

# Canadian Railway and Marine World

April, 1916.

## Toronto Hamilton and Buffalo Ry. Grade Separation in Hamilton.

The question of raising or depressing the T.H.&B.R. main line through Hamilton, Ont., or of moving the tracks to another location altogether, has been agitated for several years. In 1914, Westinghouse, Church, Kerr & Co., who were employed by the company to investigate the matter, prepared a scheme for track elevation, and in 1915, W. F. Tye, M.Can.Soc.C.E., of Montreal, on behalf of the applicants for grade separation, presented an alternative plan of depression. The question was before the Board of Railway Commissioners on several occasions and was referred to its Chief Engineer, G. A. Mountain, who made two reports, copies of which we have been favored with.

In the first report dated Jan. 15, 1915, Mr. Mountain said: In accordance with the Board's instructions, at a meeting held in Hamilton, on Dec. 14, 1914, in connection with the application of Sealey and others for track depression of the T.H.&B.R., from the tunnel across James, John and other streets in Hamilton, to Victoria St., a conference of engineers was held in my office, presided over by the Engineer, on Jan. 13 and 14, 1915. The representatives were W. F. Tye, M.Can.Soc.C.E., for the applicants, A. F. McCallum, City Engineer, for the city and R. L. Latham, Chief Engineer for the T.H.&B.R. Associated with the latter were L. W. Tucker, and G. W. Burpee, of Westinghouse, Church, Kerr & Co. There was also present J. W. Pfau, C.E., Engineer of Construction, New York Central Rd., A. L. Sarvey, Assistant Valuation Engineer, Michigan Central Rd., J. W. Orrock, Principal Assistant Engineer, C.P.R., A. S. Goings, Engineer of Construction, G.T. Ry., E. G. Hewson, Division Engineer, G.T.R., Toronto, the latter road being interested in the connection of the branch line from Ferguson Ave. Subsequently, the railway company filed a plan for track elevation instead of track depression, along the same section. We went thoroughly into the merits of both track elevation and track depression and the cost of the same, and Mr. Tye, representing Sealey and others, decided he would want more time to revise some estimates and check over some of the estimates submitted by the T.H.&B.R. on the cost of track depression. I suggested a modification of both plans and that the parties get out estimates on that suggestion, which they thought was well worth considering. It was also decided to make a test pit at the mouth of the tunnel.

Mr. Mountain's second report dated Jan. 18, 1916, is as follows: The parties met again in Hamilton, in April, 1915 and went thoroughly into the examination of the test pit that had been opened by the T.H.&B.R. authorities at a point designated and satisfactory to all parties. We found material in this test pit that might be considered of a quick sand nature and also that water rose in the pit to pretty near the surface of the ground. We then continued to work out the actual cost of the work and on this all parties have agreed.

The cost of the track elevation is

\$673,000. The cost of the track depression is \$965,000. R. L. Latham, Chief Engineer of the T.H.&B.R., agreed to this cost with a proviso that no unforeseen conditions arose. I understand from that that he means from this such conditions as we felt were indicated by this test pit in excavating for lowering the tunnel 12 ft. at its portal. The engineers associated with Mr. Latham, and Mr. Tye, acting for the city, felt that business could be continued through this tunnel during the time that it was being lowered for a length of 800 ft. from nothing to 12 ft. at the portal. My opinion is that this would be a very difficult thing to do and I have very much doubt whether it would be possible to continue traffic through while it was being lowered. In addition to the construction there is the cost of the right of way. I have spent a lot of time on this and have not been able to arrive at a very satisfactory result. It is very difficult to estimate the value of land when it is to be purchased for this purpose. However, there is no doubt that the land required for the track depression exceeds the land required for the track elevation, and I roughly estimate the land damage on the track elevation at \$331,000 and on the track depression at \$537,000. It was stated that owing to the fact that the track depression would carry the railway away from its present station facilities, they would be available for sale, but to give the company the equivalent of the land it already has on its present facilities, would add an increased cost to the land expenses, which would be about even to the sale of the present station property. In addition to that there would be consequential damages, which are only estimated, and which I have put in for the track elevation at \$151,000 and for track depression at \$148,000. Adding these I make the approximate cost of track depression \$1,650,000 and the track elevation at \$1,161,000. While there has been a good deal of discussion as to the amount of the land damages, and I have made several trips and gone thoroughly over the ground several times, I feel that I am unable to arrive at any other conclusion as to the land damages but that it is only approximate and may vary \$100,000 one way or the other. The items on the cost of construction are, I think, as close as it is possible to get and the land damages are what might be termed an approximation.

As to the merits of the case. The track depression suggested by the city lends itself to the opening of Hunter St. its entire distance, except that the crossings by overhead bridges would slope well out on Hunter St. at several places, for instance at Charles, McNab, James, John and Catherine. Hunter St. would then be like an up and down grade at these points, but nevertheless open for traffic. At present Hunter St. stops at Park St. and then the tracks run on the level from Park St. to practically Catherine St., but vehicular traffic has been allowed to use it, driving alongside the tracks. This is a pretty dangerous pre-

cedure and should not have been allowed, but apparently it has been going on for years. Most of the traffic is in connection with railway work along Hunter St. between John and James Sts., to express company's warehouses which are situated in that section.

The track elevation scheme would practically cut out the use of Hunter St. from Park to Catherine; that is it would prevent any use of that portion of the street for vehicular traffic and, in addition, would leave Charles and McNabb Sts. at grade level, protected by gates as they are at present, or else closed to vehicular traffic and opened by pedestrian subway, which is all that could be got at these points. These streets are not important and would not, unless the whole question of grade separation came up, be over considered as points warranting subways, as practically all the business is done first on James St. and second on John and other streets to the east, which would all be taken care of by track elevation or depression as far as Ferguson Ave.

In connection with the operation of trains, I attach a plan which is explanatory of the conditions as they are on the level, as they would be elevated, and as they would be depressed. The present station facilities lie between James and John Sts. and whether it be track elevation or depression, that location would not be changed. The operation of trains is easier at their present location, at ground level than either of the other means, elevation or depression. Elevating the tracks would continue a 1% grade rising from the mouth of the tunnel to James St., about 1,000 ft. Depressing the track from the tunnel to James St. for 1,300 ft., would give a falling grade of 9/10%. This depressed grade would then continue level for 1,800 ft. approximately 16 ft. below the present level of the ground, and would then rise 1,750 ft. by a 1% grade to the surface at Victoria Ave. This, to my mind, would make a tremendous difference in the operation of the railway. Heavy trains coming through, both freight and passenger, particularly if they had to stop at the station, which all passenger trains would have to do, would have great difficulty in making these grades in either direction and would be a most serious drawback to the operation of the railway. It would make it one of the worst places conceivable for the location of a station and would hamper the operation of the road through Hamilton to a very great extent.

The city's second idea was that the T.H.&B.R. be moved to the location of the G.T.R. present tracks, and that, to my mind, would be the proper solution of this question but it has been found impossible to do it. The T.H.&B.R. has spent a great deal of money in building its tunnel and on other works in connection with its present location, which could not be picked up and moved easily.

The noise from trains running in track depression in this locality would be less than on track elevation, but the smoke

