

LAKE ERIE
AND
NORTHERN
RAILWAY

C. H. RIFF

August, 1915.]

CANADIAN RAILWAY AND MARINE WORLD.

The Lake Erie and Northern Railway Takes Over Part of the Grand Valley Railway.

Series

The negotiations which have been in progress for some time between the Lake Erie and Northern Ry., represented by its General Manager, Martin N. Todd, and the City of Brantford, with reference to a portion of the Grand Valley Ry. section of the lines operated as the Brantford Municipal Ry., and the electrification of the L.E. & N.R., have been brought to a successful termination. As a result, the L.E. & N.R. acquires for \$30,000 the portion of the Grand Valley Ry. from Paris to Galt, about 13 miles, and the G.V.R. transformer station in Galt. The City of Brantford retains the rails, overhead work, etc., which will be removed from Blue Lake siding, about 4 miles from the Paris end of the section, as the cement works at Blue Lake have been closed permanently. This arrangement gives the L.E. & N.R. practically what it wanted in Paris, and relieves the City of Brantford from the necessity of spending about \$65,000 to repair the Paris-Galt line, and its future maintenance. It also enables the L.E. & N.R. to get rid of two level crossings over the Grand Valley at Paris and Galt. The L.E. & N.R. will use about half a mile of the Grand Valley track at the Galt end, to connect with the Galt, Preston & Hespeler St. Ry., and will scrap the rest of the line to Paris, but later on it may operate over a short distance of the Paris end of the Galt-Paris section of the Grand Valley, into the industrial section of Paris, for freight purposes only. It will handle passenger business from its own station in Paris, that being the stipulation by the City of Brantford, which does not

and the electric car equipment have been ordered from the Canadian Westinghouse Co. A contract for the sub station equipment has been given the Canadian General Electric Co. The sub station at Galt will be a portable one for the present, and there will be sub stations at Brantford and Simcoe, each equipped with 500 k.w. outfits.

Power will probably be taken from the Hydro-Electric Power Commission of Ontario, through its local subsidiaries. The Galt, Preston & Hespeler St. Ry. is said to have been the first electric railway in Ontario to use this power.

The section of the Grand Valley Ry. between Paris and Galt will not be taken over by the L.E. & N.R. until its electrification is completed, but it will be operated by the Brantford Municipal Ry. Commission in the meantime. The L.E. & N.R. intends giving an hourly service between Galt and Brantford, and a two hour service between Brantford and Port Dover.

The L.E. & N.R. is leased to the C.P.R. for 99 years. It is expected that the Galt, Preston & Hespeler St. Ry., which also operates the Preston & Berlin St. Ry., and is owned by the C.P.R., will be amalgamated with the L.E. & N.R. under the latter name. M. N. Todd is President of the Galt, Preston & Hespeler St. Ry., and General Manager of the L.E. & N.R., and will doubtless continue in charge of the amalgamated lines. A Galt paper points out that while the lines referred to have the benefit of close affiliation with the C.P.R., they have the advantage of being locally operated, which is a great convenience to the communities in the districts

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has been started. Electrical material for this section were placed in May, with the option of extending them to also include the Brantford-Port Dover section. It is expected to have the Galt-Brantford section electrified and ready for traffic in October. The grading, track laying, and other work on the Brantford-Port Dover section, about 30 miles, is being pushed forward, and it is hoped to have the electrification of it completed by December. The overhead equipment will be of catenary construction, aluminum messenger wire with steel centre having been ordered from the Northern Aluminum Co. Steel trolley wire will be hung at 15 ft. spacings, with feeders every 50 ft. This system is a new one in Canada, but it has been used by the Pacific Electric Co. in California, and by other United States companies, with, it is said, satisfactory results.

The L.E. & N.R. has ordered 4 motor and 2 trailer cars, and 2 combination passenger and baggage cars from the Preston Car and Coach Co. The bodies will be 48½ ft. long, with steam railway car type of vestibule at each end, standard buffing device, M.C.B. couplers, Canadian Westinghouse motor equipment, multiple unit control, 1,500 volts, seating accommodation for 70 passengers, steel underframes and steel frames covered with wood inside and outside. The various cars will be of the same size and type as, and will be very similar in appearance to those on the Galt, Preston and Hespeler St. Ry. Two 60-ton electric freight locomotives

pavement account about \$36,000. The city has provided money for the betterment of the city lines and the line to Paris, the construction of the East Ward and Eagle Place loops and for new cars, etc. Plans had been made for bringing the Paris-Galt section up to standard at a cost of about \$65,000. The city, by the present arrangement, is relieved from this expenditure, and will receive \$30,000 for the Paris-Galt section. The business done on the line is reported to be sufficient to cover operating expenses and interest on debt, but not to provide for depreciation or sinking fund. For the latter purpose \$4,000 a year is required.

Toronto Ry. Wages.—The negotiations between the company and the men regarding the continuance of the agreement regarding wages have resulted in the agreement which has been in force for the past three years being renewed for a further two years. The men originally demanded an all round increase of half a cent an hour, which was refused by the company. It was then suggested that the old agreement be renewed, the only difference being as to whether it was to be for two or three years. The rates paid are as follows: Motormen, conductors and motor truck repairers, first year 23½c an hour, second year 25½c, third year 27½c, for Sundays 4c extra; shed men 24c, foremen 27c. Regarding uniforms, first year men pay cost, second year men half cost, third year men supplied free.

August 1915

Lake Erie and Northern Railway Electrification.

Canadian Railway and Marine World for August contained general particulars about the electrification of this line which is being built from Galt to Port Dover, Ont., about 51 miles. The line will operate at 1,500 volts d.c. At Galt connection will be made with the Galt, Preston and Hespeler St. Ry., which runs through to Berlin, and now operates at 600 volts d.c.

The substation equipment for the Lake Erie and Northern will consist of permanent substations at Simcoe and Brantford, and a portable substation located for the present at Galt. This will give a substation spacing between Galt and Brantford of 20 miles, and between Brantford and Simcoe of 24 miles, with a stub end feed from Simcoe substation to Port Dover of 7 miles. Each of the three substations will have, for the present, one 500 k.w., 1,500 volt rotary converter, and 555 k.v.a., 3 phase transformer. The transformers may be connected so as to step down from 26,400 volt, 13,200 volt or 6,600 volt, 3 phase, 25 cycle circuits, to the desired a.c. rotary voltage. At the Simcoe and Brantford substations the incoming line will be 26,400 volt, 25 cycle, and at each station will go to the transformer primaries through the usual disconnecting switches, choke coils, and k. 21 oil switches, with overload relays for automatic trip.

The rotaries will be started from half voltage taps in the transformer secondaries, the starting switch being mounted on a small separate panel. The d.c. rotary and feeder panel will differ materially from the standard 600 volt panel. It will be 99 in. high of marble with black marine

status at the Simcoe and Brantford substations and equip the portable substation at the Peterborough works.

The L. E. & N. R. has ordered from the Canadian Westinghouse Co., Hamilton, Ont., two 60-ton, 1500-volt direct current locomotives, six 1500-volt quadruple car equipments, equipment for two trailer cars, and new universal air brakes for both motor and trailer cars. The locomotives are designed to operate on 1500-volts direct current with the following characteristics: swivel truck, standard gauge, diameter driving wheels 36 ins.; truck centre distance 17 ft. 8 ins.; height from top of rail to top of cab 12 ft.; width over all 10 ft.; tractive effort 9200 lbs., with average of 600 volts at motor.

Each of the six 1500-volt motor car equipments will consist of four 85 h.p. ventilated type motors and AB unit switch type of control. A new and improved type of automatic brake will be used, embodying the features made possible by the use of a universal valve which will be the mechanism that will operate to apply and release the brakes and charge the reservoirs, and it will so far correspond to the triple valve in common use. The universal valve will be of the built up type, a simple form of triple valve being the base. This will make it possible to install and operate the equipment, if desired, in stages by adding to the simplest form of valve, without discarding any of the valve portions, other valve portions as they are demanded by an advance in service requirements, up to the complete form of the device, which will be electro-pneumatically operated. The brake valve, type M-23, will embody improved features as compared with

ated through bell cranks and rods from oil switch operating handles mounted at a convenient height on the front of the panel. The negative lead will be grounded direct from the rotary. The circuit breaker will be provided with low voltage release and auxiliary alarm switch. The d.c. ammeter with insulated cover will be mounted on the panel, and on a swinging bracket will be mounted a 2,000 v. scale d.c. voltmeter with insulated cover, and an a.c. ammeter and power factor indicator. A three phase aluminum cell lightning arrester, complete with horn gap, disconnecting switches and charging resistance, will be provided for the 26,400 volt circuit, and a s.p. d.c. aluminum lightning arrester for station use, with fuse and balancing resistance used across the 1,500 volt d.c. side. The rotary converter will be of special interest in view of its unusual overload capacity to meet the heavy peak loads of short duration incident to railway operation. While the normal full load rating at 1,500 volts is 333 amperes, it will carry 1,000 amperes for one minute, successful commutation being obtained by the use of commutating poles and pole face windings.

The portable substation will, it is said, be the first of its kind in Canada. All the equipment will be mounted on a standard steel flat car. The transformer will have no housing, but the rotary oil switch and other apparatus will be housed in. For service at Galt the transformer on the portable substation will be connected for 6,600 volt primary, but the connections may be readily changed for primary voltage of 13,200 or 26,400 volts for operation at other points along the line. The complete equipment for the three substations is being manufactured by the Canadian General Electric Co. at its Peterborough works, and the manufacturers will install the appar-

at the top of the line. The negative lead will be grounded direct from the rotary. The circuit breaker will be provided with low voltage release and auxiliary alarm switch. The d.c. ammeter with insulated cover will be mounted on the panel, and on a swinging bracket will be mounted a 2,000 v. scale d.c. voltmeter with insulated cover, and an a.c. ammeter and power factor indicator. A three phase aluminum cell lightning arrester, complete with horn gap, disconnecting switches and charging resistance, will be provided for the 26,400 volt circuit, and a s.p. d.c. aluminum lightning arrester for station use, with fuse and balancing resistance used across the 1,500 volt d.c. side. The rotary converter will be of special interest in view of its unusual overload capacity to meet the heavy peak loads of short duration incident to railway operation. While the normal full load rating at 1,500 volts is 333 amperes, it will carry 1,000 amperes for one minute, successful commutation being obtained by the use of commutating poles and pole face windings.

lications; prevention of overcharge of the equalizing reservoir; and quick response of brake pipe reduction by the combination of direct and equalizing piston exhaust ports. A supplementary reservoir is to be used to give high emergency brake cylinder pressure and graduated release as well as to assist the brake pipe in recharging the auxiliary reservoir. The compressor will be driven by a 1500-volt d. c. motor and is known as the D. K. type. It is of the same general design and construction as other Westinghouse compressors, but is especially rugged and adopted to meet severe operating conditions. The Westinghouse governor synchronising system will be used to insure equal division of compressor labor, thereby securing reliability of air supply and low expense for compressor maintenance. This will also be used on the locomotives. The brake equipment for the electric locomotives will be the Westinghouse no. 14 EL.

The Toronto Ry. and its proportion of cost of Subways.—The Board of Railway Commissioners has granted the Toronto Ry. permission to appeal to the Supreme Court against the Board's order to contribute to the cost of the subway built by reason of the elevation of the C. P. R. tracks across Avenue Road. The permission is granted on the following questions,—Whether the Board had power to make the order under the agreement of the Toronto Ry. with the City of Toronto of 1891; whether the company is not entitled to have the city furnish the company, in the exercise of its running powers, a street or highway known as Avenue Road, and whether, if such was the effect of the agreement, the company should have been ordered to contribute to the cost of the construction of the subway.

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later on it may operate over a short distance of the Paris end of the Galt-Paris section of the Grand Valley, into the industrial section of Paris, for freight purposes only. It will handle passenger business from its own station in Paris, that being the stipulation by the City of Brantford, which does not want the L.E. & N.R. to compete with it for passenger business on the lower level in Paris.

The important feature of the arrangement is the fact that the entire L.E. & N.R. line from Port Dover to Galt, 53 miles, is to be electrified, and that a new electric car terminal will be established at the foot of the embankment near Lorne Bridge, Brantford. The electrification work on the line between Galt and Brantford, about 22 miles, has been started. Contracts for the electrical material for this section were placed in May, with the option of extending them to also include the Brantford-Port Dover section. It is expected to have the Galt-Brantford section electrified and ready for traffic in October. The grading, track laying, and other work on the Brantford-Port Dover section, about 30 miles, is being pushed forward, and it is hoped to have the electrification of it completed by December. The overhead equipment will be of catenary construction, aluminum messenger wire with steel centre having been ordered from the Northern Aluminum Co. Steel trolley wire will be hung at 15 ft. spacings, with feeders every 50 ft. This system is a new one in Canada, but it has been used by the Pacific Electric Co. in California, and by other United States companies, with, it is said, satisfactory results.

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Hespeler St. Ry., and General Manager of the L.E. & N.R., and will doubtless continue in charge of the amalgamated lines. A Galt paper points out that while the lines referred to have the benefit of close affiliation with the C.P.R., they have the advantage of being locally operated, which is a great convenience to the communities in the districts served.

The Brantford Municipal Ry. will, in future, consist of the old Brantford St. Ry., and the Brantford-Paris section of the old Grand Valley Ry., the latter being about 8 miles. The entire transaction by the city in acquiring the Brantford St. Ry. and the Grand Valley Ry. involved \$300,326, of which \$137,000 was provided in cash, the balance representing original bonds \$125,000, mortgages \$2,400, and installments to accrue on pavement account about \$36,000. The city has provided money for the betterment of the city lines and the line to Paris, the construction of the East Ward and Eagle Place loops and for new cars, etc. Plans had been made for bringing the Paris-Galt section up to standard at a cost of about \$65,000. The city, by the present arrangement, is relieved from this expenditure, and will receive \$30,000 for the Paris-Galt section. The business done on the line is reported to be sufficient to cover operating expenses and interest on debt, but not to provide for depreciation or sinking fund. For the latter purpose \$4,000 a year is required.

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Winnipeg, Selkirk and Lake Winnipeg Electric Railway.

This company, which is a subsidiary of the Winnipeg Electric Ry., owns and operates a line from the northern boundary of the city of Winnipeg to Selkirk, near Lake Winnipeg, 21.44 miles; and a branch line, completed at the end of 1914, from Middlechurch to Stonewall, 16.67 miles, a total of 38.11 miles. The main line to Selkirk passes along the west bank of the Red River, while the branch line which was completed to Stony Mountain in 1913, and to Stonewall in Dec., 1914, runs in a nearly straight line northeasterly from Middlechurch, passing through the rural municipalities of St. Paul and Rockwood. For about five miles into Stonewall it parallels the C. P. R.

The right of way of the branch varies from 45 to 90 ft. in width and it is practically all owned by the company. At Stony Mountain there is a grade of 2.6% which is practically the only one on the line except for the Masters Junction subway. There are few curves on the branch, the most important being two of 16 degrees each. The only bridge structure is a subway at Masters Jct., which provides a crossing under the C. P. R. Lake Winnipeg Branch. This subway is about 250 ft. long, and is of heavy construction. The reinforced concrete work rests on pile foundations placed at 3½ ft. centres. The abutments are reinforced with steel rails. The subway is provided with 5% grades at either end, necessitating a drain of about half a mile long to the Red River. The track is laid with 60 lb. rails, A. S. C. E. specifications, laid on tamarack ties spaced 27 in. centres, with gravel ballast. The transmission system is carried on 45 ft. cedar poles, power for both the main and branch

ELECTRIC RY. BOARD, 1912, PG. 1000.

Lake Erie and Northern Ry.—A trust deed dated Oct. 1, 1912, made between the company and the Montreal Trust Co., securing an issue of 30-year 5% gold bonds, was on Nov. 29, 1912, deposited with the Secretary of State at Ottawa.

A contract is reported to have been let to P. H. Secord and Sons, Brantford, Ont., for all the concrete work on the line. It is estimated that this work will involve the expenditure of about \$150,000.

Moncton Tramways Electricity and Gas

various U.S. points. (July, ps. 320.)

Lake Erie and Northern Ry.—A special meeting of shareholders will be held at Montreal, Aug. 4, to pass resolutions leasing the line to the C.P.R.; cancelling a mortgage securing \$500,000 of second mortgage bonds; authorize an issue of bonds in aid of construction, and enter into a necessary mortgage to secure any new issue of bonds authorized.

Construction is progressing. The section between Brantford and Galt is almost ready for operation. Considerable work is being done in Brantford, the principal portion of which is in the vicinity of the Lorne bridge.

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p90

Lake Erie and Northern Ry.—The Minister of Railways has approved route map for the line from Brantford to Galt, Ont., 21 miles. A considerable mileage of the right of way was reported to have been purchased Mar. 13, and it was also reported that a contract had been let for the grading to Johnson Bros., Port Hope, Ont., and for masonry work to P. H. Secord and Sons, Brantford. Work will be started as soon as the plans have been approved by the Board of Railway Commissioners. (Feb. pg. 90.)

April 1913
p 169

Lake Erie and Northern Ry.—The location plans for this projected railway from Port Dover on Lake Erie to Brantford, Ont., have been approved by the Board of Railway Commissioners. The route map of the section of the line from Brantford to Galt has been approved by the Minister of Railways, and the locations are before the Board of Railway Commissioners. The location plans for the line through Brantford have recently been the subject of considerable discussion with the City Council, and G. A. Mountain, Chief Engineer, Board of Railway Commissioners, has been making special surveys with a view to settling the differences. The contract for the building of the entire line has been let, we are officially advised, to Johnson Bros., Port Hope, Ont., except so far as the steel superstructures for bridges, the station buildings and freight sheds are concerned. A subcontract has been let to P. H. Secord and Son, Brantford, for the masonry on the bridge over the Grand River, Brantford, and the masonry on the line between Brantford and Galt. It was expected that construction work would be started on the line by April 30. (April, pg. 169.)

London and Port Stanley Ry.—In a bill introduced in the Ontario Legislature respect-

ing a line from La Patrie, Que., to the International Boundary, thence along the valley of the North River to a junction with the Maine Central Rd., or the C.P.R. in Eaton Tp. (Dec., 1912, pg. 605.)

The Saskatoon Transfer Ry. is proposed to be built by local interests to connect up a section of the city which is being developed for manufacturing concerns, with the several railways entering Saskatoon, Sask. C. A. Wentz returned to Saskatoon, April 7, from Winnipeg, and reported the progress of negotiations with the railways. The principal difficulty in the way of immediate construction is said to be the difficulty of obtaining rails. (Nov., 1912, pg. 558.)

Southern Central Pacific Ry.—An extension of time has been granted by the Dominion Parliament for the building of the lines authorized in 1903 and 1911. (Jan., pg. 21.)

Timiskaming and Northern Ontario Ry.—Replying to questions in the Ontario Legislature recently the Minister of Public Works said, the only extension of the line now under construction is the branch from Iroquois Falls Jct., to the Abitibi Pulp and Paper Co.'s plant at Iroquois Falls, in Teefy tn. The branch with spur tracks

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those for 1911-12, from July 1, 1912:—

	Gross Earnings	Expenses	Net Earnings	Increase
July	\$1,825,700	\$1,135,100	\$690,600	\$133,000
Aug.	1,745,800	1,376,000	369,800	58,100
Sept.	1,671,600	1,248,000	423,600	4,100
Oct.	2,331,200	1,645,800	705,400	24,000
Nov.	2,509,700	1,631,900	877,800	212,600
Dec.	2,132,000	1,551,000	581,000	77,200
Jan.	1,513,400	1,243,200	270,200	46,500
Feb.	1,368,700	1,190,200	268,500	30,900
	\$15,152,000	\$11,160,300	\$3,991,700	\$585,300
Inc.	\$2,385,800	\$1,800,500	\$585,300	

Mileage in operation during the foregoing period, 4,297, against 3,981 in the previous year. Approximate earnings for March, \$1,685,000, against \$1,572,700 for March, 1912.

Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases or decreases, compared with those for 1911-12, from July 1, 1912:—

	Gross Earnings	Expenses	Net Earnings	Increase
July	\$12,052,398.58	\$7,604,221.68	\$4,448,176.90	\$745,148.57
Aug.	12,251,715.87	7,533,790.31	4,717,925.56	642,354.55
Sept.	11,579,733.98	7,399,430.13	4,250,303.85	332,857.05
Oct.	13,080,397.80	7,969,510.61	5,060,887.19	379,192.44
Nov.	12,362,666.43	8,104,597.88	4,258,068.55	270,772.55
Dec.	12,219,278.73	7,923,555.21	4,295,723.52	280,989.95
Jan.	9,679,607.39	6,017,233.61	3,662,373.78	579,516.08
Feb.	9,747,685.55	7,227,616.31	2,520,069.24	136,202.67
	\$111,052,402.31	\$67,123,680.04	\$43,928,722.27	\$3,376,623.26

MAY 1913
p220

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MAY 1913 p220

certain railways was entered into with the company, April 2, for the building of a line from near Coldwater to the Fraser River, B.C., 50 miles, but has only just been formally signed. (May, pg. 278.)

) Lake Erie and Northern Ry.—The contractors are reported to be making rapid progress with the grading on this line from Port Dover to Galt, Ont. The rails and ties are being delivered. A contract has been let for the removal of houses on the right of way in Brantford. It is expected that track laying will be started early in July. (May, pg. 220.)

as Lake Huron and Northern Ry.—We are

July 1913
p 331

toria and Eastern Ry. (1913) p. 11

Lake Erie and Northern Ry.—Grading is reported to have been completed between Waterford and Bloomsburg, Ont., and the construction of the bridge at Waterford, which is estimated to cost \$65,000, has been started. Considerable work is also reported to have been done in the vicinity of Galt, on the section of the line north of Brantford. A map showing the route of the line through

August 1913

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WORLD.

[August, 1913.

Brantford was filed with the city authorities July 5. It shows a route from Lorne bridge to the city limits at Eagle Place.

W. P. Kellett, General Manager, is reported to have stated, July 4, that it is expected to have the line opened from Brantford to Galt, by Oct. 1, and the section from Brantford to Port Dover, by June 1914. The line is being built to steam railway standards, but the story that it is to be exclusively a steam railway has no foundation in fact, as electricity will be the motive power used ultimately, though it may be operated by steam for a time at first. (July, pg. 331.)

Medicine Hat, Alta.—R. O. Sweezy,

P376

August
1913

Fraser River.

Lake Erie and Northern Ry.—Work on the construction of this line from Brantford, Ont., northerly to Galt, and southerly to Port Dover, is proceeding at a rapid rate. Several hundred men are employed on grading, together with steam shovels, and very nearly half of the grading has been completed. The bridge work is also well advanced.

The Board of Railway Commissioners has approved of location plans of the line from Lorne Bridge, Brantford, station 0 to station 4.50, in Brantford City. (Aug. pg. 376.)

London and Port Stanley Ry.—Press state that it is likely that a vote will

September ~~August~~ 1913
p 432

pg. 370.)

Lake Erie and Northern Ry.—The question of the building of a station in Brantford, Ont., is being held up following the recent decision of the Board of Railway Commissioners not to permit the use of the park property at the foot of Scarfe Ave. and Church St.

It is said that while the line from Brantford to Galt, Ont., will be operated by steam power, as soon as the whole line is completed the passenger traffic will be operated by gasoline cars. (Aug., pg. 370.)

Medicine Hat Southern Ry.—The Board

September.

1914 7419

432.)

