CANADIAN ELECTRIC RAILWAY DIARY II

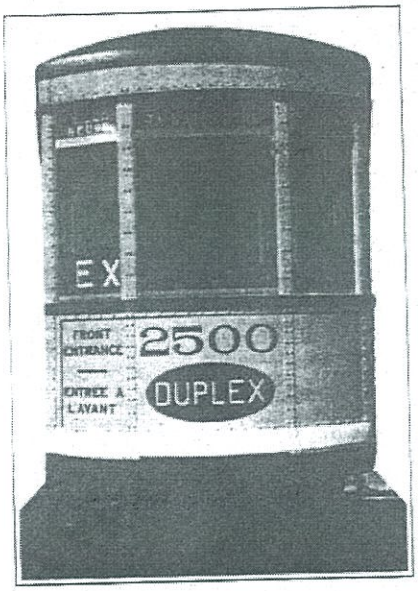
C.H. RIFF

Electric Railway Department

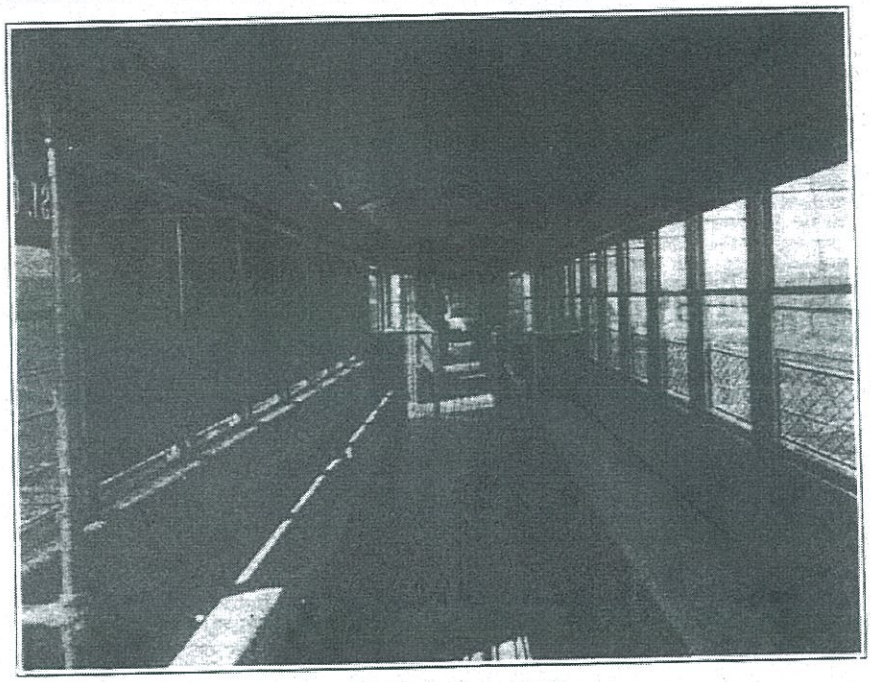
Duplex (Articulated) Cars, Montreal Tramways Company.

As the result of the Montreal Tramways Co.'s constant endeavor to adapt any worthy new idea to the betterment of local traffic conditions, it ordered some months ago and is putting in operation, two duplex cars. Their dimensions, etc., are as follows:

Length of complete car	80 ft.
Seating capacity	46
Weight without passengers	58,000 lb.
No. of entrance doors	2 at front end
No. of exit doors	2
Motor equipment	4 75-h.p.



Duplex Car, Montreal Tramways Co.



Duplex Car, Montreal Tramways Co.

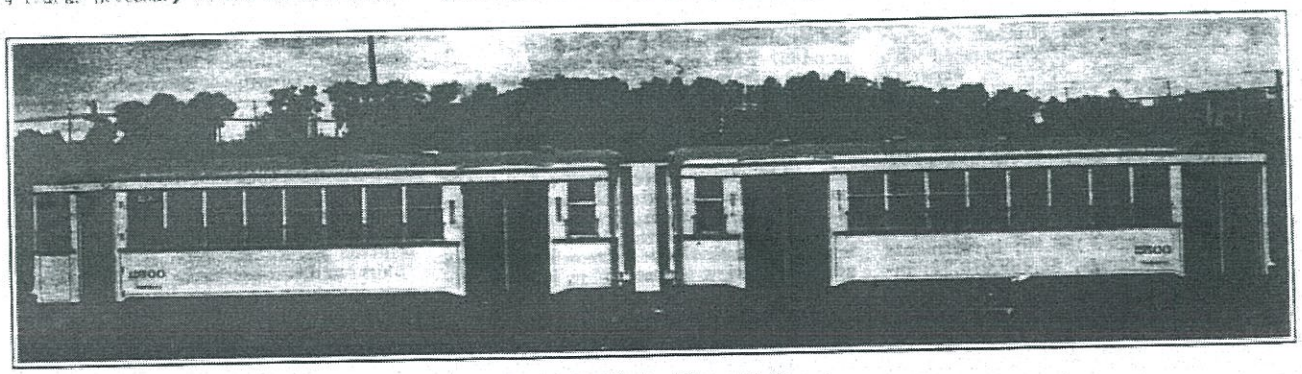
The unit is virtually a single car, 80 ft. long, which is hinged in the middle to allow it to take sharp curves, but the construction allows free movement of passengers between the two halves of the unit at all times. Only 3 trucks are used to support the duplex car instead of the 4 trucks necessary with a car and trailer. Motive power is applied to the 2 front and 2 rear axles, but brakes are applied on all wheels.

All passengers enter by a large front door nearly 6 ft. wide. Three separate exits are provided, one 2-stream exit near the rear of the front section, one 2-stream exit near the front of the second section and a single-stream exit at the rear. All exits in the rear section are operated automatically by the weight of passenger's foot on a treadle plate in the well which serves as the first step downwards. All doors are, however, under the complete control of the conductor, whose position is at the rear of the first section and who has a good view of all doors at all times. The operation of the 3 automatic doors in the rear section is so interlocked with the motors and brakes that the car cannot be started until the doors are closed completely. Moreover, the doors cannot be opened until the car has practically stopped. In case of necessity, the conductor, by pressing a button, can open all doors in both sections. Every provision has been made for the safety of the passengers. Experience with the treadle door of the 1-man cars shows that these are the safest on the system.

The first of the 2 cars has seats arranged in the conventional manner. The second car, which will appear shortly, will be equipped with individual bucket seats set at an angle. Such an arrangement does not provide as many seats, but results in a degree of privacy that is not possible with the more conventional type of seat. The arrangement also gives a free aisle space to facilitate free movement during the rush-hour loading.

The advantages of the cars from a utility standpoint are: 1. Minimum occupation of street space per passenger carried. 2. Minimum dead weight per passenger. 3. Minimum time of occupation of important street intersections for a given volume of passenger movement. 4. Improved facilities for quick loading and unloading with safety and comfort.

A very large proportion of the total daily movement of passengers is concentrated between 7 and 9 a.m. and from 5 to 6.30 p.m. The total number of cars in actual service at these rush-hours is about three times as many as are necessary to serve the various routes during the rest of the day. On some particular routes, the number of cars, during rush-hours, must be increased to six times the normal number. Under such conditions,



Duplex Car, Montreal Tramways Co.

the chief problem in a city the size of Montreal is not simply to put out a sufficient number of cars to accommodate all passengers who require transportation, but is rather to find the best ways and means of getting a sufficient number of cars loaded and passed through the narrow, congested streets and intersections in the area south of Mount Royal Ave and between Papineau and Atwater Ave. Past experience has shown the advantages of larger car units, but limited width of streets, sharp curves and intersections have forced the company to restrict the maximum length of a car unit to about 45 ft. The next step was to adopt the practice of coupling two cars together during rush hours. A standard motor car with trailer measures about 92 ft. overall. The new duplex cars are designed so that the available space for passengers can be more efficiently used than upon the ordinary car and trailer. Experimental cars of this type have been built in Baltimore, Milwaukee, Detroit and Chicago, but it is said that all of them suffer from certain objectionable features which have been eliminated in the Montreal cars, which are the last word along this line of development. The cars were built by Canadian Car & Foundry Co.

Following are further particulars of the cars:—length over all, 80 ft. 0½ in.; length of body, each section, 30 ft. 9 11/16 in.; width over all, 8 ft. 4 11/16 in.; height, rail to top of trolley board, 11 ft. 2½ in.; window post spacing, 2½ ft.; average full load, 200 passengers at 140 lb., 28,000 lb.; distance between bolster centers, 28 ft.; truck wheel base, 5 ft. 1 3/8 in.; light weights, body, 31,400 lb.; trucks, 14,760 lb.; equipment, 12,640 lb.; total, 58,800 lb.; total average loaded weight, 86,800 lb.

The equipment includes Westinghouse straight air brakes with emergency feature, bronze babbitt lined armature bearings 4 in. diam. axles; Hedley anti-climbers; Faraday high voltage car signal system; Westinghouse d.h. 16 compressor; standard metal conduit; K-35 manual control with 806-J 16 line switch; Montreal Tramways Co. standard couplers; National Lock Washer Co. curtain fixtures; Pantasote curtains; Keystone destination signs; National Pneumatic Co. GOF 4-yM door operating mechanism and 4½M E.V.P. engines; Cleveland fare boxes; slat floor covering with Kass tread; Nuttall helical gears and pinions; 12 in. foot-operated gong; Peacock staffless hand brakes; rigid aluminum hand rail; 3-ply Salamander insulating material; C.G.E. no. 1285 double element 3-circuit electric heaters, 6 in series with thermostatic control; Haskelite headlining; cherry interior trim; 3¾ x 7 in. journal bearings; Canadian Car and Foundry Co. c.i. journal boxes; Safety Car Heating and Lighting Co. type K comp. dome lighting fixtures; Westinghouse 510-A-2 motors, 42 h.p. with gear ratio 13-69; arched type roof, wood and canvas construction; O.W. Meissner pneumatic sanders; Robert Mitchell Co. sash fixtures; Ottawa Car Mfg. Co. seats, with rattan upholstery; Montreal Tramways Co. standard track scrapers; Ohio Brass Co. form A trolley base; Keystone trolley catcher; Lyman Tube and Supply Co. Ideal trolley wheels; Canadian Car and Foundry Co. trucks, type F-790 end and F-826 center; Railway Utility Co. honeycomb type ventilators; H.B. fenders, 26 in. diam. cast iron wheels at ends and 24 in. steel wheels at center. The cars are fitted with door signal and power control interlocking.

Ontario Hydro Electric Rys. Essex District wages dispute is reported settled with the employes given a 2c an hour increase.

Electric Railway Finance, Meetings, Etc.

Lethbridge Municipal Ry. June revenue, 1928, $4,888.04; 1927, $3,834.19; operating expenditure, 1928, $5,250.30; 1927, $4,307.65; fixed charges, 1928, $2,583.91; 1927, $3,302.91; deficit, 1928, $2,947.17; 1927, $3,776.37; revenue passengers carried, 1928, 75,497; 1927, 68,463. Six months to June 30: revenue, 1928, $29,657.34; 1927, $26,526.08; operating expenditure, 1928, $28,003.18; 1927, $23,958.85; fixed charges, 1928, $15,509.60; 1927, $19,817.60; deficit, 1928, $13,855.44; 1927, $17,250.37; revenue passengers carried, 1928, 489,082; 1927, 431,589.

Regina Municipal Ry.—July: revenue, 1928, $26,655.02; 1927, $24,308.78; operating expenditure, 1928, $19,281.34; 1927, $18,921.74; fixed charges, 1928, $8,865.39; 1927, $8,317.94; depreciation, 1928, $781.61; 1927, nil; deficit, 1928, $2,273.32; 1927, $2,930.90; revenue passengers carried, 1928, 396,622; 1927, 352,353. Seven months to July 31: revenue, 1928, $209,661.60; 1927, $210,491.57; operating expenditure, 1928, $140,900.66; 1927, $143,062.69; fixed charges, 1928, $58,773.04; 1927, $58,225.59; depreciation, 1928, $2,752.37; 1927, nil; surplus, 1928, $7,235.53; 1927, $9,203.29; revenue passengers carried, 1928, 3,187,075; 1927, 3,265,373.

Saskatoon Municipal Ry. June: revenue, 1928, $23,697.56; 1927, $20,453.24; operating expenditure, 1928, $17,611.00; 1927, $15,959.16; fixed charges and depreciation, 1928, $7,176.79; 1927, $6,584.43; taxes, 1928, $947.90; 1927, $409.06; deficit, 1928, $2,038.13; 1927, $2,499.41; revenue passengers carried, 1928, 376,567; 1927, 321,797. Six months to June 30: revenue, 1928, $173,258.10; 1927, $160,513.22; operating expenditure, 1928, $114,231.99; 1927, $106,186.04; fixed charges and depreciation, 1928, $43,200.80; 1927, $40,610.60; taxes, 1928, $6,930.32; 1927, $8,210.26; surplus, 1928, $8,894.99; 1927, $10,506.32; revenue passengers carried, 1928, 2,780,268; 1927, 2,559,438.

Winnipeg Electric Co. June results: gross earnings, $472,996.79; net revenue, $138,854.90; fixed charges and taxes after deducting other income, $96,716.97; net income from operation, $42,137.93.

British Columbia Electric Ry. June, 1928, gross earnings, $1,068,252; increase over June, 1927, $39,777; operating expenses, $790,321; increase, $24,364; net earnings, $277,931; increase, $15,413. Twelve months ended June 30, 1928, gross earnings, $13,441,321; increase over twelve months ended June 30, 1927, $692,853; net earnings, $3,890,325; increase, $240,717.

Calgary Municipal Ry.—July: revenue, 1928, $88,013.73; 1927, $76,009.90; operating expenditure, 1928, $55,281.06; 1927, $47,035.92; fixed charges, 1928, $19,568.05; 1927, $17,884.21; depreciation, 1928, $6,214.57; 1927, $6,177.21; surplus, 1928, $6,950.05; 1927, $4,912.56; revenue passengers carried, 1928, 1,310,286; 1927, 1,183,357. Seven months to July 31: revenue, 1928, $546,671.53; 1927, $510,133.03; operating expenditure, 1928, $334,144.24; 1927, $319,263.38; fixed charges, 1928, $132,810.90; 1927, $124,092.66; depreciation, 1928, $43,501.99; 1927, $43,240.47; surplus, 1928, $36,214.40; 1927, $23,536.52; revenue passengers carried, 1928, 9,106,268; 1927, 8,506,435.

Cape Breton Electric Co.—June: revenue, 1928, $48,076.94; 1927, $47,400.04; operating expenses and taxes, 1928, $42,212.33; 1927, $39,812.15; net operating revenue, 1928, $5,864.61; 1927, $7,587.89. Twelve months to June 30: revenue, 1928, $660,713.58; 1927, $647,263.85; operating expenses and taxes, 1928, $525,245.53; 1927, $494,093.78; net operating revenue, 1928, $135,468.05; 1927, $153,1[illegible]; interest charges, 1928, $68,400.[illegible]; 1927, $68,967.98; balance, 1928, $[illegible]; 1927, $84,202.09.

Mainly About Electric Railway People.

Major F. D. Burpee, Vice President and Manager, Ottawa Electric Ry., addressed the Ottawa Rotary Club on urban transportation recently.

Arthur B. Coryell, General Superintendent and Purchasing Agent, Windsor, Essex and Lake Shore Rapid Ry., sustained a paralytic seizure while driving his automobile in Kingsville, Ont., July 27 and was removed to a nearby house, where he died early the following morning. He was born at Lansing, Mich., Feb. 13, 1865, and entered transportation service in 1901, prior to which he had held several positions with light and power companies in the United States. His connection with electric railways was also principally in the United States, his first Canadian position being that of General Superintendent and Purchasing Agent, Moncton Tramways, Electricity and Gas Co., Moncton, N.B., which he held from 1914 to 1918, and his last began in May, 1925, when he became General Superintendent and Purchasing Agent, Windsor, Essex and Lake Shore Rapid Ry.

Miller Lash, K.C., Toronto, has been elected President, Brazilian Traction, Light and Power Co., succeeding Sir Alexander Mackenzie, who has resigned on account of ill health after 28 years' service with the company, for 13 of which he has been President. Mr. Lash has been active in the company's affairs for some years, latterly as executive Vice President in Toronto.

Murray McCulloch, theretofore City Passenger Agent, London & Port Stanley Ry., London, Ont., was, on July 19, appointed Auditor, vice C. S. Way, resigned.

L. P. March, theretofore City Freight Agent, London & Port Stanley Ry., London, Ont., was, on July 19, appointed Freight and Passenger Agent.

Geo. W. Ross, who died in the [illegible] Hospital, Vancouver, B.C., Aug. [illegible], had been in the British Columbia Electric service as station agent at New Westminster from 1910 to 1912, and at [illegible] station, Vancouver, since 1912.

Joseph F. St. Cyr was entertained at dinner at the St. John's Golf Club, St. John, Que., July 28, by members and friends in celebration of his reappointment as Chairman of Montreal Tramways Commission and his return from a holiday to Europe.

Julian C. Smith, LL.D., M.E., Montreal Tramways Co., and Montreal Power Co., and Vice President and General Manager, Shawinigan Water & Power Co., has been elected a director of the Royal Trust Co.

George A. Young, who celebrated his 89th birthday in Winnipeg, Aug. 1, was Superintendent of the old horse railway which was owned by A. W. Ambrose, now President of the Dominion Bank, Ltd., and which served the city for 25 years prior to being taken over by Sir William Mackenzie and associates, who formed the Winnipeg Electric Ry.

British Columbia Electric R[illegible] arrangement was made Aug. 8, [illegible] the company gives a block of land [illegible] by Queen's Ave., Eleventh [illegible] and Auckland Streets, New W[illegible] to the New Westminster [illegible] for street widening purposes, in [illegible] for a block of land on which the company's car house is located.

Oshawa Railway Car House, Shop and Substation.