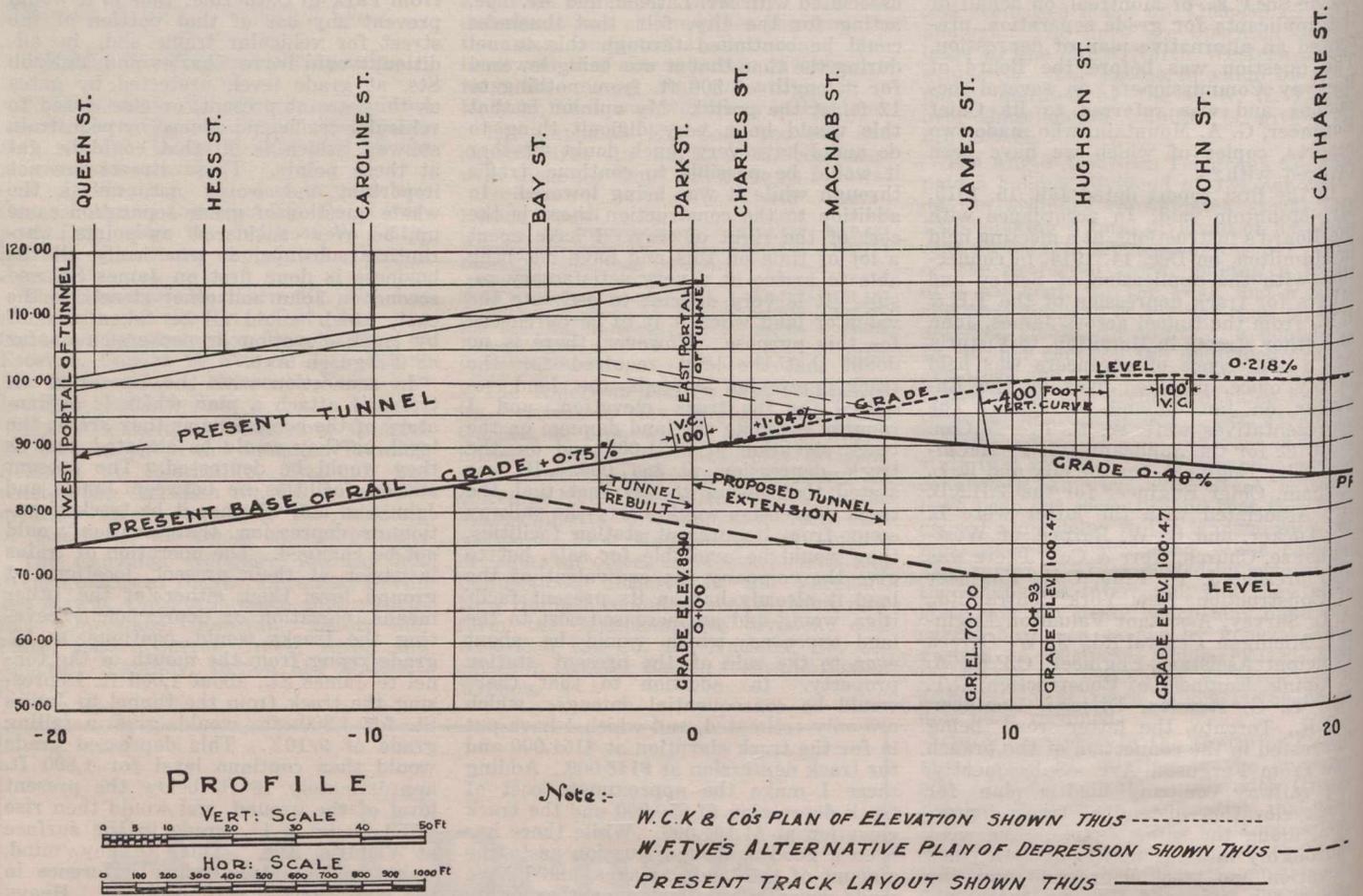
there is one of the big nuisances complained of in the application, and it would be greater in track depression than on elevation so long as steam power is used; and it does not seem to me that the density of the T.H.&B.R. traffic would warrant going to electric motors through this section at present. Taking everything into consideration that I can think of, I am of opinion that if grade separation is to be made at this point, then in the greater interest of all parties, track elevation is the proper method for economy of operation, business interests adjoining the railway and for relief from the smoke nuisance, but I do not think that the T.H.&B.R. business at present time through the City of Hamilton, with gates protecting practically all its level crossings and with half interlockers pro-

portal of the tunnel, but it has not advanced any suggestions officially. It is added that the question of eliminating the smoke is rather a difficult one, that the installation would be expensive and the operating cost extremely high.

**The Railways of Venezuela.**

H. K. Wicksteed, M.Can.Soc.C.E., Chief Engineer of Surveys, Mackenzie, Mann & Co., Ltd., Toronto, who spent some time in Venezuela last year in connection with a railway and coal mining proposition, wrote an interesting article on the country, which was published in Canadian Courier, from which the following is reproduced: "Of the railways, the longest is that from Caracas to Valencia,

an extraordinary descent along the mountain slopes of Las Tejeras. There are 86 tunnels and over 100 steel viaducts on this piece of line; or, roughly, two of each for each mile of road, and the scenery is magnificent. But in a tropical climate, windows must of necessity be open, and in the long tunnels the smoke and gases from the engine make one imagine himself in a Belgian trench, and are somewhat trying to lungs and throat. It is possibly in the operation of this railway that the Germans got their ideas of asphyxiation. At Las Tejeras, the railway reaches the bottom of the valley, in which is situated Valeacia, its lake and many smaller towns, and the construction is comparatively easy and cheap. As a financial venture, the railway is a failure."



Schemes for Track Elevation and Depression in Hamilton. Toronto, Hamilton & Buffalo Railway.

tecting the electric car system at crossings with the T.H.&B.R. warrants any change being made in the location of the tracks.

There is an objectionable feature in the way smoke comes out of the tunnel after trains have passed through, particularly at the portal next to James St. It can be noticed curling for some time after a train has passed through and is objectionable. I suggest that the company consider the advisability of putting a shaft near the upper end of the tunnel, which is the easterly portal, and fanning the smoke up into the air where it would disperse instead of coming out of the roof of the tunnel and flowing over Park St. This is merely a suggestion which might be looked into.

In reference to Mr. Mountain's suggestion as given above, we are advised that the T.H.&B.R. management has considered the question of providing ventilation to prevent smoke rolling out of the east

some 220 kilometers, or 130 miles, built and controlled by the Germans. The most lucrative is the English road from Caracas to its seaport, La Guayra, about 27 miles. The last is among the scenic and engineering curiosities of the world, climbing an elevation of 3,100 ft. in 25 miles, with grades of nearly 4%, and almost continuous curvature, as sharp as 140 ft. radius. In spite of these economic drawbacks, the traffic has been carried on continuously without accident for many years and pays good dividends on its stock. Considering that its passengers pay 10c. a mile, and freight in proportion, and that it connects a population of 150,000 or more people with the outside world, it should pay.

"The German railway is a much bolder conception, and cost over its mountain section of 40 or 50 miles a much larger sum of money. It winds up the canyons of the Guayra to its source, tunnels through the Andes and then commences

The Chicago Railway Terminal Problem is again to be taken up by the city with a view to the concentration of the present passenger terminal stations. Under ordinances passed some time ago the Illinois Central Rd., is required to build a new terminal station on a site adjacent to the present station, in order to make way for the extension of 12th St. to the lake front and for the improvement of Grant Park. The council committee on railway terminals has been directed to confer with the several railways entering from the south in order to determine upon the exact location of the new Illinois Central terminal and to provide for its use by other roads which now run beyond 12th St. and use the Dearborn, La Salle and Grand Central terminal stations.

V. J. Smith, heretofore at Windsor, Ont., has been appointed agent, Canadian Ex. Co., St. Thomas, Ont., vice C. W. Ward, resigned.

# Freight Rate on Tank and Still Structural Material from Sarnia to Regina.

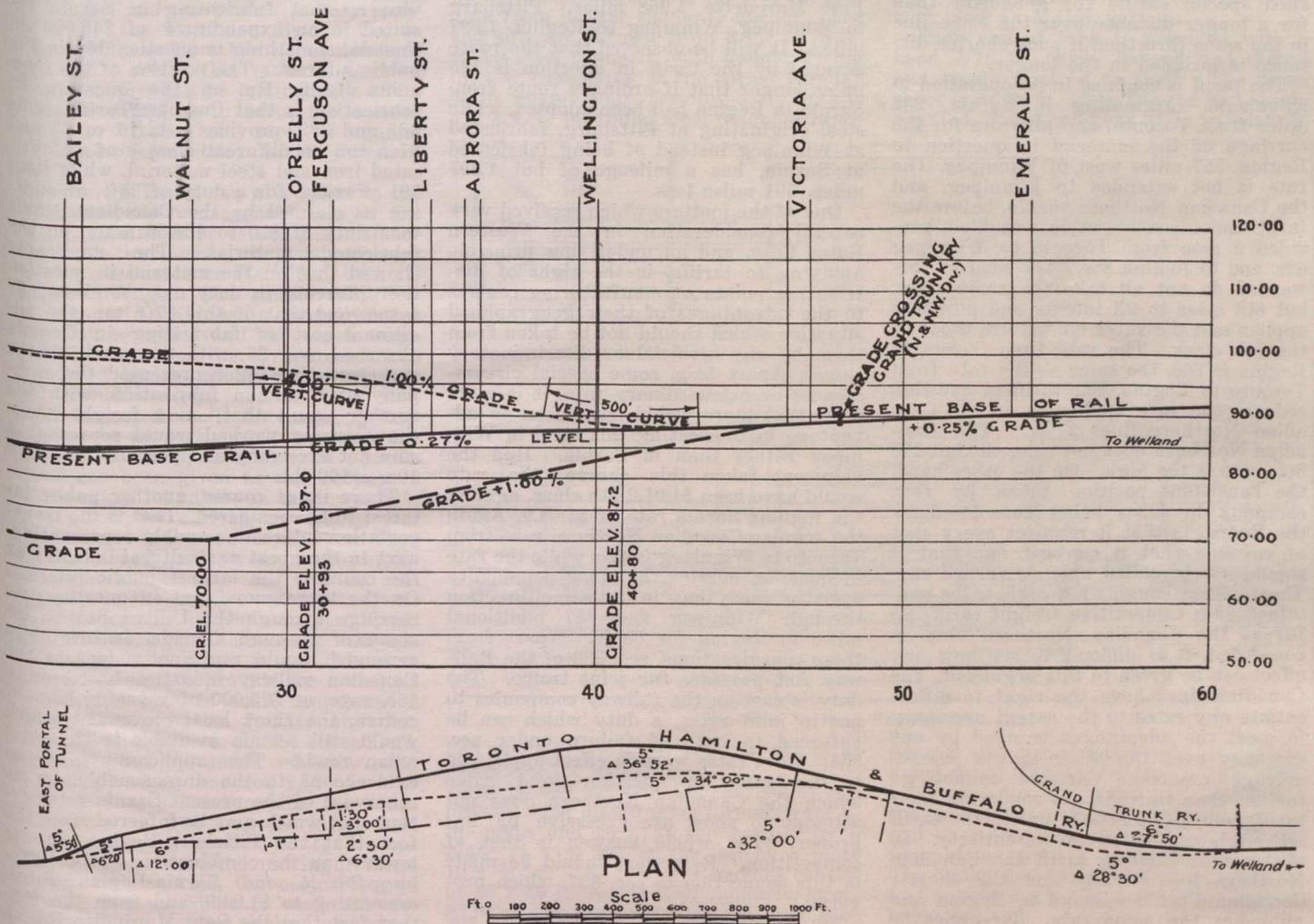
The Chief Commissioner of the Board of Railway Commissioners, Sir Henry L. Drayton, K.C., has given the following judgment, which has been concurred in by Commissioners McLean and Goodeve:

