C. Companies Act, with a capital of \$40,000, to take over the tug Albion. The Co.'s offices are at Victoria. The Co. has also purchased the schooner Alexander, built at Port Essington in 1876, which will be converted into a barge.

There have been a number of changes in the captains in charge of the Dunsmuir fleet of colliers, owing to the death of Capt. Salmond, of the Wellington. Chief Officer McKenna, of the Wellington, becomes captain, and Capt. Butler, of the Lorne, becomes pilot of the Wellington; and J. W. Cates is appointed to the Lorne.

A syndicate is being formed in Vancouver to purchase the steamer North Vancouver, now being operated as a ferry by the municipality of North Vancouver, and continue the ferry service. It is believed that it can be operated more economically by a company than by the municipality. At a public meeting of ratepayers recently held a good deal of opposition was shown to the proposal, and the granting of a lease is still under consideration by the council.

The C.P. Navigation Co.'s str. Charmer completed her 3,000th trip between Vancouver and Victoria recently, which event was celebrated by a luncheon. The Charmer was originally the Premier, and was built at San Francisco in 1887, and sailed under a U.S. registry until July 1, 1893, having then made 682 trips between the two cities. Capt. Rudlin then took charge of the steamer, which was renamed the Charmer, and has been in command ever since. During that period the Charmer has only missed the train connections once, and has never met with an accident costing more than \$50 for repairs.

The trial trip of the cable str. Iris, built at Port Glasgow for the Pacific Cable Board, has passed off satisfactorily, and the steamer is now on her way to Fanning Island, where she will be stationed to do any repairs on the trans-Pacific cable from British Columbia to Australia. She has a length of 285 ft. on the water line, with a moulded breadth of 40½ ft., and a depth, moulded to the spar deck, of 25 ft. The promenade deck is 109 ft. in length, on which is placed the captain's room and a dining saloon, and above this is the chart-room, wheel-house and officers' quarters. The electricians, cable officers, engineers, etc., have their apartments on the main deck. There are four cable tanks, and the special cable machinery is fitted, the heavy machinery forward and the lighter aft. The steamer is provided with a 30 ft. steam launch and five boats. The propelling machinery consists of two sets of triple expansion engines, cylinders 18½, 31 and 51 in. diameter by 39 in. stroke, to which steam is supplied by three single-ended boilers, 14 ft. diameter by 11 ft. 6 in. long, for working pressure of 190 lbs. to the square inch. The contract speed was 13¼ knots an hour, but at the trial trips a maximum of 15¼ knots was made with an average on the six hours' test of 14.4 knots.

There will be operated in connection with the G.T.R. from Portland, Me., six lines of steamers as follows:—Weekly—Dominion line to Liverpool, Thomson line to London; fortnightly—Allan line to Glasgow, British and North American line to Avonmouth (Bristol); every three weeks—Leyland line to Antwerp; monthly—Hamburg-American line to Hamburg. The press reports that the G.T.R. was about to establish a freight line of its

own between Portland and Avonmouth are declared at the Montreal offices of the Company to be without foundation.

The C.P.R. has completed arrangements for supplying freight to ten lines of steamers sailing from St. John, N.B., during the winter as follows:—Weekly—Allan line to Liverpool, Donaldson line to Glasgow; fortnightly—Elder-Dempster line to Liverpool, Manchester line to Manchester, Elder-Dempster line to Bristol, Head line to Dublin and Belfast, Pickford and Black line to West Indies; every ten days—Furness line to London; monthly—Joint line to South Africa, Canada-Jamaica line to Kingston and other Jamaican ports.

Sir Thos. Shaughnessy recently stated that he would tell all about the projected C.P.R. Atlantic Steamship Line when the result had been accomplished. Meanwhile it is reported that orders have been placed on the Clyde for four steamers for this service and two additional steamers for the trans-Pacific line. In connection with the projected Atlantic line, the Hong Kong Chamber of Commerce has passed a resolution favoring it, and also asking for a faster trans-Pacific service.

Among the Express Companies.

The Canadian Ex. Co. has opened an office at Ekfied, Ont.

The Western Ex. Co. has opened offices at Manfred, N.D., and Mikana, Wis.

The Dominion Ex. Co. has opened offices at Port Haney, B.C., and Grindlay, Sask.