The marked growth in the industrial activity of Oshawa, Ont., has made it necessary to increase the facilities of the Oshawa Ry., a Canadian National Ry. subsidiary, which serves the entire city for both l.c.l. and carload freight and local switching. To keep abreast of this growing traffic the Oshawa Ry. has made substantial additions to its yard facilities, locomotives and equipment recently, with the result that the old car house and shops are quite inadequate for the proper care and maintenance of the rolling stock. To provide adequate shop and substation facilities the railway acquired in 1927 about 7 acres of land north of Alice St. and east of the spur to North Oshawa. It is proposed to erect on this property a building to provide for shops and stores, with office accommodation, and a substation of sufficient capacity to allow for future increase. The property is well located, as it is close to the General Motors Corporation, which can well be considered Oshawa's industrial center. This makes it possible to locate the substation practically at the centre of load, giving better voltage distribution.

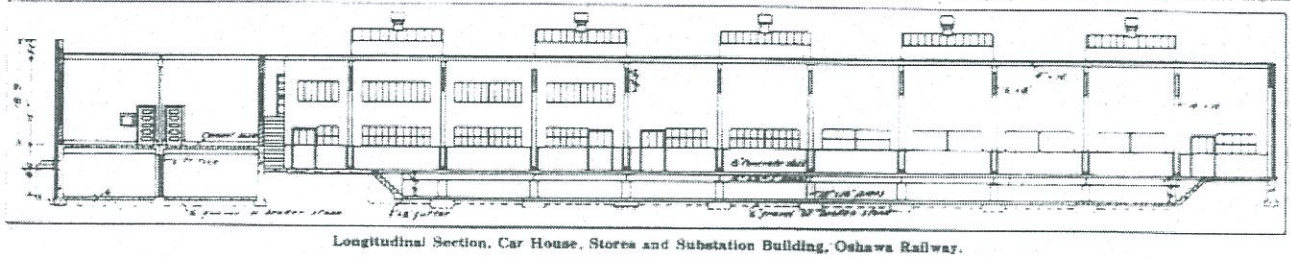
A contract has been awarded Bathe and McLellan, Oshawa, for a building 213 x 116 ft., of brick and concrete, with timber roof supports, which will contain car house, shops, offices and substation.

Figure 1 shows the plans of the proposed building with various facilities indicated. Starting from the entrance on the north end of the building, the timekeeper's and storekeeper's offices will be to the right and the crew's room to the left. The two corners will be occupied by the substation on the northeast corner and the storeroom on the northwest. Additional storage room for heavy material will be provided in the basement below the main storeroom, and from the latter a small fireproof oil room will be provided with a battery of tanks and pumps for the various classes of oil. A foreman's office will be provided on the same level as the office floors, which will be above the shop floor, thus allowing the foreman a full view of the work carried on in the shop.

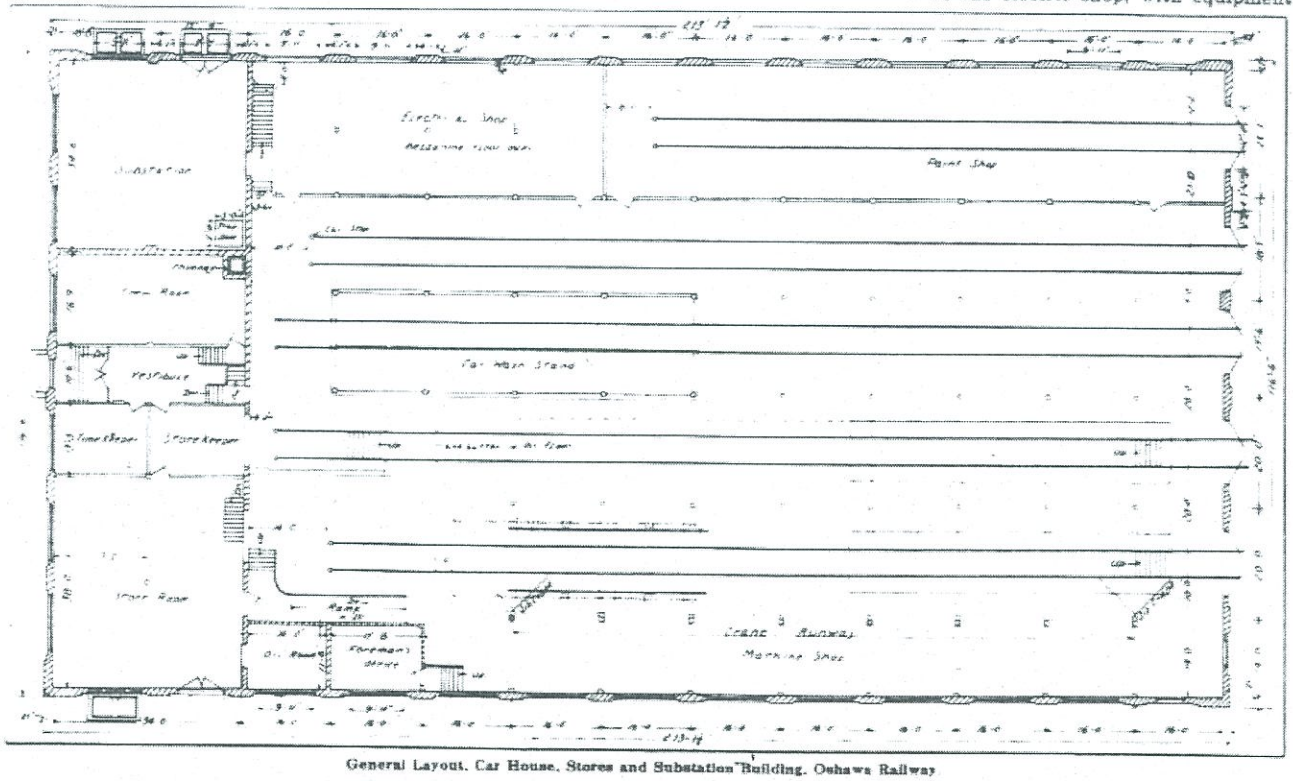
Along the west side of the building will be a number of bays, where various machine tools will be installed, and machinery requiring repairs will be distributed to the machine tools by a monorail carrying an electric hoist.

Adjacent to the machine shop will be a main repair track, mounted on concrete pillars allowing pit room both at sides and underneath for easy access to the trucks and motors. On one end of this track there will be a 6-screw car hoist, which will have a capacity of 100 tons and will be capable of lifting the heaviest locomotive body from its trucks. Adjacent to the main repair track will be a similar track, but without hoist. Excavation for the pits for the two tracks will be carried right across, so that easy access may be had from track to track. The third track from the machine shop will be used for washing and cleaning. At one end there will be a complete car washing equipment with receivers and drainage to carry off the washing water. The fourth track will be used for storage or minor repairs. The east side of the shop will be divided into the paint shop in which there will be one track. This shop will be 112 ft. long and will be capable of containing 2 cars or locomotives. Adjacent to the paint shop will be the electric shop, with equipment for rewinding motors, overhauling controllers and all electrical repairs. Over the electric shop will be a mezzanine floor for Electrical Supervisor and drafting office.

An interesting feature of the building will be the substation approximately 34 ft. square inside, in which will be installed a 1,200 k.w. Brown-Boveri mercury arc rectifier, 650 volts d.c., with a Brown-Boveri 3-phase transformer, taking power at 4,160 volts, 60 cycles, 3-phase from the new hydro line recently constructed along the Toronto Eastern Ry. right-of-way. Provision will be made for the future addi-



Longitudinal Section, Car House, Stores and Substation Building, Oshawa Railway.

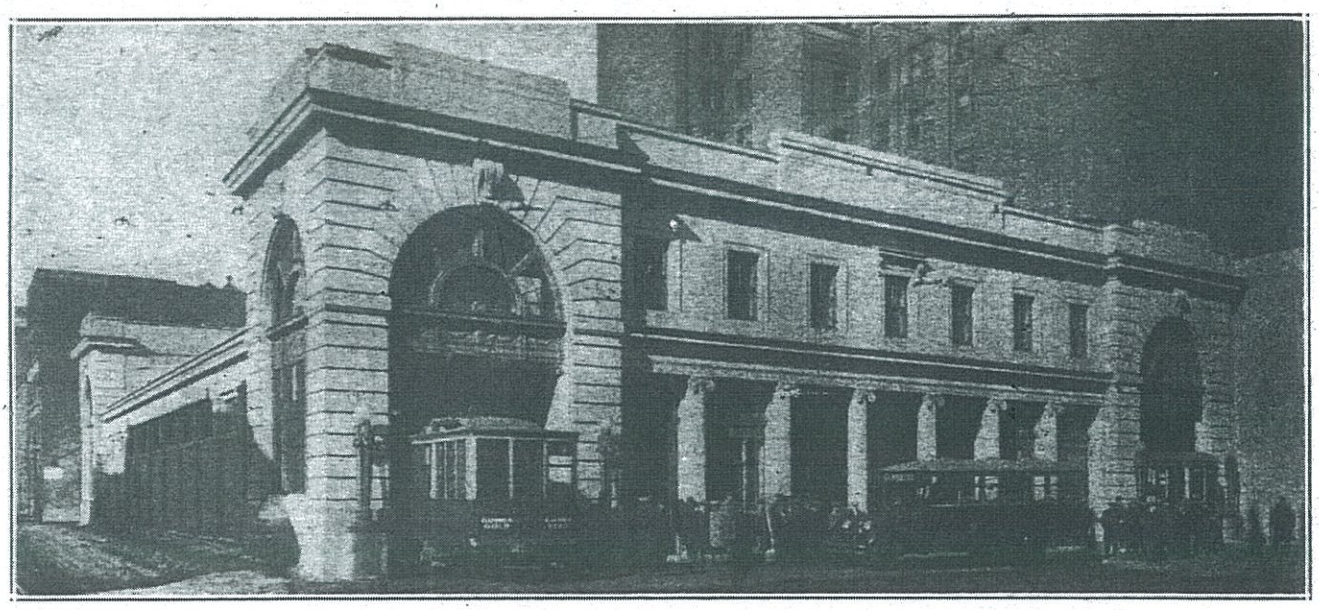


General Layout, Car House, Stores and Substation Building, Oshawa Railway

Electric Railway Department

Montreal Tramways Company's Central Passenger Terminal.

The Montreal Tramways Co.'s passenger terminal on Craig St., preliminary descriptions of which were given in Canadian Railway and Marine World for July 1925, pg. 361, and Feb. 1926, pg. 87, and of which an illustration and ground plan are given herewith, performs a function which is believed to be unique in Canadian electric railway operation. Built primarily to facilitate operation and relieve congestion, its usefulness in these directions has more than met expectations, while it has additional value by providing maximum convenience to the company's patrons. Before the terminal was placed in operation, numerous east and west car routes met or overlapped in its vicinity, and congestion and delayed cars resulted; particularly in rush hours. Now, however, the congestion is a thing of the past, and cars are maintained on schedule at all times without difficulty. As an example of just how efficient the terminal is, it has been possible to cut off an average of 6 minutes from the time of operation on every route using Craig St., while the car mileage has been reduced by 600 miles a day. All street stops in the terminal's vicinity have been eliminated.



Craig St. Elevation, Montreal Tramways Co. Craig St. Passenger Terminal.

The terminal building was designed along very pleasing architectural lines. It is 2 stories high, and fireproof throughout, with the frontage on Craig St. approximately 36 ft. high, and has concrete foundations, steel frame, and steel roof frame with gypsum roof and Barrett roofing overcovering. The entire front on Craig St. and the returns on Cote St. are of Benedict stone, the rest of the building and all exposed walls being faced with Fisk pressed brick. The lot on which the building is erected has a frontage of 118½ ft. on Craig St. and 275¾ ft. on Cote St., the building itself being 118½ x 216 ft., the balance of the lot being occupied, as shown by the ground plan, by an adjoining garage building for the company's automobiles.

The main concourse, on the ground floor, is 158 x 24 ft., and is entered from Craig St. through 7 bronze doors. The concourse floor is of terazzo. Access from the concourse to the loading platforms for east and westbound cars is by a series of 6 groups of 6 doors each, 3 groups on each side, each group of doors having an overall width of 16 ft. The platforms at the east and west sides run the full length of the building. Their average width is 16 ft.

Between the concourse and the platforms, subtantially built and artistically finished booths have been provided which are occupied, as shown by the plan, by a branch bank, a drug store, a confectionery store, a cigar store, a newspaper and periodicals store, a women and men's furnishing store, comfort station for men and women, with attendants, and the company's lost property office and ticket sales office. Four pay telephone booths are located toward the rear, beyond which are the men's and women's lavatories. Adjoining the garage are a repair shop, and a room for chauffeurs. There is a postoffice mailing box in the concourse.

The second floor is being laid out for the company's own use, including a large space immediately over the garage which will be used as a training school, an employment office. and for medical examination. The entire building is heated by steam bought from Montreal Light, Heat and Power Consolidated, the office building of which is immediately adjoining, to the east. Electric lighting current is furnished from the Montreal Tramways Co., Cote St. substation, through a transformer in the terminal building.

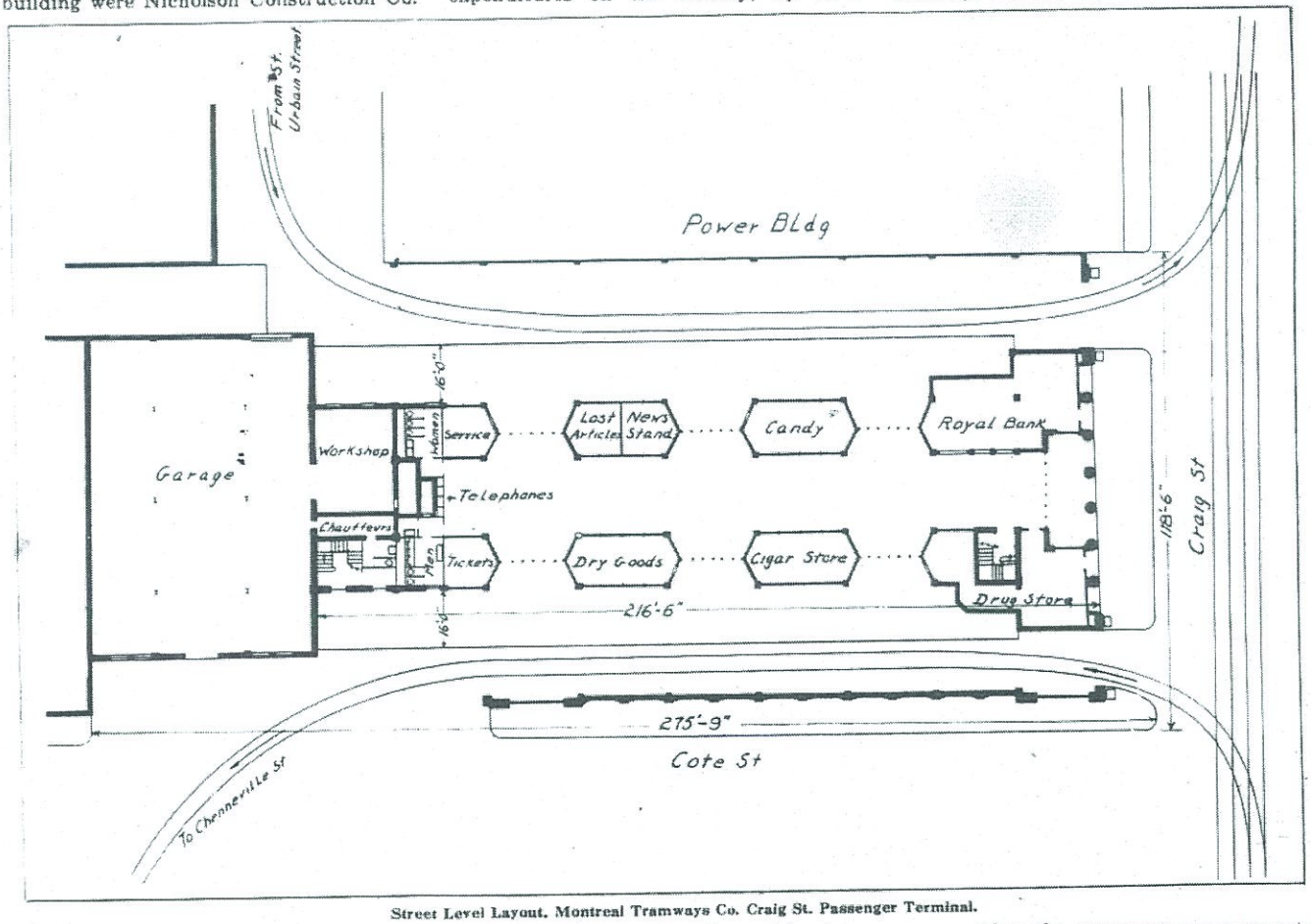
The tramway routes serving eastern Montreal and having their western termini at the terminal are as follows: no. 1, Amherst, after 7 p.m. only; before 7 p.m. cars on this route have their western terminal at the east side of Place d'Armes; no. 23, St. Denis-Ahuntsic, except between 7.30 and 9 p.m. when different routing is provided; no. 35, St. Denis-Christophe Colomb; no. 55, St. Laurent-Isabeau; no. 68, St. Denis-Cremazie; no. 77, St. Laurent extra (Mile End). West and northwest routes with termini at the central terminal building are as follows: no. 9, St. Denis-Windsor; no. 31, St. Henri-Notre Dame de Grace; no. 49, St. Henri short line; no. 60, Wellington short line; no. 64, Sherbrooke West-Notre Dame de Grace; no. 80, Bleury; no. 96, Van Horne, until 7 p.m. only, after which these cars turn at St. Catherine and Bleury St. and run on St. Catherine St. to Atwater Ave.

In the operation of the terminal, cars from the east turn at Craig and St. Urbain Sts., up the latter, then swing to the left and go in to the passenger platforms as shown by the arrows. After unloading and loading, they proceed directly to Craig St. and continue east on it. Cars from the west head from Craig St. direct to the passenger platforms, and after unloading and loading continue, as indicated by the arrows, up Cote St., then swing to the left and return to Craig St. via Chenneville St., and then proceed west along Craig St. There are no switching or reverse movements of any kind, making for maximum speed in operation.