At the Board's sitting held in Ottawa on Feb. 9, two cases closely related were heard, and considered together. The one involved the consideration of Special Freight Tariff C.R.C. no. E. 732, issued by the Canadian Northern Ry., the company being required to support the tariff and show cause why it should not be cancelled as being made in contravention of

of oils and gasoline was confined to a three months period, and as during that period, which may be termed the "peak," three or four times the number of containers and transportation facilities (tank cars, and the like) are required than at other times of the year, it determined that it was necessary to erect a refinery in Regina and distribute from that point. Desiring to have the steel materials necessary for the erection of the plant fabricated in Canada and at their Sarnia works, the Imperial Oil Co. approached the Pere Marquette Rd. with

International Boundary refused to reduce their rate and probably brought pressure to bear upon the Pere Marquette, so as to prevent the long haul on the movement out of Sarnia being enjoyed by the United States companies.

The Canadian carriers were then approached, but the Imperial Oil Co. was unable to obtain any concessions from any of the carriers having connection with Sarnia. The Canadian Northern, however, subsequently agreed to put in the tariff in the question and filed it. The special rate of 75c. that the Imperial



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the "Equality" and "Joint Tariff" provisions of the act. The other application was one made by the Imperial Oil Co., for an order under sec. 344 of the Railway Act, requiring that a joint tariff should be filled from Sarnia to Regina, at a rate of 75c. per 100 lbs., applicable on tank and steel structural material. The Pere Marquette Rd. and the Canadian Pacific, Canadian Northern, and Grand Trunk Railways being interested, either in portions of through movements or in alternative routes. Reference to the circumstances under which the so-called Canadian Northern Proportional Special Tariff came to be put in is necessary.

The Imperial Oil Co., carrying on a very large business in the Northwest, stated that in view of the fact that by far the largest part of the distribution

the view of obtaining a special rate from the Pere Marquette of 75c. to Regina. The Pere Marquette representative agreed to make this special rate of 75c. transportation to be made via Chicago over the lines of the American companies connecting with that system, with the result that the American lines would get the long haul. The Imperial Oil Co. thereupon obtained its materials in Pittsburg, shipped them to Sarnia, and have at least in part already fabricated them. The movement is considerable, some 5,000 tons being involved. The Pere Marquette then declined to maintain the rate, or indeed to put it into effect; and, while nothing is said as to the reason for it, I take it for granted that the Canadian roads over whose tracks the shipment would have to go to Regina from the

Oil Co. desired in the first instance from Sarnia to Regina was required so as to meet Pittsburg rate of 93.9c. to Regina, the rate from Pittsburg to Sarnia being 18.9c. As the Canadian Northern has no connection with Sarnia, the traffic from Sarnia to Toronto, moving on the Pere Marquette and Canadian Pacific railways would pay the established rate of 16½c. and, therefore, it became necessary that, in order to equal the 75c. rate as desired by the Imperial Oil Co., a special rate of 58½c. should be made by the Canadian Northern from Toronto to Regina. The tariff that company filed is said to be a Special Proportionate Freight Tariff of rate on Tank and Still Structural Material from Toronto to Regina, and is made applicable only on shipments originating at Sarnia and does not apply to points

intermediate to Regina. The required rate of 58½c. is made. The Canadian Northern supports the tariff as being proper under the provisions of sec. 326. s.s. 3, of the Railway Act, which reads as follows:

"The special freight tariffs shall specify the toll or tolls, lower than in the standard freight tariff, to be charged by the company for any particular commodity or commodities, or for each or any class or classes of the freight classification, or to or from a certain point or points on the railway; and greater tolls shall not be charged therein for a shorter than for a longer distance over the same line in the same direction, if such shorter distance is included in the longer."

This provision undoubtedly allows special freight tariffs and commodity rates. These tariffs, however, are just as much subject to the provisions of the act, relating to equality and to joint rate movements, as are the original standard tariffs. The section itself provides that greater tolls shall not be charged under such special tariffs for a shorter than for a longer distance over the same line in the same direction, if such shorter distance is included in the longer.

The tariff is confined in its operation to shipments originating in Sarnia, 232 miles from Toronto, and provides for the carriage of the material in question to Regina, 357 miles west of Winnipeg. The rate is not extended to Winnipeg, and the Canadian Northern tariffs, before the tariff under consideration was filed, provided a rate from Toronto to Winnipeg 62c. and to Regina 86c. The articles forwarded do not all take the same class, but 6th class to all intents and purposes applies and the rates quoted are those of the 6th class. The rate from Sarnia to Regina is 86c, the same as the rate from Toronto to Regina. The tariff in question reduces the rate applicable on the Canadian Northern lines 27½c. The Canadian Northern does not suggest that the 86c. rate is too high. On the other hand, the consistent position taken by that company in cases being considered by the Board, is that it requires every cent of revenue that it can get and that it should not be called upon to forego any. The tariff is sought, however, to be sustained as a competitive freight tariff. So far as the Canadian Northern line is concerned, it is difficult to see how any effect can be given to this argument. The Canadian lines have the right to differentiate any rates to the extent necessary to meet the advantages enjoyed by one company over the other that a shorter mileage creates. Carriers cannot go further than this without rendering their tariffs subject to attack, unless the tariff scheme is carried out in its entirety. In the regular existing tariff the Canadian Northern has already met the shorter Canadian Pacific mileage to Regina and publishes the same rate. It cannot be contended that Toronto—Regina business or Sarnia—Regina business is more highly competitive than business to Winnipeg, or that concessions granted to manufacturers at one point should be denied those at others when similar conditions prevail.

The Winnipeg Board of Trade has intervened. Its telegram read at the hearing, is as follows:

"Informed Commission will tomorrow deal with reduced rate structural steel ex Sarnia, Toronto, Regina 58½c. On behalf members seriously affected, this Board protests strenuously against any reduction eastern to western points unless corresponding reductions made rates into and out of Winnipeg to keep manufacturers fabricating steel at Winnipeg at least in same relative position to eastern manufacturers that now exists under Commission's decision in Western Rates Case. Writing."

This telegram has been followed up by the following written submission:

"If reduced and special rates below those ordered

by your Commission in the Western Rates Case are made from manufacturing centres in Eastern Canada to points in Western Canada as occasion arises, without any corresponding reductions in rates into and out of Winnipeg, it must be readily apparent to your Commission that Winnipeg manufacturers will be deprived of their just rights to compete with Eastern manufacturers on requirements at Western points, and this section feels that the Commission should not, and no doubt will not, lend its sanction to any basis of rates that will bring about such disastrous results to Western manufacturers."