The Canadian Northern Ex. Co. is under the direct charge of D. B. Hanna, 3rd Vice-President of the Canadian Northern Ry.

The Dominion Ex. Co. has closed the offices maintained during the season of navigation at Emo, Fort Frances and Rainy River, Ont. Emo, Fort Frances and Mine Centre are now exclusive offices of the Canadian Northern Ex. Co.

The Quebec Ry., Light and Power Co. has established a parcel delivery system over its Montmorency line. The minimum charge is 5 cents for a parcel up to 10 lbs., and parcels from 50 to 100 lbs. are carried for 25 cents. Business is exchanged with all express companies.

P. MacDonald, Assistant Auditor of the Canadian Express Co. at Montreal, who recently resigned, was presented by the employees of the audit department with an umbrella, a meerscham pipe and tobacco pouch, prior to his departure for South Africa. Up to December 11 no appointment had been made to fill the vacancy.

The White Pass and Yukon Ry. Co.'s stage from Whitehorse to Dawson, Yukon, is now in operation, carrying passengers, mails and express. In addition to the regular service there is a special weekly fast stage carrying freight under contract. There are 14 stopping places on the route at distances varying from 18 to 25 miles apart, at each of which relays of horses are kept. Each stage is drawn by 4 horses, and 160 horses are kept for the service. Accommodation is provided on each stage for 10 passengers, 1,000 lbs. of passenger baggage and 1,000 lbs. of express and mails.

Telegraph and Cable Matters.

The Commercial Cable Co. has declared the usual quarterly dividend of 1¼%, and a bonus of 1% payable Jan. 2.

Sir Sandford Fleming has had a telegram sent to the Mayor of Ottawa, round the world by the new cable route, in 6 h. 3 m.

The Canadian Northern Ry.'s commercial telegraph department is under the direct charge of D. B. Hanna, 3rd Vice-President.

The first cable laid in America was completed between Cape Traverse, Prince Edward Island, and Cape Tormentine, N.B., Nov. 21, 1852.

The C.P.R. telegraph department proposes stringing a second wire from Lindsay to Cavanville, Ont., to accommodate the increasing business.

The trans-Pacific cable from Bamfield Creek, B.C., to Australia and New Zealand was declared open for the transmission of public messages Dec. 8.

The Commercial Pacific Cable Co. has obtained an amendment to its charter enabling it to extend its cable, now being laid from San Francisco to Manila, from the latter port to Shanghai.

The International Association of Railway Telegraphers held its annual convention at Montreal, Dec. 18, the executive officers having previously visited the chief railway centers in Canada.

It is proposed to establish wireless telegraph stations at several points on the Newfoundland coast, with a view of keeping up communication with vessels approaching and passing through the grand banks.

A suggestion has been made to re-name Bamfield Creek, B.C., the landing place of the trans-Pacific cable, Fleming, in honor of Sir Sandford Fleming who, for so many years, advocated the construction of the cable.

By a connection between the Government Ashcroft-Dawson telegraph line with the U. S. line from Egbert, Alaska, about 450 miles in length, telegraphic communication can be had with St. Michaels and Cape Nome.

The Pacific Cable Board has fixed a rate of 58 cents a word for commercial messages, and 22 cents a word for press messages, over the new all-British trans-Pacific cable. A rate of 99 cents a word for commercial messages was at first announced.

The Pacific Commercial Cable Co.'s cable from San Francisco, Cal., to the Philippines will have a total length of 8,000 miles, and will be completed in the spring of 1904. The route was selected from a chart of the ocean floor made from 950 soundings.

The telegraphers employed on the Intercolonial Ry., as the result of a conference with the Minister of Railways, have been granted an increase of pay to the extent of \$3.50 a month. This will mean an addition to the pay roll of about \$40,000 a year.

A. L. Dearlove, the engineer who tested the all-British trans-Pacific cable before it was taken over by the Pacific Cable Board, has been able to transmit messages from Bamfield Creek, B.C., to Fanning Island, 3,478 miles, at the rate of 117 letters a minute.

The British Post Office Department has recognized the commercial value of Marconi's system of wireless telegraphy, and has removed the restriction preventing its application for commercial purposes within three miles of the shores of Great Britain and Ireland.