Lake Erie and Northern Ry.—Track laying is being proceeded with from Galt towards Brantford, Ont., on this line, and ballasting is in progress. Grading has so far progressed that it is not expected there will be any delay in the work of track laying into Brantford. It is expected to have this part of the line completed by Oct. 30. About 10 miles of grading have been completed between Brantford and Port Dover, and it is expected to finish up the remaining 20 miles by Dec. 31. The whole 53 miles from Galt to Port Dover is expected to be in operation June 1, 1914. The question of the terminal site in Port Dover has not been settled.

Arrangements are being made with the

October
1913

475

WORLD.

475

Hydro Electric Commission by which the Commissioners power line from the Brant substation into Brantford will be erected along the company's right of way. (Sept., pg. 432.)

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to
nd London and Port Stanley Ry.—It is said that the ratepayers of London will be asked to vote on Oct. 15 on a bylaw providing for the electrification of that line, from London

October 1913

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taken over by that company with
tion is completed. (Oct., pg. 475.)

Lake Erie and Northern Ry.—The term-
inal facilities for this line in Galt, Ont., are
being laid out, with a view of having every-
thing ready for the opening of the section
from Brantford, early next spring. The
buildings consist of a brick station, and
freight house, and six tracks are being laid
in the yard. About 14 miles of grading
has been completed between Brantford and
Galt, some miles of steel have been laid,
and a ballasting gang is working from the
Galt end.

Considerable progress has been made in
Brantford, where some heavy work is be-
ing done at Jubilee Terrace and Lorne
Bridge. The bridge is to be raised seven
feet. A good deal of the trestle work
through the city has been completed.

Good progress is being made with con-
struction on the line from Brantford to Port
Dover. The Board of Railway Commis-
sioners, Oct. 10, granted the company the
right to use the G. T. R. harbor at Port
Dover. (Oct., pg. 475.)

A contract was entered into, Nov. 8, be-
tween the Dominion Government and the
company, under the provisions of the act
granting aid to certain railways, for the
building of a line from Galt to Port Dover,
Ont., not exceeding 58 miles.

Magdalen River Valley Ry.—The Quebec
Legislature is being asked for an extension
of time for the building of this projected
railway from Magdalen River Roman Catho-
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prior to the extensions being made.

Lake Erie and Northern Ry.—Application is being made to the Dominion Parliament to increase the company's bonding powers from \$30,000 to \$45,000 a mile, and authorizing the borrowing of money for "the acquisition, construction, extension or development of any property, assets or works other than the railway."

There is no truth in the report, officials of the company in Brantford state, that the company's franchise has been acquired by the C.P.R. The line was projected, according to the company's prospectus, to give connection to the various municipalities with the C.P.R. at Galt.

Construction on the line is suspended, but it is expected that the contractors will start work again early in March. (Jan., pg. 21.)

Michigan Central Rd.—The opening of

January February 1914
P 69

80.)

Lake Erie and Northern Ry.—W. P. Kellett, General Manager, in a letter to the press, Jan. 31, explained what was being done in connection with the work in Brantford, Ont., in regard to which the city Council had expressed dissatisfaction. The work was being proceeded with as rapidly as possible. The general contractors had resumed tracklaying and it was expected to have the steel laid from Galt to Jubilee Terrace, Brantford, by Feb. 28. When that was completed the plant necessary for the deepening of the channel of the Grand River in the city would be brought in. Mr. Kellett attended a meeting of the Parks Board, Feb. 5, in connection with the matter, at which it was stated that so far as freight traffic is concerned steam will be used as a motive power, but for passenger traffic, gasoline electric or electric storage battery cars will probably be used. Mr. Kellett stated that freight will be taken to the first yards at the foot of Jarvis and Sterling streets for sorting purposes, and the trains will be made up in a second yard which will be located at Morrell St. (Feb., pg. 69.)

Northwestern Ry. of Canada.—Applica-

March 1914

7121

ported on four 238 ft. spans.

Lake Erie and Northern Ry.—We are officially advised that no statement has been made by W. P. Kellett, General Manager, to the effect that the line when completed will be operated both as a steam and electric railway, as stated in press reports. It is, however, persistently reported that the line will in the main be operated by electricity, either by an electric locomotive, or by individual gasoline motor cars.

The bridge work at Paris on the Brantford-Galt section of the line was completed Mar. 12, and it was expected that track would be laid into Brantford, Mar. 24. (Mar., pg. 126.)

... Northern Ontario.—The
~~May June 1914~~ p ~~214~~ 166

April 1914

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way to Hope, by Dec. 31. (April, pg. 165.)

Lake Erie and Northern Ry.—An act has been passed by the Dominion Parliament enabling the company to increase its bonding power from \$30,000 to \$45,000 a mile, and to issue other securities for the purpose of developing properties along its line, but these extended powers are not to be used until every municipality which has aided the company, has been released from its agreement.

Track laying was reported to have reached Brantford, from Galt, Ont., April 9, and ballasting has been started, a train working each way from the pit at Paris.

Construction is being proceeded with on the Brantford-Port Dover section, and it is expected that track laying will be started in both directions from Simcoe, as soon as work on the Brantford-Galt section is completed. The line is not expected to be ready for operation until the end of the year. (April, pg. 166.)

~~June~~ 1914 . P~~366~~ 213
MAY 1914

All Red Line Ry., April, pg. 100.

Lake Erie and Northern Ry.—A special train ran over the completed line from Brantford to Galt, Ont., May 4, about 20 miles. The completed line starts at Jubilee Terrace in Brantford, and runs into Galt as far as the C.P.R.

The further construction of the line in Brantford is being held up pending a decision on the question of the raising of the Lorne Bridge. The plans for this were submitted to the city, May 8, when certain objections were made, and will be laid before the Board of Railway Commissioners. Construction is being proceeded with rapidly on the section south from Brantford to Port Dover.

It is expected that the Brantford-Galt line will be put in operation early in August. (May, pg. 214.)

Miramichi Bay Shore Ry.—The New

~~May~~ 1914

P266

June 1914

bill was killed. (June, pg. 266.)

Lake Erie and Northern Ry.—The work of finishing up the line between Brantford and Galt, Ont., is nearly completed, and it is expected to have a regular train service in operation very soon. In Brantford work was started June 8, on the retaining wall at the Lorne Bridge, which was expected to be raised to the new level by June 30. No construction is in progress on the line between Brantford and Waterford, and local reports state that it is likely the company will run its trains over the Toronto, Hamilton and Buffalo Ry. between these two points. Beyond Waterford and

July 1914

323

Port Dover work has been restarted, and considerable progress is being made. A number of C.P.R. engineers, who were engaged on the second track work between Islington and Guelph Jct., were ordered to report on the work, and a C.P.R. bridge construction gang was sent to Simcoe.

It was stated in Brantford, June 17, that any intention of utilizing the T.H. and B.R. station in the city, and the T.H. and B.R. line between Brantford and Waterford, had been abandoned. The L.E. and N. Ry. will, it is stated, build its own station in the city, and its own line to Waterford.

Montreal Central Terminal Co.—An issue

July 1914

P 324

August, 1914.]

CANADIAN

where considerable alterations are required to give the line a right of way. There is a good deal of work yet to be done between Brantford and Waterford, owing to the fact that construction was held up on account of negotiations, which proved fruitless, being on for the use of the section of the Toronto, Hamilton and Buffalo Ry. between these points. The work on this section has been resumed, and rapid progress is being made with the grading and bridge work. The section between Waterford and Port Dover is nearly ready for tracklaying, but it is not expected that this will be started until the Brantford-Waterford section is completed.

U.S. press reports state that it is proposed to run a car ferry service to Port Dover in connection with the line, from Erie, Pa., and that negotiations are in progress with the Pennsylvania Rd. for water front and dock space. (July, pg. 323.)

New Brunswick Coal and Ry. Co.—Plans have been deposited with the Minister of

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p370

August 1914

1913, pg. 574.)

Lake Erie and Northern Ry.—Construction on this line between Brantford and Galt, and Brantford and Port Dover, Ont., was suspended Nov. 28. W. P. Kellett, Chief Engineer, subsequently went to Montreal, and on his return stated that arrangements were being made to resume work shortly. The only place where work did not cease was in Brantford at Lorne Bridge. Near this point there is some difference with the city as to the protection of the terrace. G. A. Mountain, Chief Engineer of the Board of Railway Commissioners, was in the city, Dec. 10, in consultation with the City Engineer and Mr. Kellett on the matter, and a satisfactory understanding was reached. (Dec., 1913, pg. 574.)

Lake Huron and Northern Ontario Ry.—

October 1914

age 75.6 to 133.7 west of Penticton.

Lake Erie and Northern Ry.—It was announced in Brantford, Ont., Nov. 11, that the section from Brantford to Galt will be opened for traffic Jan. 1, 1915. The line has been leased to the C.P.R.

Plans for the station in Galt, filed with the Town Council, show a brick building with a 300 ft. platform, a short distance south of Main St.

A resolution has been passed by the Brantford Patriotic and War Relief Association inviting the City Council and the Board of Trade to co-operate with the L.E. and N. Ry. directors in applying to the Dominion Government to advance to the company the balance of the subsidy voted in aid of construction, in order that work on the Brantford-Port Dover section may be proceeded with. The amount is \$192,000, and W. P. Kellett, General Manager, stated in a letter to the Association, Nov. 9, that it would be sufficient to finance construction for about five months. (Oct., pg. 468.)

Moncton and Buctouche Ry.—A temporary station has been provided at Buctouche N.R.

19/4

FROM BRANTFORD TO PORT DOVER

Lake Erie and Northern Ry.—The question of the electrification of the completed section of the line is under consideration. W. P. Kellett, who has been General Manager and Chief Engineer from the inception of the project has resigned. M. N. Todd, President, Berlin, Waterloo, Wellesley and Lake Huron Ry., (formerly Galt, Preston and Hespeler St. Ry.), has been appointed General Manager to succeed him.

The contractors for the line southerly from Brantford to Port Dover have been getting things in order to complete that section during this year. It is expected that if the Brantford-Galt section is electrified the southern section will also be operated by the same motive power. (Feb., pg. 57.)

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MAY 1915
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or **Lake Erie and Northern Ry.**—The work
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February
1915

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MAY 1915

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Northern Pacific and British Columbia Ry.
Seattle Wash. and Vancouver B.C. press

1915 757

FROM FERRIS TO ALBERTA

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1915 P 171

pleted May 31. (May, pg. 171.)

Lake Erie and Northern Ry.—We have been officially informed that the line is completed from Galt to Brantford, and that grading is completed southerly from Brantford to within a mile of Port Dover, Ont. The bridge at Waterford was expected to be completed by May 31, and the one over the Grand River at Brantford is expected to be completed by July 1. Track has been laid on the southerly section of the line between Waterford and Simcoe, eight miles, and Johnson Bros., the contractors, expect to have the grading and track laying completed by Aug. 30.

In connection with the projected operation of the line by electricity enquiries are being made for electric material and there appears to be no doubt that the line will be electrified.

A proposition has been made by the company to the Brantford City Council for certain running rights over the Grand Valley section of the Brantford Municipal Ry., at Galt, and between Paris and Brantford. The matter came before the City Council, April 27, when representatives of the Board of Trade were invited to confer with the Brantford Railway Commissioners as to the project. It was stated, May 3, that the city might sell the Grand Valley section of the line to the L. E. and N. R. (May, pg. 171.)

Roberval-Saguenay Ry.—The following

1915
P 212

Lake Erie and Northern Railway Electrification.

Canadian Railway and Marine World for August contained general particulars about the electrification of this line which is being built from Galt to Port Dover, Ont., about 51 miles. The line will operate at 1,500 volts d.c. At Galt connection will be made with the Galt, Preston and Hespeler St. Ry., which runs through to Berlin, and now operates at 600 volts d.c.

The substation equipment for the Lake Erie and Northern will consist of permanent substations at Simcoe and Brantford, and a portable substation located for the present at Galt. This will give a substation spacing between Galt and Brantford of 20 miles, and between Brantford and Simcoe of 24 miles, with a stub end feed from Simcoe substation to Port Dover of 7 miles. Each of the three substations will have, for the present, one 500 k.w., 1,500 volt rotary converter, and 555 k.v.a., 3 phase transformer. The transformers may be connected so as to step down from 26,400 volt, 13,200 volt or 6,600 volt, 3 phase, 25 cycle circuits, to the desired a.c. rotary voltage. At the Simcoe and Brantford substations the incoming line will be 26,400 volt, 25 cycle, and at each station will go to the transformer primaries through the usual disconnecting switches, choke coils, and k. 21 oil switches, with overload relays for automatic trip.

The rotaries will be started from half voltage taps in the transformer secondaries, the starting switch being mounted on a small separate panel. The d.c. rotary and feeder panel will differ materially from the standard 600 volt panel. It will be 99 ins. high, of marble with black marine finish; and the circuit breaker and knife switch, in the positive lead, which will be at the top of the panel, will each be operated through bell cranks and rods from oil switch operating handles mounted at a convenient height on the front of the panel. The negative lead will be grounded direct from the rotary. The circuit breaker will be provided with low voltage release and auxiliary alarm switch. The d.c. ammeter with insulated cover will be mounted on the panel, and on a swinging bracket will be mounted a 2,000 v. scale d.c. voltmeter with insulated cover, and an a.c. ammeter and power factor indicator. A three phase aluminum cell lightning arrester, complete with horn gap, disconnecting switches and charging resistance, will be provided for the 26,400 volt circuit, and a s.p. d.c. aluminum lightning arrester for station use, with fuse and balancing resistance used across the 1,500 volt d.c. side. The rotary converter will be of special interest in view of its unusual overload capacity to meet the heavy peak loads of short duration incident to railway operation. While the normal full load rating at 1,500 volts is 333 amperes, it will carry 1,000 amperes for one minute, successful commutation being obtained by the use of commutating poles and pole face windings.

The portable substation will, it is said, be the first of its kind in Canada. All the equipment will be mounted on a standard steel flat car. The transformer will have no housing, but the rotary oil switch and other apparatus will be housed in. For service at Galt the transformer on the portable substation will be connected for 6,600 volt primary, but the connections may be readily changed for primary voltage of 13,200 or 26,400 volts for operation at other points along the line. The complete equipment for the three substations is being manufactured by the Canadian General Electric Co. at its Peterborough works, and the manufacturers will install the appar-

atus at the Simcoe and Brantford substations and equip the portable substation at the Peterborough works.

The L. E. & N. R. has ordered from the Canadian Westinghouse Co., Hamilton, Ont., two 80-ton, 1500-volt direct current locomotives, six 1500-volt quadruple car equipments, equipment for two trailer cars, and new universal air brakes for both motor and trailer cars. The locomotives are designed to operate on 1500-volts direct current with the following characteristics: swivel truck, standard gauge, diameter driving wheels 36 ins.; truck centre distance 17 ft. 8 ins.; height from top of rail to top of cab 12 ft.; width over all 10 ft.; tractive effort 9200 lbs., with average of 600 volts at motor.

Each of the six 1500-volt motor car equipments will consist of four 85 h.p. ventilated type motors and AB unit switch type of control. A new and improved type of automatic brake will be used, embodying the features made possible by the use of a universal valve which will be the mechanism that will operate to apply and release the brakes and charge the reservoirs, and it will so far correspond to the triple valve in common use. The universal valve will be of the built up type, a simple form of triple valve being the base. This will make it possible to install and operate the equipment, if desired, in stages by adding to the simplest form of valve, without discarding any of the valve portions, other valve portions as they are demanded by an advance in service requirements, up to the complete form of the device, which will be electro-pneumatically operated. The brake valve, type M-23, will embody improved features as compared with the ordinary automatic brake valve, such as limiting of brake pipe reductions to the predetermined desirable amount for service applications; prevention of overcharge of the equalizing reservoir; and quick response of brake pipe reduction by the combination of direct and equalizing piston exhaust ports. A supplementary reservoir is to be used to give high emergency brake cylinder pressure and graduated release as well as to assist the brake pipe in recharging the auxiliary reservoir. The compressor will be driven by a 1500-volt d. c. motor and is known as the D. K. type. It is of the same general design and construction as other Westinghouse compressors, but is especially rugged and adopted to meet severe operating conditions. The Westinghouse governor synchronising system will be used to insure equal division of compressor labor, thereby securing reliability of air supply and low expense for compressor maintenance. This will also be used on the locomotives. The brake equipment for the electric locomotives will be the Westinghouse no. 14 EL.

The Toronto Ry. and its proportion of cost of Subways.—The Board of Railway Commissioners has granted the Toronto Ry. permission to appeal to the Supreme Court against the Board's order to contribute to the cost of the subway built by reason of the elevation of the C. P. R. tracks across Avenue Road. The permission is granted on the following questions:—Whether the Board had power to make the order under the agreement of the Toronto Ry. with the City of Toronto of 1891; whether the company is not entitled to have the city furnish the company, in the exercise of its running powers, a street or highway known as Avenue Road, and whether, if such was the effect of the agreement, the company should have been ordered to contribute to the cost of the construction of the subway.

Winnipeg, Selkirk and Lake Winnipeg Electric Railway.

This company, which is a subsidiary of the Winnipeg Electric Ry., owns and operates a line from the northern boundary of the city of Winnipeg to Selkirk, near Lake Winnipeg, 21.44 miles; and a branch line, completed at the end of 1914, from Middlechurch to Stonewall, 16.67 miles, a total of 38.11 miles. The main line to Selkirk passes along the west bank of the Red River, while the branch line which was completed to Stony Mountain in 1913, and to Stonewall in Dec., 1914, runs in a nearly straight line northeasterly from Middlechurch, passing through the rural municipalities of St. Paul and Rockwood. For about five miles into Stonewall it parallels the C. P. R.

The right of way of the branch varies from 45 to 90 ft. in width and it is practically all owned by the company. At Stony Mountain there is a grade of 2.6% which is practically the only one on the line except for the Masters Junction subway. There are few curves on the branch, the most important being two of 16 degrees each. The only bridge structure is a subway at Masters Jct., which provides a crossing under the C. P. R. Lake Winnipeg Branch. This subway is about 250 ft. long, and is of heavy construction. The reinforced concrete work rests on pile foundations placed at 3½ ft. centres. The abutments are reinforced with steel rails. The subway is provided with 5% grades at either end, necessitating a drain of about half a mile long to the Red River. The track is laid with 60 lb. rails, A. S. C. E. specifications, laid on tamarack ties spaced 27 in. centres, with gravel ballast. The transmission system is carried on 45 ft. cedar poles. Power for both the main and branch lines is obtained from the Winnipeg Electric Ry. Co. at 2,200 volts, and is stepped up to 13,200 volts for transmission to the three substations located at Middlechurch, Lockport and Stony Mountain. At these stations the current is converted into d. c.

Connection is made at the northern limits of Winnipeg with the Winnipeg Electric Ry. lines.

Regina Municipal Railway Earnings, Etc.

Operating results for June, compared with those for June, 1914:

	1915.	1914.
Revenue	\$12,311 85	\$19,722 53
Operating expenses	13,558 46	17,362 14
Capital charges	9,137 58	7,475 52
Operating deficit	1,346 61	2,354 39
		(Surplus.)
Passengers carried	257,394	397,087
Expenses per car mile, without power	13.93c	15.02c
Expenses per car mile, with power	18.09c	20.03c
Power per k.w.h.	2.08c	2.00c
Platform wages per car hour	74.17c	76.52c
Expenses percentage of earnings, less capital charges	110.34%	
Expenses percentage of earnings, with capital charges	185.15%	

Rumored Purchase of the Chatham, Wallaceburg and Lake Erie Ry.—In regard to persistent rumors to the effect that the Hydro Electric Power Commission of Ontario was negotiating for the purchase of the Chatham, Wallaceburg and Lake Erie Ry. as a part of its projected electric railway scheme, Sir Adam Beck, Chairman of the Commission, is reported to have stated, recently, that no negotiations had been carried on and none were under way, in connection with the railway mentioned.

September 1915

February 1916

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Floor Plan, Lake Erie and Northern Railway Cars.

Height—rail to top of roof	12 ft. 11 1/4 ins.
Height—rail to underside of side sill	3 ft. 5 1/4 ins.
Centre to Centre of seats	2 ft. 8 ins.
Seating capacity	70
Size of axles	8 x 9 ins., Journal.
Diameter of wheels	36 ins.
Weight of motors	3,100 lbs. each.

The cars are of the monitor deck type of construction, with square deck sash and gothics, having side sash of the lifting type. Single body sash are provided in conjunction with a set of storm sashes for use during the winter only. Vestibule stops are fitted with three risers, and trap doors extend under the vestibule side doors for use with high station platforms if necessary.

The centre construction of the underframe is composed of two 8-in. steel channels 15 1/2 ins. apart, back to back and forming a box girder with top plate 1/4 in. thick and bottom plate 1/2 in. thick, both 20 ins. in width. This member absorbs all buffing and pulling strains, the draft rigging and spring buffing mechanism being rivetted directly to same. The entire load of the body is carried by the side girder, which is transmitted to the centre girder through angle butt bolsters. The 1/2 in. x 36 in. side girder plate is stiffened at the lower edge by a tension member, consisting of a 3 x 5 in. x 1/2 in. rolled steel angle, and at the upper edge a suitable steel bolt rail bar acts as a compression member. Additional flange area is provided by the usual bent angle side post

out interfering with the remainder of the flooring or the seats. No trap doors are provided over the motors.

The principal longitudinal framing members are of long leaf southern pine and full length of body, all other framing is of ash. The side framing is tied vertically between side plate and side sill by 1/2 in. diameter steel rods. The whole of the side framing is solid blocked on the exterior with soft pine 1/2 in. thick and surfaced to receive the sheathing, the latter being of poplar, tongued and grooved, with bevelled edges on the outside. The wooden roof framing is supplemented with steel car line over each wide pier, and so arranged that ample support is provided for pantograph bases at each end of car. No. 10 cotton duck, laid in white lead and linseed oil, is stretched over the roof boards and tacked in place, forming a waterproof covering.

Three stem type steel spring buffers are arranged to work in unison with Tomlinson no. 12 Master Car Builder's design of car coupler, the latter being located 34 1/2 ins. above rail when car is light.

Vestibules are designed to conform with standard railway car practice, the canvas doors, etc., being omitted, and a swing door provided at the end opening, in order that the vestibule may be used for a motorman's car on the motor cars, making it possible to convert any

Railway company's standard design of metal pilot is provided, one at each end of the car, supported from platform framing. Two 12 in. foot gongs are located, one at each end of car underneath platform floor for use of motorman. Westinghouse air brakes are furnished and fitted up to work in unison with an independent hand brake, the latter being operated by suitable lever in each vestibule. Three bar window guard rods, placed 3 ins. apart, and made of polished brass steel lined tubing, are provided for each end window, and on each main room and four in smoking room.

A lavatory is located, as shown on plan, side of swing door in body. Ten automatic ventilators are provided, six being placed in being equipped with dry hopper. A water cooler alcove is provided in corner of saloon partition. Instead of the usual metal cooler, an inverted glass water bottle scheme has been developed for these cars, at the suggestion of the railway company's general manager, Martin N. Todd. A suitable receptacle with proper tap and glass holder is installed underneath, through which water can be drawn as required.

The interior finish is carried out as follows:—Vestibule, plain mahogany; main room, plain mahogany, with inlay stripes; smoking room, plain quartered oak ceiling, three ply poplar veneer. A modified type of beam ceiling finish is developed for the main

February 1916

Electric Locomotives for Lake Erie and Northern Railway.