In this connection, the different mileages involved are as follows: Pittsburg to Sarnia and Sarnia to Regina, via Grand Trunk and Canadian Pacific, 2,163 miles. Pittsburg to Sarnia, and Sarnia to Toronto (P.M. & C.P.) Toronto to Regina, the route that the proposed tariff takes advantage of, 2,288 miles. Pittsburg to Sarnia, Sarnia to Regina, via Pere Marquette, Chicago Line, and Northgate, which would appear to be the route originally contemplated by the Pere Marquette, 1,958 miles. Pittsburg to Winnipeg, Winnipeg to Regina, 1,697 miles. It will be observed that the route covered by the tariff in question is 125 miles longer than if ordinary route from Sarnia to Regina had been adopted, while steel originating at Pittsburg, fabricated at Winnipeg instead of being fabricated at Sarnia, has a mileage of but 1,697 miles, 591 miles less.

One of the matters which received very careful consideration in the Western Rates Case, and an underlying principle applying to tariffs, is the right of distributing points or manufacturing centres to the advantages of their geographical situation which should not be taken from them by any artificial or discriminatory rates. Apart from some special circumstances or extraordinary rate, it is quite clear that there would have been an advantage in fabricating this steel in Winnipeg rather than in Sarnia. Had the shipment taken this course, the rate would have been \$1.01.2 6th class, against the regular Sarnia rate of \$1.04.9. Again the regular Canadian Northern rate from Toronto to Winnipeg is 62c, while the rate in question carries the same commodity over the same lines in the same direction through Winnipeg and 357 additional miles to Regina for 58½c. Apart from these considerations, sec. 333 of the Railway Act provides for joint traffic. The duty is cast on the railway companies to put in joint rates, a duty which can be enforced in case of failure under sec. 334. Joint rates were in effect applicable to the traffic in question—joint rates which the Canadian Northern does not attempt to show are excessive or improper. The whole answer is that of competition. Reference should be made in this connection to sec. 337, which provides:

"No company shall, by any combination, contract or agreement, expressed or implied, or by other means or devices, prevent the carriage of goods from being continuous from the place of shipment to the place of destination."

The scheme of the act is that traffic moving over the lines of two or more companies shall be considered and carried as through traffic on the one bill of lading, and not that local rates should be filed as proportionals and the traffic move under separate bills. The proportionals rate is something which the act does not provide for in terms at all; and, while it is quite true that through traffic shipped on a through bill of lading may move on the sum of the locals so that in a sense the local is a proportion of the through rate, it nevertheless is true that the local rate is open for every shipper to take advantage of and is not confined to a shipment originating at some particular point miles away on the one hand,

or to a particular destination on the other. The present rate, although claimed to be proportional, can hardly be so described when the result is not to maintain the joint rate out of Sarnia but to reduce it 27½c. Special arrangements cannot be given effect to between railways and shippers. Traffic must be moved on the tariffs filed—no more and no less; and these tariffs must be free of unjust discrimination and comply not only with the general sections but, in cases applicable, with the joint traffic sections of the Act.

There remains to be considered the application made by the Imperial Oil Co. for an order directing the companies affected to file through tariffs providing a commodity rate on the material in question from Sarnia to Regina of 75c. The application is urged in the public interest. The applicants show that the cost of fabricating in Sarnia amounted to \$9 a ton; so that fabricating in Sarnia resulted in an expenditure of \$45,000 in Canada, something unquestionably in the public interest. The position of the Canadian Pacific Ry. on the question of fabricating is that Customs Tariff, items 331 and 382, provides a tariff of \$3 and \$7 a ton on different classes of unfabricated iron and steel material, while item 391 provides for a duty of 35%, amounting as claimed by the Canadian Pacific to a duty of \$20 to \$24.50 a ton on the fabricated material. The applicants showed that on the material in question the difference in duty did not exceed \$7 a ton, and that of this \$7 a ton, the additional cost of fabricating in Canada absorbed over \$5, with the result that a sum less than \$2 represented the company of Canadian fabrication, with the further result that, on a freight basis, the economy worked would represent a sum not exceeding and possibly less than 10c. a 100 lbs.

There is, of course, another public interest to be considered. That is the transportation interest—possibly representing, next to the great agricultural industry of the country, the largest public interest. On the large movement in question, its carriage through the United States, instead of through Canada as originally arranged, would represent a loss to the Canadian railway industry, based on a 75c. rate, of \$75,000 of revenue, less, of course, the short local movement which would still remain available to the Canadian roads. The applicants give no evidence as to the unreasonableness or otherwise of the present Sarnia rate, except that which may be inferred from the fact that the Pittsburg-Regina rate is lower than the combination of the Pittsburg-Sarnia and Sarnia-Regina rates, amounting to \$1.04.9, and from the further fact that the Pere Marquette Rd. at one time voluntarily agreed to this 75c. rate. The larger part, however, of the earnings under that rate meant just so much found business to the United States lines; and it was a rate which they chose to put in, doubtless in order to get the business, and not a rate fixed by any rate regulating tribunal as reasonable. On the other hand the Pittsburg-Regina mileage is 1,591, while the Sarnia-Regina mileage is 1,773. At a rate of 93.9 the Pittsburg movement makes a mileage return of 1.18c. and the 86c. Sarnia movement 97 hundredths of a cent per ton mile. The Pittsburg rate proves nothing, except that iron and steel commodities can move west more cheaply out of Pittsburg direct than out via Sarnia. It affords no evidence whatever that the Sarnia rate is unreasonable.

The statement is also made that the

## Tank Cars for Canadian Northern Railway.

rate is only a paper rate, and that no traffic moves under it. The iron and steel rates of the country stand in a certain relationship one to the other. The commodity moves, speaking generally, under the 5th and 6th class in carloads; and, while there may or may not have been any traffic to move out of Sarnia and none moving from that point, there is no doubt at all that traffic of this character moves and is moving freely. The same 86c. rate applies from Hamilton and Montreal, and also from Walkerville, where there is also a bridge plant. The large viaducts and bridges in the west, many of them fabricated in the east, need only be instanced. At present, it is true, that a large portion of this business, perhaps indeed most of it, is now fabricated in the west for the west. The large plant of the Manitoba Bridge Co. and the branch factory established by the Dominion Bridge Co. in Winnipeg, may be taken as evidence of this fact. While this is true, no new tariff structure can be justified, the effect of which would be to favor the eastern fabricator of iron and steel as against his western competitor in the western market.

Before the Board can give effect to the application, the unreasonableness of the present rate must be established. If unreasonable ex Sarnia, they cannot very well be reasonable ex Hamilton, with its shorter mileage. The simple fact that the Imperial Oil Co. has a specially large shipment to make and on which large traffic returns could be earned cannot be considered by the Board as overruling other considerations. It is true that under the act the tolls for larger quantities may be proportionately less than the tolls for smaller quantities (s.315, s.s.3). Effect has been given to this section in the lower car lot rates—in the lower rate basis given the carload as against less than carload movements. Further than this the Board has not, and in my opinion ought not to go. There is no real handicap on the smaller manufacturer or dealer under this system. Practically all engaged in the handling of the different commodities that move in carloads have enough business to provide for a carload movement, which in turn represents a greater transportation facility and lessens railway expenses. On the other hand, were rates for movement of 5,000 tons, for example, less than for 2,500 tons, it would be simply handicapping the smaller dealers and bonusing the larger. If the system were applied to the movement of any commodities moving in large volume, such as coal, the only effect in the long run would be to work the extinction of the smaller dealers and place the business of the country in the hands of large distributors. The application must be dismissed.

**To Protect Bottom Flanges of girders** over railway tracks from the rapid deterioration due to the chemical action of smoke and gas, together with the erosive effects of engine blasts, it was found, after trying several other devices, that 7/8-in. plain oak sheathing held firmly in place by iron clamps, the sheathing being first covered on its upper side by a paste composed of red lead and Portland cement, was very satisfactory. As stated by L. M. Hastings, city engineer of Cambridge, Mass., the oak sheathing showed surprising resistance to the destructive action of the blast. Some pieces of oak taken from the bridge after 10 or 12 years exposure showed a loss of thickness of not more than 1/4 in.