The maintenance of the Yukon telegraph line is a difficult matter, especially during the winter. A sleet storm, on Nov. 25, coated the wire with ice, and a succeeding wind storm caused breaks over 400 miles. The repair staffs were fully employed, but additional breaks were constantly being reported.

A long message was recently received by the Italian war vessel in Sydney harbor, N.S., by wireless telegraphy from Poldhu, Cornwall. Marconi declines to make any statement as to the progress of the work at Glace Bay, or as to the experiments made, but says he will make a full statement when everything is complete.

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

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" " \$3,000 " " "	7 00
" " \$4,000 " " "	9 00
" " \$5,000 " " "	10 00
Sick benefits, when required, cost extra.	

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- 1.—The Mortuary Benefit of \$500, \$1,000, \$2,000, \$3,000 \$4,000 or \$5,000.
- 2.—A Total and Permanent Disability Benefit of one-half of face value of policy, with exemption from further payment of premiums or Court Dues.
- 3.—An Old Age Benefit consisting of exemption from payment of premiums and Court dues after age 70.
- 4.—An Old Age Disability Benefit of one-tenth of face value of policy payable yearly for ten years, on being declared totally and permanently disabled by infirmities of age after the seventieth birthday.
- 5.—An Old Age Pension payable during disability, which may be taken as a substitute for the Old Age Disability Benefit.
- 6.—Free Medical Attendance by Court Physician where not dispensed with by Court by-law; also trained nurses in certain cases.
- 7.—A Sick Benefit of \$3 to \$5 per week, subject to provisions of the Constitution and Laws of the Order; optional, and when taken costs extra.
- 8.—A Burial Benefit of \$100 at death of a Pensioner.
- 9.—A Funeral Benefit of \$50 at death of a member enrolled in Sick and Funeral Benefit Department.
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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	2,907 93	2 61	11.00
1883	2,210	9,493 68	10,857 65	4 91	4.73
1884	2,558	13,914 31	23,081 85	9 01	4.23
1885	3,642	26,576 99	29,802 42	8 18	7.76
1886	5,804	28,499 82	53,981 28	9 30	4.85
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	5.85
1890	24,604	181,846 79	283,967 20	11 51	5.18
1891	32,303	261,436 21	408,798 20	12 65	6.40
1892	43,024	344,748 82	580,597 85	13 49	6.25
1893	54,484	392,185 93	858,837 89	15 76	5.47
1894	70,055	511,162 30	1,187,225 11	16 94	5.47
1895	86,521	685,000 18	1,560,733 46	18 03	5.67
1896	102,838	820,941 91	2,015,484 38	19 60	5.56
1897	124,685	992,225 60	2,558,832 78	20 52	5.56
1898	144,000	1,176,125 14	3,186,570 36	22 12	5.67
1899	163,610	1,430,200 33	3,778,543 58	23 09	6.30
1900	180,717	1,545,145 64	4,483,364 44	24 81	6.53

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

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Or Any Officer or Member of the Order.

The British speaking residents at St. Pierre, Miquelon, now comprise the operators of the Anglo-American Cable Co. and their families. At one time the French Cable Co., which also has a station at St. Pierre, also employed British operators, but has now replaced them all by Frenchmen. The British operators have established clubs and recreation rooms at their headquarters.

Sir J. Wolfe-Barry, Chairman of the Eastern Extension Cable Co., recently stated that the new trans-Pacific cable was the outcome and fulfilment of a sentimental notion. It was no more all-British than the Eastern Co.'s own cables. He saw no cause for violent alarm among the latter's shareholders. Their cables afforded greater facilities to the public than the Pacific line, with its single cable.

D. H. Keeley, Superintendent of Government Telegraphs, states that the operators at the mainland and Belle Isle telegraph stations are now as familiar with the wireless telegraph apparatus and its use, as with the ordinary telegraph and cable instruments. The cable between these stations is in an exposed position, and is liable to be interrupted through erosion caused by passing ice floes.

The C.P.R. telegraph department, in order to meet the requirements of the contract for the transmission of messages through Canada, for the new trans-Pacific cable, had to construct a line from Montreal to Riviere du Loup, via Quebec, thence to Edmundston and St. John, N.B., so as to secure an all-Canadian line. The new line is about 100 miles longer than the one over the C.P.R. through Maine.