The L.E. & N.R. has received one of its 60-ton electric locomotives and the second is expected to be shipped by March 31. The principal dimensions are as follows:

Gauge, 4 ft. 8 1/2 ins.
 Distance between truck centres, 17 ft. 8 ins.
 Wheelbase, each truck, 6 ft. 8 ins.
 Wheelbase, total, 24 ft. 4 ins.
 Driving wheels, diameter, 36 ins.
 Journals, 5 1/2 x 10 ins.
 Width over all, 10 ft.
 Height to top of cab, 12 ft. 0 1/2 in.
 Height over all, 12 ft. 10 ins.
 Length, centre to centre of coupler knuckles, 37 ft. 6 1/4 ins.
 Weight, 120,000 lbs.

voltage across each is 750 volts. Their nominal rating is 75 kw. (100 h.p.).

The frame is of soft steel, cast in a single piece. The projections of the frame, to which the axle caps are bolted, extend over the axle, to a large extent relieving the axle cap bolts of the weight of the motors. At each end there is a large bored opening through which the armature, pole pieces and field coils may be removed. These openings are enclosed by housings, which will carry the bearings and oiling arrangements and are securely bolted to the frame. Tapped holes are provided in each housing

preventing vibration and chafing, and are protected from abrasion by metal coil shields.

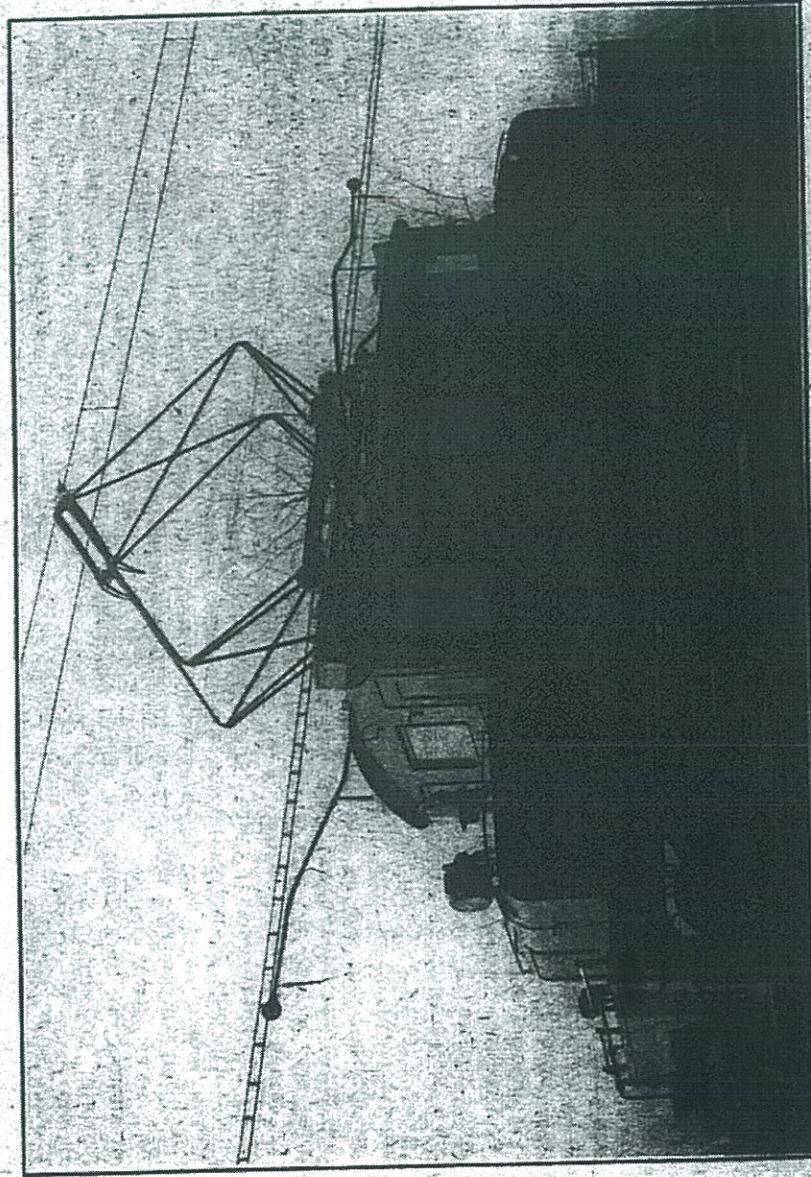
The commutating poles are of steel and are bolted to finished seats. The coils are wound, insulated and prevented from vibrating in substantially the same manner as the main field coils.

The brushholder is readily accessible for adjustment, cleaning and removal of carbons. Each holder is supported by two insulated pins, over which are placed porcelain bushings, which give a large creepage distance between the holder and the motor frame. The holders are arranged for radial adjustment to allow for wear of the commutator. The proper brush tension is provided by an adjustable spiral spring. A flexible shunt protects the springs for excessive current.

Both armature and axle bearings are arranged for oil and waste lubrication. Large waste pockets are provided having an opening into the low pressure side of the bearings. Separate oil reservoirs permit the fresh oil to be fed and filtered up through the waste to the bearing. The depth of oil in the reservoir may be easily gauged, so that the most economical height may be maintained. Oil guards and wiper rings prevent the oil from reaching the inside of the motor.

Two separate field windings are used on the main poles. By connecting the two field windings in series during acceleration, a relatively high tractive effort at low speed is secured with a small current. After all the resistance has been cut out, one of the field windings is cut out reducing the total active field turns. This gives a higher speed at any given current. While the full field connection is intended primarily for acceleration, it may be used to some extent for slow-speed running.

The motors have a unique system of ventilation. While air for cooling is normally provided by a motor driven blower, each motor has a fan at one end of the armature which will provide sufficient ventilation to the locomotive at three-quarter



for use in removing it. Access to the commutator and brushes is afforded by a large opening over the commutators. The cover

These locomotives are of the 8-wheeled, double-truck type, so equipped that they can be used in passenger freight or switching

These locomotives are of the 8-wheeled, double-truck type, so equipped that they can be used in passenger, freight or switching service. They will operate on 85-lb. rails, traversing curves of 40 ft. radius without a trailing load and of 130 ft. radius with a trailing load. In service they will handle standard freight cars and Canadian Pacific passenger cars, the maximum train load being about 800 tons.

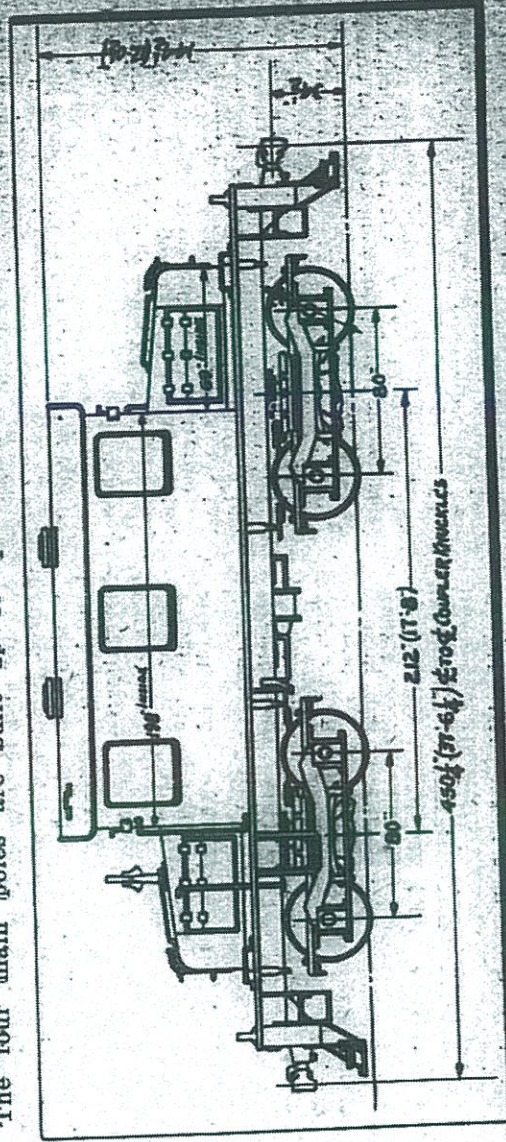
The trucks are of the equalized pedestal type, with rigid bolsters and half elliptic springs. This design of truck, it is claimed, combines simplicity of construction with ample strength, and with riding qualities which are satisfactory for locomotive service. The wheels are steel tired, with cast steel centres. The longitudinal frame, which consist of four 13-in. steel channels, which are strongly braced transversely above the truck centre pins. The bumpers are of cast iron, with push pole pockets, and are made in one piece with heavy lugs which are riveted to the frame sills. This provides a most substantial frame structure. Iron pilots and short shank M.C.B. couplers are applied at each end.

The locomotives are arranged for double end operation and they have central cabs with sloping hoods at either end. The cab is of steel, and is lined with wood for the comfort of the enginemen. Steps and hand-holds are arranged to conform to the Board of Railway Commissioners' requirements.

The motors are of a new type, styled 562-D-6, which has been developed by the Westinghouse Electric & Mfg. Co. for high potential direct current. Two motors are

for use in removing it. Access to the commutator and brushes is afforded by a large opening over the commutators. The cover is held by a tee bolt at one end and a locking device at the other. Tapped drain holes are provided through the bottom of the frame.

The four main poles are built up of



laminations of soft steel, riveted between end plates. The main poles are secured by studs extending through the frame and fitted with easily accessible nuts. The field coils are wound with flat copper strap, insulated between turns with asbestos ribbon. The outside is protected by a covering and the entire coil is impregnated with a heat conducting and water proofing insulating compound. The coils are held rigidly against the pole tips by stiff flat springs,

ventilation. While all the cooling is provided by a motor driven blower, each motor has a fan at one end of the armature which will provide sufficient ventilation to operate the locomotive at three-quarter capacity in case of accident to the blower. The control equipment used on the locomotives is HEB electro pneumatic and is practically the same as the high voltage

control outfits used on the motor cars.

The various main circuit connections are made by individual or unit switches, arranged compactly in a group, these switches being operated by compressed air. The magnet valves governing the flow of air to the switch cylinders are actuated by low voltage current from a storage battery. The switch group consists of a number of unit switches in a common frame. Each switch is provided with a powerful magnetic blow

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out coil, which effectually extinguishes the arc whenever the switch is opened. The switches are normally held open by strong coiled springs, contained in the cylinders, and are closed against the action of the springs by compressed air. Since the air under normal pressure exerts a force approximately double that of the spring, the action of the switch in either opening or closing is always quick and positive.

The master controllers are located at either end of the locomotive cab. Two levers are provided on the master controllers, one for notching up and one for reversing. The reverse lever is mechanically interlocked with the operating handle, so that it cannot be thrown unless the main drum is in the off position. There are four running positions on the drum, together with seven resistance notches in series and five in parallel. The running positions are short and full field in series and short and full field in parallel.

With forced ventilation, the motors and auxiliary apparatus has sufficient capacity to enable the locomotives to exert continuously a tractive effort of 9,200 lbs. with an average of 600 volts at each motor. With 750 volts at the motors the locomotive is able to exert a tractive effort of 13,800 lbs. for one hour at approximately 14 m.p.h. With 25% adhesion the locomotives are able to exert a maximum effort of 30,000 lbs. Their maximum speed is 40 m.p.h.

The equipment includes Westinghouse air brakes, which can also be operated by hand; air signal; one foot gong; two air whistles and a locomotive bell with air ringer.

The locomotives were ordered from the Canadian Westinghouse Co. and were built in the Westinghouse works in the United States.

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The Lake Erie and Northern Ry. has received final deliveries, from the Preston Car and Coach Co., of its order for rolling stock, comprising 4 full passenger motor cars, 2 combination passenger and baggage motor cars, and 2 trailer cars of the same type as the full passenger cars. These have already been described

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ng Stock Notes.

and illustrated in Canadian Railway and
Marine World.

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1916 p139

Calgary Municipal Railway Wage Schedule.

The Calgary, Alta., City Council has approved of a new wage schedule and agreement with the Calgary Municipal Ry. employees. The existing agreement expires in April, and the new agreement and schedule have been drawn up by the commissioners and by the committee of men representing the employees. The commissioners' report to the council sets out that the new wage schedule is the same as that now in force, except that there is a small increase in the case of men operating the one-man cars in the downtown district.

"The city has asked the men to forego the time and a quarter which has been paid for Sundays and time and a half for overtime. It has been a considerable burden to the system during these hard times having to pay this extra time on Sundays, consequently the service has been curtailed. In lieu of this concession made by the men we propose to operate a regular car service on Sundays (without extras), which should increase the revenue and will give the men six days work per week. This improvement of service will be of mutual benefit to the

Lake Erie and Northern Railway Operation.

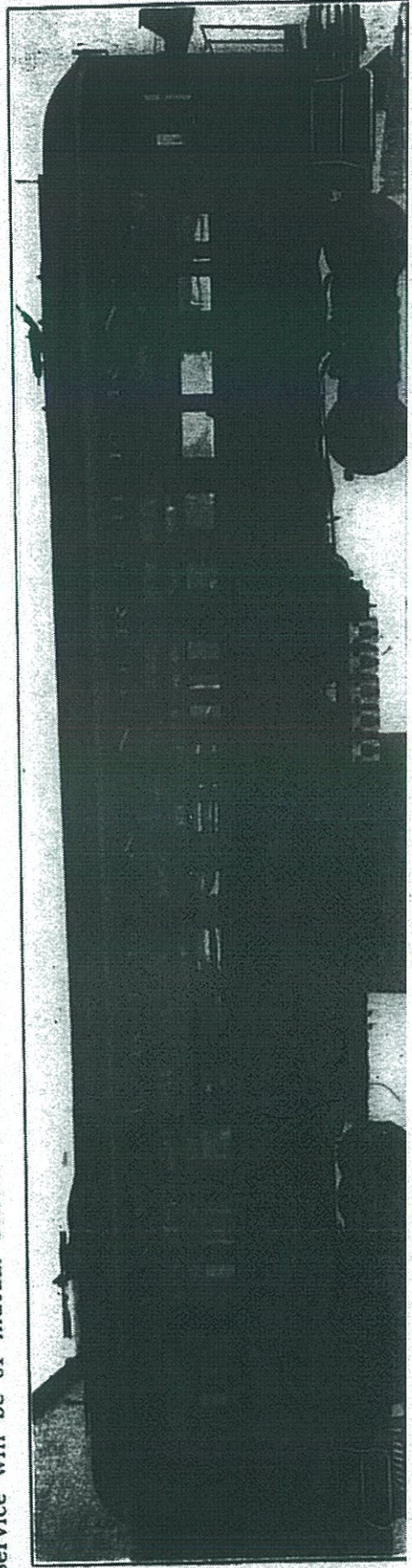
The L.E. and N. Ry. started operating the Galt-Brantford section of its new electric railway, Feb. 7, the first train leaving Galt at 7 a.m. The service at present is a two hour one, the cars leaving Galt on the odd hours and Brantford on the even hours. It said that as soon as a connection is made with the Dominion Power and Transmission Co's line from Brantford, which will probably be early in March, that the service will be made an hourly one. The service put in operation Feb. 7, was for passengers only, but it was expected to put a freight service in operation later.

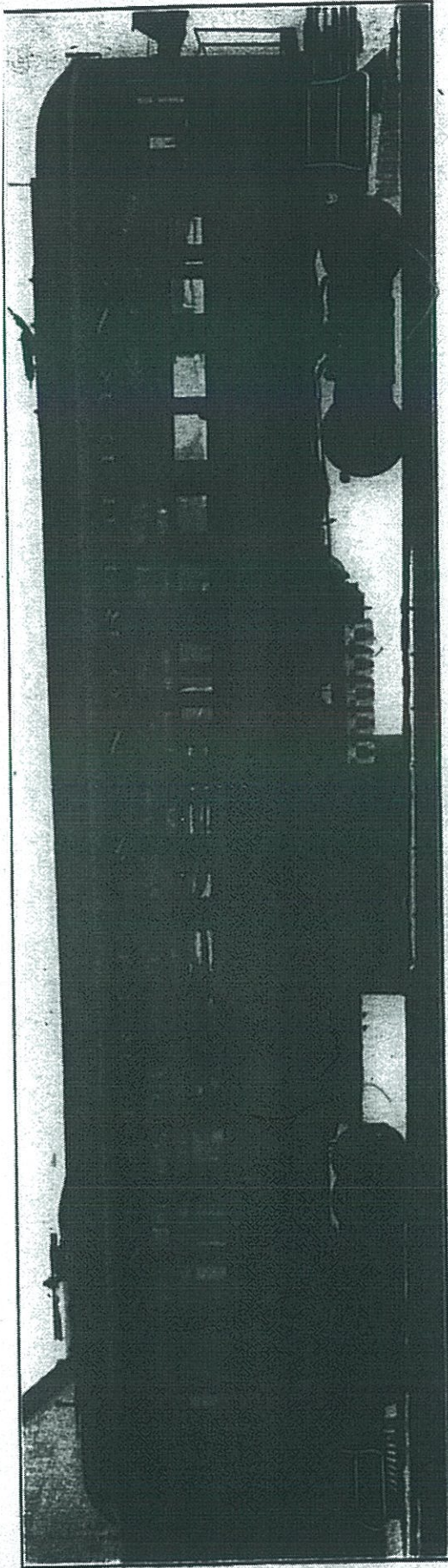
The line starts at the Soap Works in Galt, and follows the Grand River to Paris, running more or less parallel with the Grand Valley Ry., the right of way of which has been acquired by the company from the city of Brantford. In Paris the line leaves the river valley and follows the top of the bluff overlooking Paris from the east. On this bluff is the Paris station, which is built to C.P.R. standard plans. From Paris to Brantford the line continues to follow the Grand River, although there are a couple

each meeting attended, but the total remuneration receivable shall not exceed \$800 in any one year, while the chairman shall receive \$15 for each meeting attended, but not more than \$1,200 in any one year. The board to have exclusive control of the whole of the public utilities; to appoint a general manager, submit monthly reports to the Council, and pass all necessary bylaws, but to apply to the Council to pass bylaws for the raising of money for additional capital expenditures. The report of the committee as adopted has been forwarded to the council for consideration.

The Mayor of Edmonton, Alta., called the attention of the City Council on Feb. 2, to the fact that the outstanding bonds issued in respect of the Edmonton Radial Ry., amount to \$56,041 a mile of track, whereas under the powers of the act of incorporation of the E.R.Ry., the amount of the securities issued is limited to \$10,000 a mile. The matter was referred to the city charter committee to take the necessary steps to have it set right by the Legislature.

The Edmonton, Alta., city commissioners on Feb. 2, increased the salary of Superintendent Moir of the Edmonton Radial Ry. from \$150 to \$200 a month and approved of the estimates for the





Lake Erie & Northern Railway Car.

The illustration above shows one of the eight full vestibule interurban passenger cars put in service recently on the L. E. & N. R. and which were fully described in Canadian Railway and Marine World for February, pg. 67.

patrons as well as the street railway men." The Council approved the recommendation that the new schedule go into operation Feb. 1, the commissioners estimating that the saving effected by it would amount to \$5,256 during the year. The commissioners' report as to the wage schedule is as follows: "To employes in the service on this date and from the date other employes enter the service, under this agreement, after one year employment under emergency contract at 26c. an hour in any capacity on the system, and are qualified conductors and motormen, the wage schedule until the end of this agreement shall be, in-

of stretches where the river is not to be seen from the car. As Brantford is approached the line again runs close by the stream. The entrance into Brantford is through the Holmedale section of the city, and the only Brantford street to be crossed by the line is Mill St. Just before reaching the present terminus of the line at Lorne bridge, there is a freight shed, built on the style of the C.P.R. freight shed in Galt, and also a brick car barn, in which are also located the transformers.

Edmonton Municipal Railway Mat-

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current financial year. After all charges are met the estimates for the street railway provide for an anticipated deficit at the end of the year of \$95,829.77. A summary of the expenditures and revenue during the year is as follows: Revenue \$546,656; expenditure, operation, maintenance and power charges, \$356,778; capital charge, \$228,846.72; depreciation, \$25,557.05; bank interest and overdraft, \$31,200. The salaries of the permanent staff last year were \$38,857.30, and the sum asked for this year by the Superintendent was \$27,402, but the commissioners reduced the estimate to \$26,931.50. Motormen's and conductors' salaries amount to \$164,198.70, against

MARCH 1916

...um be submitted for his consideration...

Lighting of Lake Erie & Northern Ry. Cars.—The article describing the L. E. & N. R. passenger cars in Canadian Railway and Marine World for February contained the following sentence in referring to the lighting fixtures. "Supplementing the above, a number of Crouse-Hinds type J.R.R.H. hoods, with Crouse-Hinds pendants No. 8294." The Safety Car Heating & Lighting Co. advises us that this sentence should have read as follows: "Supplementing the above a number of Crouse-Hinds type JRRH hoods with Safety Car Heating & Lighting Co. pendants No. 8294."

G.T.R. officials and employees are being asked to give one day's pay to the Canadian Patriotic Fund in Feb., May, Aug. and Nov. this year.

Canadian and United States Railways

1916 p115

removed. (Sept. 1915, pg. 359.)

Hamilton & Brantford Ry.—A new shelter has been erected at the Murray St. crossing, Brantford, Ont.

We are officially advised that the question of physical connection with the Lake Erie & Northern Ry. in Brantford, and the construction of a joint station there is being arranged for. (See Lake Erie & Northern Ry.)

Lake Erie & Northern Ry.—A press report states that it is expected that the section of this railway between Brantford and Port Dover, Ont., will be opened for traffic, May 15. This will give a through line operated by electricity, Galt to Port Dover, 50.3 miles.

A contract has been let to Schultz Bros. Co. for the erection of a station building at the south end of Lorne Bridge, Brantford, which will be used jointly with the Hamilton & Brantford Ry. The estimated cost is about \$40,000. The agreement for the building and use of this station has not yet been formally approved by the H. & B. Ry., the Brantford City Council and the Board of Railway Commissioners. (April, pg. 156.)

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Union Electric Railway Station for Brantford.

The Lake Erie & Northern Ry., a subsidiary of the C.P.R., and the Brantford & Hamilton Ry., a subsidiary of the Dominion Power & Transmission Co., entered into an agreement recently to build a joint station in Brantford, Ont., and, as already stated in Canadian Railway and Marine World, the contract for its erection was let to Schultz Bros. Co., contingent on satisfactory arrangements being made with the city council and subject to the Board of Railway Commissioners' approval.