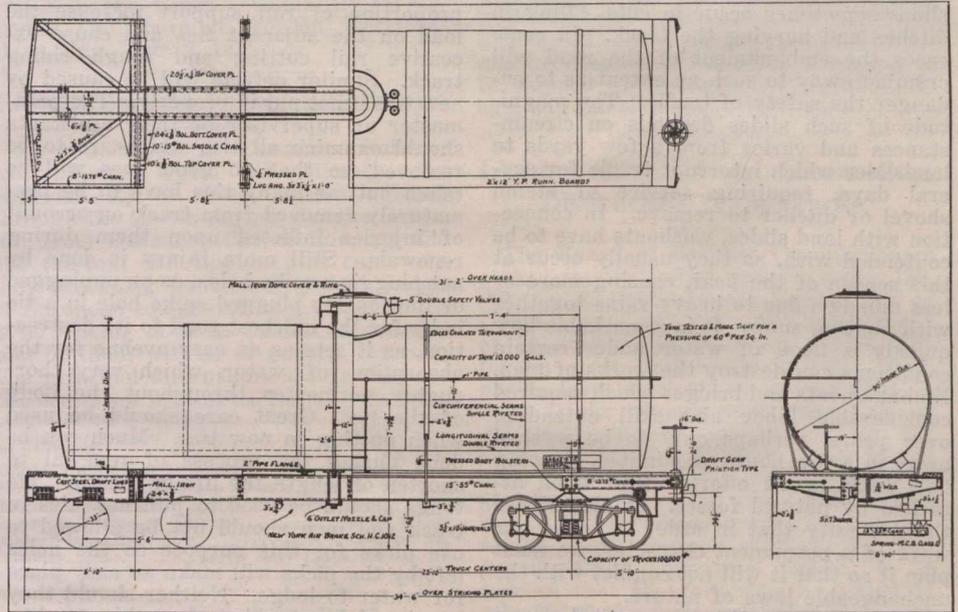
The C.N.R. has received recently, from the United States, 4 tank cars, nos. 7161 to 7164, of which the following are the principal particulars:—

Length over striking plates.....	34 ft. 6 ins.
Width over side sill channels.....	8 ft. 10 ins.
Diameter of tank inside.....	90 ins.
Length of tank over heads.....	31 ft. 2 ins.
Height top of rail to centre of tank.....	7 ft. 10 3/16 ins.
Truck centres.....	22 ft. 10 ins.
Truck wheel base.....	5 ft. 6 ins.
Truck wheels.....	33 ins. diameter, 725 lbs. each
Axles.....	5 1/2 x 10 ins., MCB journal
Capacity.....	10,000 U.S. gallons

The centre construction consists of two 15 in. 55 lb. rolled steel channels, spaced 12 3/8 in. apart, running continuous from end sill to end sill and reinforced on top by two cover plates 20 1/2 in. x 1/4 in. running from bolster saddle to anchor. The end sills are formed from 8 in. 13.75 lb. rolled steel channels, with flanges facing inward, connecting at the corner through 5/8 in. gusset plate, forming a tie for the 3 x 3 x 3/8 in. rolled steel diagonal brace

The tank proper is made up of 5 circumferential sheets of 1/4 in. plate and 1 bottom sheet of 3/8 in. plate. Longitudinal seams are double rivetted and circumferential seams single rivetted. The dome is fitted with malleable iron cover, and ring 5/8 in. double safety valves. The base of the tank is also provided with 6 in. outlet nozzle and cap. Sill steps formed from 2 x 3/8 in. steel are provided and located according to Interstate Commerce Commission requirements. The draft gear is of friction type, the air brakes, New York schedule H-C, 1012. The trucks are of 50 tons capacity, having top bars 4 1/2 x 1 1/2, bottom bars 4 1/2 x 1 3/8 and tie-bar 4 1/4 x 5/8. Wheels are 33 in. diameter, 725 lbs. each. The bolsters are fitted with class D, M.C.B. springs.

Each end of tank is provided with a head 7/16 in. thick, flanged and dished and single rivetted to shell. The dome sheet is of 1/4 in. plate flanged and single rivetted. The dome head of 1/4 in. plate is



Canadian Northern Railway Tank Car.

and side sill, the latter being of the same section as the end sill.

The bolster construction consists of two pressed steel diaphragms formed from 1/4 in. plate and tied, at the bottom by a plate 24 x 3/8 in., at the top by a plate 10 x 3/8 in. The two tank saddles consist of 10 x 15 lb. rolled steel channels, located with flanges facing upward and having yellow pine filler to suit contour of tank. The four bottom anchors for tank, extending between the outside and centre crossies, are formed from 3 x 3 x 1/2 in. U-shaped bracings. The three crossies, one being located at the centre of the frame, the others being spaced 5 x 8 1/2 in. each side of centre, consisting of 1/4 in. steel plate pressings, and are connected to the side sill with 3 x 3 x 1/4 in. angle plate. The running bars consist of 2 x 12 in. yellow pine and hand rails are provided 12 in. above the centre line of the tank, formed from 1 in. pipe. The end sill is reinforced at striking plate by a steel plate 3/4 in. thick. The bolster is reinforced between centre sills by a malleable iron filler. Four hold down straps, formed from 2 x 3/8 in. steel bars, terminating in 1 1/8 in. rods, are provided and located each side of centre of tank and 7 ft. 4 in. centre to centre of outside straps.

flanged and dished and single rivetted to dome sheet. The 5 in. double safety valve is rivetted directly to the dome sheet, and the tank outlet nozzle is fitted with valve and operating rod, valve being operated from dome with a malleable iron can. The tanks are tested before erection to 60 lbs. pressure per square inch, all seams being caulked.

### Canadian Ticket Agents' Association.

The next annual meeting and outing will be held at Port Arthur, Ont., June 12. The party will start from Sarnia by Northern Navigation Co.'s steamship, returning by Canadian Pacific steamship to Port McNicoll.

### Public Ownership of Public Utilities.—

The Royal Commission on the high cost of living, in its report presented recently, advocates public ownership of all public utilities, including electric railways, water, gas and electric light in cities and towns.

### The Montreal Warehousing Co's annual meeting was held at Montreal, Mar. 1.

The directors for the current year are E. J. Chamberlin, President; H. G. Kelley, Vice President; J. E. Dalrymple, Frank Scott and John Pullen. The Manager and Secretary is C. J. Smith.

# Spring Track Work.

By J. W. Powers, Supervisor, New York Central Railroad.

With the advent of spring come many of the hardships of trackmen. The roadway, having passed through the rigors of winter, is frequently in a condition which requires vigorous and immediate attention. As the frost leaves the ground, the heaving often goes out in an irregular manner and shimmed track must be watched closely in order to avoid accident. This is particularly true where there are shims on curves, as any settlement which will effect the elevation must have prompt attention. Thick shims should be removed gradually as the frost leaves the ground. When necessary thin shims should be substituted until the track resumes its permanent position. The necessity of shimming is due to insufficient or poor ballast or drainage. Such points should be located and steps taken to eliminate the necessity of shimming.

During this season of the year, some roads are troubled with bank slides. Such slides sometimes occur in cuts, filling in ditches and burying the track. In some cases the embankment of the road will crumble away to such an extent as to endanger the safety of traffic. The magnitude of such slides depends on circumstances and varies from a few yards to landslides which interrupt traffic for several days, requiring service of steam shovel or ditcher to remove. In connection with land slides, washouts have to be contended with, as they usually occur at this season of the year, causing more or less damage, due to heavy rains together with melting snow. It is remarkable how quickly a flood of water under certain conditions can destroy the works of man. Embankments and bridges which required considerable labor and skill extending over years, perhaps only to be washed away in a few hours or minutes, showing how little man's efforts mean when attacked by natural forces. It also shows the necessity that in order to make our work of a permanent character, we must plan it so that it will not conflict with the unchangeable laws of nature.

While some washouts cannot be prevented by the efforts of trackmen, when the forces of nature combine to produce unusual volumes of water without adequate avenues of escape, there are, however, a great many washouts which can easily be averted if proper precautions are taken. Thus by keeping the ditches and waterways open, removing rubbish from under bridges and cleaning out culverts as often as obstructions may gather there, observant foremen can save the company many expensive washouts, which shows that safety of trains depends to a large extent upon the degree of energy, intelligence and integrity displayed by trackmen.

The most important regular work of the spring season is the renewal of ties, which should be taken in hand as soon as roadbed is in condition for it. The constantly increasing cost of new and suitable cross ties, coupled with their ever growing scarcity, makes it imperative that trackmen should handle the track question with the greatest circumspection and care, hence facts tending to reduce waste in this direction should be encouraged, as our timber resources are no longer boundless.