Between 4.30 and 6.30 p.m., the evening rush hours, the entire terminal is operated on the prepayment system. Two ticket sellers take up their positions in temporary stands in the middle of the concourse, and ticket collectors are stationed at the doors giving admittance from the concourse to the passenger platforms. No one is allowed to enter the platforms direct from Craig St. or from the rear, and passengers deposit their tickets or transfers on passing from the concourse to the platforms. When a car enters the terminal, the boarding passengers, congregated on the platform, enter while the debarking passengers leave, with the result that the car is ready to leave the terminal practically as soon as the last of the debarking passengers has left the car, a great deal of time being saved because of the conductor not having to collect fares. During these hours the terminal presents a scene of great activity, large numbers of passengers coming to it to begin their homeward journeys to the east,

west and north parts of the city, and others, on their trans-city trip, transferring from an east route car to a west route one, or vice versa. Operation is so simplified, however, that confusion is conspicuous by its absence; anyone watching it can easily understand how an average of 6 minutes has been taken off the running time of cars on all routes entering the terminal. On the east terminal loop, under normal conditions, 130 cars are handled between 5 and 6 p.m., and on the west loop 110. On one occasion, on account of a fire making it necessary to divert extra cars to Craig St., over several days, up to 168 cars an hour were handled on the east loop, and the management is confident that 180 cars an hour could be handled on either loop if occasion demanded.

The general contractors for the terminal building were Nicholson Construction Co.



Street Level Layout, Montreal Tramways Co. Craig St. Passenger Terminal.

The plumbing and heating work was done by L. E. Moulton and Co., and the electrical work by Canadian Comstock Co.; special lighting fixtures, lanterns and special standards were furnished by MacDonald and Willson Co.

This terminal occupies a site surrounded with more than usual historic interest. The property was owned originally by Gabriel Cotte, who died in 1795. In 1869, or thereabouts, the site was occupied by the Montreal School of Medicine and Surgery.

Toronto Electric Club.—W. G. Gordon, Construction Engineer, Canadian General Electric Co., has been elected President; E. B. Walker, Electrical Engineer, Electric Lines, Canadian National Rys., one of the vice presidents; and W. R. McRae, Superintendent of Rolling Stock and Shops, Toronto Transportation Commission, a member of the executive committee.

Weston-York Township Electric Railway.

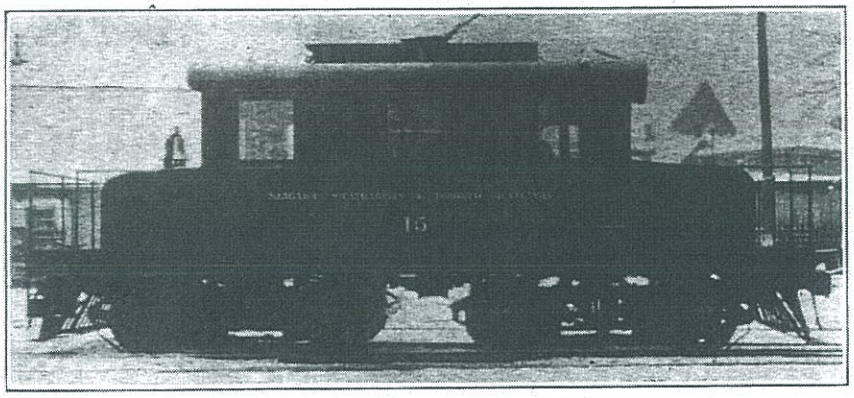
A bill was introduced in the Ontario Legislature at its current session to validate the agreement by which the Toronto Transportation Commission is operating the electric railway between the northwest boundary of Toronto and the north end of the Town of Weston, and which runs through Mount Dennis, in York Tp. The construction and method of operation of this line were described in preceding issues, and the agreement was given practically in full in Canadian Railway and Marine World for Sept. 1925, pg. 461. The bill, in addition to ratifying the agreement, provides for giving Weston authority to make expenditures on the railway, up to a certain amount, and to issue debentures therefor, without obtaining assent of the voters; states that claims for damages for accidents are not to be brought against Weston or York Tp., but against the Toronto Transportation Commission, as operator of the road; affirms the Ontario Railway and Municipal Board's jurisdiction as provided for in the agreement, and prohibits operation of motor vehicles in competition with the railway so long as, in the Municipal's Board's opinion, the railway is giving an adequate service. The agreement provides that the T.T.C. charge the town and township, in respect of accidents, the same amount per car mile as accident claims cost the T.T.C. in the operation of its Toronto lines; in other words, the T.T.C., for this charge, insures town and township against accident claims. Certain Toronto councilors objected to this arrangement, after the agreement was made, and the city council has a representative engaged in trying to have that part of the agreement invalidated, but at the the time of writing it is thought that the Legislature will ratify the agreement as it stands. The bill was considered in the Private Bills Committee of the Legislature on March 24. Certain members objected to that part of it prohibiting motor vehicle competition, and it was finally sent on to a special committee for study.

Adjusted Stops, Ottawa Electric Ry.—Ottawa City Council, on March 1, approved of the Ottawa Electric Ry.'s proposal to operate its cars on a skip-stop plan to speed up the service, particularly on the main lines. We were advised officially, March 15, that the company was making the necessary arrangements for putting the plan into effect. The city blocks are generally speaking 600 and 200 ft. long, and it has been the practice to stop at every street intersection. The new system will eliminate every other street where short blocks exist, the effect of which will be that about 20% of the stops will be eliminated. Those remaining will be staggered, in order that no one will have his stop cut out in both directions. Passing in one direction the cars will stop at every second crossing, and on the return trip they will stop at all the other crossings. When this system goes into effect the average length of the stops on the lines will be approximately 500 ft. As the word "skip-stop" is considered to imply a haphazard arrangement of stops, and might be considered to be objectionable, the company has adopted the expression "adjusted" stops, which has been received favorably.

Electric Railway Department

Electric Locomotives Built at Niagara, St. Catharines and Toronto Ry. Shops.

As stated in Canadian Railway and Marine World previously, four electric locomotives have been built at Niagara, St. Catharines and Toronto Ry. shops, St. Catharines, Ont., one of which has been placed in service on the N.St.C. and T., the second on the Montreal and Southern Counties Ry., the third on the Oshawa Ry., and the fourth on the Canadian National Electric Rys., Toronto Suburban District. The two for the N. St. C. and T. Ry. and the M. & S. C. Ry. are similar, having English Electric Co. electrical equipment and camshaft control, while the one for the Oshawa Ry. has Westinghouse electrical equipment, and that for the Canadian National Electric Rys., Canadian General Electric Co. electrical equipment. The latter locomotive has a box type cab, while the Oshawa Ry., N. St. C. and T. Ry. and M. & S. C. Ry. locomotives have steeple type cabs.



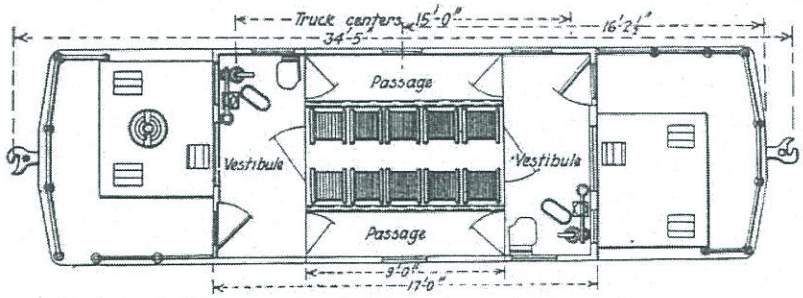
Electric Locomotive, Niagara, St. Catharines & Toronto Railway.

The Niagara, St. Catharines and Toronto, and Montreal and Southern Counties Rys. locomotives, an illustration of the first of which is given herewith, are 50 ton machines, with general dimensions, etc., as follows:

Weight:	
Body	39,864 lb.
Trucks	24,400 lb.
Electric equipment	31,900 lb.
Air equipment	4,620 lb.
Total	100,760 lb.
Length over all	34 ft. 5 in.
Truck centers	15 ft.
Height, rail to trolley base	11 ft. 11½ in.
Length of cab	17 ft.
Length of electrical equipment compartment	9 ft.

The electrical equipment on these locomotives, as shown in the accompanying apparatus layout plan, is in two groups, each consisting of 2 motors and control. These groups are placed in parallel or series position by means of a remote control switch, and with the change over switch in either position the 2 motors of either group may be connected in series or parallel with each other, through the operation of the camshaft governed by the master controller. Control apparatus is actuated by current taken from the line. The motors, type DK-75-3-B, inside hung, are of 190 h.p. each, and each pair is provided with a DK S-500 hand setting circuit breaker. The control, known as the DK M-7 camshaft type, is made up of a series of cams set on a mica-insulated shaft driven through worm gearing by an electric motor. The cams are set at different angles and each one closes a contactor in turn. The contactors are not fitted with arc chutes, as the two line breakers operating in series interrupt the normal working current and thus save wear and tear on the remaining contactor tips, which do not have to break any current. The master controller is fitted with the usual notch regulating device and has nine series and six parallel notches.

The frames of these 2 locomotives are of extra strong and rigid construction. In place of the usual built up steel plate construction for the end members, standard cast steel headstocks, devised by W. E. Massie, Mechanical Superintendent, N. St. C. & T. Ry., have been used at both ends, and bolted to the sills. The side members are 12 in. 46.6 lb. channels, and the center sills 12 in. 55 lb. I beams, strengthened with adequate cross members. Trucks are the American Locomotive Co. locomotive type, built by Montreal Locomotive Works. Truck wheel base is 8 ft. Wheels, steel tired, with M.C.B. standard tread, are 36 in. diam. Journals are 5½ x 10 in. Axles are of 6 in. material.



Arrangement of Equipment, Niagara, St. Catharines & Toronto Railway Electric Locomotive.

Air brake equipment is Westinghouse EL-14 type, with 12 x 12 in. brake cylinders, and each locomotive has [illegible] G. E. 35 cu. ft. capacity compressors. The equipment compartment of the cab, as shown in the layout plan, has a passage on each side. The cab is of all steel construction, built up of steel plates riveted to angles. The floor is of oak, laid on heavy steel plates. A feature of construction is the ease with which parts of the electrical apparatus can be removed for inspection or repairs. Other equipment includes Sharon 5 in. shank couplers, Consolidated heating equipment, C. H. luminous arc headlights on both ends, Wilson sanders, heavy type O.B. trolley base, locomotive type bell, air whistle, and locomotive type pilots. Maximum tractive effort is 30,000 lb. Tractive power at 1 hour rating at 17½ m.p.h. is 16,600 lb. Operation on both the N. St. C. and T., and the M. & S. C. is at 600 volts.

On its first trip on the M. & S. C. Ry. the locomotive for that road hauled a train of 1,100 tons. On both the M. & S. C., and the N. St. C. & T. these locomotives have been meeting every expectation in service.

The Oshawa Ry. locomotive, which is being used for switching to and from the General Motors of Canada and other industrial plants, is also a 50 ton machine, of steeple cab type, but has Baldwin Locomotive Co. locomotive type trucks with 6½ ft. wheelbase, this wheelbase being better suited to the short radius curves met with in operation. General dimensions, etc., are as follows:

Length over couplers	35 ft. 8 in.
" " end sills	32 ft.
Truck centers	18 ft.
Length of control compartment	16 ft.
Width over all	10 ft.
Height rail to trolley base	12 ft.
" " " underside of side sill	3 ft. 5 in.
Truck wheel base	6 ft. 6 in.

This locomotive, an illustration of which is also given, is equipped with 4 Westinghouse 562-D-5 motors of 100 h.p. each and HLF 3-speed electro-pneumatic control. Tractive effort, on one hour rating, is 16,200 lb. at 9 m.p.h., with full field, or approximately equal to that of the N. St. C. and T., and M. and S. C. locomotives at 17½ m.p.h., and is 14,000 lb. at 11 m.p.h. with tapped field. Like the other locomotives, the one for the Oshawa Ry. is of all steel construction, but important changes were made in the underframe, securing undoubtedly a structure of maximum strength and rigidity. The same type of cast steel headstock was used at both ends, but whereas in the two locomotives described above oak beams were used as fillers along with the underframe channels, in this case no wood has been employed. The 4 center sills are 12 in. 55 lb. I beams, and the side sills are 12 in. 46.6 lb. channels facing in, giving a smooth exterior. The cross members are 9 in. 30 lb. I beams, spaced 6 ft. apart, and riveted to all longitudinal members with angles. The bolster cross members are 12 in. 40 lb. channels and the steel bolster plate is 15 x 1½ in.

The control apparatus is all supported in an angle iron frame in the cab center compartment, being well off the floor, so that all parts are very accessible, and the floor can be kept clean easily. The crews using this locomotive report that switch-

ing operations can be handled much more quickly and effectively than with steam locomotives.

Canadian National Electric Rys., Toronto Suburban District. — The locomotive for this road, the last one of the four to be turned out, an illustration of which is also given herewith, is of the box cab type, and has Canadian General Electric Co. electrical equipment. General dimensions, etc., are similar to those of the Oshawa Ry. locomotive, but it is a heavier machine than the other three, weighing between 55 and 60 tons. There

Electric Locomotive, Oshawa Railway.

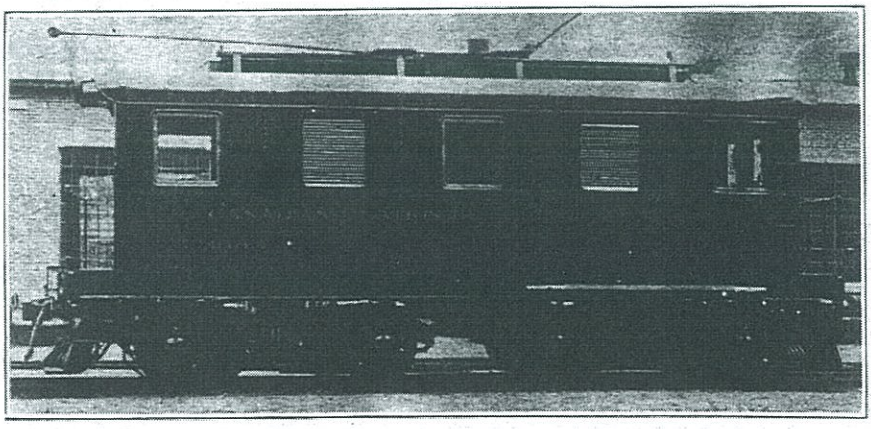
are 4 G.E. 239-A motors, and control apparatus is General Electric type M, 3 speed. Like the locomotives described above, it is of all steel construction, with underframe details similar to those of the N. St. C. and T., and M. and S. C. Ry. locomotives. The apparatus compartment is laid out differently, however; instead of aisles along each side, there is a central aisle, the layout being similar to that employed in the locomotives built for Montreal Harbor Commission, which were described in Canadian Railway and Marine World for March 1925, pg. 105. Operation on the Toronto Suburban District is at 1,500 volts, and the center aisle layout was adopted on account of it affording more space, desirable because of the extra clearance required and the large number of contactors. Trucks are American Locomotive Co. locomotive type. Tractive effort on one hour rating is 16,000 lb. at 17½ m.p.h.

All of these locomotives were built at the N. St. C. and T. Ry. shops, St. Catharines, under the direction of W. E. Massie, Mechanical Superintendent, N. St. C. and T. Ry., who was responsible for mechanical details of design. Electrical details of design were under the supervision of E. B. Walker, Electrical Engineer, Canadian National Electric Rys., to whom we are indebted for the information on which the foregoing article is based.

Rail Corrugation.—The Canadian Electric Railway Association has appointed the following committee to study the problem of rail corrugation: — C. R. Kinnear, Way Department, Toronto Transportation Commission, Chairman; J. M. Ahearn, Assistant Manager and Purchasing Agent, Ottawa Electric Ry.; C. J. Pigot, Engineer, Maintenance of Ways, Quebec Railway, Light, Heat and Power Co.; J. M. Scott, Rolling Stock Department, Montreal Tramways Co.; M. W. Wales, Engineer, Way and Structures, Winnipeg Electric Co. This committee will work in conjunction with the American Electric Railway Association's committee on the same subject.

Taxation of Public Utilities in Toronto.

Toronto Finance Commissioner Ross' recommendation to the city council that Toronto Transportation Commission and Toronto Hydro Electric Commission be taxed more heavily by the city, mentioned in our Dec. 1925 issue, pg. 624, came before the city council's legislation committee on Dec. 8. I. S. Fairty, Counsel, T.T.C., argued against the proposal. The Finance Commissioner contended that, as these utilities charge for their services on a regular commercial scale, it would be equitable to tax them on the same basis as privately owned business concerns. Mr. Fairty, supported by several of the committee members, argued that while a privately owned corporation uses its profits, or a large part of them, in paying dividends to shareholders, a municipally owned enterprise turns its profits back to the public treasury. He also maintained that the T.T.C. is creating a capital asset of great magnitude for the city, and that by its very operation it is increasing land values in all parts of the city, thus increasing the revenue from taxation. He stated that in New York a large part of the expense of operating the subways is met by contributions from the city's general revenue, the revenue from fares not being sufficient, and pointed out that the population is satisfied with this state of affairs because it is recognized that the local transportation system is of general benefit to the whole community. After considerable discussion, the committee decided to take no action on the Finance Commissioner's recommendation.



Electric Locomotive, Canadian National Electric Railways, Toronto Suburban District.

York Township Electric Railways.

The total investment of York Tp., Ont., adjoining the City of Toronto on the north and west, in electric railways, is now about $1,450,000, made up as follows: Oakwood Ave., Rogers Road and Eglinton Ave. system, $950,000; Toronto-Lambton line, $40,095; Weston Road line, $460,000. Before the Oakwood Ave.-Rogers Road-Eglinton Ave. system was built, it was estimated that it would cost $1,250,000; the actual cost was thus $300,000 below the estimate. The Toronto-Lambton line was bought from the Toronto Suburban Ry., for $20,982.76 and regauged and improved at a cost of $19,112.76. The Weston Road line, placed in operation recently as a part of the Toronto-Weston line, was bought from the Toronto Suburban Ry. for $15,000, and double tracked and rehabilitated at a cost of about $460,000. It was estimated, before the work was undertaken, that its cost would be about $500,000, a large saving being effected there also. The total single track mileage of electric railways owned by the township is now 13.70, all lines except the Toronto-Lambton one being double track. The mileage is made up as follows: Oakwood Ave.-Rogers Road-Eglinton Ave. line completed in 1924, 5.63 single track miles; Rogers Road addition completed in 1925, 2.98 single track miles; Toronto-Lambton line, 1.25 single track miles; Weston Road line, completed in 1925, 3.84 single track miles. All lines, full details concerning which have been given in preceding issues, are operated under agreement by Toronto Transportation Commission.