The plans as shown in the accompanying illustration provide for a one story building, located over the tracks at the southwest corner of Colburn and Water Streets, with 38 ft. frontage on Colburn St. and 76 ft. on Water St., and tracks to pass beneath the main floor of the

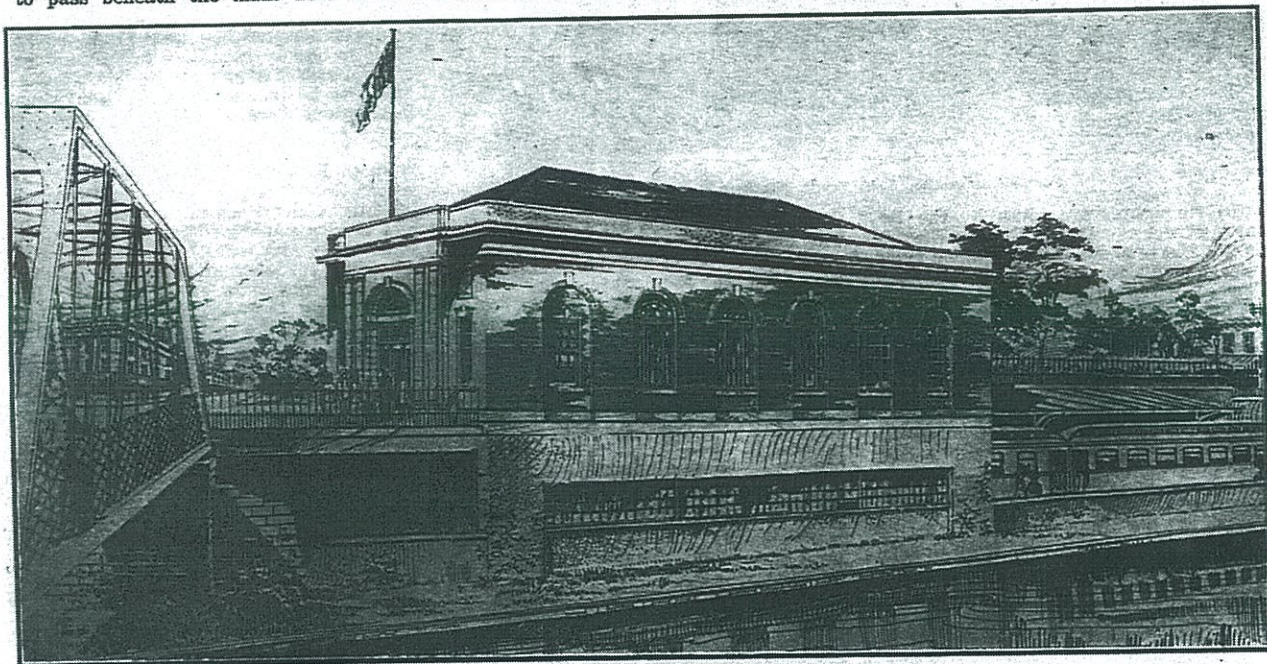
The Brantford City Council approved of the station plans, with a stipulation that the Lake Erie & Northern Ry. buy a strip of land opposite the station site. This the company refused to do, holding that it was not necessary, and the starting of work was deferred in order to bring the matter before the Board of Railway Commissioners.

One-Man Car Operation in Lethbridge.

The Lethbridge Municipal Ry. for the year 1913 showed a net loss on operating of \$4,147.75, and after providing for debenture and other interest and sinking fund there was a total deficit for the year of \$30,831.22. For the year 1914 the loss on operating was \$3,477.14, and after providing for debenture interest, sinking fund, taxes and fire insurance there was a total deficit for the year of \$37,202.33.

Increase of Toronto Railway Co's Capital.

A special general meeting of shareholders was held in Toronto, May 29, to sanction a proposed increase of capital stock by the creation of 30,000 new shares of \$100 each, making the aggregate capital stock \$15,000,000. The circular calling the meeting states that the increase is necessary to provide funds to meet the company's financial requirements and for financing the requirements of subsidiary companies for necessary extensions and betterments of their properties, in accordance with the company's statutory powers and for reasons more particularly indicated in accompanying memorandum. It is the directors' intention to have the new shares available for subscription pro rata by the shareholders, and if not subscribed, the same to be offered to the public.



Station for Lake Erie and Northern and Brantford & Hamilton Railways at Brantford, Ont.

building, with platforms, express and baggage accommodation at the lower level. The design is New England, Colonial style; red brick, with limestone trimmings and green slate roof. The main floor, at street level, with entrance from Colburn Street, is to contain a main waiting room 35 x 50 ft., women's retiring room and lavatory, men's lavatory and ticket and telegraph offices. Two stairways will lead from the main floor to the track platforms. Baggage and express rooms and steam heating equipment will be located in a separate extension 14 x 76 ft. on the lower or track level. This extension will abut the retaining wall of Water St. and will be accessible for teams at the lower end of the street. The interior of the building will be finished in Canada ash; the walls and ceilings of main waiting room to be plastered and finished with plastered cornice. The floors will be concrete. The lavatories will have a marble wainscot 6 ft. high. Seats will extend the full length of the two outside walls in the waiting room, except in space occupied by the ticket and telegraph offices. The approximate cost is stated as \$25,000.

For the year 1915 there was a surplus from operating of \$3,677.64, and after providing for debenture interest, sinking fund, taxes and insurance, which totalled \$33,383.37; there was a net deficit of \$29,705.73 for the year.

Commissioner. Freeman informs us that the change in operating results from a deficit to a surplus was undoubtedly owing to the one-man car operation which was started June 1, 1914. Financial conditions generally were worse in 1915 than in the previous year and had not the one-man car operation been started, the service would probably have had to be discontinued.

Peterborough Radial Ry. — As announced in Canadian Railway and Marine World for April, the Ontario Government bought the Electric Power Co., Ltd., properties in Eastern Ontario, including the Peterborough Radial Ry. By an order in council passed May 5, the control, administration and management of the properties has been vested in the Hydro Electric Power Commission of Ontario, which is to carry on the undertakings as a separate branch of its business.

The accompanying memorandum above referred to states that the Toronto Ry. Co. has express power by statute to acquire the shares and securities of the following companies and to lend its credit to them or guarantee their bonds or other securities or obligations, viz., Toronto & Mimico Ry. Co. (now Toronto Power Co., Ltd.), Toronto & Scarborough Electric Ry., Light & Power Co., Metropolitan Ry. Co., Schomberg & Aurora Ry. Co., Toronto & York Radial Ry. Co.

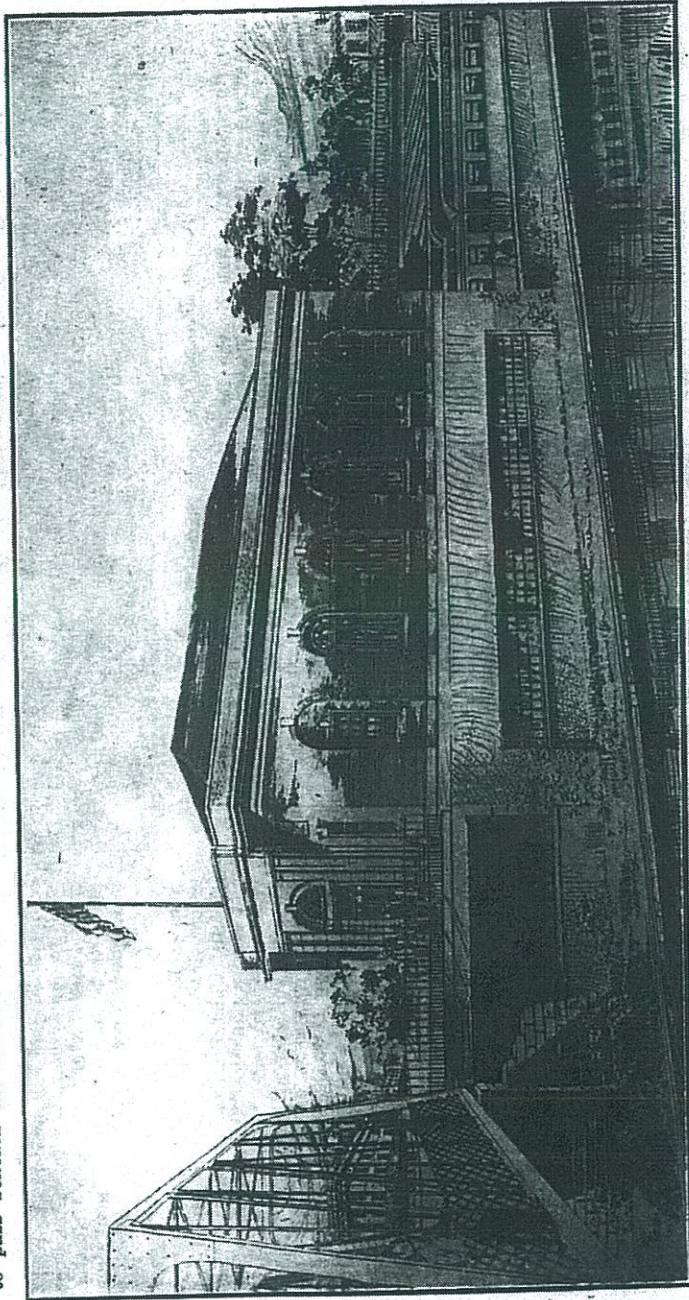
In reference to the various bonds issued the memorandum states that among other purposes part of their proceeds were used to purchase the Toronto & York Radial Ry.'s share capital, to build extensions and make betterments to its various divisions; also to purchase the Schomberg & Aurora Ry. Co.'s share capital and to build and equip the line.

The memorandum adds: "In addition to accomplishing the main object—i.e., assuring an adequate supply of power for the Toronto Ry.—steady progress has been made in the sale of power. In 1915 the gross sales of power were \$1,463,689, and in 1914 these are expected to reach a total of \$1,800,000. The gross revenue

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Station for Lake Erie and Northern and Brantford & Hamilton Railways at Brantford, Ont.

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Electric Railway Projects, Construction, Betterments Etc.

British Columbia Electric Ry.—A press report states that spur line is being built on the company's Fraser Valley line, between Mount Lehman and Gifford, to Cook's Mill, for logging purposes. The hauling will be done from the landing stage at Mount Lehman, over the main line and spur, at night. (April, pg. 156.)

The British Columbia Electric Ry. is completing the construction and equipment of an electrical receiving station near Horne-Payne station, on its Burnaby Lake line, the construction of which was temporarily discontinued about two years ago. (April, pg. 156.)

Buffalo, Fort Erie Ferry & Rd. Co.—The Ontario Legislature has passed an act incorporating this company. (April, pg. 156.)

Charlottetown Street Car Co.—The Prince Edward Island Legislature was asked recently to incorporate a company with this title to establish a line of street cars to be operated by gasoline and electric power or either and to be motor busses or passenger vans, with a carrying capacity of 15 passengers or upwards and to be operated in the streets of Charlottetown and Common, including Victoria Park Roadway, the roads of the Royalty of Charlottetown and such other roads in the province as might be from time to time available by law. Vehicles to be run every day in the week. It was also stated that the city of Charlottetown be empowered to exempt the company from civic taxation for 20 years and that the exclusive right to operate such vehicles or those of a like nature, be granted in the City and Royalty for 25 years. The provisional directors named were:—D. J. Riley, A. A. Alley, J. McKenna, B. Rogers and C. MacLure. After some discussion the bill was dropped May 3.

The Calgary Municipal Ry.'s temporary line of 2½ miles of single track to the Sarcee military camp is being completed rapidly and was expected to be opened on May 15. The Calgary Corporation had on hand 150 tons of rails and bought 100 tons 60 lb. 60 ft. rails which had been obtained from the receivers of the South East Calgary Corporation. (May, pg. 200.)

Lake Erie & Northern Ry.—A contract is reported to have been let to Schultz Brothers & Co., Ltd., Brantford, for the erection of a brick station on Colburn St., 36 x 76 ft., to be used jointly by the L. E. & N. R., and the Brantford & Hamilton Ry.

The electric installation on the section of the line from Brantford to Port Dover was expected to be completed as far as Simcoe by May 30, and the line to be ready for opening for traffic some time in June. (April, pg. 156.)

Montreal & Southern Counties Ry.—The extension from St. Cesaire to Gran-

outside the Montreal South area are:—Chambly Basin, mileage 15.91 from McGill St.; Chambly Canton, mileage 17.27; Richelieu, mileage 18.14; Marieville, mileage 22.48; Rougemont, mileage 27.56; St. Cesaire, mileage 31.27; Abbottsford, 38.03; Granby, mileage 46.63. Sub power stations have been erected at St. Lambert, Chambly, Rougemont and Granby. It is proposed later on to extend the line to Sherbrooke, and to other points in the Eastern Townships. (April, pg. 156.)

Montreal Tramways Co.—The Board of Control has asked the company to extend its service from Park Ave. to the C.P.R. station at Mile End, over the tracks already laid but not utilized. (Feb., page 73.)

Nelson St. Ry.—Early in the year the Nelson, B.C., City Council instructed H. P. Thomas, City Electrical Engineer, who acts in a supervisory capacity in connection with the Street Railway Department, to prepare plans and estimate for extending the city car lines along Baker St. from Josephine to Cedar St., and on Vernon St. from Cedar to Josephine St., a total distance of about half a mile. We are officially advised that it has been decided not to go on with the proposed extension at present.

Niagara Falls Park & River Ry.—The work being done to ensure safety, which was undertaken in consequence of the serious accident at Queenston Heights, Ont., July 7, 1915, is reported to be largely completed. A. B. Ingram, Vice Chairman, Ontario Railway and Municipal Board, made a trip of inspection over the line, May 11, and is reported to have stated that the work so far was satisfactory, and that it would be fully completed before the summer traffic commenced. The Board will issue an order thoroughly covering the whole matter.

The Mount McKay & Kakabeka Falls Ry. has been granted permission by the Ontario Legislature to use steam as an alternative motive power to electricity on its railway, and has been given an extension of time to build the uncompleted portion. (April, p. 156.)

Ottawa Electric Ry.—We are officially advised that the laying of a new asphalt pavement on Rideau St., between Sussex and Waller streets, has been commenced by the city council. As a part of this work the company is relaying the section with T rails, 108 and 115 lbs. (May, pg. 200.)

Toronto Civic Ry.—The Toronto City Council has accepted the United States Steel Products Co.'s tender to supply a 3-track car barn special track work layout for St. Clair Ave. civic car barn extension at \$2,120. The City Council has also accepted J. J. Gartshore's tender for purchase of old rails and switches as follows: about 200 long tons of 30 lb. rail at \$21 a ton; 20 no. 5 30 lb. switches at \$6 each; 4 long tons of fish plates at

laid on Lansdowne Ave extension from St. Clair Ave to the C.P.R. tracks.

Winnipeg Electric Ry.—The West Kildonan, Man., Municipal Council was informed May 12, that the company would proceed immediately to lay a second track on its line from the city limits to Kildonan Park. (April, pg. 156.)

Brandon Municipal Railway Construction Costs.

The following figures show the cost of constructing 1.27 miles of track in 1915, using 60 lb. rail with gravel ballast, the work being done under the supervision of T. Boden, Superintendent:—

113.57 gross tons 60 A.S.C.E. rails.....	\$ 5,337.80
Tamarac ties	1,938.00
Angle bars	172.20
10 in. rail bonds	176.00
62 in. rail bonds	16.00
Spikes	165.00
Bolts	28.00
Special work	2,995.00
Miscellaneous	25.00

Total cost of track material.....	\$10,853.00
Ballast, excavation, tracklaying, tamping and surfacing.....	3,034.00
Supervision	200.00

Total cost of track construction.....	\$14,087.00
Total cost of track material per mile, not including special work.....	\$ 6,580.00
Labor and construction.....	2,370.00

Total cost of track construction per mile	\$ 9,050.00
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The following figures show the cost of overhead construction, including special work, for 1.34 miles:—

Material	\$ 1,343.00
Labor pay	497.00
Supervision	32.00

Total cost of overhead construction..	\$ 1,872.00
Total cost of track and overhead construction	\$15,959.00
Cost of electric line material per mile, not including special work and feeder ..	\$ 900.00
Labor and supervision.....	370.00

Total per mile.....	\$ 1,270.00
Cost of labor and supervision for electric line and track per mile.....	\$ 2,740.00
Total cost of electric line and track construction per mile, not including special work	10,320.00

At the end of 1913 the Brandon Municipal Ry. had 3.12 miles of track in concrete and 5.92 miles in gravel ballast, a total of 9.04 miles, the cost of labor and supervision to construct which was \$54,460. This does not include the cost of putting in concrete, which was done by contract. On the basis of cost of construction 1914 and 1915, which is the same as previous construction, the cost would have been as follows:—

LABOR AND SUPERVISION TO CONSTRUCT ELECTRIC LINE AND TRACK.

Concrete foundation, 3.12 miles.....	\$ 5,000.00
Gravel ballast, 5.92 miles.....	16,229.00
	\$21,229.00
Contingencies and extra labor on specials	5,000.00
	\$26,229.00

These figures are significant and show apparently that a large amount of money was wasted in the original construction.

W. H. Dinsmore, whose appointment as Traffic Superintendent, British Columbia

(May, pg. 200.)

Lake Erie & Northern Ry.—A contract is reported to have been let to Schultz Brothers & Co., Ltd., Brantford, for the erection of a brick station on Colburn St., 36 x 76 ft., to be used jointly by the L. E. & N. R., and the Brantford & Hamilton Ry.

The electric installation on the section of the line from Brantford to Port Dover was expected to be completed as far as Simcoe by May 30, and the line to be ready for opening for traffic some time in June. (April, pg. 156.)

Montreal & Southern Counties Ry.—The extension from St. Cesaire to Gran-

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Electric Railway Projects, C Etc

Calgary Municipal Ry.—We are officially advised that an additional half mile of track has been built to the military camp at the Sarcee Indian Reserve, for army freight and supplies, and an additional half mile of sidings to the main track. The main line to the camp, which connects with the city system at Killarney St. was opened for passenger service at the end of May. The extension mentioned above is for freight purposes only, and did not necessitate very much grading. (June, pg. 242.)

Hamilton St. Ry.—The Hamilton, Ont., City Council has been advised by its Street Railway Committee that the company is prepared to lay tracks on Kenilworth Ave., from Barton to Burlington St., and that it was expected to start work by the end of June. (April, 1915, pg. 147.)

Lake Erie & Northern Ry.—The first car over the extension of this line from Brantford to Simcoe, 23.5 miles, was run May 29, and the regular service was started May 30. The cars run right through from Galt to Simcoe, 43 miles, a car running in each direction every two hours. The eight-mile extension from Simcoe to Port Dover is expected to be opened for traffic about the middle of July. The erection of the overhead work on this section is being proceeded with.

The station at Simcoe is a commodious building, containing a large waiting room, ticket office, baggage room and their necessary conveniences.

It was stated in our last issue that the Brantford City Council had approved of the plans for the station to be built in Brantford for the Lake Erie & Northern and the Hamilton & Brantford Railways, with the stipulation that the L.E. & N. buy a strip of land opposite the station site in order to widen Water St., and to deed it to the city for highway purposes, the city offering to give in exchange a small piece of land to the west of the triangular portion of Water St., which will also be used by the railways. The L.E. & N.R. objected to this and went to the Board of Railway Commissioners, which decided, June 9, in favor of the city's contention. As the railway clearance under the bridge is 18 ft. and the station clearance 17 ft., and as the line is electrically operated, and it will not be necessary to have men on the top of the cars, the order provides for the clearance required of 17 ft. on the company giving the usual undertaking that men will not be allowed on the top of cars. We are officially advised that the building of the station is being proceeded with. (June, pg. 240.)

P295

Electric Railway Pr

The Lake Erie and Northern Ry., pending the completion of and electrification of the line into Port Dover, Ont., has been running a steam service between Simcoe and Port Dover, to take care of the holiday traffic. On July 22 the company commenced running through electric cars from Galt to Port Dover, giving a 2 hourly service. At present the cars run only to Main St., Port Dover, but it is said the line will be complete to the lakeside in a few weeks.

In connection with the opening of the line, the development of the lake carrying trade at Port Dover is under consideration. A deputation representing the company, and residents of the district, waited on the Minister of Public Works at Ottawa, July 4, and urged the construction of piers and the doing of certain dredging at the harbor. The plans prepared some time ago for the port showed works estimated to cost \$250,000, for the commencement of which a vote of \$50,000 is available. Surveys are reported to have been made to do some temporary work—the nature of which was not stated. It is said that the L. E. & N. Ry. proposes, if the necessary facilities are provided, to operate car ferry steamer between Port Dover and some U. S. port.

London & Port Stanley Ry.—The new station in London, Ont., situated just south of the G.T.R. station, was opened

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way and Municipal Board was unable to act as arbitrators in the dispute.

Lake Erie & Northern Ry.—The Brantford, Ont., City Council granted a permit, Aug. 11, for the erection of the new Union station, an illustrated description of which appeared in our June issue, pg. 240. The estimated cost of the building is \$25,000, the contractors being Schultz Bros., Limited. The work of putting in the foundations has been in progress for some time. The permit was issued subject to the company carrying out the Board of Railway Commissioners' award in reference to the transfer of certain lands to the city by the company. The station is to be used by the Hamilton and Brantford Ry. as well as by the L. E. & N. R.

The regular operation of trains on the line into Port Dover by electric power was started Aug. 1. At a meeting of the Port Dover Council, July 31, plans were approved for the bringing of the railway into the town by St. Patrick St. down to a point opposite the park, instead of the proposal of having a Union Station with the G.T.R.. The proposition is being discussed with the company. (Aug., pg. 338.)

London & Port Stanley Ry.—A press

Gale is General Manager, Hull, Quebec.
(April, pg. 156.)

Lake Erie and Northern Ry.—The Board of Railway Commissioners was reported Sept. 12, to have decided in favor of the contention of the Brantford, Ont., City Council, in respect of certain matters in dispute. The most important of these matters was the company's refusal to acquire an additional 7 ft. of available ground for the widening of Water St., adjacent to its building. (Sept., pg. 378.)

London and Port Stanley Ry.—In reference to the reported building of a sec-

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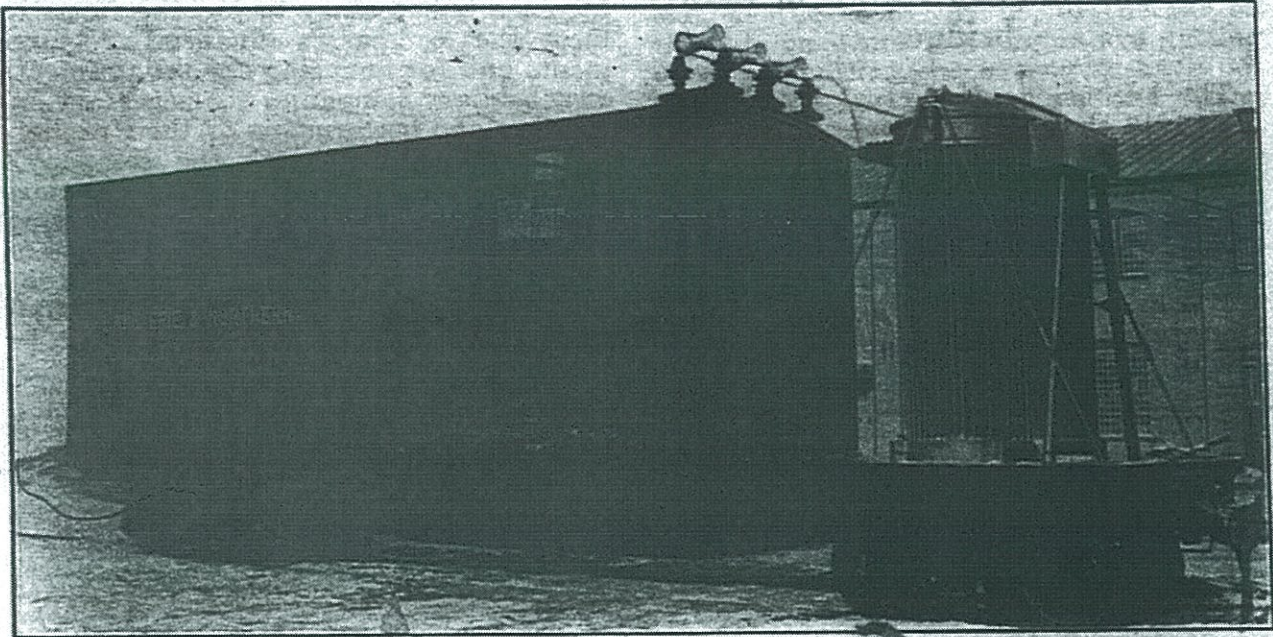
JUNE, 1916.]