The best method of putting in ties is one of vital importance, but on account of the widely diverse conditions existing

on many roads, it is apparent that but few general remarks are applicable to all. A matter of great importance in the renewal of ties is to determine what ones should be taken out or just what ties, if left in another year, would by further decay weaken the track to such an extent as to be detrimental. Several weak ties should not be left together, the ties on curves should be inspected very closely and decayed ones should not be allowed to remain in curved track. A tie on a tangent will sometimes last much longer than on curves, thus a tie may be safe for one year in one place where it would not be safe in another. This means that the inspector when he condemns ties to be renewed must exercise good and clear judgment and should not injure good ties when testing for renewals. But it is false economy to allow ties to remain in track that are not sound enough to support the rail properly, for ties not furnishing their proportion of rail support increase the load on the adjacent ties and cause excessive rail cutting and rough riding track. Similar defects will be caused by new ties if not put in properly. The roadmaster or supervisor or their assistants should examine all ties which are to be removed, so that no good ones will be taken out, as many ties have to be prematurely removed from track on account of injuries inflicted upon them during renewals. Still more injury is done by not plugging spike holes, as an unplugged or improperly plugged spike hole in a tie is by far the quickest road to its destruction, as it acts as an easy avenue for the absorption of water, which very thoroughly permeates throughout the body of the tie. Great care should be used when putting in new ties. Much can be done during the process of renewal to shorten or lengthen the life of the tie. Tie tongs should be used to pull new ties in track and men should not be allowed to use picks for this purpose as the holes left by the picks will make an easy place for water to lodge. Neither should they be placed heart side up as this accelerates the destruction of the tie by the converging fibres. If placed heart side down, the fibres of the timber tend to shed water away from the inner timber.

The renewal of ties naturally causes disturbance in the general condition of the track that cannot be immediately corrected, therefore the old bed should not be disturbed unless it is absolutely necessary. In order to reduce the period of such disturbance to a minimum, the renewals should be carried on without interruption. It has been a matter of much discussion whether it is best to put the final surface on track as ties are renewed, or put in ties and leave track in fairly good condition in order to expedite the work of renewals. Both methods have very strong adherents and arguments to sustain them, but the most logical conclusion is that conditions govern as to which is the best course to pursue on any particular road. Where the old ties to be removed and the new ones to be installed are of different dimensions, much time can be saved by using new ties about the same sizes as the old ones, and if old ties were properly spaced it helps to keep the spacing uniform. To obtain the best results, ties should be of the same length and of uniform cross section. With perfectly uniform ties laid at right

angles to the track and evenly spaced, the maintenance expenses would, undoubtedly, be greatly decreased without incurring any heavier expense in the first cost of ties.

The necessity for using appliances and adopting methods of economy and efficiency in these days of sharp competition and adverse railway legislation must be apparent to all officers who are responsible for the expenses in their respective departments. With this idea in view, the maintenance of way departments are economizing by a more liberal use of chemically treated ties with tie plates. The necessity of properly constructed tie plates has become more and more apparent. With the increase in weight of motive power, carloads and speed of trains, the demand for good ties, chemically treated, is increasing as the forest supply decreases and prices advance. The life of a tie is shortened by two principal causes, that is by the chemical process of decay and the mechanical wear under the rail. The life of some ties can be doubled and trebled by proper chemical treatment. Yet this would by no means solve the tie question unless provision is made to prevent the rail from wearing away the tie. It is a fact that many ties are removed from track, not because of decay, but on account of being weakened by rail base cutting into the wood. A properly constructed tie plate will increase the life of the tie, decrease the cost of tie renewals, maintain the rails in their normal positions, prevent excessive wear on the side head of rail, affect a large saving in the labor of track maintenance and increase safety in operation.

There is a diversity of opinion among track men as to the economy and efficiency of using a bevel tie plate. If such plates were used on every tie, we believe they would give good results. But we all know that after an ordinary rail has lain in track for a period of time, it is not the same shape nor has it the same bearing on ties as when it was first laid, because the wheel loads passing over it have canted it to a certain extent. Opinions vary as to the practicability of their use in rails adjoining frogs and switches. If bevel plates are not placed on all ties, the rail bears on such plates only on the outside of the base of the rail, which places it in torsion and tends to cause half moon breaks. Therefore all of these things have to be considered and properly adjusted or else we have an imperfect device.

There is one feature which should be observed in all kinds of track work and that is the safety of trains and men. This forms the main part of a trackman's responsibility and attention has been called to it so often that it would seem unnecessary to do so again. Still, we believe that we cannot be reminded too often of the necessity of using extra precautions for the protection of the traveling public, our fellow workmen and ourselves. Safety of the track is all important, but we must have intelligent safety or safety that is not wasteful either in labor or material.—Maintenance of Way Bulletin.

M. E. McLeod has been appointed agent, Canadian Ex. Co., Prince George, B.C., vice A. Sholey, who has resumed his former position as messenger.

## Birthdays of Transportation Men in April.

F. G. Adams, Commercial Agent, G.T.R., and Division Freight Agent, G. T. Pacific Ry., Winnipeg, born at St. John's, Nfld., Apr. 6, 1878.

W. H. Ardley, Comptroller, G.T.R., G. T. Pacific Ry., Montreal, born at London, Eng., Apr. 24, 1858.

Jas. Black, Freight Claim Agent, C.P.R., Vancouver, B.C., born near Seaforth, Ont., Apr. 19, 1858.

C. G. Bowker, General Superintendent Eastern Lines, G.T.R., Montreal, born at Medford, N.J., Apr. 21, 1871.

A. V. Collins, Canada Steamship Lines, Ltd., Toronto, born at Island Pond, Vt., Apr. 21, 1868.

R. J. Collins, Chief Dispatcher, District 4, Alberta Division, C.P.R., Edmonton, born at Winnipeg, Apr. 30, 1883.

Sir Henry L. Drayton, K.C., Chief Railway Commissioner for Canada, Ottawa, Ont., born at Kingston, Ont., Apr. 27, 1869.

A. E. Edmonds, General Agent, C.P.R., Detroit, Mich., born at Woodstock, Ont., Apr. 8, 1866.

B. C. Gesner, Moncton, N.B., formerly Air Brake Inspector, I.R.C., now Eastern Sales Agent, Galena Signal Oil Co., born at Cornwallis, N.S., April 23, 1859.

J. Murray Gibbon, General Publicity Agent, C.P.R., Montreal, born at Ude-wella, Ceylon, Apr. 12, 1875.

V. A. Harshaw, Assistant Superintendent, District 3, Eastern Division, C.P.R., Montreal, born at Mono, Ont., Apr. 26, 1865.

J. M. Horn, Assistant General Freight Agent, Canadian Northern Ry., Winnipeg, born at Allanton Mills, Lanarkshire, Scotland, Apr. 12, 1880.

B. S. Jenkins, ex General Superintendent, C.P.R. Telegraphs, Winnipeg, born Apr. 8, 1859.

J. H. Johnston, Superintendent of Bridges and Buildings, Eastern Lines, G.T.R., Montreal, born at Uxbridge, Ont., Apr. 22, 1866.

G. W. Lee, Commissioner, Timiskaming and Northern Ontario Ry., North Bay, Ont., born at Renfrew, Ont., Apr. 15, 1871.

J. A. Macgregor, Superintendent, District 4, Alberta Division, C.P.R., Edmonton, born at Dufftown, Scotland, Apr. 5, 1873.

B. R. Marsales, District Freight Agent, Canadian Northern Ry., Calgary, Alta., born at Guelph, Ont., Apr. 13, 1887.

J. H. Mills, Master Mechanic, Lake Superior Division, C.P.R., North Bay, Ont., born at Sherbrooke, Que., Apr. 23, 1865.

P. Mooney, General Freight and Passenger Agent, Halifax and South Western Ry., Halifax, N.S., born at St. Catherines, Que., April 19, 1871.

F. L. Nason, General Agent, Passenger Department, C.P.R., San Francisco, Cal., born at Newton, N.H., Apr. 16, 1880.

G. D. Perry, General Manager, Great North Western Telegraph Co., Toronto, born at Whitby, Ont., April 19, 1858.

R. A. Pyne, Superintendent of Shops, C.P.R., Winnipeg, born at Toronto, April 10, 1874.

R. S. Richardson, Superintendent, District 3, National Transcontinental Ry., Fort William, Ont., born at Napanee, Ont., April 9, 1865.

F. Rioux, Assistant to President, Reid Newfoundland Co., St. John's, Nfld., born at Trois Pistoles, Que., April 18, 1867.

W. A. Ritchie, District Superintendent, Pullman Co., Montreal, born at Edinburgh, Scotland, Apr. 13, 1854.

E. W. Smith, Superintendent, Dining and Parlor Car Service, G.T.R., Toronto, born at North Bridge, Mass., Apr. 21, 1869.

G. St. George Sproule, Engineer of Tests, C.P.R., Montreal, born there, Apr. 23, 1885.

W. S. Tilston, Chief of Montreal Board of Trade Transportation Bureau, born at Manchester, Eng., Apr. 14, 1877.

C. H. Towle, Assistant Superintendent, District 1, Atlantic Division, C.P.R., Brownville Jct., Me., born at Enfield, Me., Apr. 13, 1878.