Hydro Radial Railway Bonds. — The St. Catharines, Ont., City Council passed a resolution on Dec. 7, 1925, authorizing application to the Hydro Electric Power Commission of Ontario for the return of bonds for $688,539, which were deposited with the Commission by that city in connection with the proposed electric radial railway between Toronto and Niagara Falls. Following the passage of legislation concerning radial railway construction, by the Ontario Drury Government, an adverse vote in the majority of the municipalities concerned prevented the project being gone ahead with. The attitude of the City of Hamilton, Ont., which had also deposited bonds in connection with this projected road, was mentioned in our Dec. 1925 issue, pg. 622. The City of Toronto also deposited bonds for $4,240,196, but to the time of writing, its council has taken no steps to secure their return.

Quebec and Chibougamau Railway Co.'s Project, Etc.

Gerard Ruel, K.C., Vice President, Legal Department, Canadian National Ry., Montreal, made the following statement on April 5: "My attention has been called to the Quebec and Chibougamou Ry. Co's. prospectus covering an issue of $5,000,000 of 6% bonds, secured upon a line to be constructed between Hebertville and Dolbeau, in Chicoutimi and Lake St. John counties, Que., and I wish to make it clear to the investing public that the Canadian National Railways have no financial interest whatever in this company or its undertaking. The management have, however, a very clear understanding with this company that all the traffic from this line shall be turned over to the Canadian National Railways, also that the line shall not be sold to any other company at any price which the Canadian National Railways are willing to meet; in other words the National Railways have first refusal in the event of sale, which they may exercise or not at discretion. Because of this right of first refusal, the National Railways require that the line shall be located where they wish it to be located, and that the standard of construction shall be satisfactory to the Canadian National Railways."

In the House of Commons on April 23, the Leader of the Conservative Opposition, Mr. Bennett, said:—"I should like to ask the Minister of Railways whether or not the Government has made any commitments with respect to the Quebec, Saguenay & Chibougamau Ry. I observe that in one of the leading financial journals it is stated that work has already begun on construction, that satisfactory financial arrangements have been completed; that the Canadian National has supervision over construction of the line and has a satisfactory operating agreement with that railway. It is also stated that Sir Henry Thornton is to be Vice President of the new road. I have followed the legislation as closely as possible this session and I have seen no indication that any bill with reference to the matter is to be introduced. I, myself, have no knowledge of it; possibly the Minister can give the house some information."

The Minister of Railways, Mr. Dunning, replied:—"The Dominion Government has no financial relationship whatever with the Quebec, Saguenay & Chibougamau Ry. My knowledge of that railway company is that it is a provincially incorporated company; it is not incorporated by Federal charter. It is intended, I believe, to connect at a point which is at present served by the Canadian National, which would probably involve a traffic agreement. But there is no financial commitment; neither the Government nor the Canadian National is in any way guaranteeing the securities of, or is in any sense financially responsible for, the Quebec, Saguenay & Chibougamau Ry. I have seen the report referred to in regard to supervising the construction. I have no official knowledge as to the matter, but this much unofficial knowledge I have; that the Canadian National, for the protection of its own interests, will be entering into an agreement with this company with respect to traffic and also with respect to supervision of standards of construction. With reference to Sir Henry Thornton becoming the Vice President of the company, I have no information, but I shall be glad to make inquiry as to that."

The Company's Prospectus.

Brokers issued recently a prospectus of $5,000,000 of the Q., & C.R. Co.'s 6% first mortgage 15-year gold bonds, of which $3,500,000 are offered for subscription in Canada at par, with a bonus of one common share, par value $100, with each $1,000 of bonds. The company's capitalization is stated as follows:—6% first mortgage gold bonds, authorized $25,000,000, $5,000,000 to be issued now; 7% non-cumulative preferred stock, $1,000,000 authorized and to be issued; common stock, par value $100, $6,500,000 authorized, $5,000,000 to be issued. The $1,000,000 7% non-cumulative preferred stock has been subscribed for by the English directors and associates, and will be available in case, through unforeseen circumstances, the revenue from the railway's operation is insufficient to cover payment of interest on this issue of bonds. The English directors and associates have also taken $1,500,000 of the bonds, leaving $3,500,000 for subscription in Canada.

The directors are, President, Baron Gainford, formerly Joseph A. Pease, Chairman of the Federation of British Industries, and of Pease & Partners Ltd., etc.; Vice President, Sir Henry W. Thornton, Chairman and President, Canadian National Ry.; Chairman of Executive Committee, Wm. Phillips, Manager, Industrial Department, Canadian National Ry.; Secretary, C. E. Taschereau, M.P., director, Canada Steamship Lines, Quebec Power Co., etc.; the other directors being, Sir George Courthope, M.P., director of Southern Railways, England, etc.; J. C. McConnell, of Dumfriesshire, Scotland, Chairman of Metals Extraction Co., etc.; Sir Richard A. Pease, Yorkshire, England, Managing Director, Pease & Partners Ltd.; W. T. A. Proctor, London, England, Managing Director of Base Metal Extraction Co.; Hon. G. E. Amyot, member Quebec Legislative Council; H. Bray, Quebec, President, Bray, Caron & Dube Ltd.; Senator P. J. Paradis, director, Quebec Power Co., etc.; Hon. A. Turgeon, President, Quebec Legislative Council, and director, Quebec Power Co.

Following are extracts from the prospectus: The bonds will be secured in principal and interest by the railway to be built from or near Hebertville station in Lake St. John county to or near Dolbeau (Mistassini) in the same county, and also by the equipment and rolling stock required in connection with the operation of the railway. Additional bonds to the extent of $20,000,000 may be issued which will rank pari passu with the present issue, but the amounts thereof shall be limited to $50,000 per mile of the proposed additional section or sections of railway, including the costs of the additional equipment and rolling stock which may be required in connection with the operation of new sections.

The company has an arrangement with the Canadian National Railways under which the latter company will approve the location of line as well as supervise its construction. The company has also a close understanding with the Canadian National Railways with respect to the handling and development of traffic. The estimated gross earnings are $875,000; estimated operating costs, $500,000; estimated interest on bonds, $300,000; estimated net revenue for first year's operation, $75,000.

The Quebec & Chibougamau Ry. Co. was incorporated by an act of the Quebec Legislature, assented to Feb. 14, 1920, and renewed in March, 1924, and in 1926. It is intended to apply for legislation to change the name to Quebec, Saguenay and Chibougamau Ry. Co. The company has very wide powers outside of the railway construction proper. It is authorized to construct some 400 miles of standard gauge railway in the province and principally in the Lake St. John district. The 400 miles have been divided into three divisions as follows: 1. The Quebec Division from Quebec City almost due north through Quebec, Montmorency, Charlevoix and Chicoutimi counties to Chicoutimi, at the head of navigation on the Saguenay River, 140 miles. 2. The Saguenay & Lake St. John Division from at or near Hebertville to or near Dolbeau (Mistassini), approximately 60 miles, and from Chicoutimi westerly or northwesterly through Chicoutimi and Lake St. John counties to the Grande Peribonka River, where connection will be made with the section running from Hebertville to Dolbeau (Mistassini) at which point connection will be made with the Canadian National Rys., this distance being approximately 35 miles. 3. The Chibougamau Division, from at or near Dolbeau on the Saguenay & Lake St. John Division to the Chibougamau mining district, approximately 167 miles. A very important timber territory will be opened up when this line is constructed. The object, at present, is to serve the immediate requirements of the district by the construction of that portion of the line from Hebertville to Dolbeau as follows:—Hebertville to River Bend, 11 miles; River Bend to Grande Peribonka River, 29 miles; Grande Peribonka River to Dolbeau (Mistassini), 20 miles; approximately 60 miles with about an additional six miles for terminal and siding facilities, making the present total railway construction approximately 66 miles. The Quebec Government has granted a subsidy of $5,000 a mile for the line from Hebertville to Dolbeau, the Government also providing the right of way on all Crown lands.

After dealing with the physical features and topography, the water power, nature of soil, farm production, animal husbandry, dairying and value of agricultural resources of the district to be traversed, the prospectus proceeds as follows:—The building of the Saguenay & Lake St. John Division presents no difficulties, although it involves the crossing of the Saguenay and Grande Peribonka Rivers. The estimated cost of the portion of the railway between Hebertville and Dolbeau to be built, covering surveys, right-of-way, grading, bridges and culverts, track laying, buildings, etc., is $4,067,000. The estimated cost of equipment to meet traffic requirements, is $971,000, a total of $5,038,000. Deducting Quebec Government cash subsidies, $300,000, will reduce the cost to $4,738,000, which includes interest on the bonds during the course of construction and the costs attached to the provision of finances, leaving in the treasury, for unforeseen contingencies, $262,000.

In establishing the cost of operation for freight and passenger traffic, the following branches of expenditure were considered:—Maintenance of way and structures, maintenance of equipment, traffic, transportation, miscellaneous, general. The estimated traffic on this railway was classified as to origin and destination in order to determine the gross ton miles that would be entailed, and the cost of operating freight business was based on these gross ton miles. A careful study has been made by the company with respect to operating costs and traffic possibilities, and which has been examined by experts, and it has been established that the estimated revenue for the first year of operation will be approximately as follows: Pulpwood, lumber, and other forest products, $650,000; general merchandise,

New Terminals in Montreal for Canadian National Railways.

A minute of a meeting of the committee of the Privy Council was approved by the Governor General on July 2 and issued as order in council 1197 as follows:—The committee of the Privy Council have had before them a report, dated June 27, 1929, from the acting Minister of Railways and Canals, representing:

1. That the Canadian National Montreal Terminals Act, 1929, being chapter 12 of the Statutes of Canada, 1929, under sections 2 and 7 thereof, provides as follows:—

"2. The Governor in council may provide for the construction and completion by the Canadian National Railway Co. (hereinafter called 'the company') of terminal stations and offices, local stations, station grounds, yards, tracks, terminal facilities, power houses, pipes, wires and conduits for any purpose, bridges, viaducts, tunnels, subways, branch and connecting lines and tracks, buildings and structures of every description and for any purpose, and improvements, works, plant, apparatus and appliances for the movement, handling or convenient accommodation of every kind of traffic, also street and highway diversions and widenings, new streets and highways, subway and overhead streets, and also approaches, lanes, alleyways, and other means of passage, with the right to acquire or to take under the provisions of section 9 of this Act or otherwise lands and interests in lands for all such purposes, all on the Island of Montreal in the Province of Quebec, or on the mainland adjacent thereto, as shown generally on the plan or plans thereof to be from time to time approved by the Governor in council under the provisions of section 7 of this act; the whole being hereinafter referred to as the 'said works,' and a short description whereof, for the information of Parliament but not intended to be exhaustive, being set out in the schedule thereto."

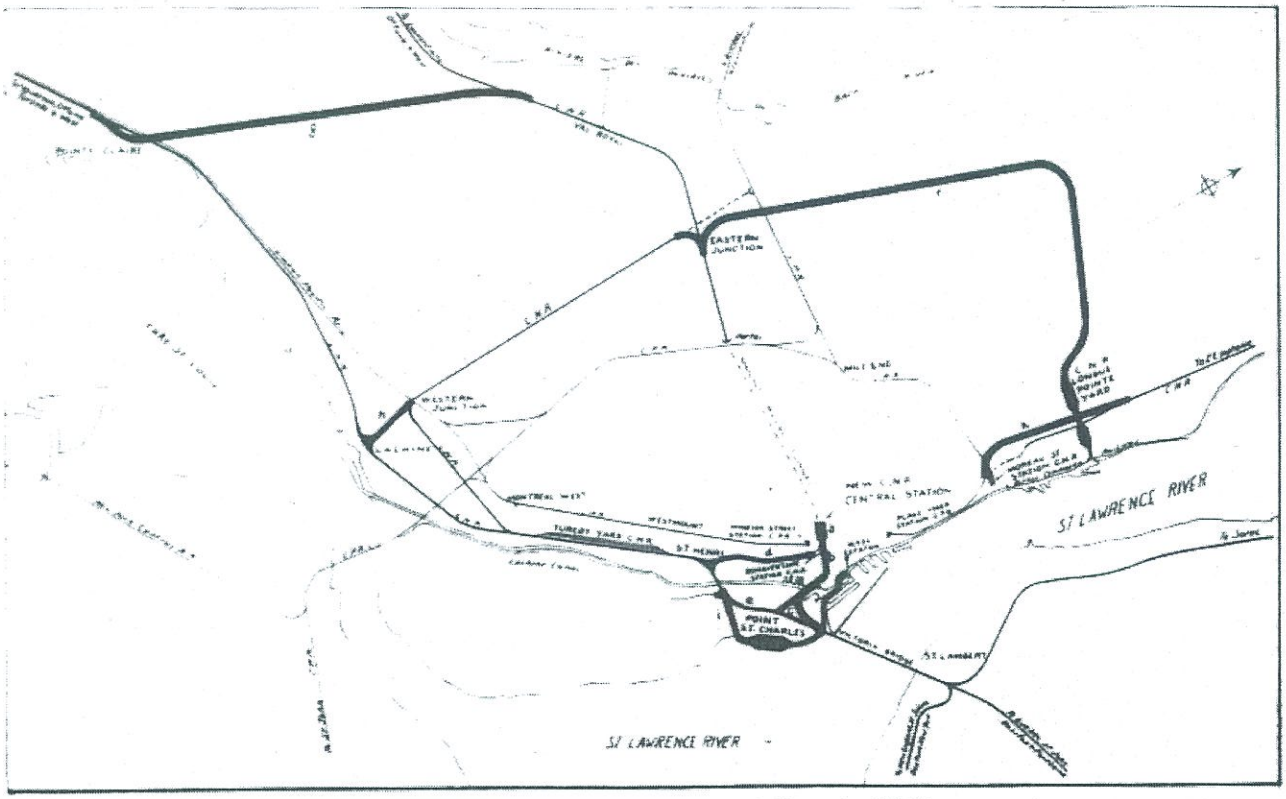
"7. The general plan or plans of the said works and amendments or additions to such general plan at any time made, shall, on the recommendation of the Minister of Railways and Canals, be subject to the approval of the Governor in council. Detail plans affecting any canal or other property controlled by the Department of Railways and Canals shall be subject to the approval of the Minister of Railways and Canals. Detail plans affecting the property of the Harbor Commissioners of Montreal shall be subject to the approval of the Minister of Marine and Fisheries."

2. That the Canadian National Railways Act, Revised Statutes of Canada, 1927, chap. 172, under sec. 21 provides as follows:—"21. With the approval of the Governor in council and upon any location sanctioned by the Minister of Railways and Canals the company may from time to time construct and operate railway lines, branches and extensions, or railway facilities or properties of any description in respect to the construction whereof respectively, Parliament may hereafter authorize the necessary expenditure, or the guarantee of an issue of the company's securities. 2. A copy of any plan and profile made in respect of any completed railway shall be deposited with the Board of Railway Commissioners for Canada."

3. That Parliament under the provisions of the Canadian National Montreal Terminals Act, 1929, has authorized the guarantee of an issue of the securities of the Canadian National Railways Co. to meet the expenditure to be incurred in the construction of the said several works described, generally, or referred to in the Canadian National Montreal Terminals Act, 1929.

4. That pursuant to the provisions of the Canadian National Montreal Terminals Act, 1929, and of the Canadian National Railways Act, there is submitted herewith a general plan, hereto attached marked A, No. DC 310-0.0-63.1, showing in red thereon the proposed location of terminal facilities, grade separation and other works (being works included within the works described, generally, or referred to in the Canadian National Montreal Terminals Act, 1929), and the location of which works as shown indicated in red on the said general plan has been duly sanctioned by the Minister of Railways and Canals, for the approval of your Excellency in council of,—(a) the general plan hereto attached marked A; (b) the construction by the Canadian National Railway Co. of the works, shown as indicated in red on the general plan hereto attached marked A, on the location, sanctioned by the Minister of Railways and Canals, shown as indicated in red on the general plan hereto attached marked A.

The Minister submits the above and, upon the recommendation of the management of the Canadian National Railway Co., concurred in by the Deputy Minister of Railways and Canals, recommends that your Excellency in council approve of,—(a) the general plan hereto attached marked A; (b) the construction by the Canadian National Railway Co. of the works, shown as indicated in red on the general plan hereto attached marked A on the location, sanctioned by the Minister



Canadian National Railways Terminal Development in Montreal and Vicinity.
The letters a to k, both inclusive, on the map, refer to sections of the schedule to the Canadian National Montreal Terminals Act, 1929, the sections in the schedule being designated by similar letters.

NSC+T

G. Gordon, Traction Engineer, Canadian ~~General~~ Electric Co.; A. M. Lindsay, Superintendent of Rolling Stock, Montreal Tramways Co.; Hugh Millar, President, Lyman Tube & Supply Co.; W. G. Murrin, Vice President, British Columbia Electric Ry.; W. R. McRae, Superintendent of Rolling Stock and Shops, Toronto Transportation Commission.

Valuation, Maintenance and Depreciation of Street Railway Assets. — H. E. Weyman, Manager, Levis Tramways Co., chairman; W. S. Hart, Treasurer, Shawinigan Water & Power Co., and Quebec Ry., Light, Heat & Power Co.; W. G. Hewson, Railway Engineer, Hydro Electric Power Commission of Ontario; H. R. Mallison, Purchasing Agent, Montreal Tramways Co.; J. J. O'Brien, Accountant, Quebec Ry., Light, Heat & Power Co.; H. C. Patten, Comptroller, Toronto Transportation Commission; L. Tait, Manager and Secretary-Treasurer, London St. Ry.; G. E. Waller, Manager, Railway Department, Dominion Power & Transmission Co.