CANADIAN RAILWAY AND MARINE WORLD.

Tramways Co., for first main track mileage and for total car mileage, in some of the Department's tables, are stated to be for 1911, while in the table of earnings and expenses the figures are evidently taken from the company's annual report for the year ended June 30, 1915, and which were given in Canadian Railway and Marine World for September, 1915, page 355.

Portable Substation on Lake Erie and Northern Railway.

The Lake Erie & Northern Ry., which has been in operation for some little time between Galt and Brantford, Ont., and is now completed to Port Dover, has put in operation a portable substation for high voltage direct current generation, two



Portable Substation, Lake Erie & Northern Railway

(3) No figures are given by the Department for the Pictou County Electric Co. We have shown the first main track mileage as 9.1, the latest figures we have. Figures in regard to operation, etc., are not available.

(4) No figures are given by the Department for the St. John Ry. At Dec. 31, 1915, it had 18 miles of main track which we have included in our table. The

illustrations of which are given herewith. The substation is built on a standard steel, 42 ft. flat car of 60,000 lbs. capacity. The 555 k-v-a, three phase transformer is of the outdoor type, self cooled, and is mounted in the open. The primary

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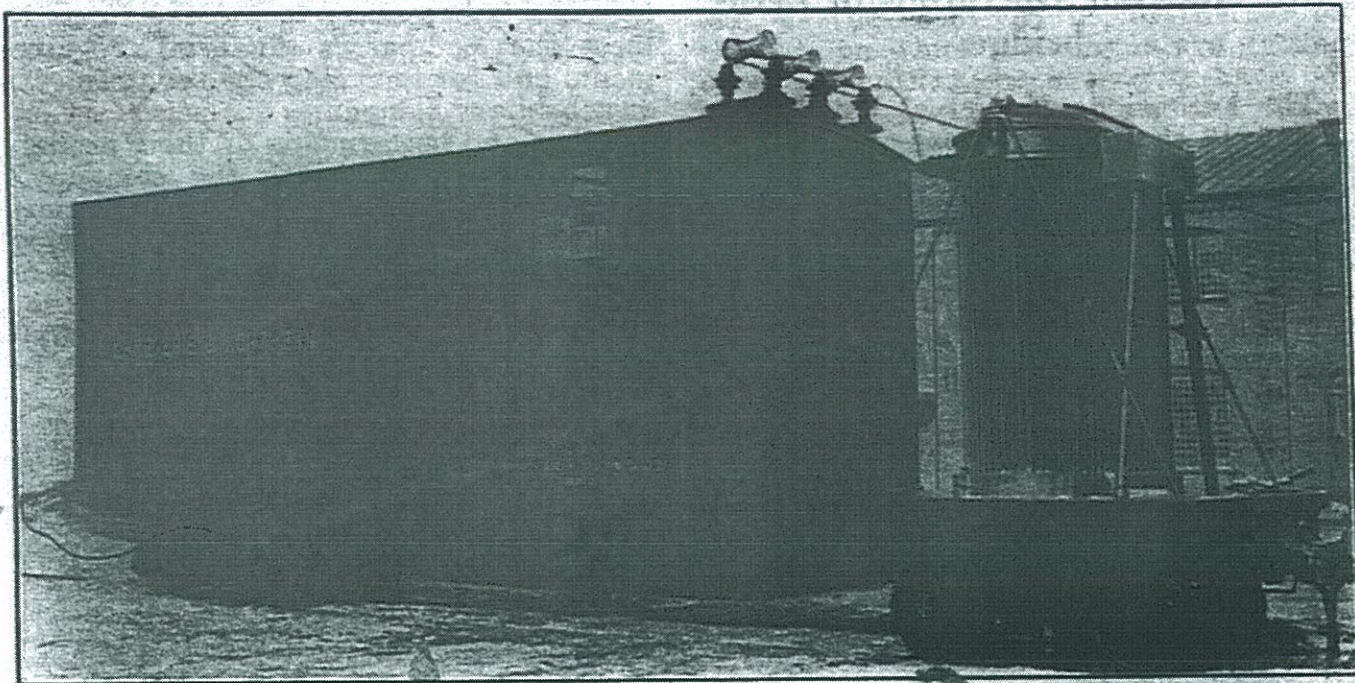
JUNE, 1916.]

CANADIAN RAILWAY AND MARINE WORK

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Interior of Portable Substation, Lake Erie & Northern Railway

of the transformer is arranged for a supply of 25 cycle energy at 6,600, 13,200 or 26,400 volts. The secondary leads are carried in conduit. The interior view shows the main oil switch and oil switch operating panel, together with the series relays; the high tension a. c. portion of the apparatus being separated from the rest of the cab by a wire screen. The starting switch for the rotary converter is shown to the right of the illustration, and the rotary converter panel is shown

city and the Montreal Tramways co-operated to clear the streets, and referred to the organization under A. Gaboury, Superintendent of the railway, as "wonderful." The cost of cleaning sidewalks was 7½c. a running foot, and clearing the roads cost \$2,500 a mile.

The G.T.R. sued the Sarnia St. Ry., at Sarnia, Ont., May 16, for damages to a train which left the track at a crossing of the street railway. Judgment was reserved.

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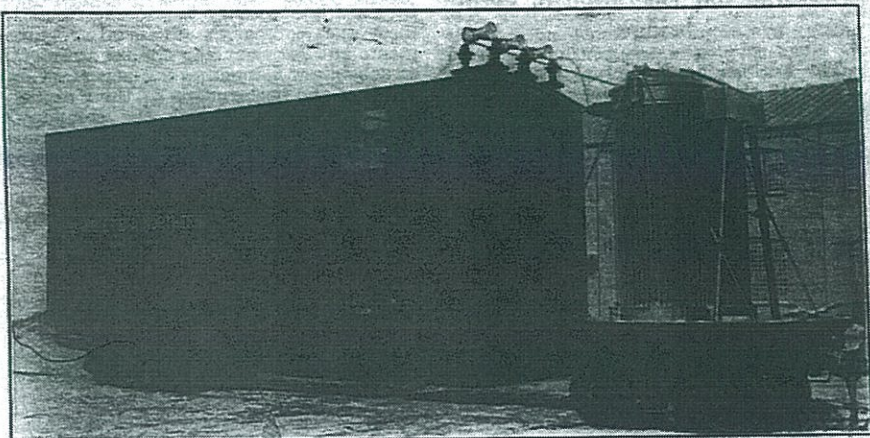
Portable Substation on Lake Erie and Northern Railway.

The Lake Erie & Northern Ry., which has been in operation for some little time between Galt and Brantford, Ont., and is now completed to Port Dover, has put in operation a portable substation for high voltage direct current generation, two

at the left of the photo.

The converter is 500 kw. capacity, 1,500 volts d.c. As it is a commutating pole rotary converter, the brushes are all raised during starting, with the exception of two narrow pilot brushes. There is, on the left of the frame of the rotary converter, a lever for raising and lowering the brushes, and a small semaphore at the top of the frame indicates the position of the brushes, so that the operator can tell at a glance whether the brushes are raised or down. The field break up switch is mounted, for convenience, as the bearing pedestal. The complete rotary converter is mounted on an adjustable base, which permits of ready adjustment for levelling in case the portable substation is standing on a grade.

The portable substation was built by Canadian General Electric Co. at Peterborough, Ont. When it was completed the railway company was not ready to take delivery and it was necessary to leave it standing outside during extremely cold weather. Although no attempt was made to supply excitation to the outdoor transformer during that period, it was found to be in excellent condition when instructions were received for shipment.



Portable Substation, Lake Erie & Northern Railway

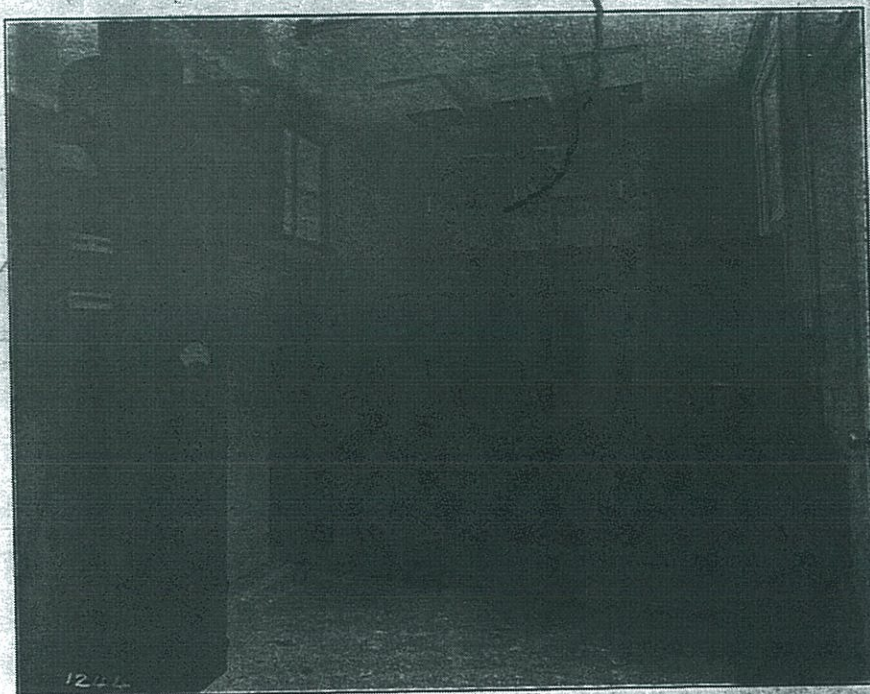
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(4) No figures are given by the Department for the St. John Ry. At Dec. 31, 1915, it had 18 miles of main track which we have included in our table. The gross earnings of its street railway for the year ended Dec. 31, 1915, were \$242,217.31 and the operating expenses \$250,714.34, a deficiency of \$8,497.03. The fare passengers carried were 5,541,417.

The total first main track mileage shown in the Department's report is 1590.29. Adding to this the Pictou County Electric Co., 9.1 miles, and the St. John Ry., 18 miles, as given in our table, makes a total of 1,617.39 miles.

illustrations of which are given herewith. The substation is built on a standard steel, 42 ft. flat car, of 60,000 lbs. capacity. The 555 k-v-a, three phase transformer is of the outdoor type, self cooled, and is mounted in the open. The primary

Snow Removal in Montreal.—At the recent Good Roads Congress in Montreal recently, Chief Engineer Mercier of that city read a paper on "Snow Removal in Montreal." He said that the average snow fall for 41 years had been 119 in., and there was snow on 79 days in 1915, with rain on 28 of these days. Mr. Mercier described the methods by which the



Interior of Portable Substation, Lake Erie & Northern Railway

Platforms for Interurban Railways.

At the Ontario Legislature's last session, G. H. Gooderham M.L.A. for South Toronto, introduced a bill to amend the Ontario Railway Act by adding a section as follows:

"106a.—(1) Electric railways operated on the side of a highway shall at all stopping places fixed by the bylaws or regulations of the company, or by order of the Board, construct on the side of the highway between the tracks and the line of the highway platforms for the use of passengers getting on or off any car of the company, and the company shall not allow any person to get on or off a car except from the side on which the platform is constructed.

"(2) Such platforms shall be constructed in accordance with plans and specifications approved of by the Board."

The bill was killed by the Legislature's Municipal Committee, to which it was referred.

Morrisburg & Ottawa Electric Ry.—A special general meeting of shareholders was called to be held at the company's office, Ottawa, on May 30 to forfeit all stock on which any arrears for calls or interest were due.

of the transformer is arranged for a supply of 25 cycle energy at 6,600, 13,200 or 26,400 volts. The secondary leads are carried in conduit. The interior view shows the main oil switch and oil switch operating panel, together with the series relays; the high tension a. c. portion of the apparatus being separated from the rest of the cab by a wire screen. The starting switch for the rotary converter is shown to the right of the illustration, and the rotary converter panel is shown

city and the Montreal Tramways co-operated to clear the streets, and referred to the organization under A. Gaboury, Superintendent of the railway, as "wonderful." The cost of cleaning sidewalks was 7½c. a running foot, and clearing the roads cost \$2,500 a mile.

The G.T.R. sued the Sarnia St. Ry., at Sarnia, Ont., May 16, for damages to a train which left the track at a crossing of the street railway. Judgment was reserved.

Electric Railway Notes.

The Dominion Power & Transmission Co., Hamilton, Ont., has ordered a snow sweeper from Preston Car & Coach Co.

The Lake Erie & Northern and the Hamilton and Brantford Ry. joint station at Brantford, Ont., was opened for business Dec. 16.

The Three Rivers Traction Co. has re-

which there is a draw or swing span, has decided to adopt special protective devices. The Granville St. bridge is to be provided with them at once, and it is expected that the Connaught St. swing span over the Main St. bascule bridges will be equipped later. These devices are in addition to those already provided by the British Columbia Electric Ry.

It is reported that Montreal ratepayers will vote in September next as to whether

of the Dominion Power and Transmission Co. He was one of the founders of the old company which developed power at Decew Falls, acting as Superintendent and Paymaster. Prior to taking an interest in electrical matters he was in the G.T.R. service at Midland and Niagara Falls.

Albert E. Pickering, who was appointed Manager, International Transit Co., Sault Ste. Marie, Ont., recently, was born at

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other and as present work.

The Lake Erie & Northern Ry., on Jan. 22, put a new time table into effect, under which the first northbound train leaves Brantford at 7.47, instead of 8 a.m., and the first southbound train at 7.50. There is no other alteration of the northbound trains, but all southbound trains except the first leave Brantford at 15 minutes before the hour, instead of on the hour as previously.

The Edmonton, Alta., City Council had soldiers' wives and children transported free on the Edmonton Radial Ry. for a

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Electric Railway Projects, Construction, Betterments, Etc.

Lacombe & Blindman Valley Electric Ry.—The Alberta Premier stated in the Legislature, Mar. 9, that 35 miles of grading had been completed from Lacombe along the valley of the Blindman River to Rimbey. The government had paid out of the funds realized by the sale of the guaranteed securities \$128,647.07. In default of the company paying interest on the bonds, the government paid to Nov. 6, 1916, \$20,517.16. The government holds a first mortgage on the railway property and franchise. (May, 1916, pg. 189, and Apr., 1916, pg. 158.)

London & Port Stanley Ry.—The City of London is applying to the Ontario Legislature for authority to pass bylaws without obtaining the consent of the ratepayers to issue \$25,000 of debentures to provide a freight motor car for the railway, and to confirm bylaw 5439 providing for the issue of \$75,000 of debentures for the London Railway Commission.

A suggestion has been made that the London Railway Commission's project to build a grain elevator at Port Stanley should be abandoned, and that 100 freight cars should be bought instead. P. Pockock, Chairman of the Commission, is reported to have said, Mar. 6: "We could use more freight cars, and perhaps that will be the next thing we will go after, when we have an elevator—an elevator is the need of the moment." The city council, on Mar. 5, decided to issue \$100,000 of debentures for the erection of the elevator and has applied to the Ontario Legislature to grant it the necessary authority to do so without a vote of the ratepayers. (Feb., pg. 73.)

Lake Erie and Northern Ry.—The new Union Station in Brantford, Ont., of which an illustrated description was given in Canadian Railway and Marine World, Aug. 1916, pg. 240, was opened for use Mar. 12. It is being used by the Brantford and Hamilton Ry., as well as by the L. E. and N. Ry.

Negotiations are still in progress between the company and the G. T. R. with reference to the route of the electric railway entry into Port Dover, Ont. It is desired to secure an entry over the tracks of the G. T. R., but in the event of this not being possible, the company will build its own line on St. Patrick St. (Mar. 1916, pg. 46.)

Ottawa Electric Ry.—The Ottawa Board of Control has received a letter from the company refusing to operate

same without the assent of the ratepayers, and that the commission shall have all the powers in regard to the railway which the council may confer upon it by bylaw. (Feb., pg. 73.)

Toronto, Barrie & Orillia Ry.—The Ontario Legislature in 1915 passed an act extending the time within which the company could build its projected railway between Toronto and Orillia, and providing that the section of line from Barrie to Utopia, on the C.P.R., was to be the first section to be built. Section seven of the act declared that the act was only to come into force upon proclamation by the Lieutenant Governor in Council. In adding this section the Legislature overlooked the fact that the extension of time was to run from the passing of the act, and therefore that it might run out before the act came into force. The Legislature is being asked to amend the act by substituting the words, "coming into force" for "passing" in sec. 3 of chap. 83, statutes of 1915. (Feb., 1916, pg. 115.)

Toronto Ry.—Plans for the Pape Ave. line have been submitted to the Ontario Railway and Municipal Board. The company is ready to go ahead with construction as soon as the board approves the plans. Under the board's order, the company had to start construction by April 1. (Feb., pg. 73.)

Transcona Electric Ry.—The Manitoba Legislature is being asked to incorporate a company with this title to build, and to operate with any power except steam, a line in the town of Transcona and in the rural municipalities of Springfield and East Kildonan to a point or points in Winnipeg or St. Boniface; to connect with any lines in operation or to be built by the Winnipeg Electric Ry., and to build branch lines to any other points in the municipalities named or elsewhere in the province, subject always to the Winnipeg Electric Ry.'s rights. The capital of the company is fixed at \$1,000,000, and the office is to be in Winnipeg. The provincial directors are: E. P. Garland, E. Prith, C. W. Chappell, R. Siderfin, L. Falk, Winnipeg. Mr. Falk is Assistant to the Manager, Winnipeg Electric Ry. (Mar., pg. 113.)

London and Lake Erie Railway and Transportation Co's Officials.

On account of his many other duties,

Three Rivers Traction Co's Operations.

The Shawinigan Water & Power Co.'s report for 1916 has the following reference to two of its subsidiary companies: "The directors are gratified with the healthy development of the city and district of Three Rivers. The North Shore Power Co., your subsidiary in that district, has extended its field of operation so as to include the principal manufacturing towns between Three Rivers and Quebec, and the expenditure made this year in new transmission lines will result in a largely increased revenue for this company."

The Three Rivers Traction Co. during the year obtained a franchise from the Municipality of Cap de la Madeleine, on the east side of the St. Maurice River, and during the summer 3½ miles of new track were laid to connect that town with the city of Three Rivers. The expenditure has resulted in a satisfactory increase in revenue. The additions to the St. Maurice River Co.'s plant at the terminus of the Three Rivers Traction Co.'s line, are nearing completion. The increased capacity of the works will add materially to the labor required, and thus becomes a factor in the growth of the earnings of both of your company's subsidiaries doing business in the district."

Fares on Port Arthur and Fort William Civic Railways.

The Public Utilities Commission of Port Arthur and the Utilities Commission of Fort William, Ont., met in joint session, Mar. 1, and adopted a new schedule of fares for the civic railways, which is expected to be made effective early in April, as follows:

One fare in each city. This means that after crossing the boundary line on a car another fare will be collected.

Ordinary fare, 5c; 6 tickets for 25c, good from 6 a.m. to 12 p.m. Workmen's fare, 5c, or 8 tickets for 25c, good from 5.30 to 8 a.m. and from 5.30 to 7 p.m., from Monday to Saturday inclusive. Sunday tickets, 8 for 25c, good from 5.30 a.m. to 12 p.m.

Children's fares, under 14 years of age, 10 tickets for 25c, bona fide students to be allowed this rate between 8 a.m. and 5 p.m. on school days; no double fare for children on main line on Sunday.

Night car fares, from 12 midnight to 5.30 a.m., 10c, good for a through ride.

The new schedule was discussed at a meeting of the Port Arthur Board of

payers. (Feb., pg. 73.)

Lake Erie and Northern Ry.—The new Union Station in Brantford, Ont., of which an illustrated description was given in Canadian Railway and Marine World, Aug. 1916, pg. 240, was opened for use Mar. 12. It is being used by the Brantford and Hamilton Ry., as well as by the L. E. and N. Ry.

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Ottawa Electric Ry.—The Ottawa Board of Control has received a letter

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practically the same service. The move, however, was not popular, and it has been questioned whether the men released did actually go to the harvest fields.

The Calgary, Alta., Board of Trade is advocating the elimination of noises on the city's streets as far as possible, and suggests that among other things the "shrieking" of the whistles and the "clanging" of the bells of the street cars could be modified.

The Ontario Railway and Municipal Board has ordered the Toronto Suburban Ry. to protect several of the crossings along its route between Lambton and Guelph, by means of red lights at night, and positive stops during the day, as well as limiting the speed of cars at all crossings.

During the summer bathing season, from July 3 to Sept. 1, the Toronto Ry. carried free on its cars, from various points in the city, to the free bathing stations under municipal control. 43,827

children, about 3,500 less than in 1916. The free cars were run on 53 days, with an average of 327 children a day.

A Goderich, Ont., report states that it is expected the sale of the old Ontario West Shore Ry.'s property and effects will realize about \$200,000, or 50% of the amount of the bonds guaranteed by the municipalities. The clearing up of the property is being carried out by the Hydro Electric Power Commission of Ontario.

The Moose Jaw, Sask., Electric Ry. is considering one-man car operation. An opinion favorable to its adoption already exists in Regina, but the Saskatchewan law, which prohibits the operation of electric cars with a smaller crew than two men, stands in the way of anything being done. In the event of the matter being considered favorably by the Moose Jaw City Council, an application will be made to amend the law at the next session of the legislature.

three years and spent several months in the south last winter, but after returning continued to attend to business more or less until a few days before his death. He was born in Galt, July 27, 1858, was educated at the Collegiate Institute there under the late Dr. Tassie and in 1875 entered the old Great Western Ry.'s service at Hamilton. On returning to Galt a few years later, he was appointed town ticket agent, G.T.R., and subsequently joined his father, the late Thos. Todd, in the milling, malting and commission business, and assisted him during the promotion and construction of the Galt, Preston, & Hespeler St. Ry. After his father's death in 1899, he was appointed President and General Manager of that line and in April, 1915, he was also appointed General Manager, Lake Erie & Northern Ry., which was then in process of construction and was completed and put in operation under his management. He had a large farm near Galt, where he specialized in raising horned Dorset sheep, and he was an enthusiastic fisherman and small game hunter, and was widely known throughout Canada, especially in transportation circles, enjoying great popularity. His funeral was largely attended, including many prominent transportation officials from Montreal, Toronto, etc.

Earle L. Milliken, heretofore Manager, Cape Breton Electric Co., Sydney, N.S., has been appointed Manager, Houghton County Traction Co. and Houghton County Electric Light Co., Houghton, Mich. He was born at Bideford, Me., May 15, 1888, and was educated at Springfield Technical High School and the University of Maine, whence he graduated in 1908 with the degree of B.S. in electrical engineering. During the summers from 1903 to 1908, he engaged in various work, respectively as follows: General electric work, Westbrook Electric Light & Power Co., Westbrook, Me.; in the brass department, Coffin Valve Co., Mepouset, Me.; in tool making department, Chapman Valve Co., Indian Orchard, Mass.; rodman, Maintenance of Way, Bangor & Aroostook Rd.; in machine shop, Portland Co., Portland, Me., and on inventory work, South Massachusetts Telegraph & Telephone Co. From Sept. to Nov., 1908, he was engaged in Stone & Webster's statistics department, Boston, Mass., and entered the service of the Cape Breton Electric Co., which is managed by Stone & Webster, Nov., 1908, since when he has been, to Oct., 1909, clerk to Manager; Oct., 1909, to Feb., 1911, Superintendent of Distribution and Electrical Engineer; Feb., 1911, to May, 1912, Superintendent, Light and Power and Electrical Engineer; and from May, 1912, to Sept., 1917, Manager. He is a member of the Canadian Electric Railway Association's executive committee, having been elected at the annual meeting in June.