E. D. Toye, Storekeeper, Ontario Division, Canadian Northern Ry., Trenton, born at Dalston, Ont., Apr. 27, 1891.

H. J. White, Supervisor of Car Work, Eastern Lines, Canadian Northern Ry., Toronto, born at Brownington, Vt., Apr. 1, 1871.

E. M. Wood, Deputy Municipal and Railway Commissioner for Manitoba, born at Brantford, Ont., Apr. 20, 1858.

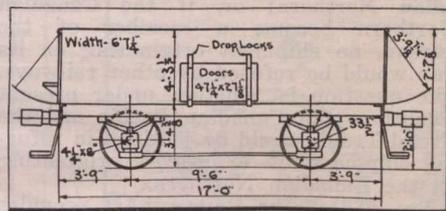
W. Woollatt, Vice President and General Manager, Essex Terminal Ry., Walkerville, Ont., born at Weedon, Hertfordshire, Eng., Apr. 2, 1855.

### Freight Cars for Nigerian Railways.

As announced in Canadian Railway and Marine World for January, the Nigerian Ry. in West Africa ordered through the Crown Agents for the Colonies, from Canadian Car & Foundry Co. 100 ten-ton, end tipping coal cars. As they are being built to a typical design of European equipment, so much of which is now being built in Canada, a description of them will be of general interest. The principal dimensions are as follows:

Length over end sills and top frame.....	17 ft. 0 ins.
Length of rigid wheelbase.....	9 ft. 6 ins.
Width over wooden siding.....	7 ft. 0 ins.
Width inside.....	6 ft. 7 1/4 ins.
Height, top of rail to side sill.....	3 ft. 4 3/8 ins.
Height, top of rail to top of side.....	7 ft. 7 7/8 ins.
Height, top of rail to centre of coupler.....	2 ft. 10 ins.
Centre to centre of journals.....	5 ft. 4 ins.
Cubical capacity.....	.440 cu. ft.
Capacity.....	10 tons (2240 lbs. each)
Diameter of wheels.....	33 1/2 ins.
Size of journal.....	4 1/4 x 8 ins.

The framing throughout is of composite construction, embodying the use of 2 1/2 in. wooden flooring, 2 3/8 in. thick wooden ends and sides secured to a metal



Nigerian Railway Freight Car.

underframe. The 8 in. rolled steel side sills proper are set back to suit the location of the pedestals, brackets being secured to take the 2 1/2 x 5 in. rolled steel, angle auxiliary, side sill member, with its short leg placed parallel to the outside face of the siding. The main draft members are of 3 1/2 x 8 in. rolled steel, section tied to the end sills by U shaped plates and secured to the bolster by angle plates. Two large hinged end doors 6 ft. 6 3/4 ins. long are located as shown by the accompanying illustration. Two body bolsters located 2 1/2 ft. each side from centre of car are provided and secured by top cover plates. The end sills are of 12 in. rolled steel channel section, being tied at the centre by channel braces secured to the

centre sills. The draft gear consists chiefly in the use of an A. B. C. automatic coupler fitted with a set of coil springs, the round shank of the coupler passing through same and secured at the back by double nuts. The springs are formed in two units, one located in front of the end sill to take buffing shock, and the other placed behind it, taking pulling strains. The brake gear is controlled from a hand screw located at diagonal corners at end of car, and operates a bell crank, secured to a centre cross shaft which connects to the brake shoes and forces them against the treads of the wheels. Very little shoe clearance is provided and the necessary power can be applied from either end of the car. The trucks are of the 4 wheel rigid wheelbase type, with pedestals secured directly to the side sills, having the 7 leaf, semi-elliptic equalizer springs located immediately in front, and resting in a bearing secured to the lower flange of the side sill. The journal boxes are of the double bolted cover type, having equalizer spring seats, and single pedestal jaws fitted to them, the whole being tied at the bottom by through braces. The necessary safety appliances, door locks, brake hangers and guides are provided, and the cars in general have a very neat and serviceable appearance. They are to be shipped with underframe in one package, and the sides and ends crated.

### Lights for Cars or Locomotives Obstructing Main Tracks.

The Board of Railway Commissioners passed the following general order 159, Feb. 18: Re application of Brotherhood of Locomotive Engineers and Brotherhood of Locomotive Firemen and Enginemmen for an order prohibiting railway companies from placing and leaving cars on main tracks at any point (in yards or otherwise) on any railway during the hours of darkness, without lights placed upon such cars. Upon reading what is filed in support of the application and on behalf of the railway companies, and the report and recommendation of the Board's Chief Operating Officer, it is ordered that the following be added to rule 93 of the train rules designated as the Uniform Code for Canadian Railways, approved by order 7563, July 12, 1909, viz. 'By night or in foggy or stormy weather proper lights must be placed on cars or engines obstructing main tracks within yard limits.'

**Track Laid.**—The Toronto Globe says: "The amount of new track laid in any calendar year, not being a matter to which the Government statisticians devote attention, is always the subject of controversy. There is more than ordinary diversity of opinion this year, but the statistics just compiled by the Canadian Railway and Marine World would seem to be conclusive. Acton Burrows reports a total new mileage of 714.26 miles, which, while considerably below any one year for the past 12 years, is in excess of estimates at the beginning of 1915."

**Freight Bills.**—The Interstate Commerce Commission has decided at Washington, that freight bills presented to the ultimate consignees of shipments reconsigned in transit ought not to disclose the name of the original consignors; neither should they show the original point of shipment nor the route of movement to the reconsigning point except in instances where the ultimate consignee is required to pay the through charges.

## Tests of British Columbia Ties in England.

The table in the left hand column of this page gives results of experiments made in England by the Great Eastern Ry., to ascertain the resistance to depression and rupture, under a gradually in-

creased thrusting stress, of specimens prepared from samples of timber received from the British Columbia Lands Department's Forest Branch.

The table below shows tensile tests.

Test No.	DESCRIPTION. (Specimens prepared from samples 10x5 in., 3 ft. long.)	Dimensions, inches.	Base area, sq. ins.	LOAD IN POUNDS PER SQUARE INCH. DEPRESSION PER CENT.											ULTIMATE STRENGTH.		Weight per cubic foot, lbs.	Specific gravity.
				Length, inches.	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	Total lbs.	Per square in. lbs.		
2740	} Baltic Timber from one of the ties delivered recently.	4.00 x 4.00	16.00	.075	.150	.225	.283	.342	.425	.417	.367	.367	61,400	3,840	31.65	.507		
2741		4.00 x 4.00	16.00	.067	.133	.200	.267	.325	.375	.417	.367	.367	65,000	4,060	30.47	.488		
2744	} B. C. Douglas Fir railway tie. Supplied by Forest Branch, Lands Dept., Vic-toria, B.C.	4.06 x 4.16	16.89	.042	.082	.133	.167	.200	.233	.292	.325	.367	100,700	5,960	38.88	.622		
2745		4.00 x 4.00	16.00	.033	.083	.117	.142	.167	.200	.225	.250	.283	86,800	5,430	37.00	.593		
2748	} B.C. Red Cedar railway tie. Supplied by Forest Branch, Lands Dept., Vic-toria, B.C.	4.00 x 4.00	16.00	.083	.150	.208	.275	.350	.458	.458	.458	.458	57,600	3,600	23.04	.369		
2749		4.00 x 4.00	16.00	.067	.150	.225	.300	.417	.417	.458	.458	.458	53,500	3,340	24.52	.381		

ALL TESTED ENDWISE OF GRAIN

## Acceptance of Shipments of Explosives from Canadian Northern Ry.

The Assistant Chief Commissioner, Board of Railway Commissioners, D'Arcy Scott, has given the following decision, which has been concurred in by the Chief Commissioner and Commissioners McLean, Nantel and Goodeve:

The Canadian Pacific and Grand Trunk Railways have given notice to the Canadian Northern that in future they will decline to accept shipments of explosives from the latter. This action was brought about by the Canadian Northern refusing to maintain its membership in the American Railway Association's Bureau for the Safe Transportation of Explosives and Other Dangerous Articles. For the Canadian Northern lines in Ontario, I understand it would cost about \$500 a year for membership in the Bureau. The Canadian Northern says that the National Explosives Ltd., of Deseronto, is the only explosive factory exclusively on its line in Ontario. Manufacturers of explosives are permitted to become members of the Bureau of Explosives. If the National Explosives Ltd. joined the bureau, the other railway companies would not refuse shipments from the explosive company originating on the Canadian Northern; or, if the Canadian Northern became a member of the bureau, no shipment originating on its line would be refused by other railways. The question is, whether under present conditions the Canadian Pacific and the Grand Trunk would be justified in refusing shipment of explosives originating on the Canadian Northern.