N. Maskelyne, of Maskelyne & Cooke, who patented the automaton chessplayer and other scientific curiosities, in London, Eng., has written an article in the Electrician, in which he gives the results of some experiments he made with a wireless telegraph apparatus at Porthcurnew, Cornwall, some miles away from Poldhu. He succeeded in intercepting signals between Poldhu and the Italian war ship, on which Marconi was traveling, and discovered that there had been a change in sending out the messages after he had been experimenting.

Speaking of wireless telegraphy, A. Dearlove, who inspected the trans-Pacific cable for the Pacific Cable Board, says it will be years before the cable service is affected by it. Rapidity, accuracy and secrecy are the great features of the cable service, and these have not yet been attained by Marconi. The present speed on some of the Atlantic cables is 450 letters a minute, or eleven times the speed obtained by the Marconi system under the most favorable conditions. D. H. Keeley, Superintendent of Government telegraphs, says the wireless telegraph will be an auxiliary to the telegraph and cable service, and thinks that the best results will be obtained with stations not more than 300 miles apart.

As a souvenir of the completion of the all-British trans-Pacific cable, 62 cards have been issued by the engineers in charge of construction, and have been sent to the King, the premiers of the countries interested in the new cable, and others connected with its construction. The card certifies that "the subjoined signals were transmitted from Fanning island by automatic curb sender, through the world's largest cable (3,458 nautical miles), and received here on the Kelvin siphon recorder at a speed of 100 letters per minute." The signals in each case gave the name and address of the recipient, recorded on the cable ribbon on which they were received. Among those who have received these souvenirs are J. Kent, Manager C.P.R. Telegraphs, Montreal, and W. Christie, Manager C.P.R. Telegraphs, Vancouver, B.C.

General Telephone Matters.

The Bell Telephone Co. proposes to lay underground cables in Kingston, Ont., and is asking the City Council for the necessary authority.

The Bell Telephone Co. has been given an exclusive franchise in Hull, Que., for five years, the rates to be \$45 for business telephones, and \$30 for telephones in residences.

The Montreal city council is considering the advisability of asking the Quebec Legislature for authority to borrow \$1,000,000 for the purpose of constructing underground conduits for telephone and other wires in the city.

The Bell Telephone Co. is inviting tenders for the poles required for the stringing of a line along the Government road between Sault Ste. Marie and Thessalon, Ont., about 50 miles. The poles are to be delivered by May 31.

Within two years the number of telephones in use at Sault Ste. Marie, Ont., has increased from 125 to 400, the limit of the switchboard capacity. The Bell Telephone Co. is increasing its capacity to 500 to meet the increasing demand.

The Bell Telephone Co.'s new long distance lines in Manitoba have been connected with the lines on the U. S. side of the boundary so as to give through communication between Winnipeg and St. Paul, Minn., and Chicago, Ill.

Owing to increased business the New Westminster and Burrard Inlet Telephone Co. has made a connection at Blaine, Wash., with the lines of the Sunset Telephone and Telegraph Co., thus giving a direct connection between New Westminster, B.C., and Seattle, Wash.

The Ottawa city council has adopted a resolution asking the co-operation of the other municipalities in Canada, in petitioning the Dominion Parliament in legislating on the telephone question, to ensure power being given to municipalities dealing with the Bell Telephone Co. to expropriate their local telephone system, if thought desirable.

The Government line, operated by telephone from Edmonton, Alta., to Riviere Qui Barre, is being extended to the mission on the Alexandre, and it is proposed to extend it six miles further northwest. J. S. Macdonald, Superintendent of Government Telegraph lines in the west, was at Edmonton recently looking after the extension.

The Bell Telephone Co. has appealed against the decision of Justice Street given in March, 1902, in which it was held that the Co. had not the right to erect any poles or carry lines either above or below ground without the consent of the city, the city of Toronto being the respondent. The case is before the Ontario court of appeal.

The telephone committee of the Hamilton city council, after arriving at a decision that a dual telephone system was not a desirable thing to have, gave a further consideration to the whole matter Dec. 11, and passed a resolution recommending the council to postpone deciding the question until after the ensuing session of the Dominion Parliament, at which the Government telephone bill is to be considered.