The St. John's (Nfld.) Ry. is applying to the City Council for authority to extend its car lines in several directions. The council appointed a special committee to confer with the company upon the following and any other matters which may arise, viz.: easy and cheap access to all outlying points of the city; cheap fares east and west to Quidi Vidi Lake and Bowring Park; access to cheap sites suitable for erection of workmen's homes; cheap special rates for workmen's tickets; reduced rates and further extension of the city lighting system; possible reduction in private lighting if the operation of the street railways proves as successful as anticipated.

Mainly About Electric Railway People.

M. W. Kirkwood, heretofore Superintendent, Galt, Preston & Hespeler St. Ry., and Lake Erie & Northern Ry., Galt, Ont., has been appointed General Manager of both companies, succeeding the late Martin N. Todd in the latter company. Office, Galt, Ont.

M. Milne Todd, heretofore Assistant to Superintendent, Galt, Preston & Hespeler St. Ry., and Lake Erie & Northern Ry., Galt, Ont., has been elected President, Galt, Preston & Hespeler St. Ry., succeeding his father, the late Martin N. Todd, and also Vice President, Lake Erie & Northern Ry.

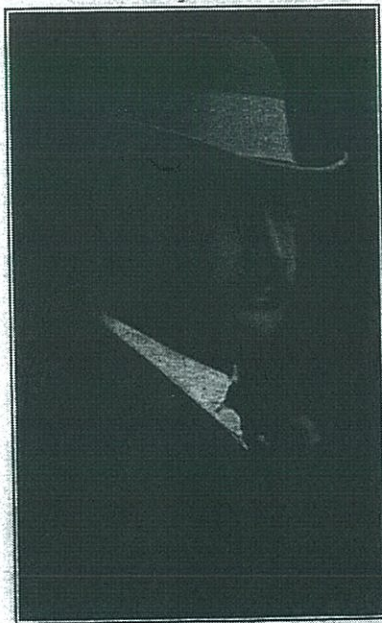
M. M. Inglis, Manager, Port Arthur, Ont., Public Utilities Commission, which operates the Port Arthur Civic Ry., has also been appointed Secretary, pro tem, in place of G. H. Rapsey, who has resigned to take charge of the Ontario Government's fishing operations in Lake Nepigon. Mr. Rapsey, who is the commission's chairman of finance retains his position as a commissioner. His term of office will expire on Dec. 31, unless he should be re-elected.

A. W. McLimont has been appointed General Manager, Winnipeg Electric Ry., Winnipeg, vice Wilford Phillips, resigned on account of ill health. He was born at Quebec, Que., and has held some important positions in connection with electric railways in the United States. He was for some time electrical engineer under the New York Public Service Commission, and when rehabilitation of the Chicago & Milwaukee Electric Ry. was undertaken a few years ago, he was retained as engineer. He has latterly been engaged on the Michigan United Ry. System.

Lt. Col. G. C. Royce, who went to England, in command of the 255th Battalion, a few months ago, has returned to Toronto, the battalion having been absorbed into the 12th Reserve Battalion, at East Sandling, Kent. He has resumed his duties as General Manager and Secretary-Treasurer, Toronto Suburban Ry., and is devoting much of his attention at present to the operation of the Lambton-Guelph extension, which has been taken over from the construction department, it having been operated heretofore under the charge of the Chief Engineer, H. T. Hazen.

Wilford Phillips, who has retired from the position of General Manager, Winnipeg Electric Ry., on account of ill health,

was born in Prince Edward County, Ont., Oct. 8, 1858, and commenced electric railway work on the Metropolitan Ry., North



The Late Martin N. Todd, President, Galt, Preston & Hespeler St. Ry., and General Manager, Lake Erie & Northern Ry.

Toronto, Ont., now the Metropolitan Division, Toronto & York Radial Ry., in Mar., 1890, in which service he remained until July, 1892, since when he has been, to Mar., 1893, Engineer and Superintendent, North Toronto Water Works and Electric Light; Mar., 1893, to 1896, Mechanical and Electrical Engineer, Niagara Falls Park & River Ry.; 1896 to June, 1900, Manager, same company; Aug., 1900, to Oct. 1, 1917, General Manager, Winnipeg Electric Ry., Winnipeg.

Martin N. Todd, President, Galt, Preston & Hespeler St. Ry., and General Manager, Lake Erie & Northern Ry., who died somewhat suddenly at his house, Caverhill, Galt, Ont., Aug. 29, aged 59, had been in failing health for two or

Electric Railway Notes.

The British Columbia Electric Ry. has made claims for exemption of twelve of its employes, under the Military Service Act.

The British Columbia Electric Ry. is said to be considering putting one-man cars in operation on some lines in Vancouver, New Westminster and Victoria.

The Edmonton, Alta., City Council, has let a contract to J. L. Tipp, for supplying 100 overcoats for the employes of the Edmonton Radial Ry. at \$30 each.

The Edmonton, Alta., City Council is reported to have placed an order in the U. S. for 80 new car wheels for Edmonton Radial Ry., at a cost of \$4,060.

The Niagara St. Catharines & Toronto Ry. has, at the Niagara Falls, Ont., City Council's request, put near sidestops into effect on its entire local line there.

The Edmonton, Alta., Radial Ry. has provided a waiting room and shelter for passengers on the low level route, at the north end of the low level bridge.

Toronto Works Commissioner has reported against allowing advertising on the outside of Toronto Civic Ry. cars, contending that the disfigurement of the cars would not be justified by the returns.

One-man cars are being operated on every one of the routes on the Calgary, Alta. Municipal Ry., the Ogden route being the last one upon which these cars were placed.

The British Columbia Electric Ry.'s total taxation for the current year for its entire system, including city, municipal and government taxes and percentages is \$249,056.24.

E. P. Coleman, General Manager, Hamilton St. Ry., is reported as having stated Nov. 9, that the company was considering the desirability of putting a number of p.a.y.e. cars in operation on certain of the city lines.

The Lake Erie and Northern Ry. was notified by the Galt, Ont., City Council recently that it would have to cease operating its cars on Water St., in that city, by Dec. 1, unless in the meantime an agreement as to terms was signed.

Nineteen persons were treated in hospitals and a number of others in an adjoining police station on Nov. 7, as the result of a Montreal Tramways Co. car leaving the rails at the corner of Seigneurs and Notre Dame Sts. and colliding with the Merchants Bank building.

At a meeting of the payers' Association at Nov. 2, the Regina Management was criticized. Land invited the critic charges in writing and if this was done a thorough would be made.

The British Columbia decided to sell rather than of street car fenders for poses. In the past, the glad to offer this space for and charitable advertisements have been the increases expenses that new sources to be developed.

The Moose Jaw, Sas passed a resolution recognizing no obstacle would be placed of the operation of one-Moose Jaw Electric Ry. company maintained an. The resolution was opposed member on the council.

The Ottawa Electric Ry. car schedule in operation nia line Nov. 12. A four is given from the corner Spark Sts. to the McKellar with a two minute service rush hours; while a 10 is given from the McKellar tannia.

The hearing of the evidence in the difference monoton Radial Ry. and the Board of Conciliation to a sudden stop, Oct. 3 obtained an injunction board from taking further. On Nov. 2, Justice McCarr ed by the Minister of Commissioner to act in.

The electrolysis of water nipeg was again brought board of control recently intendent of the Water reported that the measures the Winnipeg Electric limited to the districts substations only, leaving dealt with, including the of all, namely, Mill St.

Sandwich, Windsor and Ry. employes were out of for nine hours because a who, on the half-yearly runs, had selected a night change to a day run and

324).

Lake Erie and Northern Ry. has, according to a press report, made surveys for a spur line into the Holmdale district, Brantford, Ont., and we have been officially advised that the company is contemplating the building of a spur line into Paris, Ont.

Montreal Tramways Co.—It was reported Aug. 14 that the city council was

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over which traffic can be carried to Spence's Bridge. This section will not be connected with the Midway-Hope line until some time in 1915. Construction on this east and west line, which is the main line, is reported to be progressing favorably. (Aug., pg. 370.)

Lake Erie and Northern Ry.—The question of the building of a station in Brantford, Ont., is being held up following the recent decision of the Board of Railway Commissioners not to permit the use of the park property at the foot of Scarfe Ave. and Church St.

It is said that while the line from Brantford to Galt, Ont., will be operated by steam power, as soon as the whole line is completed the passenger traffic will be operated by gasoline cars. (Aug., pg. 370.)

Medicine Hat Southern Ry.—The Board of Railway Commissioners has authorized the company to build its line across the C. P.R. in Medicine Hat, Alta.

The M. H. S. R. Co. was incorporated by the Alberta Legislature in 1913, to build a railway from sec. 2, tp. 11, range 6, west of the 4th meridian, northerly to sec. 2, tp. 12, range 6, and on to the limits of the city of Medicine Hat. The company may use electricity, steam or any other motive power. The provisional directors are:—L. Hunt, H. O. Knowles, S. G. Bannan, Medicine Hat.

Pacific Great Eastern Ry.—Press reports state that track has now been laid from Squamish to beyond Cheakamus, and that grading has been completed to Lillooet, mileage 120 from Squamish. It is expected to have the grading from Lillooet to Clinton completed in the autumn, and track laid by the end of the year. About 10% of the grading is reported to have been done between Clinton and Lac la Hache, and considerable work has been done thence to Fort George. It is reported that further subcontracts have been let at this end of the line which is being built from Fort George, as follows:—Welch and Kennedy, 4 miles; Rankin and Kellett, 20 miles; Mad-den Bros., 6 miles.

A temporary bridge has been erected across the Nechaco River at Fort George, to facilitate the preliminary work on the extension to the Alberta boundary. Location surveys are reported to be well advanced, and it is expected that construction work will be started as soon as possible. Local reports state that it is intended to build a branch to Dawson, Yukon, and that Finlay Forks has been selected as the point from which it will start. (Aug., pg. 371.)

Pacific, Peace River and Athabasca Ry.—

ion is completed. (Oct., pg. 474.)

Lake Erie and Northern Ry.—The terminal facilities for this line in Galt, Ont., are being laid out, with a view of having everything ready for the opening of the section from Brantford, early next spring. The buildings consist of a brick station, and freight house, and six tracks are being laid in the yard. About 14 miles of grading has been completed between Brantford and Galt, some miles of steel have been laid, and a ballasting gang is working from the Galt end.

Considerable progress has been made in Brantford, where some heavy work is being done at Jubilee Terrace and Lorne Bridge. The bridge is to be raised seven feet. A good deal of the trestle work through the city has been completed.

Good progress is being made with construction on the line from Brantford to Port Dover. The Board of Railway Commissioners, Oct. 10, granted the company the right to use the G. T. R. harbor at Port Dover. (Oct., pg. 475.)

A contract was entered into, Nov. 8, between the Dominion Government and the company, under the provisions of the act granting aid to certain railways, for the building of a line from Galt to Port Dover, Ont., not exceeding 58 miles.

St. Lawrence Valley Ry.—The Quebec

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ported on four 238 ft. spans.

Lake Erie and Northern Ry.—We are officially advised that no statement has been made by W. P. Kellett, General Manager, to the effect that the line when completed will be operated both as a steam and electric railway, as stated in press reports. It is, however, persistently reported that the line will in the main be operated by electricity, either by an electric locomotive, or by individual gasoline motor cars.

The bridge work at Paris on the Brantford-Galt section of the line was completed Mar. 12, and it was expected that track would be laid into Brantford, Mar. 24. (Mar., pg. 126.)

Lake Huron and Northern Ontario.—The

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March, 1914.]

CANADIAN RAILWAY AND MARINE WORLD.

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Railway Development.

Projected Lines, Surveys, Construction, Betterments, Etc.

Burrard Inlet Tunnel and Bridge Co.—The plans and profile have been officially filed for the projected railway, station 0 to station 130 + 036, on the south shore of Burrard Inlet, Vancouver. We are officially advised that there is no intention at present of going on with the construction of this line, the plans being filed with the intention of making provision for a railway from the south end of the proposed bridge across the Second Narrows of Burrard Inlet, to the Great Northern Ry. in the Hastings townsite section of Vancouver. Cleveland and Cameron, Vancouver, are engineers for the company.

The plans for the bridge were prepared in London, Eng., and were released from the Customs House at Vancouver, Feb. 5, on payment of a reduced duty of \$2,430. They are on view at the offices of Cleveland and Cameron, and contractors are figuring preparatory to putting in their tenders. At a meeting of the directors, Feb. 4, it was decided to arrange for a 100 ft. right of way at the northern end of the bridge, as an excessive price is being asked by the Indians of the reserve for the 200 ft. right of way originally planned. It was agreed that a condition shall be inserted in all contracts in connection with the erection of the bridge, that so far as possible Canadian materials shall be used. (Feb., pg. 69.)

Calgary and Fernie Ry.—The Calgary, Alta., Board of Trade, has been informed by the company's secretary that arrangements have been completed for the financing of the project, and that it is hoped to start construction early in the spring. A resolution was passed endorsing the ap-

the Canadian Northern Pacific Ry. (Dec., 1913, pg. 673.)

Churchill Southern Ry.—The Manitoba Legislature has incorporated a company with a railway to be operated by steam, electricity or any other motive power, from Fort Churchill, southerly to Kettle Rapids, on the line which the Dominion Government is building from Pas, to Port Nelson, Man., with branch lines to any point in the Province of Manitoba. The company is given authority to develop water powers, and to distribute electric energy for all purposes. The provisional directors are:—W. Beech, W. Chambers, T. Wright, C. Atchison, Winnipeg; W. Georgeson, Calgary, Alta.

Edmonton, Dunvegan and British Columbia Ry.—A train service has been put in operation between Edmonton and Smiltina, heretofore known as Murray Landing, 130 miles. A bi-weekly service in either direction is being given. (Feb., pg. 69.)

Flathead Valley Ry.—The Minister of Railways for British Columbia has granted a certificate under the provisions of subsec. 1, sec. 79 of the B. C. Railway Act, 1911, giving an extension of time for five years from Jan. 7, for building the lines authorized by chap. 52 of the B. C. statutes of 1909. (April, 1909, pg. 247.)

High River, Saskatchewan and Hudson Bay Ry.—The Dominion Parliament is being asked to change the point of starting of this projected railway, from tps. 25 to 29, range 1 west of the 4th meridian, to tps. 17 to 29, range 1, west of the 4th meridian, in Alberta, and to extend the time within which construction may be begun. Ballarby and Mackenzie, High River, Alta., solicitors for applicants. A meeting of shareholders for

curve shown at mileage 3.2 be changed to 12 degrees.

The British Columbia Legislature is being asked to authorize the company to build a branch from Oter Summit to Aspen Grove, tapping Copper Mountain.

Construction is being proceeded with on the following sections of the line:—End of track westerly to Pentiction, 60 miles; end of track westerly to Coldwater Summit, 66 miles; end of track westerly to Hope, 39 miles. Tracklaying out of Pentiction was reported to have reached Narawatta, Feb. 1. At Camp Creek, the exact point reached by the steel, a large wooden structure is being erected across the chasm immediately below Spray Falls. It was expected this work would be completed by Feb. 28. (Feb., pg. 80.)

Lake Erie and Northern Ry.—W. P. Kellett, General Manager, in a letter to the press, Jan. 31, explained what was being done in connection with the work in Brantford, Ont., in regard to which the city Council had expressed dissatisfaction. The work was being proceeded with as rapidly as possible. The general contractors had resumed tracklaying and it was expected to have the steel laid from Galt to Jubilee Terrace, Brantford, by Feb. 28. When that was completed the plant necessary for the deepening of the channel of the Grand River in the city would be brought in. Mr. Kellett attended a meeting of the Parks Board, Feb. 5, in connection with the matter, at which it was stated that so far as freight traffic is concerned stream will be used as a motive power, but for passenger traffic, gasoline electric or electric storage battery cars will probably be used. Mr. Kellett stated that freight will be taken to the first yards at the foot of Jarvis and Sterling streets for sorting purposes, and the trains will be made up in a second yard which will be located at Morrell St. (Feb., pg. 69.)

Northwestern Ry. of Canada.—Applica-

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would be completed by Feb. 28. (pg. 80.)

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Northwestern Ry. of Canada.—Applica-

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pleted portions of the entire line from Midway to Hope, by Dec. 31. (April, pg. 165.)

Lake Erie and Northern Ry.—An act has been passed by the Dominion Parliament enabling the company to increase its bonding power from \$30,000 to \$45,000 a mile, and to issue other securities for the purpose of developing properties along its line, but these extended powers are not to be used until every municipality which has aided the company, has been released from its agreement.

Track laying was reported to have reached Brantford, from Galt, Ont., April 9, and ballasting has been started, a train working each way from the pit at Paris.

Construction is being proceeded with on the Brantford-Port Dover section, and it is expected that track laying will be started in both directions from Simcoe, as soon as work on the Brantford-Galt section is completed. The line is not expected to be ready for operation until the end of the year. (April, pg. 166.)

London, Grand Bend and Stratford Ry.—

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All Red Line Ry., April, 1914.

Lake Erie and Northern Ry.—A special train ran over the completed line from Brantford to Galt, Ont., May 4, about 20 miles. The completed line starts at Jubilee Terrace in Brantford, and runs into Galt as far as the C.P.R.

The further construction of the line in Brantford is being held up pending a decision on the question of the raising of the Lorne Bridge. The plans for this were submitted to the city, May 8, when certain objections were made, and will be laid before the Board of Railway Commissioners. Construction is being proceeded with rapidly on the section south from Brantford to Port Dover.

It is expected that the Brantford-Galt line will be put in operation early in August. (May, pg. 214.)

Miramichi Bay Shore Ry.—The New Brunswick Legislature has incorporated a

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pleted May 31. (May, pg. 171.)

y Lake Erie and Northern Ry.—We have
d been officially informed that the line is
a completed from Galt to Brantford, and that
7, grading is completed southerly from Brant-
3- ford to within a mile of Port Dover, Ont.
r The bridge at Waterford was expected to
t. be completed by May 31, and the one over
e the Grand River at Brantford is expected
w to be completed by July 1. Track has been
n laid on the southerly section of the line be-
of tween Waterford and Simcoe, eight miles,
d. and Johnson Bros., the contractors, expect
n to have the grading and track laying com-
f- pleted by Aug. 30.

d. In connection with the projected opera-
ie tion of the line by electricity enquiries are
ra being made for electric material and there
y, appears to be no doubt that the line will
on be electrified.

sh A proposition has been made by the com-
D. pany to the Brantford City Council for cer-
at tain running rights over the Grand Valley
ry section of the Brantford Municipal Ry., at
a, Galt, and between Paris and Brantford. The
ne matter came before the City Council, April
he 27, when representatives of the Board of
ed Trade were invited to confer with the
ve Brantford Railway Commissioners as to the
rit project. It was stated, May 3, that the
60 city might sell the Grand Valley section of
to the line to the L. E. and N. R. (May, pg.
171.)

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LAKE ERIE
AND
NORTHERN
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of the company's employees.

Lake Erie & Northern Ry. The Board of Railway Commissioners passed order 41,654, Oct. 24, approving revised location of portion of the L.E. & N.R. in Port Dover Village, Ont., and the building of a connection with Canadian National Ry.

At a Board of Railway Commissioners' sitting in Toronto, Nov. 14, Brantford city council objected to the company's application for the construction of a second switching track on Water St., and claimed that the existing switch encroached on city property. The railway claimed that under the Board's order of 1916, Water Street had been practically given over to the railway and that a second switch, if needed, could be built at any time. The Board held that the company had no right to lay a second switch, and directed the moving of the present switch off the city property.

Manitoba Tramways Co. Plans for the

December 1928

ing the new intersection which will divert the street railway traffic over the new Hillhurst bridge, was expected to have been completed early in October. The old bridge only had a single track, which was the cause of much delay in traffic. The new bridge has double track. A considerable amount of welding has been done on the lines during the summer and autumn to have it in better shape for the winter. A new intersection has been ordered for the Burns Ave. line, and was expected to be laid by the end of October.

It is expected to do some track re-placement during 1922, but details have not been arranged. (Aug., pg. 434.)

Cornwall St. Ry., Light & Power Co.—

the rails on the Hamilton and Dundas line on Aberdeen Ave be relaid. (Oct., pg. 548.)

Kitchener & Waterloo St. Ry.—A plan is under discussion between the Kitchener Light Commissioners, who operate the Kitchener & Waterloo St. Ry., and the Waterloo Town Council, for the extension of the railway in Waterloo, Ont. The line now runs up King St. to Charles St., and the proposal is to extend the line a few blocks along Charles St., so as to give direct access to Waterloo Park.

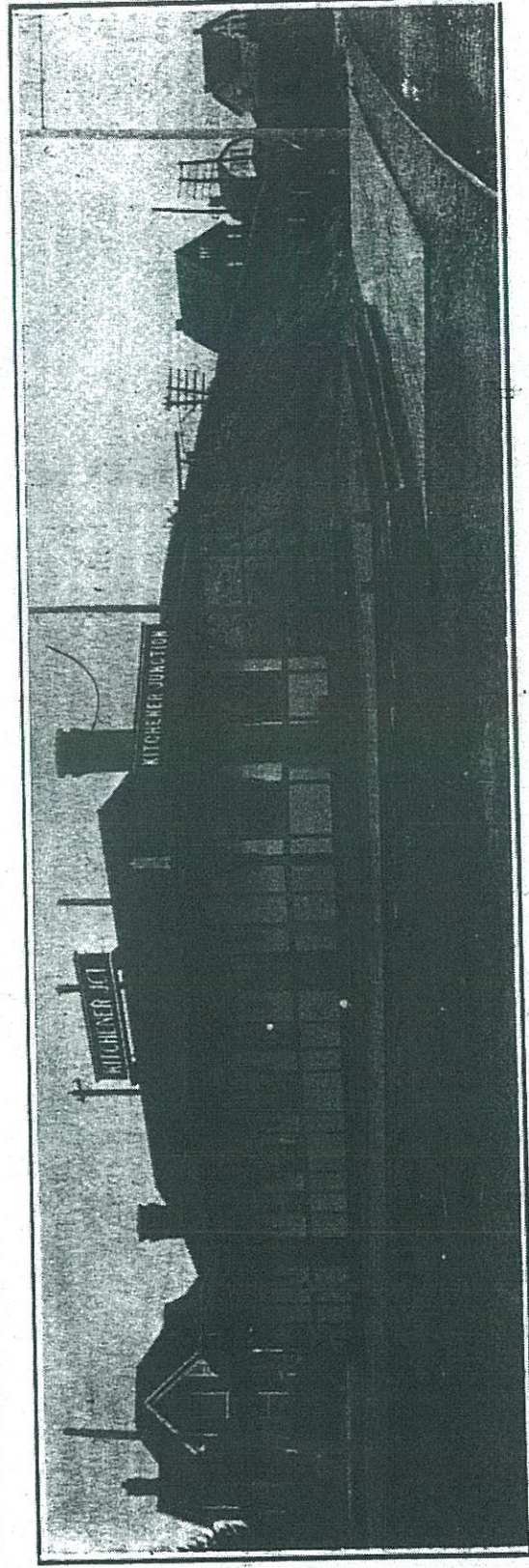
We are officially advised that the Kitchener & Waterloo St. Ry. has built a station at its junction with the Grand River Ry. at Kitchener city limits, which will be used jointly by the two railways.

templates relaying about a mile each to half of its Metropolitan Division, south from Bond Lake, Ont., with 80 lb. rails, to replace 56 lb. rails. (Oct., pg. 548.)