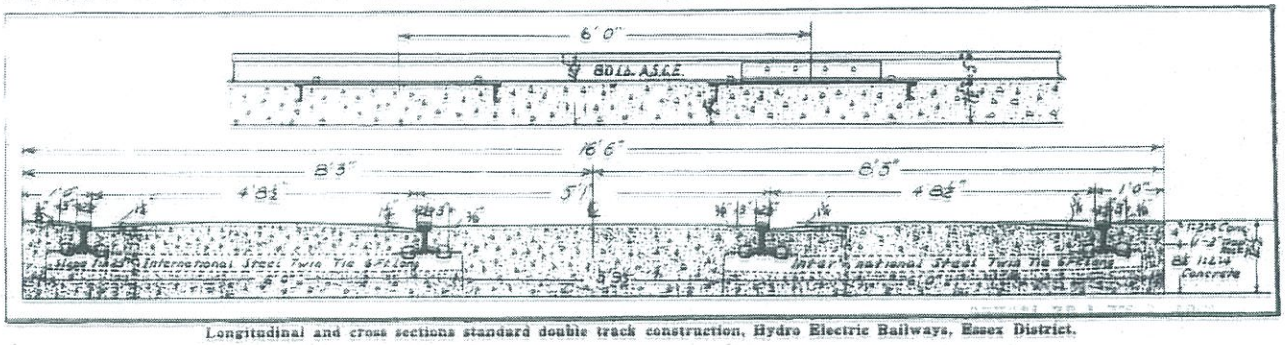
January 1926

Track Construction, Hydro Electric Rys., Essex District.

The Hydro Electric Power Commission of Ontario received tenders to May 5, for the construction of 26,935 single track feet, of main track, and 475 feet of siding, to be located as follows: In Walkerville, 1,925 ft. of single track, on Sandwich St., from the Canadian National Rys. bridge to the city's eastern limits; in Ford City, 3,250 ft. of single track, from the eastern limits of Walkerville to Strabane Ave.; in Windsor, 3,740 ft. of double track on Erie St., from Ouelette Ave. to Parent Ave. (7,480 single track ft.), in Windsor, 2,540 ft. of double track on Ottawa St., from Parent Ave. to Lincoln Road (5,080 single track feet); in Windsor, 2,100 ft. of double track, on Parent Ave., from Erie St. to Ottawa St. (4,200 single track ft.); in Sandwich, 2,500 ft. of double track, on London St., from Bridge St. to Soper St. (5,000 single track feet); in Windsor, a passing siding, 475 ft. long, on Ouelette Ave., near Maple Ave. The work will be under the direction of T. C. Fairlie, Engineer, Railways Department, Hydro Electric Power Commission of Ontario.

The accompanying plan shows longitudinal and cross sections of the double track to be built, and the single track will be of the same general character. The rails to be used will be 80 lb. A.S.C.E., in 60 ft. lengths. Joints will be welded, and International steel twin ties will be used. Dimensions of track allowance, distance between tracks, depth of foundation, etc., are shown in the plan.

The double track construction on Erie St., Windsor, will enable street car service to replace the trackless trolley service which has been given for some little time, the change being considered desirable due to increasing passenger traffic density. A new trackless trolley route, ¾ mile long, will be established on Tecumseh Road. In the Erie St. service the trolley bus has fulfilled what promises to become one of its chief functions, i.e., that of providing a growing district with adequate transportation until such time as traffic density warrants the construction of an electric railway line.



Longitudinal and cross sections standard double track construction, Hydro Electric Railways, Essex District.

Winnipeg, Selkirk and Lake Winnipeg Ry., Winnipeg Electric Ry. subsidiary, is reported to be discussing with the Selkirk, Man. Town Council, a proposition for leasing Selkirk Park, and operating it in conjunction with the railway.

A Niagara, St. Catharines and Toronto Ry. car was struck by lightning on May 20, while between St. Catharines and Port Dalhousie, but no damage was done, except to the motor.

Montreal & Southern Counties Ry. is in the market for 1 motor baggage car and 2 suburban passenger trailer cars.

Mainly About Electric Railway People.

G. H. Dahl, heretofore statistician, Winnipeg Electric Ry., has been appointed as assistant to the Vice President and General Manager.

Alphonse Dubee, who was in the service of Montreal Tramways Co. and its predecessor for 51 years, latterly as chief clerk at the St. Henri depot, died at Montreal, April 25, aged 80. Patrick Dubee, Secretary-Treasurer of the company, is a son. The funeral at Cote des Neiges, was largely attended by officials and employes of the company.

G. Gordon Gale, M.Sc., Vice President and General Manager, Hull Electric Co., has been elected Vice President, Rowal Ottawa Golf Club.

L. L. Price, heretofore in charge of appliance department, Winnipeg Electric Ry., has been appointed Superintendent of Distribution and Sales.

Julian Cleveland Smith, who has been elected President, Quebec Ry., Light, Heat and Power Co., was born at Elmira, N.Y., Oct. 7, 1878, and was educated at Buffalo, N.Y., and Cornell University. He began his business career as draftsman with W. C. Johnston, consulting engineer, Niagara Falls, N.Y., and two years later was appointed his assistant engineer at Shawinigan Falls, Que. From 1903 to 1906 he was Superintendent, Shawinigan Water and Power Co., Montreal; 1906 to 1909, General Superintendent, same company; 1909 to 1913, General Superintendent and Chief Engineer, same company; and from 1913 he has been Vice President and General Manager, same company, and executive of all its subsidiary companies. Among other positions he holds are,—President, Public Service Corporation, Quebec, Que.; Canada Carbide Co.; Canadian Electro Products Co.; and North Shore Power Co., Three Rivers, Que.; Vice President, Dominion Engineering Works Ltd.; and director, Dominion Bridge Co.

W. N. Smith, Consulting Engineer, Winnipeg Electric Ry., has been presented with one of the two Plummer gold medals, for the best papers of 1921 and 1922, on a metallurgical or chemical subject.

The Montreal Tramways Co., was sued in the Quebec Suprem Court, Montreal, recently by the British America Insurance Co., British America Underwriters' Agency to recover $137.50 for damage alleged to have been done by one of the company's electric cars to an automobile insured by the agency. Rt. Justice Maclennan found that the accident to the automobile was caused by the improper and negligent driving of its chauffeur and dismissed the action with cost.

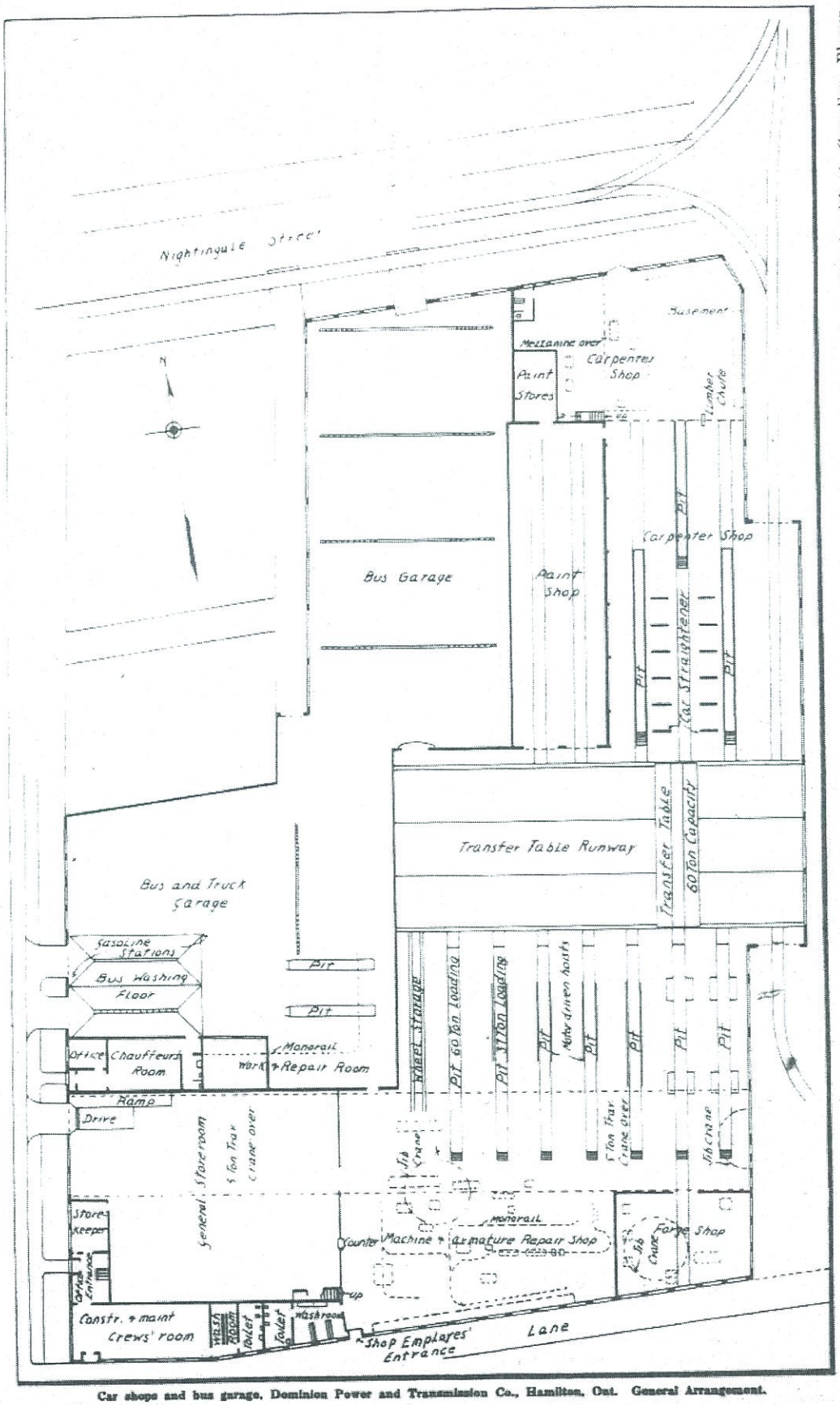
Nova Scotia Power & Tramway Co's Annual Report.

The directors' report for the calendar year 1922, issued recently, deals with the company's electric railway, light and power, gas, and steam heating departments. Its financial position improved greatly during the year. While gross earnings continued to decline, the decline was much more than offset by rapid decrease in operating expenses, the net result proving far more satisfactory than in 1921. The cost of material decreased to some extent, and wages were reduced about 4% in August. The resumption of preferred dividends is, however, not yet in sight, and there is no immediate prospect of being able to finance the cumulative preferred dividends not paid to date, amounting to $24 a share.

The tramways department's gross earnings were 11.8% below 1921, due entirely to business depression, and the increased use of automobiles. The number of passengers carried, including transfers, was 10,897,160, compared with 12,143,197 in 1921. To meet this situation, service was curtailed to some extent. The car mileage decreased to 1,733,439, from 1,860,342 in 1921. The total amount received from tramway passengers was $599,914.92. They used the 6¼c ticket almost exclusively. The cost of tramway service, exclusive of taxes, necessary reserves, and return on the property dedicated to this service, was $460,670.92. Of this amount 69.3% was expended in wages and salaries. The cost of conducting transportation was $253,000, of repairs $127,000 and other expenses were $80,000. The company was able to effect a very great saving in operating expenses, with the result that the net earnings before taxes were 27.5% greater than in 1921. The number of kilowatt hours used by this department was 3,664,725, and the car miles operated, 1,733,439.

The Hydro Electric Railways Investigation.—The Premier of Ontario in answering questions as to the cost of government commissions stated in the Legislature, recently that the investigation into the Hydro Electric Radial Railways proposals by Mr. Justice Sutherland and other Commissioners cost $162,705.41.

The Hydro Electric Power Commission of Ontario has issued passes for distribution to blind persons resident in the province, enabling them to ride free on all cars on railways operated by the Commission. Under certain conditions, these passes will be issued to persons of low grade partial sight. The lines upon which the passes are available are the Hydro Electric Rys., Toronto and York District, and Essex District and Guelph Radial Ry.



Car shops and bus garage, Dominion Power and Transmission Co., Hamilton, Ont. General Arrangement.

press, lathes, shapers, drills, bolt cutters, cylinder grinder, etc., necessary for the efficient carrying on of car and bus repair work, are installed. The 5-ton crane, mentioned above as serving the storeroom and with runway extending into the machine shop, operates right across that shop to the extreme east side of the building, in addition to which a monorail, with two 2-ton electric hoists, is installed, together with a jib crane. The armature shop is at the extreme south side. There are 8 stands for armature repairs, work benches, etc., and the large window area in walls and ceiling make working conditions ideal. A steel dip tank in a concrete receptacle is provided, and a Brantford bake oven is set on special Nonpareil composition flooring and equipped with General Electric heating equipment. Tank and oven are served by monorail and hoist. West of and adjoining the armature repair space is space for the repair of air brake equipment, fareboxes, and controllers, and space is also available in the northwest portion of the machine shop area for the manufacture and assembly of track special work. The employes' entrance is at the south side of the machine shop.

The forge shop is in the southeast corner of the building. A track runs into it from the transfer table runway. It is equipped with 4 Canadian Blower and Forge Co. down draft forges, a Bertram air hammer, gas preheater for melting out bearings, etc., and 2-ton jib crane with electric hoist, the crane operating through 360 degrees.

In the pit area, north of the machine and forge shops, are 7 tracks running west from the transfer table runway, in addition to staggered tracks at the extreme west side, for wheel storage. The

roof support. Eave troughing is provided at both sides, with down spouts at 3 of the posts. Height from platform to eaves is 10 ft. The posts are painted black to 6 ft. above the platform, the remainder of the structure being painted grey. Lighting is by 100 watt lamps, the lighting circuit being in galvanized conduit under the roof peak. Signs, with the names of the towns and cities to which the interurban buses operate, are displayed at each bay, showing passengers the point to which to proceed to enter buses, thus obviating confusion and facilitating bus loading. Buses arriving from outside points, or coming from the garage to begin their outbound trips, are parked at an angle, and as loading is via front doors, passengers are enabled to board them without passing from under the shelter, protection being thus afforded in inclement weather. Incoming passengers are enabled to leave a bus and proceed to the terminal waiting

Code of Motor Bus Operating Principles.

The U.S.A. National Association of Motor Bus Operators, affiliated with American Automobile Association, has issued a code of principles to be subscribed to by bus operating companies, etc., as follows:—

The most important obligation of public transportation agencies is service to the public. Service requires:—Operation of clean, comfortable, well-maintained equipment; careful, courteous, properly instructed drivers; schedules and routes so laid out as to serve in the best possible manner the largest number of patrons.

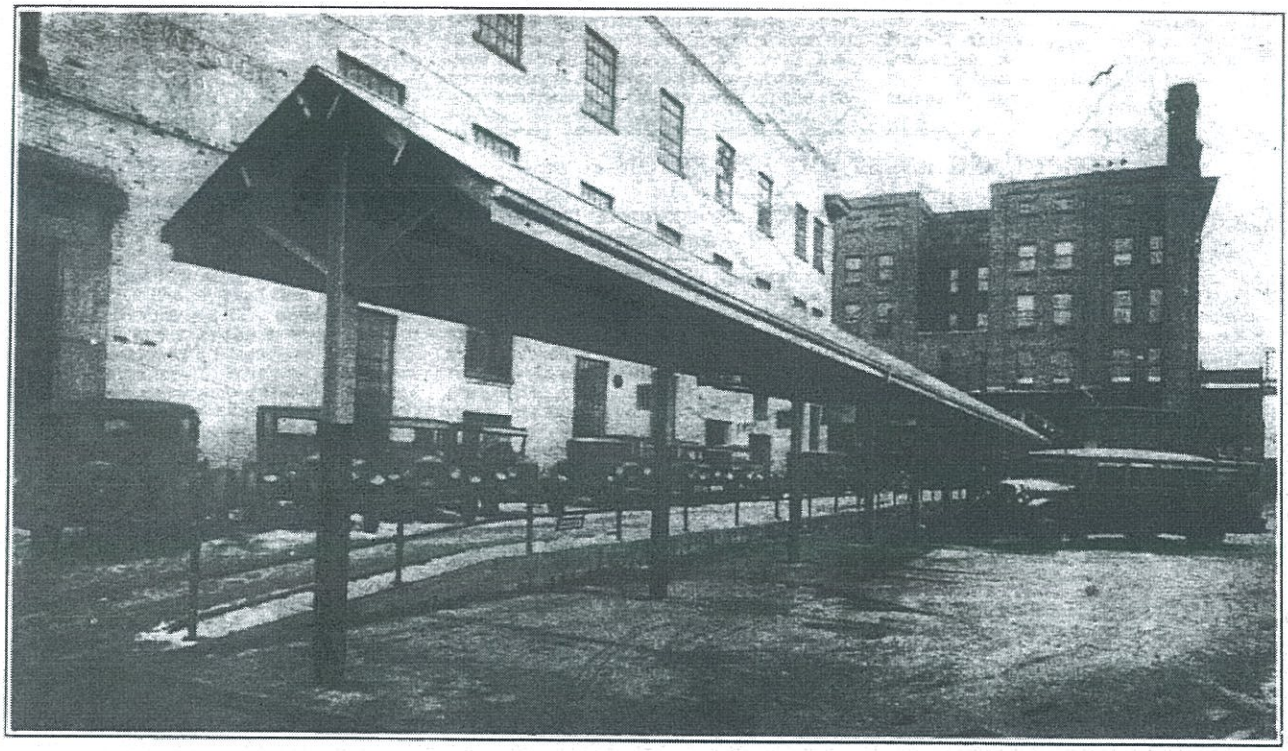
The fundamental elements of service are safety, reliability and comfort. Safety of service requires:—Regular inspection of vehicles to determine fitness for operation. No vehicles should be operated when such fitness is in doubt. The selection of operators by standards of physical and mental fitness and their training to know, understand and observe all lawful regulations and courtesies essential to the safe and efficient use of public highways. Operators to be held responsible for a thorough and complete knowledge and observance of state laws, local ordinances and police regulations governing traffic, speed and the use of streets and public highways. The installation of schedules planned to avoid the necessity of reckless driving, or the use of any speed that is unduly fast or in excess of any legal limit.