The Modern Telephone Co., which has its headquarters at Hamilton, Ont., has established a rural telephone circuit embracing Markham, Locust Hill, Whitevale, Green River and Brougham, Ont. Some 30 subscribers have taken telephones, paying \$40 therefor, and contributing a small sum annually for maintenance. The instruments installed are all provided with long-distance equipment.

The stock-book of the Modern Telephone Co., which is applying for a franchise in Hamilton, Ont., was recently inspected by Mayor Hendrie. The share capital is \$300,000 in 3,000 shares of \$100 each, and the stock-book showed the following shareholders: O. W. Rogers, New York, 250 shares; J. S. King, Toronto, 150 shares; W. A. Johnson, Toronto, 100 shares; J. B. Scovell, Lewiston, N. Y., 100 shares; H. A. Drummond, Toronto, 100 shares.

The Kamouraska Telephone Co. has been incorporated under the Quebec Companies' Act with a capital of \$10,000, to carry on an electric and telephone business in the counties of l'Islet, Kamouraska and Temiscouata. The incorporators are: C. A. Desjardins, of St. Andre; J. C. Pouliot, J. E. Frenette, of Fraserville; J. A. Moreau, of St. Germain; J. A. Blanchet, J. Paradis, of Kamouraska; L. P. Crepeault, of Montreal; Josephine Lapointe, T. Ward, of St. Louis de Kamouraska; and H. Pelletier, of St. Alexandre.

The employes of the New Westminster and Burrard Inlet Telephone Co. at Vancouver went on strike Nov. 26, and the system was tied up until Dec. 3, when non-union hands were taken into the city. H. W. Kent, General Superintendent, says the strike originated in the operators belonging to the union making a demand for increased wages and wishing an answer to be given within a limited time, which it was not possible to do, as the directors were out of town. The operators say this is not the case, as it originated in the Co.'s discriminating against an employe active in the union interest who was given the choice of a transfer to Nanaimo or being dismissed.

The Eastern Telephone Co. cut over on to its new central energy switchboard in its exchange at Sydney, on Oct. 5. The work of reconstruction was begun a year ago, when the directors decided to anticipate the future growth of the town and build to meet it. With this object in view a building was erected, underground conduits laid, and the latest type of relay switchboard ordered. The building is on Pitt st., and is of brick, and underwriters approved slow-burning construction. It is 27x50 ft., and three stories high. The front part of the ground floor is let for a shop, but all the rest of the building is used by the Co. The instrument repair room is in the back part of the ground floor, the general offices of the Co. on the second floor, and the top floor is devoted to the operating room, operators' waiting room, etc. In the basement is a brick cable vault, where the underground cables enter the building. The rest of the basement is used for stores. A system of underground conduits sufficient to meet the demands of many years has been laid on Pitt st., crossing the three main thoroughfares of Esplanade, Charlotte and George streets, and branches extend north and south on Charlotte st. There are 1,500 ft. of conduit containing about 5,000 ft. of ducts. The overhead work has been entirely reconstructed, and all circuits made metallic. The re-construction of the system in Glace Bay, and the making it metallic, is also nearly completed. A new switchboard has been installed there. North Sydney will be undertaken next and treated in the same way. The Co. controls all the telephone lines in Cape Breton island, having about 40 toll offices and six exchanges. Arrangements are being made to build a through line from Sydney to Port Hastings next. This will connect with the lines of the Nova Scotia Telephone Co. The Eastern Telephone Co. is about to equip its offices with enameled iron signs, lettered on both sides, "The Eastern Telephone Co., Limited," in white letters on blue ground, for which an order has been placed with the Acton Burrows Co., Toronto.

Established 1849

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Department of Railways and Canals, Canada.

TENDERS FOR STEEL RAILS.

SEALED TENDERS addressed to the undersigned and endorsed "Tender for Steel Rails," will be received at this office up to sixteen o'clock on 15th January, 1903, for 25,000 tons of 80-lb. Steel Rails for the Intercolonial Railway.

All the above to be delivered on or before 31st May, 1903.

Conditions, forms of tender and all other information will be furnished on application at this office.

By order,

L. K. JONES, Secretary.

Department of Railways and Canals,
Ottawa, 17th November, 1902.

Newspapers inserting this advertisement without authority from the Department will not be paid for it.

DIVIDEND NOTICE.

Niagara Navigation Company, Limited.