Winnipeg Electric Ry.—The Manitoba Public Utilities Commissioner, on Oct. 13, heard the rural municipality of West Kildonan's application for an order to direct the company to extend its car lines on McGregor St. from Bannerman Ave. to Hartford Ave. (Oct., pg. 548.)

One-Man Cars for Fort William Municipal Railway.

The Ontario Railway and Municipal Board has, we are officially advised, ap-



Kitchener & Waterloo St. Ry. and Grand River Ry. Joint Station at Kitchener, Ont.

We are officially advised that the track reconstruction under way in Cornwall, Ont., covers one mile on Main St., between the G.T.R. station and the waterfront, upon which new ties and 80 lb. relay T rails are being used. The necessary rails have all been delivered. Delivery poles throughout the town are being renewed and about 3 miles of trolley wire is being replaced with new wire. (Oct., pg. 548.)

Fort William Municipal Ry.—We are

proved of one-man cars for use on Fort William Municipal Ry., subject to the municipality filing with the Board the routes over which it is desired to operate the cars. Up to Oct. 12 this had not been done.

The cars proposed to be used are to be of the double truck type, Brill 27-G. trucks, seating 42 passengers and having a maximum weight of 40,000 lb. The length over bumpers is 42 ft. 2 3/4 in. The entrance and exit doors at the front are folding, operated manually by the oper-

Ontario Hydro Electric Ry.—Essex Di-

Self Propelled Cars on Canadian National Railways.

The gasoline driven railway passenger motor car placed in operation by the Canadian National Rys. between Westport and Brockville, 44.4 miles, on the Brockville Subdivision, Ottawa Division, Ontario District, described in Canadian Railway and Marine World for November is being continued in operation between those points as trains 78, 80, 82 and 84 from Westport to Brockville, and as trains 77, 79, 81 and 83 from Brockville to Westport, the running time in each direction being 1½ hours. The schedule has been maintained consistently by the car, and the service has proved to be popular, as is evidenced by the fact that the car is loaded to capacity on every trip in each direction. The car is also proving most successful financially, the loss entailed by steam train operation being wiped out, and a good profit being shown after allowing for interest and depreciation. During November, adjustments were made to the engine (a Reo 4 cyl., identical with that used in the Reo "speed wagon," and rat-

ed. The C.N.R. will buy the car now in service from the builders, the Ledoux, Jennings Co., Montreal, which furnished it to the railway for a month on trial.

The electric storage battery car, in operation between Campbellton and Bathurst, 62.96 miles, on the Bathurst Subdivision, Campbellton Division, Maritime District, has continued to provide a satisfactory service and is still showing a favorable cost of operation. We are informed that the saving made by this car over the cost of steam train operation is \$2,500 a month. The car was in the Moncton shops from Nov. 14 to 19, undergoing alterations to fit it for winter operation. The interior was fitted with additional lining, and storm sash and double flooring were applied. The battery containers were lined; as although the batteries are kept at a high temperature, by electrical action, when the car is in operation, they rapidly become cool when the car is standing, resulting in lowered efficiency. In addition to lining the battery containers, two

were necessary and it was out of service until about the end of that month, when it was put back on the run, continuing until early in November, when it was withdrawn for the winter, and steam train service was resumed. We are officially advised that the car effected a saving, from the cost of steam train operation, of \$1,319 a month, for May, June and July.

Steel Rail Orders.

In September, Canadian Railway and Marine World was officially advised that the C.P.R. had ordered 25,000 tons of 100 lb. steel rails from Algoma Steel Corporation. Through one of those unfortunate errors that it is impossible to ascertain the cause of, and which no amount of care will always prevent, as long as the human element remains fallible, it was stated in our October issue that the order was for 250,000 tons, an obvious mistake. This error was not noticed until early in November, when a subscriber called attention to it, but it had been inadvertently corrected by another item which appeared in our November issue, and which stated that the C.P.R. had ordered 32,000 tons of 100 lb. rails from Algoma Steel Corporation, the manufacture of which would be gone on with immediately after completion of the 25,000 tons ordered previously. The C.P.R. orders for this season to date are for 57,000 tons.

It was stated in Canadian Railway and Marine World for November that the Dominion Government had passed an order in council, Oct. 6, authorizing the purchase of 75,000 tons of steel rails and their accessories, for the Canadian National Rys. and the Grand Trunk Ry.; that the Canadian National Rys. had ordered 20,000 tons of 85 lb. rails from Algoma Steel Corporation, and was negotiating for 20,000 tons of 85 lb. rails from Dominion Iron & Steel Corporation. The latter order was given early in November, so that the Canadian National Rys. have now ordered 40,000 tons, which are to be rolled this winter, and to be delivered next spring.

Out of the 75,000 tons, the buying of which has been authorized by order in council, 29,000 tons of 100 lb. rails are for the G.T.R.

We were officially advised Nov. 17, that the G.T.R. had ordered 15,243 gross tons of 100 lb. steel rails, A.R.A. type A section, from Dominion Iron & Steel Co.

Interchange Rules. — The American Railway Association, Mechanical Division's general committee, has decided to reprint the Interchange Rules revised this year, including a recent interpretation, and to issue them about Dec. 10. to



Gasoline Driven Motor Passenger Car and Baggage Trailer, on Canadian National Railways, Stanley Subdivision, New Brunswick.

ed at 35 h.p.), which has increased the mileage per gallon of gasoline from 12 to 16. The gear ratio has been changed to give slightly less engine speed, the ratio now being such that an engine speed of 1920 r.p.m. gives a speed of 40 m.p.h.

The car is well equipped with brakes. Those on the rear wheels are operated by two foot levers, and each wheel of the four-wheel leading truck is braked by an arrangement wherein what would ordinarily be the steering wheel is used as a brake mast wheel, the wheel being turned to apply the brakes, through an arrangement of rods and levers. The heating system is unique, the exhaust from the engine being piped through coils arranged under the seats.

We are advised that the C.N.R. in-

heating ducts were led into the containers, from the car heating system. Snow brushes, to remove the snow from the rails, were attached, and in addition a flanger, or rather a small plough, was fitted to the front of the car.

In addition to the cars mentioned above, the C.N.R. operating during the past summer another gasoline motor car, between Cross Creek and Stanley, 5.74 miles, on the Nashwaak and Cross Creek Subdivisions, Edmundston Division, Maritime District. This car and the trailer operated in connection with it are shown in the accompanying illustration. The chassis of the motor car was that of a Winton omnibus, and the body was built at the C.N.R.'s Moncton shops. The body is 15 ft. 3½ in. long, and 7 ft.

Grand River and Lake Erie and Northern Railway Better- ments, Etc.

We are officially advised that the total amount appropriated for betterments, etc., this year on the Grand River Ry. and the Lake Erie & Northern Ry., both of which are C.P.R. subsidiaries, is \$1,453,700, of which \$1,035,200 is for the Grand River Ry. and \$418,500 for the Lake Erie & Northern Ry. The amounts include renewals of appropriations granted in 1919, as well as for the purchase of generating and equipment, construction of substation to provide uniform 1,500 volt operation, by rebuilding and reinsulating existing overhead system, additional shop equipment, tie and rail renewals, etc.

Some of the work, including buildings, sidings, etc., will be done by the companies' own forces. Contract have been given to A. E. Rigley, St. Catharines, Ont., for the following:—Kitchener-Waterloo line revision, second track work between Preston and Hageys; revision of line in Galt; terminals in Galt; and other smaller works. These contracts have been let on the cost plus basis. Details in regard to some of them have already been given in Canadian Railway and Marine World. With regard to the Kitchener-Waterloo revision, we are advised that owing to the expiration of franchise rights in the City of Kitchener, it is necessary to provide service on a private right of way, on a greatly improved location. The new second track between Preston and Hageys, 0.50 mile, will be laid with 85-lb. rails.

The station and office buildings at Galt will probably be of brick and concrete construction, 40 x 120 ft.; the station on the ground floor and general offices above. The substation at Preston will be 56 x 48 ft. A 60 ft. extension to car barn and repair shop at Preston will be done by the company's own forces.

The equipment to be bought will consist of two 1,000 k.w. motor generator sets; six transformers; short-circuiting switches, lightening arresters, etc. The

MAY 1920

SUBSTATION WAS PUT IN PLACE AT ONTARIO

Grand River Ry.—Lake Erie & Northern Ry.—The Board of Railway Commissioners is reported to have made an order, on the application of the Galt, Ont., City Council, directing these two railways to build a branch line from the southerly limit of the city to Walnut St., thence westerly crossing the Grand River Ry. bridge, across West Main St., and along Malcolm St., to the corner of Glebe St., thence southerly along Glebe St. and along Middleton St. to its southerly end. With the exception of a short piece of line on Middleton St., in North Dumfries Tp., the whole of the line is in Galt. (July, pg. 381.)

Hamilton St. Ry.—We are officially advised that the track on York St., Hamil-

August 1921

Double Deck Gasoline Motor Bus, Toronto Transportation Commission.

As stated in Canadian Railway and Marine World for April, pg. 208, the Toronto Transportation Commission has made another addition to its fleet of motor buses, viz., a double deck gasoline driven bus built by Eastern Canada Motor Co., Hull, Que. It has the following general dimensions:—

Length over all	26 ft. 10 in.
Width over all	7 ft. 6 in.
Height over all	10 ft. 8 in.
Height, ground to floor of top deck	9 ft. 1 in.
Length, inside interior compartment	15 ft. 3 1/4 in.
Width, inside interior compartment	6 ft. 9 1/2 in.
Height, inside interior compartment	6 ft. 9 1/2 in.
Ground to rear platform	1 ft. 1 in.
Platform to floor of interior compartment	1 ft. 1 in.
Ground to front step	1 ft. 1 1/2 in.
Wheel base	15 ft. 7 1/2 in.

The frame is built up of special heat treated steel members and the spring rear includes 44 x 3 in. semi elliptic springs at the front, and 64 x 4 in. semi elliptic springs at the back. The steel

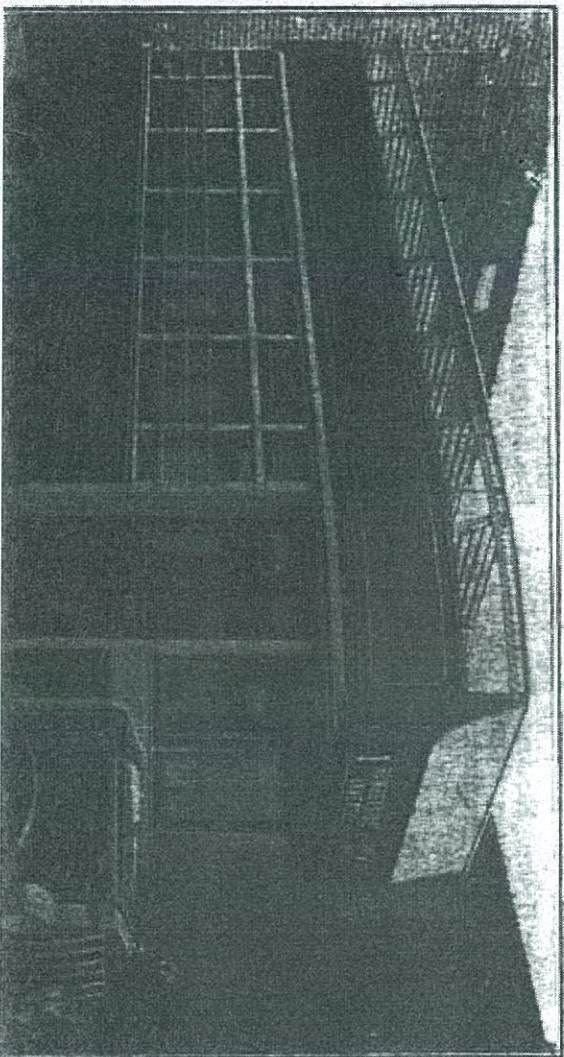
The interior compartment is finished in mahogany, and the interior seating arrangement includes 2 longitudinal seats at the rear and 4 transverse seats on each side of the aisle, the interior seating capacity being 21. These seats are finished in rattan. The stairs to the upper deck ascend from the rear platform, a door opens into the interior, and there is also a door at the front of the interior compartment. Four grilled ventilators are set in the ceiling, which is lined with enamelled paper-board and the interior of the bus below the windows is lined with green plyboard. The arrangement of the wheel arch in the interior compartment, in relation to the seating arrangement, is such that no inconvenience is caused passengers. All windows are of the drop sash type, and are equipped with blinds. An electric signal system is installed, the push but-

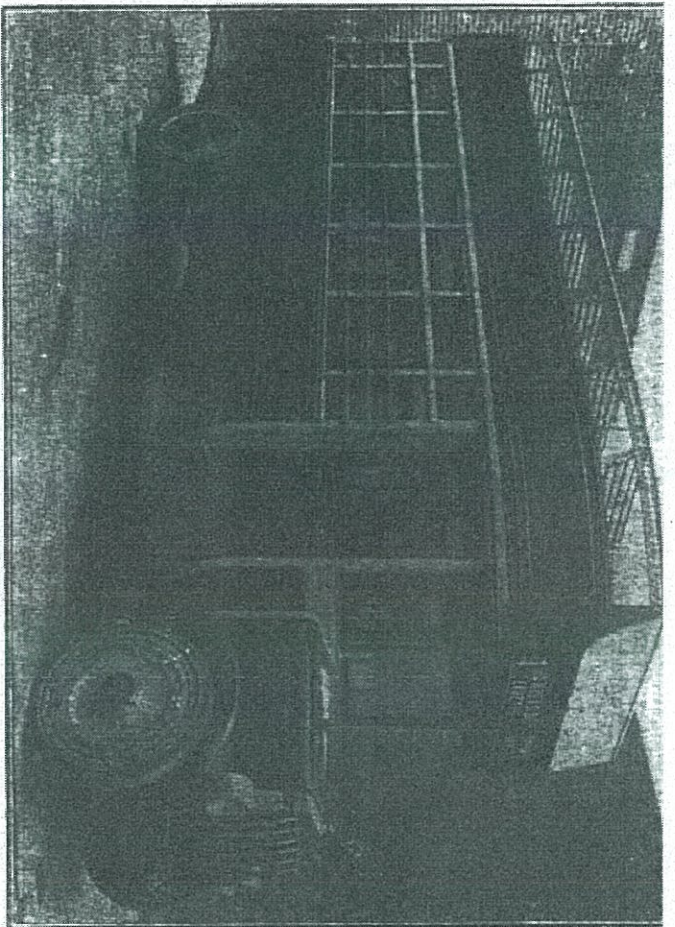
in operation, viz.: four, built by Fifth Avenue Coach Co., New York, operating on Humberstone Ave. in the western portion of the city; the bus described herein, operating in the same district; one built by the Associated Equipment Co. in England, also on the same run; a gasoline-electric bus built by Tilling-Stevens Co. in England, operating on Merton St. and Mount Pleasant Road in the northern part of the city, and one built by the Leyland Co. in England, also operating in the northern part of the city. The bus service is proving itself satisfactory in every way.

Electric Railway Employees' Wages, Working Conditions, Etc.

Calgary Municipal Ry.—The city commissioners recently adopted a plan for an equal division of day and night work between the senior and junior men on Calgary Municipal Ry. The matter was discussed by the men and subsequently by the commissioners, who finally decided that the present division of one month's day work to three months' night work for junior men should be continued to Dec. 31, 1923, after which there would be an equal division of the night and day shifts between all men who have served with the street railway department for more than four years. The junior men have intimated their acceptance of the plan, but asked that the council give further consideration to the suggestion that the equal division be put in operation, Jan. 1, 1923, instead of Jan. 1, 1924. It is reported that the senior men, while not agreeing with the plan, will not oppose it. The proposal is expected to be ratified by the city council.

Ontario Hydro Electric Ry.—Essex





Double Deck Gasoline Motor Bus, Toronto Transportation Commission.

body is double lined. The wheels are of the Morand cast steel cushion type, having an internal lining of rubber $\frac{1}{2}$ in. thick between the circular sections. The rear tires are of solid rubber, with single 10 in. tread, and the front tires, also solid, are of 6 in. tread. The wheel diameter is 36 in.

The bus is driven by a Buda 4 cylinder 40 h.p. type Y-T-U engine, with cylinders $4\frac{1}{2}$ in. diam. by 6 in. stroke. The engine is water cooled, the radiator being of the vertical tube design and equipped with a set of vertical protecting bars in front, circulation being ensured by a gear driven water pump. The gear box is of the 4-speed selective type, Spicer universal joints are employed in the connection from engine to rear axle, and a Clark double reduction rear axle is employed. The magneto is of the Eisemann type, gear driven. A 45 gall. gasoline tank is used, and the engine is equipped with a Zenith carburettor. Brakes include a service one operating on the cardan shaft, and an emergency one operating on the rear wheels through external contracting bands. The oleumite grease system is employed.

tons in the interior being placed between the windows, and on the upper deck they are on the railing posts. The interior of the bus is heated by the exhaust from the engine, and the bus is lighted by a Westinghouse 6 volt system, there being 7 lights in the ceiling in the interior, and a stop light, in addition to the head-lights and tail light.

On the upper deck the slatted seats are arranged transversely on each side of a central aisle, the seating capacity of this part being 30, thus making the total seating capacity of the vehicle 51. The lower band surrounding the upper deck is of wood, surmounted by wire mesh and a wooden top railing. The spiral stairs leading to the upper deck are built up of wood steps and metal casing, with corrugated metal strips on the steps, and the stair hand railing is of brass. The seats on the top are bolted to the floor, and the bus may be converted into a single decker quickly, by removing the seat bolts and the railings. The rear platform, below the stairs, is equipped with a swivel seat for the conductor.

The Commission now has eight buses

discussed by the men and subsequently by the commissioners, who finally decided that the present division of one month's day work to three month's night work for junior men should be continued to Dec. 31, 1923, after which there would be an equal division of the night and day shifts between all men who have served with the street railway department for more than four years. The junior men have intimated their acceptance of the plan, but asked that the council give further consideration to the suggestion that the equal division be put in operation, Jan. 1, 1923, instead of Jan. 1, 1924. It is reported that the senior men, while not agreeing with the plan, will not oppose it. The proposal is expected to be ratified by the city council.

Ontario Hydro Electric Ry.—Easex Division—Following the notification of the management that a reduction of 5c an hour would be made in the wages of motormen and conductors, on the expiry of the agreement on June 30, the men stated that they would walk out in protest. The Windsor Trades and Labor Council passed a resolution protesting against the proposed reduction, and sent it on to the city council with a request for its endorsement. The management then decided not to enforce the reduction and asked the men to make an agreement for another year on the former terms of: 45c an hour for new men, rising to 55c an hour. Operators of one-man cars and trackless trolleys will be paid 2c an hour extra, instead of 10c an hour, for which it is reported, they asked.

Manitoba Public Utilities Commission.

—The situation in regard to the Manitoba Public Utilities Commission is said to be that on May 31, the Commissioner, P. A. Macdonald, ceased to function, the Legislature having refused to vote funds to pay salaries after that date. Neither the Public Utilities Act, nor the Sale of Shares Act have been repealed, and no transfer of the duties of the Commissioner, who administered both of these acts, could be made without special legislation, which was not introduced at the last session. The order-in-council appointing P. A. Macdonald as Commissioner, and the other members of the staff has not been recalled. The Commissioner's office has been moved to 168 Portage Avenue East, Winnipeg.

in the roof. The head lining will be of 3/16 in. agasote.

These buses were built by the St. Louis Car Co., St. Louis, Mo., the motors and control equipment being furnished by

Westinghouse Electric & Manufacturing Co., and they have now all been delivered. The first bus commenced operating

in Windsor on May 4, on Lincoln Road, between Tecumseh Road and Wyandotte

St. 1.6 miles. Overhead construction is proceeding on the second route, beginning at the corner of Erie and Ouellette

Avenues, and extending along Erie Avenue, to Langlois, to Ottawa, to Gladstone, to

Clies Boulevard, and back to Langlois, returning over the same route, a total

distance of 1.25 miles. A third route is projected from the corner of Sandwich

and Ferry Sts., to McDougall, to Wyandotte, to Bruce Ave., to Grove, and re-

turning over the same route. One cent is charged for a transfer from the buses

to the electric railway cars and vice versa. The results secured in the operation of the buses to date have more than

exceeded expectations; the construction of the current collection device permits

of a large cruising radius, and for ease

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tender. (March, pg. 150.)

Grand River Ry.-Lake Erie & Northern Ry.—We are officially advised that an appropriation has been made for the construction of a joint passenger station at Galt, for both these railways. The work is to be gone on with at an early date, but the plans and specifications are not yet completed. The station will be built on the south side of Main St., near the Iroquois Hotel. The building will be 100 x 34 ft., brick and stone being the principal materials. The foundation and walls will be designed to carry a two storey building, but it is proposed to erect only one storey at present. (Aug., 1921, pg. 434, and Oct. 1921, pg. 548.)

Grand River Ry.-Lake Erie & Northern Ry.—A press report states that a joint station will be built on Main St., Galt, Ont., during the summer for use by both lines. (Aug. 1921, pg. 434, and Oct. 1921, pg. 548.)

March 1922

switching only.

Grand River Ry.—The Board of Railway Commissioners has authorized the revision of the main line in Waterloo, Ont., the crossing of Erb St., with the new location, and the revision of location of transfer track on Canadian National Rys. right of way.

Under Electric Power Essex District

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West extension.

Grand River Ry.—Lake Erie & Northern Ry.—A press report states that plans prepared in the C.P.R. Chief Engineer's office in Montreal have been received in Galt, Ont., for the station building proposed to be built on Main St., there, for the two railways (May, pg. 258).

and passengers 3,691. The ordinary schedule during week days was 18 cars in and out, and on Sundays 14 in and out. Owing to interruptions to the service by storms on Dec. 18 and 21, I have deducted from the total number of cars in the ordinary schedule on account of these interruptions, making the total number of cars in and out 1,122. This number of cars, divided into the total number of passengers carried, would average about $3 \frac{1}{3}$ passengers per car. A count was taken on behalf of the petitioners from Dec. 5 to 10 inclusive, and from Dec. 18 to Jan. 4, inclusive, 24 days in all, the figures being, passengers boarding 1,484, passengers alighting 1,363, making a total of 2,847. Applying the same rule to a reduction of the total number of cars in a schedule for those days as I did to the company, about 834 cars went in and out of the spur; this total divided into 2,847 would average about $3 \frac{1}{2}$ passengers to the car. After analyzing these figures and taking into account the length the spur, viz., 1,500 ft., and the limited patronage, I am of the opinion that the Board should not insist on the company providing a winter service at this point. The Board's Inspector, E. A. Crosland, has devoted considerable attention to the working of the cars at this spur and the service generally, and he fully agrees with my views in this regard.