Reliability of service requires:—The maintenance of proper insurance, or equivalent funds to protect the interests of passengers and property in case of accident. The provision of adequate schedules and their maintenance with due regard to safety. The proper care of property of passengers, including lost articles, etc.

Comfort of passengers requires:—A vehicle properly ventilated, heated and lighted and designed and constructed so that the patrons may ride with the maximum of ease. Arrangement of schedules with due regard for proper connections with intersecting carriers. Training of operating forces so as to instill the principle of courtesy to patrons at all times, provide for the giving of all reasonable assistance and the furnishing of information requested when that is possible.

Bus Taxation in United States.—A statement issued recently by National Association of Motor Bus Operators, affiliated with American Automobile Association, and formerly called the A.A.A. Motor Bus Division, says that a preliminary survey shows that special taxes imposed on buses in the U.S.A. in 1929 were over $25,000,000, an average of over $500 a bus, compared with an average of slightly more than $478 per bus in 1928. The statement says:—"The average bus engaged in common carrier operations pays 24 times the special tax imposed on the average private car, 10 times that paid by the private truck, and one and two-thirds that imposed on common carrier trucks. The 1929 bus tax bill would build a modern paved highway from New York City to Detroit, and cover all maintenance costs for 10 years, this being based on an estimated cost of $30,000 a mile and a maintenance cost of $77 a mile each year. This tremendous tax burden, which is in addition to all other taxes, such as income, real estate, personal property, etc., is serving to handicap the normal expansion of an important agency of transportation. The taxes paid in the course of the year, aside from the special taxes, average $160 a bus."

South African Railways and Harbors Administration is operating road motor services over 10,654 miles of route. In the fiscal year ended March 31, 1929, motor vehicle miles operated totalled 4,144,368, while 1,450,552 passengers, 112,791 tons of freight, and 577,823 gall. cream were carried. Some road services are operated to points more than 200 miles from railway lines.



Shelter for bus passengers, adjoining Hamilton terminal station, Dominion Power and Transmission Company.

room with the same protection. Construction of the shelter was begun Oct. 12, 1929, and it was completed about the end of Nov. 1929. It is proving of great value in bus terminal operations.

Commercial Motor Vehicle Production

The Dominion Bureau of Statistics reports that there were no buses or taxicabs produced in Canada in Dec. 1929. In the year 1929, there were 165 produced, compared with 44 in all of 1928. Truck production in Dec. 1929 was as follows:—under 1 ton capacity, 99, of which 24 were for sale in Canada and 75 were for export; 1 ton capacity, 12, all for sale in Canada; over 1 ton and under 5 tons capacity, 24, all for sale in Canada; 5 tons capacity and over, 1, for sale in Canada. Truck production in the year 1929, with comparisons with all of 1928, was as follows:—under 1 ton capacity, 1929, 6,023; 1928, 4,268; 1 ton capacity, 1929, 1,225; 1928, 10,844; over 1 ton and under 5 tons capacity, 1929, 1,643; 1928, 2,415; 5 tons capacity and over, 1929, 1; 1928, nil; total truck production, 1929, 8,892; 1928, 17,527.

Electric Railway Department

Car Shops and Bus Garage, Dominion Power and Transmission Co.

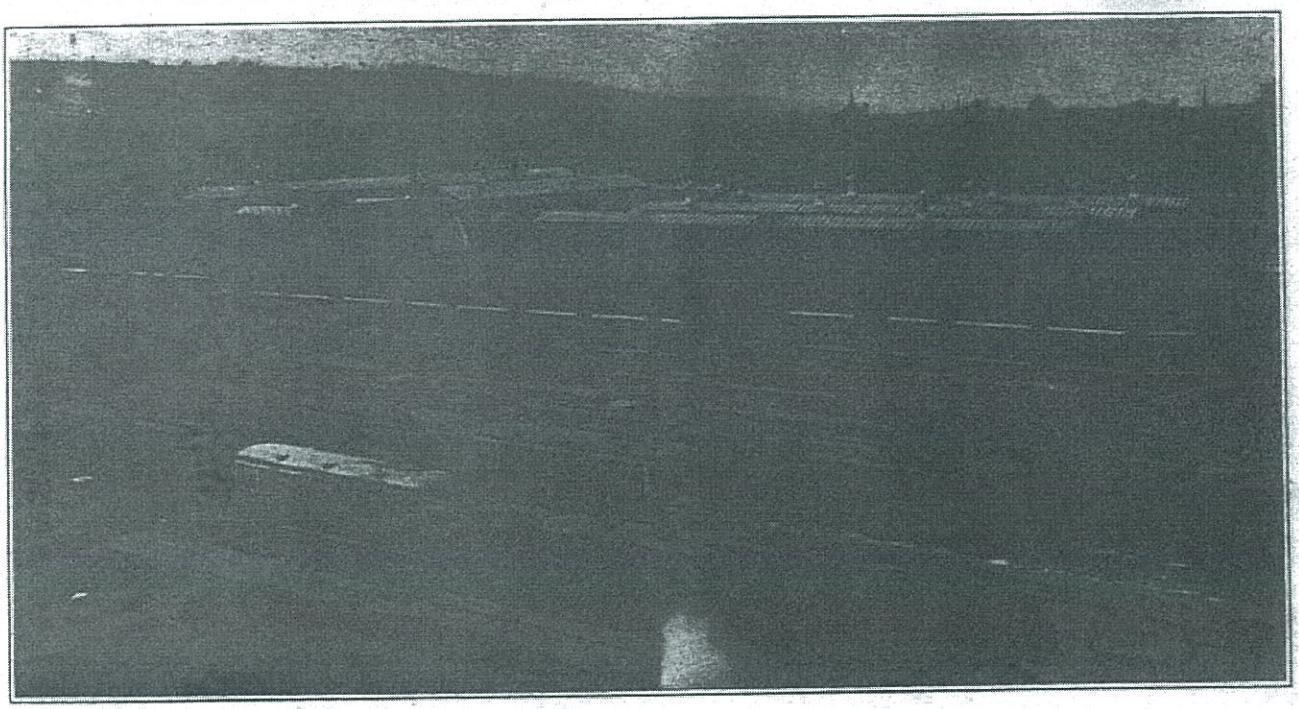
The Dominion Power and Transmission Co. has four subsidiary companies operating electric railways, viz.: Hamilton Street Ry., Hamilton Radial Electric Ry. Co., Hamilton, Grimsby and Beamsville Electric Ry., and Brantford and Hamilton Electric Ry., the cars of all of these companies operating in or into Hamilton, Ont., and, in addition, buses are operated in Hamilton, and between Hamilton and St. Catharines. For some time, the inspection and repair shops and facilities in Hamilton have been inadequate to meet the demands on them, the rolling stock being operated by the various companies consisting of 134 electric cars, 16 city buses, 7 interurban buses, and 15 service trucks. The inauguration of the bus service made the equipment maintenance situation more acute than it had been with the electric cars only to handle. These considerations, coupled with the making, in 1926, of a more favorable franchise agreement with the City of Hamilton than the previous one, influenced the management to decide on the construction of a modern shop and bus garage.

This building, a perspective view and general layout plan of which are given herewith, has been erected at Wentworth St. North and Nightingale St., and is just west of the inspection house in use before the new building was undertaken. The desire was to have the new building located as centrally as possible with respect to the various street car and bus routes, to use as a site property already owned by the company, and to have it connect with previously existing storage yards and the whole electric railway system in such a way that maximum facility of car movement would be secured. It was also desired to have the new facilities laid out so that minimum modification of previously existing storage tracks would be necessary. These needs were met adequately by the site and layout chosen. The company had owned for some years a great deal of the property necessary and was able to acquire certain lots on King William, Nightingale and Wilson Sts., making it possible to close certain portions of King William and Nightingale Sts. The owned and purchased properties were consolidated, and a plot was thus secured on which to place the shop building with access to Wentworth and Nightingale Sts. for buses and with track connections on Wilson St., which in turn provide connections over Sanford Ave. tracks to the belt line at Barton and King Sts. and with Hamilton Radial Electric Ry. at Sanford and Wilson Sts. This involved no change in the storage yard connection with the belt line on King St. The storage yard at the east side of the building was enlarged by building 3 through tracks and 2 stub tracks, and now has capacity for 130 cars.

The car shop and bus garage building is 385½ ft. long and 250 ft. wide at the widest part, the narrowest part being 157 ft. wide. It covers an area of 85,600 sq. ft. or 1.96 acres. It is a one-storey building of fireproof construction. All foundations are of concrete, reinforced with steel where necessary. All exterior walls are faced on the outside with pressed brick laid in dark mortar, and the trim along the Wentworth St. frontage is in cut stone, the balance of the trim being in artificial stone. The inside faces of the exterior walls, and the interior walls, are of brick. Of the exterior walls, 40.5% is window area. All interior walls are painted white, with a pearl gray dado 4 ft. high. In the office portion of the building, the walls are of gypsum slab construction, plastered, painted, and trimmed in chestnut.

The building may be regarded as being divided into four general sections, viz.; office, locker room and lavatory space, general stores space, bus garage, and car repair shop proper. The car repair shop is further divided into machine shop, armature repair shop, forge shop, pit room, paint shop, carpenter shop, and transfer table runway.

The office entrance is at the extreme southwest corner of the building, on Wentworth St., and the general offices are on a mezzanine floor, with access to them by wide stairs. Below the mezzanine floor are a large room for construction and maintenance crews, and lavatories and locker rooms. In addition to the main stairway to the mezzanine floor, another stair leads down into the shop from the east end of the office space.



Car shops and bus garage, Dominion Power and Transmission Co., Hamilton, Ont.

The general stores space is to the east of the office space, and a fine view of the store room is had from the offices. The stores space is separated from the machine shop by a high fence of heavy steel mesh. The store is served by a 5-ton overhead crane, with runway extending out into the machine shop, and is equipped fully with bins, shelving, etc., for storing material. The storekeeper's office is at the Wentworth St. side of the space. The floor in the stores space is of creosoted wood blocks, laid on concrete slab, and bonded thereto by paving tar. There are similar floors in the machine shop, armature repair shop, pit room and carpenter shop; the floors in the bus garage, paint shop, basement, employes' quarters and in the pits are of concrete, hardened.

The machine shop and armature repair shop are east of the general stores space, and at the south side of the building. Including the pit area, a total area of 19,750 sq. ft. is occupied by this section. All machines, including wheel lathe, wheel

2 easterly tracks are used for wheel changing, and are served by a 1-ton jib crane with hand operated hoist. The third track from the east is equipped with a car hoist for long and heavy interurban cars, which has 3 posts on each side and is operated by a 40 h.p. motor. The fourth and fifth tracks from the east are equipped with hoists for lighter city cars, and have 2 posts on each side and are operated electrically, individually. The sixth track from the east has provision made for installing one of these hoists if and when necessary. The westerly running track, the seventh from the east, is designed for heavy loading, to enable the handling of carloads of wheels from the transfer table to the machine shop. Two tracks are equipped with wheel pits and removable sections of rail.

The pits under these tracks are 4 ft. 10 in. deep, amd are arranged so that all combine with one another to form one large pit under the whole area. They are remarkable for their cleanliness and for the good lighting afforded, making for first class working conditions.

The transfer table, running from east to west, was made by the National Steel Car Corporation, Hamilton. It is 62 ft. long and of 60-ton capacity, and operates on 4 single rails. The electrical equipment was installed by the D. P. and T. Co.'s staff. The drive is by a G. E.-1,000 40 h.p. motor, the same as used for the car hoists. The table has a steel frame and a 3-in. Georgia pine deck. It is equipped with a winch and cable to take cars in and out of the paint shop. Current is transmitted through a third rail arrangement, with the rail in a trench below the table, the contact being through an angle shoe, access to which is provided by a pit at the east end of the runway. An electrically operated vertical rolling door is provided at the east entrance to the runway, of the same type as at the west side of the general stores space.

The northeast section of the building is occupied by the carpenter and woodworking shops. A through track from outside the building runs through the east bay of the carpenter shop to the transfer table runway, in addition to which there are 3 tracks in the carpenter shop, each with a pit, all pits being about 70 ft. long. On the middle of these tracks is a car straightening device, the wings, of which there are 6 on each side, being at 10 ft. centres. In the woodworking shop, at the extreme north end, are the various machines for woodworking, such as bandsaw, woodworking lathes, planers, rip saws, jointers, etc. Under this portion of the building there is a basement for lumber storage, with a lumber chute extending down from the woodworking shop into it. There is an opening in the floor at each machine in the woodworking shop, through which sawdust, shavings, etc., are taken to a 16-in. pipe leading through the basement to a collector on the exterior of the building, the flow being induced by a fan driven by 15 h.p. motor. At the west side of the woodworking shop is a mezzanine floor, for pattern stores and the carrying on of seat repair work and upholstering.

The paint shop is between the carpenter shop and the north part of the bus garage. It is served by 2 tracks, and is equipped with cast iron uprights with wings for scaffold support. At the north end is the paint store room, which has no glazing and is separated from the paint shop by a fireproof door. In addition to being equipped with direct heating system, to keep down the dust, the paint shop is fitted with a complete exhaust system, with a fan driven by a 5 h.p. motor on the mezzanine floor adjoining the woodworking shop.

The bus garage portion of the building, which occupies a considerable part of the whole, has a total floor area of 35,770 sq. ft., and provides ample office and working space, and capacity for the storage of 45 vehicles. Entrance is by 2 doors on the Wentworth St. side. A door at the north end, and another opening on the lane at the west side, provide exits to Nightingale St. Just inside the entrance doors, special floor drainage facilities are provided to facilitate bus washing, and wash racks are installed, in connection with a 2,000-gall. storage tank for hot water. There are 2 repair pits at the south side of the garage, and, nearby, an oil storage space, this space and the pits being served by a monorail with a 1-ton hoist. In the southeast corner of the garage are a repair room for working on parts, a room for bus drivers, and office, together with lavatories. The entrance doors of the garage are of the vertical rolling type, operated electrically. Interior gasoline supply is provided at 2 points in the garage, near the entrance doors, the supply system being of the Aqua Oil Service type, with the gasoline tanks, two of 10,000-gall. capacity each, situated some distance north of the building. The floor of the bus garage is ramped, at the north side of the transfer table runway, so that a bus may be placed on the transfer table.

The air compressor supplying air for the whole plant is placed at the north side of the transfer table runway, at its west end. It has 10 x 12 in. cylinder and is driven by a Westinghouse 40 h.p. motor. An auxiliary compressor of smaller capacity is located nearby. Both compressors are of Ingersoll-Rand manufacture.

Heating of the building is effected by unit heaters, with motor driven fans placed in strategic locations. There are two 200 h.p. Kewanee boilers in the original inspection house across the yard from the new building, and steam from these is piped to the building through a 10-in. overhead main supported on steel framework, to supply the heaters, which are of the Canadian Blower and Forge Co.'s Aerofin recirculating type. The fan motors are Westinghouse ¾ h.p. type. There are 3 heating units in the pits at the south side of the transfer table runway. The direct heating system, with steam radiators, is used in the paint shop. In the bus garage, where the indirect system is used, the unit heaters are arranged so that they may recirculate the air in the room, as in the rest of the shop, or draw fresh air from out of doors, in which case the accumulation of fumes from bus engine exhausts is expelled effectively.

The crane, monorail, car hoists and transfer table are operated on d.c. current, at 550 volts; all other equipment is operated on a.c. current at 220 volts.

Car inspection and washing will continue to be done in the old inspection house, which was built in 1910, and which is well equipped for its purpose. Several changes have been made in the boiler plant there, to secure greater efficiency and to facilitate coal handling. A modern cinder handling plant, and a very efficient sand drying system, have been installed. A greenhouse, for flowers and plants to be transplanted to various parts of the company's property, is being erected between the old and new buildings.

In addition to serving the needs of equipment maintenance, the offices and store room in the new building have capacity for the track work and line department forces, and the general offices include an office for the Superintendent of Construction and the Shop Superintendent, the main office providing for both their staffs. The store room's area is 8,410 sq. ft., and houses all the material for the company's line operations, as well as for the shops. Of the store room's total area, 4,000 sq. ft. is served by the 5-ton overhead crane, which also serves an area of 6,000 sq. ft. in the machine shop.

The new building is notable for the extreme brightness of its interior. The main supports are steel columns of H section, and the roof is carried on trusses of structural steel throughout. This roof is of reinforced gypsum slab laid on steel purlins, and the interior brightness referred to is in great part due to the large skylight area contained in the roof, a total of 10,820 sq. ft. The skylights are of ribbed wired glass fitted into and held by formed members of solid copper sheet, all flashing and entrance heads to the downspouts also being of solid copper. The large sidewall window area also contributes to the brightness of the building interior. The whole layout, with the well planned division of floor space, the location of the modern equipment provided, and the compact arrangement of facilities, doing away with possibility of lost motion, is suggestive of efficiency in carrying on repair work, and the building itself, both inside and out, indicates solidity and permanency.