NOTICE is hereby given that a dividend of four per cent., being at the rate of eight per cent. for the year, has been declared upon the capital stock of this Company, and the same will be payable on the 2nd January, 1903. The transfer books will be closed from the 17th December, 1902, to 31st December, 1902, both days inclusive.

JOHN FOY,

Manager.

Toronto, Dec. 9th, 1902.

NOTICE.—The British Columbia Southern Railway Company will apply to the Parliament of Canada, at its next session, for the passing of an Act extending the time for commencement and completion of the railway which it was authorized by the Act of the Parliament of Canada, 62-63 Victoria, Chapter 55, to construct, acquire and operate between a point on its railway in the neighbourhood of Fort Steele and a point at or near Golden on the Canadian Pacific Railway.

By order of the Board,

H. CAMPBELL OSWALD,

Secretary.

Montreal, 13th November, 1902.

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PURCHASING AGENTS' GUIDE.

(Continued from third page of Cover.)

Steel Buildings	Dominion Bridge Co.	Montreal.
Steel Plate	Jas. W. Pyke & Co.	Montreal.
Steel Tyres	Jas. W. Pyke & Co.	Montreal.
Structural Metal Work	Dominion Bridge Co.	Montreal.
	Jas. W. Pyke & Co.	Montreal.
Switches	Canada Switch and Spring Co.	Montreal.
Switch Lamps	The Hiram L. Piper Co.	Montreal.
Switch Targets	Acton Burrows Co.	Toronto.
Telegraph and Telephone Office Signs	Acton Burrows Co.	Toronto.
Tobacco and Cigars	The Hudson's Bay Company.	
Toilet Paper	The Hudson's Bay Company.	
Tools	Rice Lewis & Son.	Toronto.
Track Jacks	James Cooper.	Montreal.
	Duff Manufacturing Co.	Allegheny, Pa.
	W. H. C. Mussen & Co.	Montreal.
	A. O. Norton.	Coaticook, Que.
Track Tools	Canada Switch and Spring Co.	Montreal.
	James Cooper.	Montreal.
	Rice Lewis & Son.	Toronto.
	W. H. C. Mussen & Co.	Montreal.
Tramway Equipment	James Cooper.	Montreal.
	J. J. Gartshore.	Toronto.
Trucks (Electric Car)	Baldwin Locomotive Works.	Philadelphia, Pa.
	Canada Switch and Spring Co.	Montreal.
Trucks (Warehouse and Express)	Rice Lewis & Son.	Toronto.
Turntables	Dominion Bridge Co.	Montreal.
Varnishes	McCaskill, Dougall & Co.	Montreal.
Vessels	Polson Iron Works.	Toronto.
Waste	Rice Lewis & Son.	Toronto.
	N. L. Piper Ry. Supply Co.	Toronto.
	The Queen City Oil Co.	Toronto.
Wheelbarrows	James Cooper.	Montreal.
	Rice Lewis & Son.	Toronto.
Window Blinds	The Hudson's Bay Company.	
Wines and Liquors	The Hudson's Bay Company.	
Wire & Wire Rope	Dominion Wire Rope Co.	Montreal.
	Rice Lewis & Son.	Toronto.
	W. H. C. Mussen & Co.	Montreal.
	The Wire and Cable Co.	Montreal.
Wire, Copper	E. F. Phillips Electrical Works, Ltd.	Montreal.
Wire, Electric	E. F. Phillips Electrical Works, Ltd.	Montreal.
	The Wire and Cable Co.	Montreal.
Wire, Insulated Copper	E. F. Phillips Electrical Works, Ltd.	Montreal.
Wire, Telegraph and Telephone	E. F. Phillips Electrical Works, Ltd.	Montreal.
	The Wire and Cable Co.	Montreal.
Yachts	Polson Iron Works.	Toronto.

NOTICE.

THE Ottawa, Northern and Western Railway Company (an amalgamation of the two companies formerly known as the Pontiac Pacific Junction Railway Company) will apply to the Parliament of Canada at its approaching session for the passing of an Act extending the time now prescribed by law for the commencement and completion of the railway, extensions and branches authorized to be constructed by the Acts 62-63 Victoria, Chapter 84, and 63-64 Victoria, Chapter 72.

H. L. MALTBY,
Secretary.