The total number of passengers carried by this company during the years 1917 to 1920 inclusive, were as follows: 1917, 660,420; 1918, 739,386; 1919, 886,406; 1920, 882,099. The last time table filed with the Board, effective Sept. 11, 1921, shows the running time eastbound between Hamilton and Beamsville to be 1 hr. and 30. min., and westbound between Beamsville and Hamilton 1 hr. and 35 min., a distance of 22.6 miles, a speed at the rate of less than 15 miles per hour. I am of the opinion that the Board should require the company to

February 19 22

substation was put in hand at once.

Grand River Ry.—Lake Erie & Northern Ry.—The Board of Railway Commissioners is reported to have made an order, on the application of the Galt, Ont., City Council, directing these two railways to build a branch line from the southerly limit of the city to Walnut St., thence westerly crossing the Grand River Ry. bridge, across West Main St., and along Malcolm St., to the corner of Glebe St., thence southerly along Glebe St. and along Middleton St. to its southerly end. With the exception of a short piece of line on Middleton St., in North Dumfries Tp., the whole of the line is in Galt. (July, pg. 381.)

Hamilton St. Ry.—We are officially ad-

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August 1922

(June, pg. 322.)

Lake Erie & Northern Ry.—The Board of Railway Commissioners is reported to have directed the company to build an industrial spur in the Holmedale district of Brantford, Ont., by July 19, 1922. (Oct., 1920, pg. 461.)

London & Port Stanley Ry.—A press report states that the remodelling of the station at Port Stanley, Ont., which will include putting in of a concrete foundation and changing the interior, will be started at an early date. (Aug., pg. 434.)

Ontario Hydro Electric Railways—Essex Division.—The Premier of Ontario is reported to have announced Sept. 2 that the Ontario Government will guarantee a bond issue of \$900,000 to cover the cost of improvements on the electric railway in Windsor, Ont., and vicinity. Work is reported to have been started Sept. 19, on the construction of a double-track line on East Wyandotte St., and Ouellette Ave., and on a loop line from Sandwich St. on Ferry and Pitt Streets, to Ouellette Ave., Windsor. (July, pg. 381.)

Ottawa Electric Ry.—Street car service was resumed recently over the new St. Patrick St. bridge, the smaller cars

(June, pg. 322.)

Lake Erie & Northern Ry. — The Board of Railway Commissioners is reported to have directed the company to build an industrial spur in the Holmedale district of Brantford, Ont., by July 19, 1922.
(Oct., 1920, pg. 461.)

London & Port Stanley Ry. — A press

ing the new intersection which will divert the street railway traffic over the new Hillhurst bridge, was expected to have been completed early in October. The old bridge only had a single track, which was the cause of much delay in traffic. The new bridge has double track. A considerable amount of welding has been done on the lines during the summer and autumn to have it in better shape for the winter. A new intersection has been ordered for the Burns Ave. line, and was expected to be laid by the end of October.

It is expected to do some track re-placement during 1922, but details have not been arranged. (Aug., pg. 434.)

Cornwall St. Ry., Light & Power Co.—

the rails on the Hamilton and Cornwall line on Aberdeen Ave be relaid. (Oct., pg. 548.)

Kitchener & Waterloo St. Ry.—A plan is under discussion between the Kitchener Light Commissioners, who operate the Kitchener & Waterloo St. Ry., and the Waterloo Town Council, for the extension of the railway in Waterloo, Ont. The line now runs up King St. to Charles St., and the proposal is to extend the line a few blocks along Charles St., so as to give direct access to Waterloo Park.

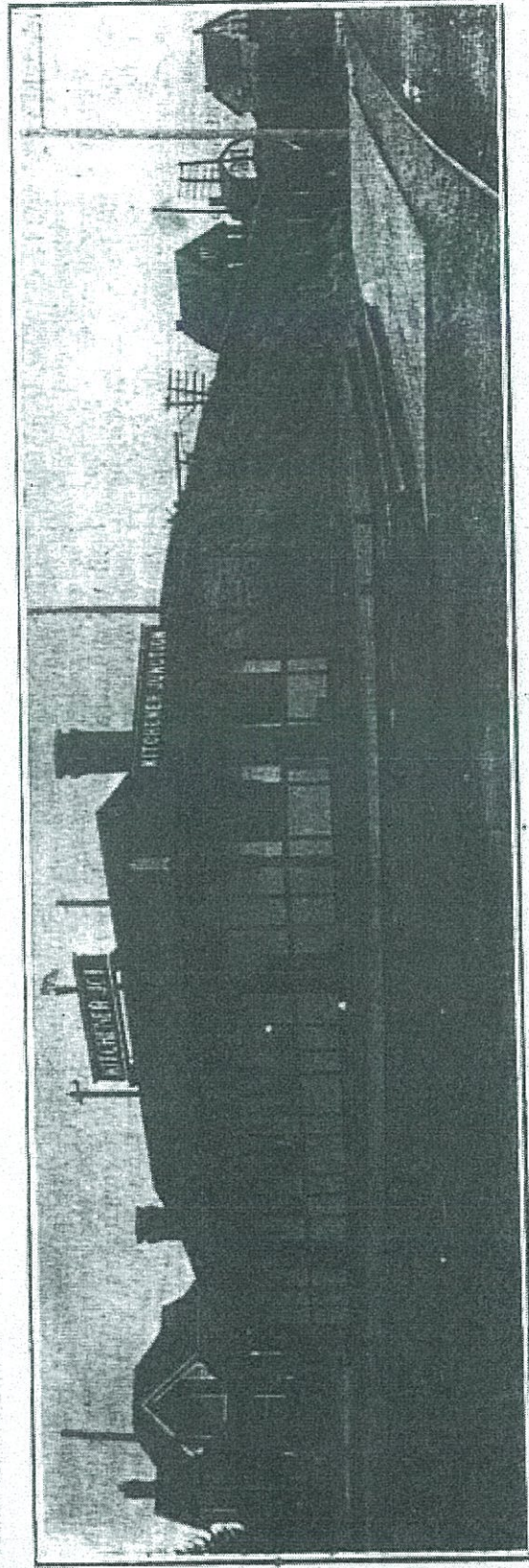
We are officially advised that the Kitchener & Waterloo St. Ry. has built a station at its junction with the Grand River Ry. at Kitchener city limits, which will be used jointly by the two railways.

temperatures ranging about a mile south half of its Metropolitan Division, south from Bond Lake, Ont., with 80 lb. rails, to replace 56 lb. rails. (Oct., pg. 548.)

Winnipeg Electric Ry.—The Manitoba Public Utilities Commissioner, on Oct. 13, heard the rural municipality of West Kildonan's application for an order to direct the company to extend its car lines on McGregor St. from Bannerman Ave. to Hartford Ave. (Oct., pg. 548.)

One-Man Cars for Fort William Municipal Railway.

The Ontario Railway and Municipal Board has, we are officially advised, ap-



Kitchener & Waterloo St. Ry. and Grand River Ry. Joint Station at Kitchener, Ont.

We are officially advised that the track reconstruction under way in Cornwall, Ont., covers one mile on Main St., between the G.T.R. station and the waterfront, upon which new ties and 80 lb. relay T rails are being used. The necessary rails have all been delivered. Defective poles throughout the town are being renewed and about 3 miles of trolley wire is being replaced with new wire. (Oct., pg. 548.)

Fort William Municipal Ry.—We are

proved of one-man cars for use on Fort William Municipal Ry., subject to the municipality filing with the Board the routes over which it is desired to operate the cars. Up to Oct. 12 this had not been done.

The cars proposed to be used are to be of the double truck type, Brill 27-G. trucks, seating 42 passengers and having a maximum weight of 40,000 lb. The length over bumpers is 42 ft. 2 1/4 in. The entrance and exit doors at the front are folding, operated manually by the oper-

Assault, Hudson Electric Rva.—Essex Di-

Street tracks. (Feb., pg. 322.)

Grand River Ry.—Owing to a lack of a two-thirds majority, the Galt, Ont., city Council failed to pass, on June 6, a bylaw granting the company the privilege of operating an industrial spur. The company desires a five-year franchise, but the hydro-electric railway interests oppose anything but a year's franchise. The matter is being considered by the local manufacturers and the railway company with a view to reaching a solution of the difficulty. (June, pg. 322.)

Hamilton St. Ry.—We are officially

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rolling stock to be bought will be as follows:—Grand River Ry., one 60-ton electric locomotive, four 60-ft. steel passenger cars, two trailer passenger cars,

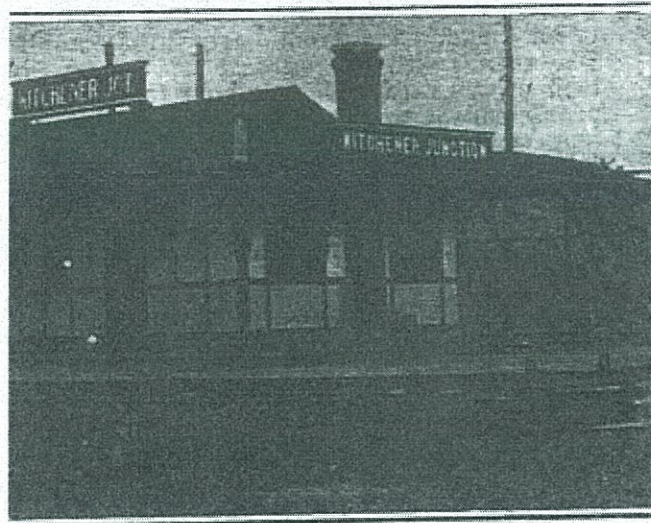
one baggage and express car. Lake Erie & Northern Ry., three 60-ft. steel passenger cars, two trailer passenger cars, one baggage and express car.

as well as relief from paving charges assessed against the street railway department. 3. The co-operation of every individual citizen in promoting the interests of the department and in this connection I could not do better than quote the Rotary Club's motto: 'He profits most who serves best.' "

The Port Arthur Civic Railway's History and Present Position.

MAY 1920

Kitchener & Waterloo St. Ry.—A plan is under discussion between the Kitchener Light Commissioners, who operate the Kitchener & Waterloo St. Ry., and the Waterloo Town Council, for the extension of the railway in Waterloo, Ont. The line now runs up King St. to Charles St., and the proposal is to extend the line a few blocks along Charles St., so as to give direct access to Waterloo Park. We are officially advised that the Kitchener & Waterloo St. Ry. has built a station at its junction with the Grand River Ry. at Kitchener city limits, which will be used jointly by the two railways.



Waterloo St. Ry. and Grand River Ry. Joint Station at Kitchener

The building is 20 x 50 ft., and contains waiting rooms, with separate lavatory accommodation, ticket agent's office and news stand. It is built throughout of British Columbia fir, with stucco finish. The new station is quite an improvement and adds to the efficiency of the service between Galt, Kitchener and Waterloo. The approximate cost was \$3,500. The average number of passengers handled through the station is about 1,000 a day. (Oct., pg. 548.)

Ontario Hydro Electric Rys.—Essex Di-

Electric Rail

The Peterborough, Ont., Radial Ry. will, a press report states, put one-man cars on all its lines.

The Quebec Railway Light and Power Co. has received 5 cars from Ottawa Car Manufacturing Co.

The Hydro-Electric Power Commission of Ontario has ordered 3 bodies for 50-ton electric locomotives, from Canadian Car and Foundry Co.

The Windsor, Essex & Lake Shore Rapid Ry. has bought a steam shovel from F. H. Hopkins & Co., Montreal, for its gravel pit.

The Lake Erie and Northern Ry. is adding 3 steel passenger cars, 60 ft. long; 1 trailer passenger car, and 1 electric locomotive, 60 tons capacity, to its rolling stock.

The Grand River Ry. is adding 4 steel passenger cars, 60 ft. long; 2 trailer passenger cars, 1 baggage and express car and 1 electric locomotive, 60 tons capacity, to its rolling stock.

MAY 1920

Union Electric Railway Station for Brantford.

The Lake Erie & Northern Ry., a subsidiary of the C.P.R., and the Brantford & Hamilton Ry., a subsidiary of the Dominion Power & Transmission Co., entered into an agreement recently to build a joint station in Brantford, Ont., and, as already stated in Canadian Railway and Marine World, the contract for its erection was let to Schultz Bros. Co., contingent on satisfactory arrangements being made with the city council and subject to the Board of Railway Commissioners' approval.

The plans as shown in the accompanying illustration provide for a one story building, located over the tracks at the southwest corner of Colburn and Water Streets, with 38 ft. frontage on Colburn St. and 76 ft. on Water St., and tracks to pass beneath the main floor of the

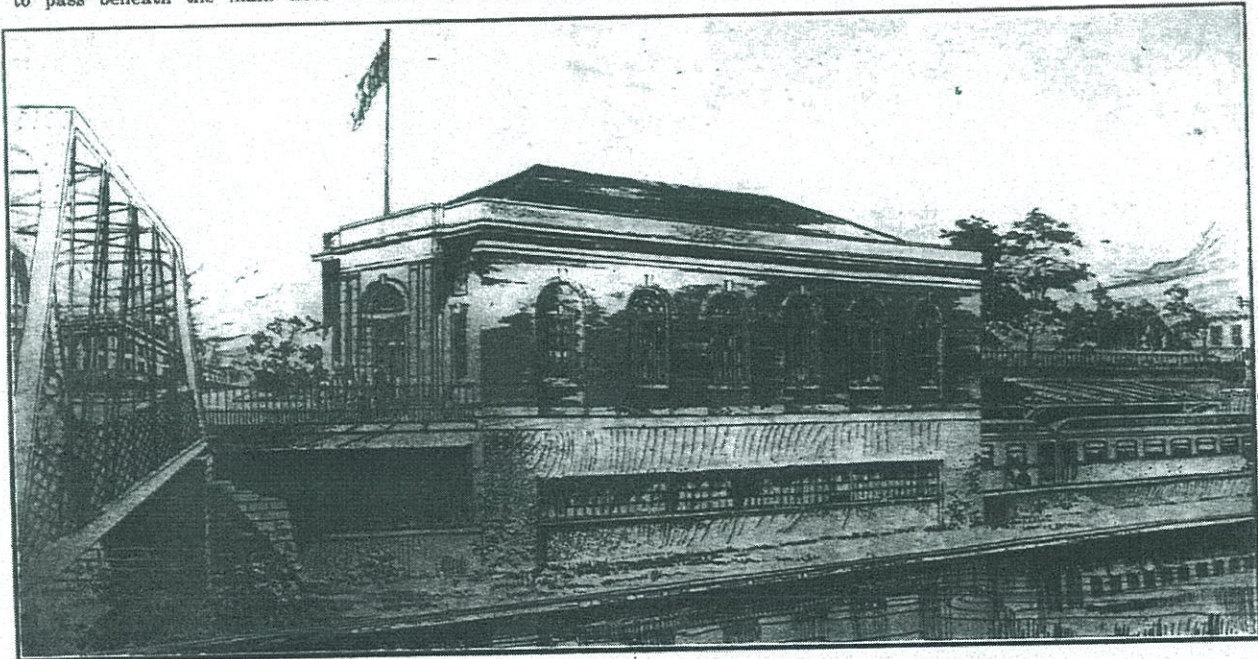
The Brantford City Council approved of the station plans, with a stipulation that the Lake Erie & Northern Ry. buy a strip of land opposite the station site. This the company refused to do, holding that it was not necessary, and the starting of work was deferred in order to bring the matter before the Board of Railway Commissioners.

One-Man Car Operation in Lethbridge.

The Lethbridge Municipal Ry. for the year 1913 showed a net loss on operating of \$4,147.75, and after providing for debenture and other interest and sinking fund there was a total deficit for the year of \$30,831.22. For the year 1914 the loss on operating was \$3,477.14, and after providing for debenture interest, sinking fund, taxes and fire insurance there was a total deficit for the year of \$37,202.33.

Increase of Toronto Railway Co's Capital.

A special general meeting of shareholders was held in Toronto, May 29, to sanction a proposed increase of capital stock by the creation of 30,000 new shares of \$100 each, making the aggregate capital stock \$15,000,000. The circular calling the meeting states that the increase is necessary to provide funds to meet the company's financial requirements and for financing the requirements of subsidiary companies for necessary extensions and betterments of their properties, in accordance with the company's statutory powers and for reasons more particularly indicated in accompanying memorandum. It is the directors' intention to have the new shares available for subscription pro rata by the shareholders, and if not subscribed, the same to be offered to the public.



Station for Lake Erie and Northern and Brantford & Hamilton Railways at Brantford, Ont.

building, with platforms, express and baggage accommodation at the lower level. The design is New England, Colonial style; red brick, with limestone trimmings and green slate roof. The main floor, at street level, with entrance from Colbourn Street, is to contain a main waiting room 35 x 50 ft., women's retiring room and lavatory, men's lavatory and ticket and telegraph offices. Two stairways will lead from the main floor to the track platforms. Baggage and express rooms and steam heating equip-

For the year 1915 there was a surplus from operating of \$3,677.64, and after providing for debenture interest, sinking fund, taxes and insurance, which totalled \$33,383.37, there was a net deficit of \$29,705.73 for the year.

Commissioner Freeman informs us that the change in operating results from a deficit to a surplus was undoubtedly owing to the one-man car operation which was started June 1, 1914. Financial conditions generally were worse in 1915 than in the previous year and had not the one-

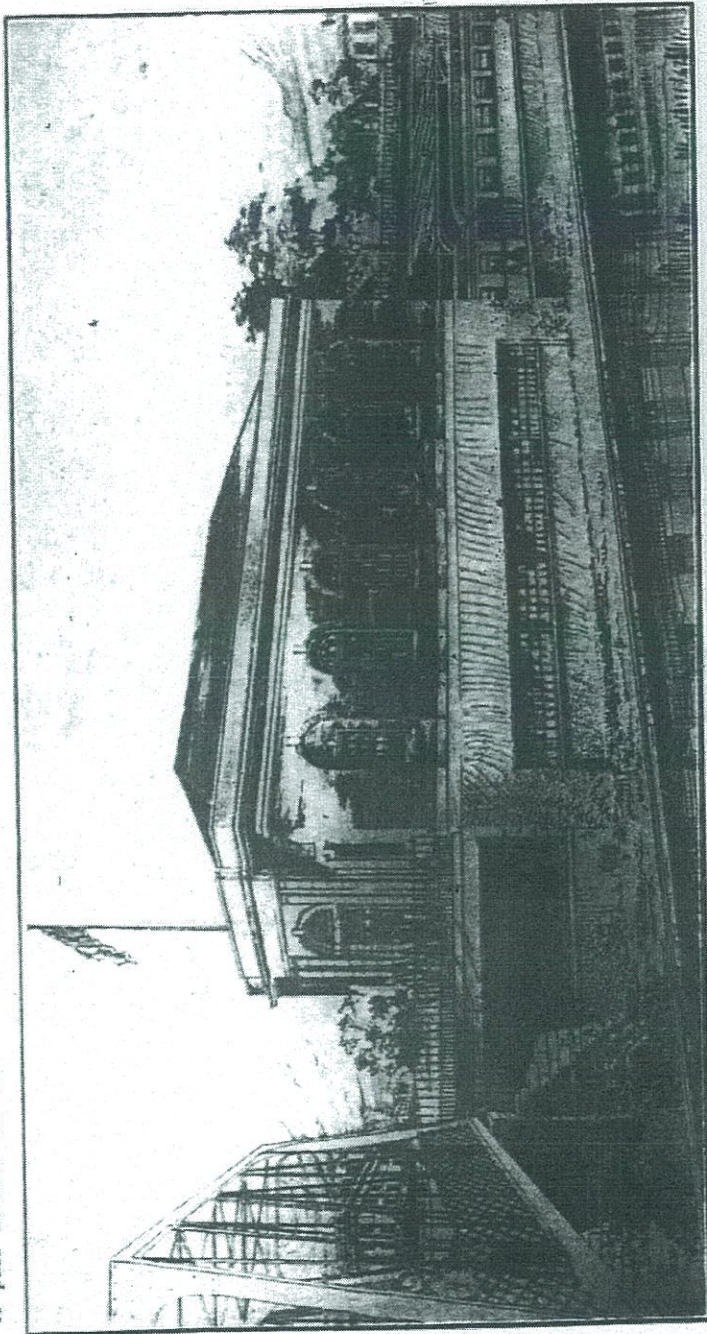
The accompanying memorandum above referred to states that the Toronto Ry. Co. has express power by statute to acquire the shares and securities of the following companies and to lend its credit to them or guarantee their bonds or other securities or obligations, viz., Toronto & Mimico Ry. Co. (now Toronto Power Co., Ltd.), Toronto & Scarboro Electric Ry., Light & Power Co., Metropolitan Ry. Co., Schomberg & Aurora Ry. Co., Toronto & York Radial Ry. Co.

In reference to the various bonds issued the memorandum states that among

St. and 76 ft. on Water St., and tracks to pass beneath the main floor of the

fund, taxes and fire insurance there was a total deficit for the year of \$37,202.83.

offered to the public.



Station for Lake Erie and Northern and Brantford & Hamilton Railways at Brantford, Ont.

building, with platforms, express and baggage accommodation at the lower level. The design is New England, Colonial style; red brick, with limestone trimmings and green slate roof. The main floor, at street level, with entrance from Colbourn Street, is to contain a main waiting room 85 x 50 ft., women's retiring room and lavatory; men's lavatory and ticket and telegraph offices. Two stairways will lead from the main floor to the track platforms. Baggage and express rooms and steam heating equipment will be located in a separate extension 14 x 76 ft. on the lower or track level. This extension will abut the retaining wall of Water St. and will be accessible for teams at the lower end of the street. The interior of the building will be finished in Canada ash; the walls and ceilings of main waiting room to be plastered and finished with plastered cornice. The floors will be concrete. The lavatories will have a marble wainscot 6½ ft. high. Seats will extend the full length of the two outside walls in the waiting room, except in space occupied by the ticket and telegraph offices. The approximate cost is stated as \$25,000.

For the year 1915 there was a surplus from operating of \$3,677.64, and after providing for debenture interest, sinking fund, taxes and insurance, which totalled \$33,383.37, there was a net deficit of \$29,705.73 for the year.

Commissioner Freeman informs us that the change in operating results from a deficit to a surplus was undoubtedly owing to the one-man car operation which was started June 1, 1914. Financial conditions generally were worse in 1915 than in the previous year and had not the one-man car operation been started, the service would probably have had to be discontinued.

Peterborough Radial Ry. — As announced in Canadian Railway and Marine World for April, the Ontario Government bought the Electric Power Co., Ltd., properties in Eastern Ontario, including the Peterborough Radial Ry. By an order in council passed May 5, the control, administration and management of the properties has been vested in the Hydro Electric Power Commission of Ontario, which is to carry on the undertakings as a separate branch of its business.

The accompanying memorandum above referred to states that the Toronto Ry. Co. has express power by statute to acquire the shares and securities of the following companies and to lend its credit to them or guarantee their bonds or other securities or obligations, viz., Toronto & Mimico Ry. Co. (now Toronto Power Co., Ltd.), Toronto & Scarborough Electric Ry., Light & Power Co., Metropolitan Ry. Co., Schomberg & Aurora Ry. Co., Toronto & York Radial Ry. Co.

In reference to the various bonds issued the memorandum states that among other purposes part of their proceeds were used to purchase the Toronto & York Radial Ry.'s share capital, to build extensions and make betterments to its various divisions; also to purchase the Schomberg & Aurora Ry. Co.'s share capital and to build and equip the line.

The memorandum adds: "In addition to accomplishing the main object—i.e., assuring an adequate supply of power for the Toronto Ry.—steady progress has been made in the sale of power. In 1915 the gross sales of power were \$1,463,689, and in 1914 these are expected to reach a total of \$1,800,000. The gross revenue

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