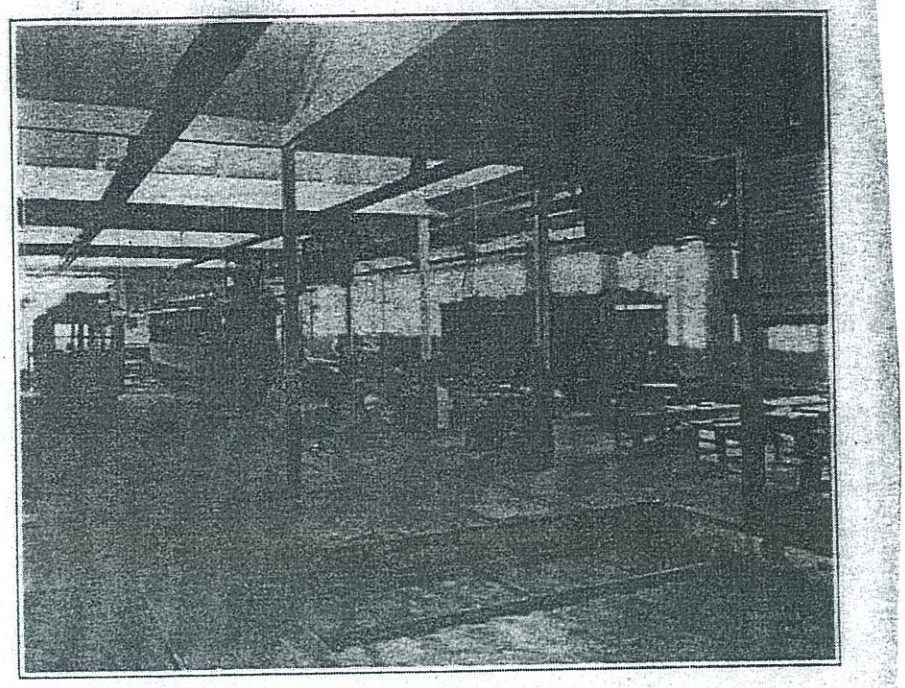
The building was erected and the facilities installed under the supervision of Geo. Waller, Manager, Railway Department, Dominion Power and Transmission Co., with C. J. Porter, Construction Engineer, D. P. and T. Co., in direct charge of the work, assisted by F. S. Gardiner, Assistant Construction Engineer, J. O. Binkley, Superintendent of Shops, being in direct charge of machinery and equipment installation. The architects were B. H. and F. Prack, Hamilton and Pittsburgh, Pa., who were represented on the work by F. H. Lelue. The general contractor for the building was W. H. Cooper, Hamilton, other contractors being as follows:—structural steel, Hamilton Bridge Works Co.; gypsum roof, Ontario Gypsum Co.; roofing and sheet metal, J. E. Riddell and Son, Hamilton; steel sash, Canadian Metal Window Co., Toronto; wood block flooring, Jennison and Wright Co., Toledo, O.; Kalmein and rolling doors, T. Irwin and Sons, Hamilton; painting and glazing, F. Roberts, Toronto; plumbing, heating and sprinkler system, R. Fitzsimmons Co., Hamilton; electrical work, Culley Electric Co., Hamilton; gasoline tanks, piping, etc., Aqua Oil Service, Inc., New York; linoleum for office floors, T. Eaton Co., Toronto. The trackwork was installed by Hamilton Street Ry. forces. Laying out of the building on the ground did not commence until Aug. 19, 1927, and excavation work began on the following day. The building was completed and the various units of it equipped and in operation on March 1, 1928.

The Amalgamated Central Labor Unions at Moncton, N.B., passed a resolution April 15, urging that the city council should not enter into any agreement with the Moncton Tramways, Electricity and Gas Co. for the discontinuance of the electric railway service until the whole matter has been thoroughly investigated, and the question voted upon by the ratepayers at the next civic election or some other suitable occasion.

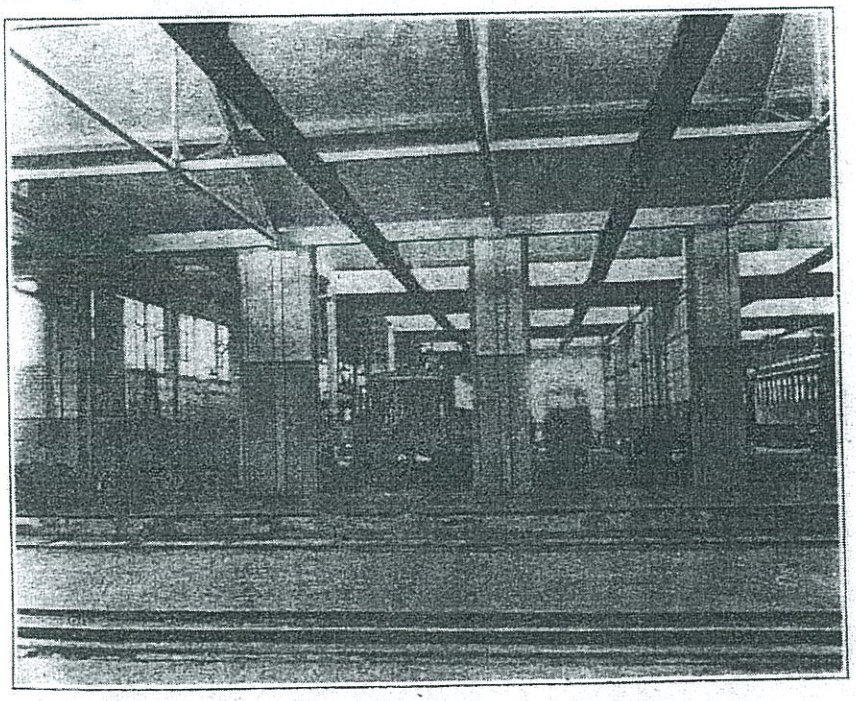
D. W. Houston, Superintendent, Regina Municipal Ry., in a report to the city council's railway committee on April 19, on street car routing, stated that the transfer of passengers during the past five years did not show any real difference in the number of transfers collected, and that changes asked for by northeast ratepayers were not desirable.

Quebec Railway, Light, Heat & Power Company's Shops and Car House.

Repair shops and a car house have been built by Quebec Ry., Light, Heat & Power Co. at Limoilou, in Jacques Cartier Ward, of the City of Quebec, to enable the company to keep pace in regard to maintenance of equipment, etc., with the increasing traffic demands caused by the growth of Quebec and the surrounding territory. They are now in operation, and have realized the designers' aims to provide compact but highly efficient layout suitable for a property operating and maintaining from 100 to 300 cars. The company is now operating, on its City Division, 53 double truck passenger cars, 47 single truck passenger cars, and 16 pieces of miscellaneous equipment, and, on its suburban line, 22 steam railway type passenger cars; 11 electric suburban type motor cars, 5 electric suburban type trailer cars, 2 steam locomotives, 4 electric locomotives, 142 freight cars, 1 portable substation, and 7 pieces of miscellaneous equipment. It supplies the electric power and gas used in Quebec and vicinity, and operates the city street car system, as well as a 25-mile suburban line to the world-famed shrine at Ste. Anne de Beaupre, heavy trains carrying pilgrimages from all over America being taken from the steam railways at Quebec and moved by electric locomotive to the shrine. Canadian National Ry. freight and passenger trains are also operated daily over these tracks between Quebec and St. Joachim, the western terminus of the C.N.R.'s 60-mile branch to Murray Bay. In addition to a large amount of local freight, the company serves two large pulp and paper companies, moving in their raw materials and taking their products to the steam railway terminals at Quebec. On this suburban line, steam locomotives have been superseded by electric, for regular service, but two steam locomotives are kept in readiness for immediate service in case of electrical breakdowns.



Woodworking Shop, Quebec Railway, Light, Heat & Power Co., as seen from transfer table.



Paint Shop, Quebec Railway, Light, Heat & Power Co., as seen from transfer table.

The diversity of equipment was an important factor to be considered in laying out the shops. The immediate result of the construction was the closing down of independent repair shops on the suburban division at Ste. Anne de Beaupre and at Montmorency Falls. The repair work done previously at the St. Malo, St. John Street and St. Paul Street shops of the City Division, has been transferred to the new shops, and the former are now operated as car houses for inspection and storage only. The concentration of facilities will allow the carrying out of an effective reconditioning programme, after which the cost of maintenance should be favorably affected.

The buildings are of light buff-colored Citadel brick, with steel sash and skylights. The roof members and supporting columns are of steel, and the roof has fire-proof gypsum covering, which has made possible a very favorable insurance rating. The floors are of concrete base, with creosoted wood block surface. The stores space is two stories high, the upper floor being utilized for the lighter materials and for the offices of the Superintendent of Equipment and General Foreman. In designing the buildings, ample provision was made for extensions without alteration of the original plan and without sacrifice of efficiency, and additions have already been made to the buildings, as planned originally, to enable all the company's departments to concentrate their stores there.

The main building is 312 x 138 Ft. with annexes for boiler room, lumber storage, heavy general stores, and wheel storage. The arrangement of transfer table, tracks, and machine tools is shown on the accompanying plan. Two of the overhauling tracks are fitted with Columbia car hoists, and provisions has been made for the installation of a third when necessary. A 0,000-lb. travelling crane is installed over the truck repair track for dismantling and handling the heavy electric locomotive equipment. The runways for this crane can be extended as required. Jib cranes serve the motor overhaul tracks and benches, as well as the two heavy lathes in the machine shop. Space has been reserved for the installation of a planer and other machine tools as they may become necessary for economical operation. All the woodworking tools have independent motor drive. The machine tools which are used only intermittently have direct motor drive, but the lathes, drills and other machines in constant use are driven in groups from line shafts with counters. The blacksmith shop is equipped with down draft forges. The transfer table's

capacity enables 60-ton electric locomotives to be handled over it.

The armature shop is equipped with overhead traveller, carrying an 8-in. air hoist, and the impregnating room is compactly arranged for dipping and baking armatures and field coils. The baking oven is electrically heated, and is served by an overhead hoist and small trucks operating on rails, each truck having capacity for 5 armatures standing vertically. Drip pans are provided below each truck. —The wheel shop is fully equipped with double-drive wheel turning lathe, wheel boring machine, wheel press, axle rack and storage trucks for wheels mounted on axles. The wheel space is arranged so that wheels and axles can be handled to and from the shop to outside stations with a minimum of labor and with no interference with the working tracks.—The paint shop is served by 3 tracks, and at one end, as an adjunct of the boiler room, a paint mixing room is provided.—The woodworking shop is arranged so that the large quantities of lumber required for repairing wooden freight cars can be handled from the lumber storage room, through the machines, and on to the car repair tracks by the shortest and most direct route.—The space marked "Free store" on the plan is for the safe-keeping and handling of repaired equipment parts.—The shop is equipped throughout with compressed air outlets. Air is supplied by a compressor of 100 cu. ft. capacity.—Due to the severe climatic conditions in winter, the entrances to the shop were limited to a main lead-in track to the transfer table, from the north side, with a special rear entrance for long wheelbase steam locomotives to the south end of the building. This south track will also be utilized during the summer for repairing the large number of box and freight cars used on the suburban line.

The car house as shown on the plan, a now built and in operation is, in reality, the first 3-track bay of what will be, ultimately, a 9-track 3-bay operating car house. The car house is located advantageously close to and parallel with the main shop, and the tracks in the bay now in operation are provided with pits equipped with hydraulic pit jacks, supported by rails set into the concrete pit floors.

The buildings are heated, in part, by indirect ceiling type heaters with electrically operated blowers, and in part by wall radiators placed under the windows in the main repair shop and service sections.

The shops were planned by P. J. Quinn, Superintendent of Equipment, Quebec Ry., Light and Power Co., with the assistance of D. E. Blair, General Superintendent, Montreal Tramways Co. The buildings were designed by, and constructed under the supervision of, John S. Archibald, architect, Montreal.

St. Catharines Sues for Return of Hydro Radial Railway Bonds.

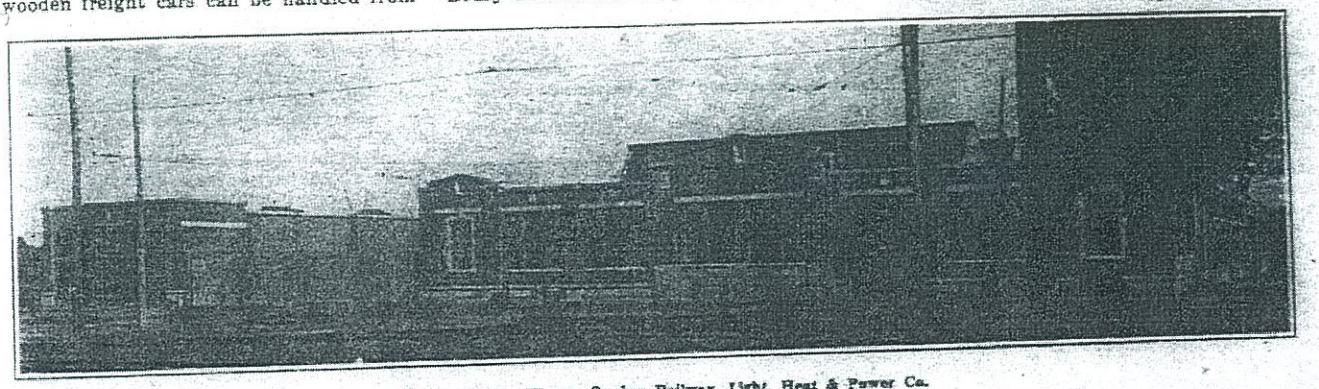
Following the issue of a fiat by the Ontario Attorney-General, authorizing the City of St. Catharines to bring action against the Hydro Electric Power Commission of Ontario, A. C. Kingstone, K.C., St. Catharines City Solicitor, issued a writ against the Commission, in May, 1927, to compel the return of bonds deposited with the Commission by the city in accordance with the Hydro Electric Railway Act, Ontario statutes, 1914, chap. 31. These bonds were deposited, along with those of other interested municipalities, with the Commission, as collateral security for bonds to be issued by the Commission and sold to obtain funds for the construction of an electric radial railway between Toronto and Niagara Falls. St. Catharines deposited bonds for $688,359. The Commission made large expenditures on securing right of way, etc., but the work was stopped by the Drury Government's action, and, following a vote in the interested municipalities in 1923, made necessary by the Drury legislation, the whole radial railway project was abandoned.

The St. Catharines action for the return of its bonds came to trial in non-jury High Court in St. Catharines, before Mr. Justice Logie, on Dec. 7, 1927, when Mr. Kingstone, for the city, argued for the return of the bonds with no deduction for the expenditures made by the Commission. He said the bonds had been deposited in good faith, that the project had been stopped by "other parties," that the city was helpless in the matter, and that it could not be held liable because the railway had not been built. He said that the contract with the city for the construction of a railway had not been carried out and that therefore there could be no liability attached to it. I. B. Lucas and W. G. Hanna, for the Commission, argued that it had acted simply as agent for the municipalities concerned and that the latter were therefore responsible for its acts.

Mr. Justice Logie gave judgment on Dec. 15, 1927, dismissing the action with costs and allowing the Hydro Electric Power Commission of Ontario's counterclaim with costs, with reference to the Master at St. Catharines if the parties cannot agree. In referring to the legislation passed by the Drury Government which caused the radial electric railway project to be abandoned, and which made very drastic changes in previous legislation, by completely abrogating certain parts of it and so changing other parts as to make the possibility of railway construction much more remote, he said that there was a right acquired and a liability incurred prior to its passage, which was unaffected by its passage, and by the repeal of the former legislation. That being the case, the action failed, and the H.E.P. Commission is entitled to recover from St. Catharines the proper proportion of that municipality's share of the money expended on the railway. An order was made for the sale, on terms which the Commission may consider best for all concerned, of sufficient of the bonds to satisfy the Commission's claim. It is probable that the Commission, unless the judgment is appealed, will take steps to have its claims against the other municipalities concerned settled, pro rata with St. Catharines.

A St. Catharines press dispatch of Dec. 18, 1927, stated that the city council had, by unanimous vote, authorized A. C. Kingstone, K.C., City Solicitor, to enter an appeal against Mr. Justice Logie's judgment.

Northern Texas Traction Co. is utilizing its worn out passenger cars by making them into flat cars for hauling gravel.



Shops and Car House, Quebec Railway, Light, Heat & Power Co.

The London and Port Stanley Ry's. financial condition was discussed from different angles prior to the recent municipal election in London, Ont., on Dec. 1, 1927, in the course of which E. S. Little, Chairman, London Railway Commission, stated there was no foundation for certain of the charges made. The Commission, on Dec. 12, passed a resolution authorizing the Chairman to communicate with the Hydro Electric Power Commission of Ontario as to the probable cost of an expert survey of the operation and management of the line.

The Montreal and Southern Counties Ry., pending the repair of Black's Bridge across the Lachine Canal, the machinery of which was deranged recently by the United States yacht Vidor, is operating its cars to the south side of the bridge, and from the north side of the bridge to the terminus, passengers crossing the canal on the lock gates. The accident prevented the lowering or raising of the bridge, and repair work was not done immediately so as not to interfere with navigation, the bridge remaining open as at the time of the accident.

Ottawa Electric Ry. Co. has moved its offices from 248 Albert St., Ottawa, to a 10-story building which has been erected by the Ottawa Electric Co. at 56 Sparks St., on a site 66 x 198 ft., running through to Queen St., and including the site of Ahearn & Soper's former offices. The Ottawa Electric Ry. Co. has taken the whole of the sixth floor and also some other offices, and will sell or rent its old office building on Albert St.

Toronto Transportation Commission bought recently 100 30-in. motor car wheels, 100 33-in. motor car wheels, 8,000 bags cement, and 1,150,000 paving blocks.

Essex Terminal Ry. Co. has given notice that it will apply to the Dominion Parliament for an act extending the time for commencing and completing the railway authorized to be built by the Statutes of 1917, chap. 51, sec. 1, viz.: from Ojibway to Pelton, Ont., about 7 miles, with power to connect at the last named point with the Michigan Central Rd., the Pere Marquette Ry., and the Windsor, Essex and Lake Shore Rapid Ry., or any of them. Section 4 of the act authorized the company to connect its railway at Ojibway or near Amherstburg with any or all railway bridges or tunnels crossing the Detroit River near those places, and to enter into arrangements for the use of such bridges or tunnels. Parliament has extended the time for the construction of the railway from time to time the last two years, extension being granted by the Statutes of 1927, chap. 84, sec. 2.

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purposes, and will have 3 tracks each, with a continuous pit under all 3 tracks and steps leading to the pits at each end of both bays. The repair bay will be served by 2 tracks, also equipped with a continuous pit. The repair tracks will not extend the full length of the repair bay, but the south end of that part of the building will be arranged for the provision of various facilities, located in accordance with the numbering shown as follows: 1, wheel and axle storage; 2, small stores; 3, valve room; 4, coal storage; 5, boiler room; 6, lavatory; 7, lunch room. The car house building will be of fireproof construction, with steel frame and brick and tile walls, and will be equipped with a sprinkler system throughout. The track pits will be of reinforced construction, with drainage facilities, and the repair bay will be equipped with hoists, jib cranes, wheel grinders and other miscellaneous tools and machines for running repairs. Heating in the main building will be provided by two large motor driven fans, with underground ducts to convey the heated air, which will be brought from the boiler room through a central tunnel running below the level of the pit floors, and distributed through concrete branch ducts to openings in the pit floors. Longitudinal skylights in the roof, running the full length of the bays, will supplement the window area in providing adequate natural lighting, and stationary and portable electric lighting units will be installed. Ventilation will be secured in the repair shop portion by the inclusion of standard ventilators in the skylight ridge. The doors at each end of the inspection bays, and at the north end of the repair bay, will be of the vertical roller type, operated by motor, with the control switch at convenient height above the floor level.

The office building will be 118 x 42 ft., and will have steel frame, brick and tile walls, and slate roof. Its divisions, as shown by the numbering on the plan, will be as follows: 1 and 2, clerks' and cashiers' cages; 3, main office; 4, car starter's office; 5, superintendent's office; 6, platform men's room; 7, platform men's lavatory; 8, platform men's recreation room. The building will have artificial stone trim, and there will be a basement under the office portion. The office portion will have hardwood floors, and in the platform men's room, lavatory and recreation room there will be mastic flooring. The walls will be finished in plaster. The building will be heated by steam, the boiler room being located in the basement under the office portion of the building, where there will also be a storeroom.

A feature of the layout will be the fire protection system. In addition to standard hydrants throughout the yard, there will be located, in strategic positions, large steel monitor towers, on each of which will be mounted a nozzle, arranged on a ball joint in such a way that a stream of water may be directed in any desired direction. This arrangement, together with the equipment of the main building with a sprinkler system, and assurance of an adequate water supply at all times from large connections to the city mains on both Roncesvalles Ave. and Queen St., should provide the greatest protection possible against fire damage.

In preparing the property for beginning construction, considerable grading was necessary. Generally, the land was high toward the northeast and low toward the southwest; this required a cut of 8 ft deep in the northeast corner and a fill of the same depth in the southwest corner, cut and fill about balancing. The grading was done by the Commission's own forces. The provision of concrete retaining walls around a large portion of the property was found necessary, and a contract for their construction was given to Power & McAllister, Toronto, the work to be completed before the end of July. The total area to be occupied by the new facilities will be 5.87 acres. In the complete property held by the Commission after the acquisition of the additional lands expropriated, there is somewhat more than 7 acres, but it is the intention to sell the land fronting on Roncesvalles Ave. north and south of the Roncesvalles entrance, and as this frontage is suitable for business purposes, it is expected that its sale will materially reduce the expenditure for land acquisition.

The general contract for the construction of the car house and office building was given to Sullivan & Fried, and sub contracts were awarded as follows: plumbing and heating, and sprinkler system for car house, Mechanical Trades, Ltd.; structural steel, McGregor & McIntyre; electric wiring, Richardson & Cross; miscellaneous iron work, Dennis Wire & Iron Works; painting and glazing, F. G. Roberts. All the track work will be done by the Commission's own forces. It is expected that the new facilities will be ready for operation late in the autumn. The house and yard will be used by cars on the King, Queen, Roncesvalles Ave. and Lake Shore Road runs.

The intersection shown in the plan, at the junction of Roncesvalles Ave., Queen St., King St. and the Lake Shore Road, which is claimed to be the largest piece of street railway special work on this continent, was described fully in Canadian Railway and Marine World for June, pg. 288.

Canadian Electric Railway Association.

Honorary President: Major General Sir John M. Gibson, K.C.M.G., M.A., LL.B. LL.D., K.C., director, Dominion Power & Transmission Co.

Honorary Vice President: Acton Burrows, Proprietor, Canadian Railway and Marine World.

Honorary Advisory Council: Thos. Ahearn, President, Ottawa Electric Ry.; F. A. Gaby, Chief Engineer, Hydro Electric Power Commission of Ontario; Lt. Col. J. E. Hutcheson, General Manager, Montreal Tramways Co.; Geo. Kidd, President, British Columbia Electric Ry.

President: H. H. Couzens, General Manager, Toronto Transportation Commission.

Vice President: D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co.

Treasurer: E. P. Coleman, General Manager, Dominion Power & Transmission Co.

Executive Committee: The President, the Vice President, the immediate Past President (Major F. D. Burpee, Manager and director, Ottawa Electric Ry.,) the Treasurer, and G. Gordon Gale, Vice President and General Manager, Hull Electric Co.; W. S. Hart, Treasurer, Quebec Railway, Light, Heat & Power Co., and Vice President, Three Rivers Traction Co.; D. W. Houston, Superintendent, Regina Municipal Ry.; C. B. King, Manager, London Street Ry.; M. W. Kirkwood, General Manager, Grand River Ry. and Lake Erie & Northern Ry.; H. K. McLean, Superintendent of Transportation, New Brunswick Power Co.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Ry.; W. R. Robertson, General Superintendent of Railways, Hydro Electric Power Commission of Ontario; H. E. Weyman, Manager, Levis County Ry.; C. L. Wilson, Superintendent, Hydro Electric Rys., Toronto & York District.

Auditor: Lt. Col. G. C. Royce.

Secretary: Eustace Smith, Jr., Executive Assistant, Toronto Transportation Commission, 35 Yonge St., Toronto.

Official Organ: Canadian Railway and Marine World, Toronto.

British Columbia Electric Railway's Victoria-Saanich Line.

The British Columbia Electric Ry. Co. has an interurban line on Vancouver Island from Victoria city limits through the Saanich Peninsula, to Deep Bay, 24.29 miles. It has not paid its way from its opening in 1913, and it was reported recently that the company contemplated ceasing operating it. Residents adjacent to the line, feeling that this would injuriously affect the peninsula's business, interested Saanich Municipal Council, Victoria City Council and Victoria Chamber of Commerce, and representatives of these bodies met A. T. Goward, Vice President, B. C. E. R. Co., and other Vancouver Island officials, recently, to discuss the situation. Mr. Goward is reported to have stated that the company must cease operating unless the heavy loss could be eliminated. The company's investment in the line is approximately $1,000,000, of which, if the line were taken up and the property disposed of, about $250,000 would be salvaged. With this money invested and the operating loss eliminated the company would save something like $36,000 a year. The discussion showed that buses and sightseeing cars are taking most of the business, and it was pointed out that it is of no use for municipalities to attempt to regulate those services, if they could be run in unorganized districts without regulation. It was also stated that the extension of the Canadian National Rys. line to Patricia Bay, which had been urged by the people of the district for its freight possibilities, had also affected the electric line's business. A suggestion was made that the line be scrapped between Tripp and Deep Bay, and diverted into Sidney, about two miles. Other suggestions favored the curtailment of the service and the operation of combined freight and passenger cars. Nothing definite resulted, but the representatives of the several bodies present undertook to have the matter thoroughly discussed by their members, with a view to some definite proposal being made.

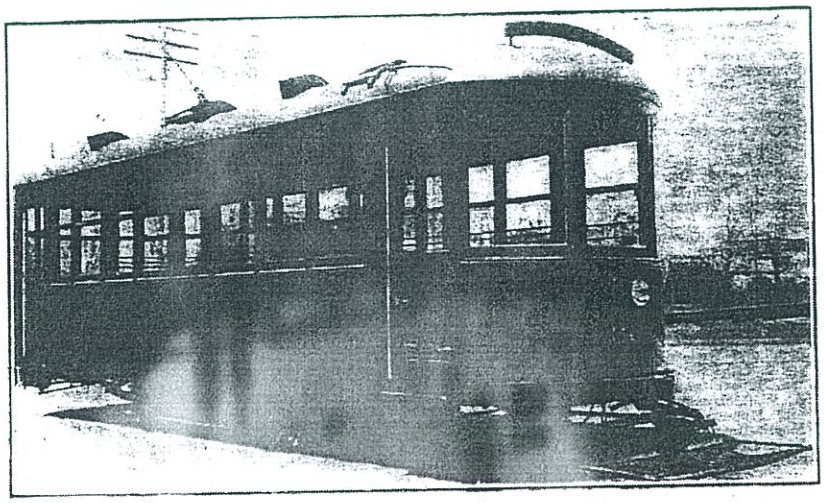
Niagara, St. Catharines and Toronto Ry. Franchises.—Particulars of the propositions made by the Canadian National Rys. management to the municipalities served by the Niagara, St. Catharines & Toronto Ry., viz., Port Dalhousie, St. Catharines, Merritton, Thorold and Niagara Falls, in regard to improved service, and as to the franchise rights desired, were given in Canadian Railway and Marine World for July, pg. 352. The management's plans for improving the service were also given, and it was explained that some of the improvements would not be made unless the desired franchise agreements were obtained, while others would be gone ahead with in any event. We are advised that at time of writing (Aug. 7) new franchises have not been arranged with any of the municipalities, that none of the work contingent upon new franchises has been commenced, but that work has been started on an extension to the car shops on Welland Ave., St. Catharines.

Hull Electric Company's One-Man Cars.

The Hull Electric Co. has added two one-man safety cars to its equipment. The general dimensions are as follows:—

Length of body	21 ft.
Length of front vestibule, about	5 ft.
Length of rear vestibule, about	5 ft.
Projection of bumper	6 ft.
Width of car body over all	8 ft. 1½ in.
Length over bumper	32 ft.
Seating capacity	41 persons
Standing capacity, approximately	26 persons

The car bodies are of semi-convertible type, wood construction, built specially for one-man operation, and single end control. The sides are straight, and sheeted vertically with narrow tongued and grooved poplar sheeting. There are 8 double sash windows on each side of the body. The top sash is made stationary and bottom sash made to raise to open. The roof is of arch type with three ventilators on each side, and adjustable grids on the interior. The underframe is of composite construction, having wood side sills reinforced with 18 x ⅜ in. steel plates, which are rivetted to steel cross plates 6 x ½ in. to form a complete steel frame. The cross wood sills are of oak. The flooring is ⅞ in. thick, tongued and grooved hard yellow pine, covered with hardwood floor matting laid lengthwise in the aisle. The interior trimming is red cherry, with no bulkheads at either end. The trimmings are solid bronze and the waist panelling agasote.



One-man Car, Hull Electric Railway.

The front vestibule is 5½ ft. over bumpers and step, the opening being 30 in. wide. The door opening has folding door and step operated by air engine. The rear vestibule is circular, with an emergency exit door lift up step, controlled by air engine in case of emergency, which can then be opened by hand. There is a circular seat running around the rear vestibule, which accommodates 9 passengers; the seats are of the wood slat type. The buzzer equipment includes push buttons, the current being procured from the trolley. The front vestibule is equipped with iron pipe railing, having a short stanchion to support the fare box, with a horizontal railing at an angle to upright the stanchion at the bulkhead which is used as a grab handle; also another upright stanchion at the bulkhead on the right coming out and forming a grab handle and a small cross rail to the same upright fastened to the corner post, forming protection to passengers on longitudinal seats. The body seats are all wood slats with pressed steel pedestals with bronze grab handles. The seats comprise 12 cross and 2 longitudinal at the front end and are hinged to accommodate sweeping. There are curtains on all side windows, on metal rollers and pinch handle fixtures. Sanitary hand straps are provided at longitudinal seats, 3 on each side. The heater equipment is Cutler Hammer, 10 per car in two circuits, controlled by a 2-knife switch. The lighting system is arranged with 15 lights, keyless lamp sockets, 10 in the body and 2 in rear vestibule, and 2 for door lights, which are protected by a metal shade, which keeps the glare off the motorman. There is one headlight of pressed steel. Storm sashes are installed on all side windows and vestibule, with window guard rods which are installed between the post and do not require to be taken off when storm sashes are installed. A buffer casting is installed on front and rear buffers, which acts as a protection to headlight and trolley catcher when cars are being placed in barns at night. A trolley catcher is installed in the rear vestibule. The air brake equipment is the Westinghouse safety car equipment for single end cars, having all safety features embodied, including the bungalow d.h. 16 compressor. The rear door, which acts as an emergency, is operated by an air engine, ensuring closing of door after emergency application. Air brakes are also provided. Air track sanders are installed on all four wheels with the Ohio air sander trap worked from motorman's valve. The draw bars are the Hull Electric Co's. standard radiating coupler, installed at each end. The painting is pullmatic green, numbered and lettered in gold. The cars are mounted on 21-E trucks with Westinghouse 101-B motors.

The cars were built by the Ottawa Car Manufacturing Company.

A motor bus service is reported to have been put into operation from London to Parkhill, Ont., and it is stated that if traffic offers it will be extended to Grand Bend, on Lake Huron.

Electric Locomotives, Montreal Harbor Commission.

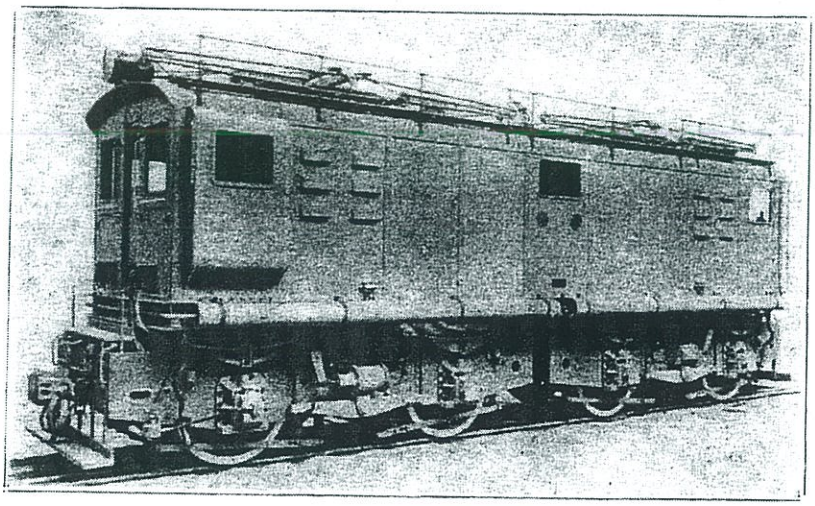
Canadian Railway and Marine World for May 1924 gave, on pg. 239, a preliminary description of the 4 electric locomotives ordered by the Montreal Harbor Commission for operation on its tracks at Montreal, and further particulars were given in our Dec. 1914 issue, pg. 593. Two of them have been delivered, and the other 2 will be delivered in the spring. Following are the chief features:

Line voltage	2,400 d.c.
Type	0-4-4-0
Track gauge	4 ft. 8½ in.
Total weight	100 tons
Weight per driving axle	25 tons
Driving wheel diams	50 in.
Wheel base, total	28 ft.
" " rigid	9 ft. 3 in.
Length over buffers	40 ft.
" " cab	33 ft. 9 in.
Number of motors	4
Type of motors	D.K.-96, 430 h.p.
Motor voltage	1,200 volts, d.c.
Motor ventilation	forced

These locomotives are of the 4 axle type, the running gear consisting of two 4-wheel trucks, articulated by a heavy hinge. Cardwell friction draft gear, type G, class 11 AA, is mounted in the end frame castings of the trucks, to permit stresses to be taken care of by the truck side frames and articulated joint, instead of through the cab center plate. The box cab, and platform, is built of plates, sheets, angles and heavy channels, strongly reinforced throughout. The platform framing is built up of structural steel longitudinal and cross sills, stiffened by brace plates, with the steel floor securely fastened thereto. The bumpers consist of oak beams fastened to the cast steel end frames of the trucks. The cab is provided with rubber flooring, and is divided into 3 compartments, the center one containing apparatus, and the end ones for the operators. Each end compartment has complete control equipment, such as controller, control switches and meter, air brake apparatus, air gauges, pantograph control, etc., so that the locomotive is provided with double end control. In addition, at the front end, there is an additional controller, on the opposite side of the cab, making 2 control positions possible. This feature is particularly valuable in meeting the conditions existing on the Commission's tracks, where, in switching, many short movements and much reversing is the rule, as it will enable the driver to conduct all operations from one end of the locomotive, with a view in each direction.

The weight on drivers is 200,000 lb., and tractive effort is as follows: continuous rating, 32,000 lb. at 16 m.p.h.; one hour rating, 43,000 lb. at 15 m.p.h.; normal acceleration, 50,000 lb. up to 14 m.p.h.; maximum acceleration, 60,000 lb. Gear ratio and size of wheels is such as to give a motor speed of approximately 565 r.p.m. at 16 m.p.h. locomotive speed. The motors are geared to the axles by twin spur gearing, a pinion on each end of the armature shaft, and are arranged so as to facilitate cleaning and inspection.

The trucks have steel side frames, with the truck transoms rigidly bolted thereto, the whole carried on equalizer springs. They are both side and cross equalized, and equipped with safety chains. The springs are of cast steel, tempered in oil, and have large factors of safety. The driving wheels have cast iron centers and open hearth steel tires, with 5½ in. tread. The axles, of open hearth hammered steel, are 7 in. diam.



Electric Locomotive, Montreal Harbor Commission.

between wheels, and the motor axle bearings are 7 in. diam. The journals are of the collarless type, 6 x 13 in.

Equipment, in addition to the draft gear, specified above, includes type D couplers, with 6 x 8 in. shank; pneumatic sanders, 17 in. diam. bell, air operated from either end of cab; air operated whistle; incandescent headlights; electric lighting for operating and control compartments; Westinghouse air brake; electric heaters, and lamp holders and flag sockets.

The locomotives were built in England, and their shipment presented quite a problem. The two first shipped were transported from the manufacturers' works to the Salford docks at Manchester in sections. The superstructures, 35¾ ft. long, 9 ft. wide and 9¼ ft. high, and weighing 40 tons each, were conveyed on London, Midland and Scottish Ry. specially constructed well trolleys, and the trucks, making a shipping unit 19½ ft. long, 9 ft. 1 in. wide and 9 ft. 11 in. high, were conveyed in pairs on L.M.&S.Ry. specially constructed platform trolleys with a carrying capacity of 40 tons. The motors were sent to the port by road. The superstructures and trucks were loaded in the s.s. Manchester Regiment's hold by a 60-ton floating crane, and, owing to their length, the superstructures had be loaded into the ship in a tilted po tion at an angle of about 30 degrees.