Sec. 286 of the Railway Act provides that a railway company shall not be required to carry explosives, but, if it decides to carry them they can only be carried if the regulations for the transportation of explosives prescribed by the Board, by general order 100, are complied with. Clause (b) of these regulations provides that explosives "may be received for transportation, provided the following regulations are complied with, and provided their method of manufacture and packing, so far as it affects safe transportation, is open to inspection by a duly authorized representative of the initial carrier, or of the Bureau of the Safe Transportation of Explosives and Other Dangerous Articles of the American Association if it be so designated by the Canadian carrier. Shipments of ex-

plosives that do not comply with these regulations must not be received. There is nothing in the regulations which makes it obligatory for the Canadian Northern to join the Bureau. If the Canadian Northern will appoint a competent inspector to visit the factory of the shippers of explosives and he makes sure that the Board's regulations are followed, the railway company may receive the shipment and carry it over its railway.

Sec. 317 of the Railway Act, s.s.3 (b) provides that: "No company shall, by any unreasonable delay or otherwise however, make any difference in treatment in the receiving, loading, forwarding, unloading, or delivery of the goods of a similar character in favor of or against any particular person, or company." As it is admitted that the Grand Trunk and Canadian Pacific carry some explosives they are bound by the provisions of the Railway Act, just quoted, to carry all explosives tendered to them for transportation provided the Board's regulations respecting same have been followed. Unless they have good ground to doubt its bona fides, a certificate of the initial carrier should be sufficient evidence for the Grand Trunk or the Canadian Pacific that the Board's regulations have been followed.

An order directing the Canadian Pacific and the Grand Trunk to receive shipments of explosives from the Canadian Northern will not issue until the latter has satisfied the Board that it has appointed a competent inspector and made proper arrangements for the inspection of shipments of explosives originating on its line.

**Satisfactory Movement of Western Grain.**—At the Canadian Credit Men's Association annual meeting in Toronto recently, General Manager Detchon of Winnipeg said: "In reference to the criticism of transportation facilities for moving the crops last fall, I wish to say that there is no reason for criticizing the railways. The crops were so immense that they could not move them. Why, even today I can show you elevators filled to the brim with the golden wheat, and around the elevators have been constructed temporary cribs, filled to the top and overflowing."

The G.T.R. is suing the Pere Marquette Rd. for \$16,506.32 for the use of the G.F.R. station at London, Ont., from Jan. 1, 1909, to June 30, 1915.

# Railway Mechanical Methods and Devices.

## Boring Chime Whistles at Grand Trunk Shops.

Boring the central hole in chime whistles is performed in the G.T.R. shops at Stratford, Ont., in the drill press, holding the whistle in a special jig, which is shown in the accompanying illustration. The jig is an iron casting, machined only



Jig for Boring Chime Whistles.

on the under side, for bearing on the drill press table. It is of odd shape, consisting essentially of a cylindrical block with two projecting arms for bolting down on the table. Through the centre, there is a drilled hole for aligning, the upper part of the hole where cored being larger than the drilled section. On one side of the cored cavity is a segmental cavity, and on the upper surface are two segmental block projections, of different heights, the cavity and projections forming the bearings for the steps of the whistle, also preventing the whistle from turning in the jig without bolting down.

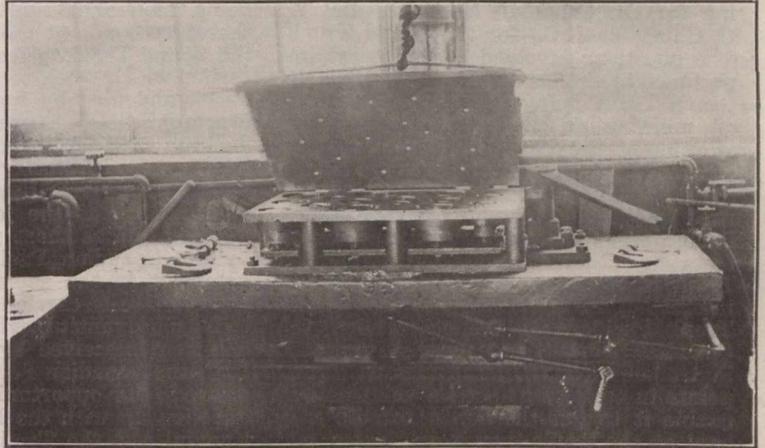
The jig is set up on the table centrally, aligning with the central hole. The whistle is set in the jig, in the drill run down through the cored hole in the base of the whistle, which is upside down in the jig. This method has been found to be materially quicker than the older method of boring out in the lathe. The jig, from its simplicity, was not costly, requiring only the making of a pattern.

## Casting Valve Gland Packing Rings in Grand Trunk Shops.

The practice in casting valve gland packing rings in the G.T.R. shops, at Stratford, Ont., is shown in the accompanying illustration. The combination die which is used will make any of 15 different sizes. It consists essentially of two die plates, in the lower one of which, at A, there are the die cavities, lined up with which over top, there are the pouring holes coming directly over the sides of the rings, all contained in the plate B. Each of the holes in plate A has a stripper plunger, which contains the form of the inner and bottom faces of the ring, as shown; all these stripper plungers being attached to a plate C, which is operated by the air cylinder D, beneath the mounting table. The hinged cover plate B is lowered on the die plate, and clamped there, and the metal poured through the desired pour hole. Each of these pour holes has a tempered steel bushing,

to act as a shear for severing the sprue. The lid is free to move laterally on its hinges, and after the metal is poured and set, the handle, on the inner end of which there is a cam, is given a partial turn, the cam bearing against the cover plate, moving it to the left, cutting off the sprue. The cover is then raised, the air cylinder actuated, raising the ring from the mould.

illustration was developed during a time when it was necessary to find some ready relief as regards caring for steam heat hose bands during bad weather, and the dimensions relate to a device principally for this style of band. It is also just as applicable for use with air brake and signal hose bands, which are of smaller size. The base is formed from an old drawbar follower plate and the lever may be

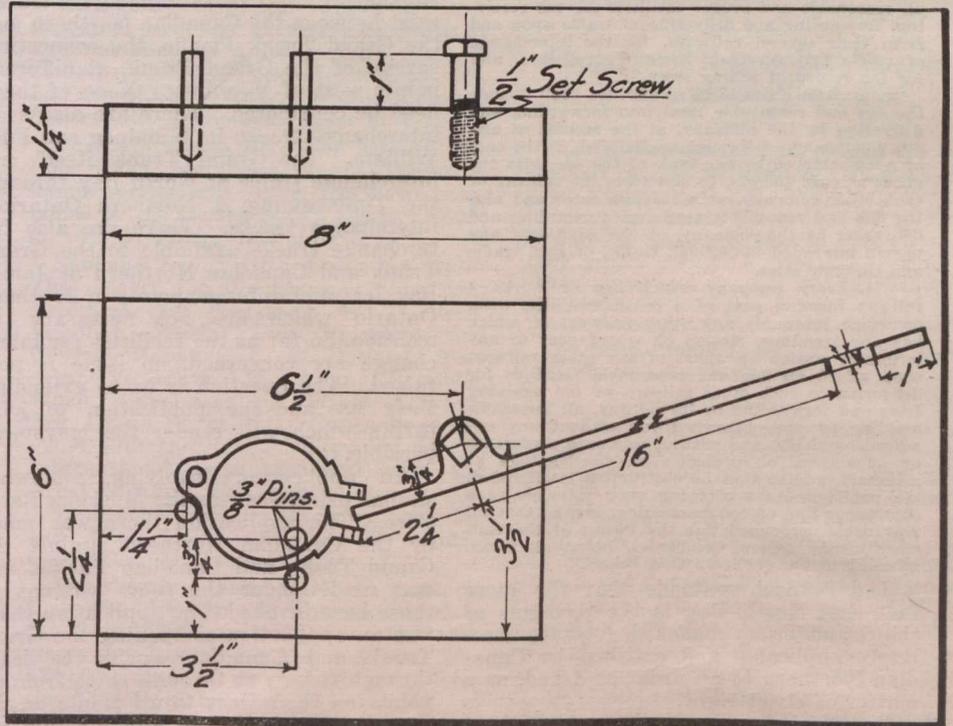


Combination Die for Casting Valve Packing Rings.

## Hose Band Opener, Canadian Northern Ry.

Hose mounting and dismantling operations are carried on at practically all terminal points and there is a great dif-

ference in the time involved for such work, directly proportional, in almost every instance, to the efficiency of the devices and designs of machines used for the purpose. During the winter a great deal more work of this kind is carried on than in the warmer season, as steam heat hose, in conjunction with regular air brake and signal equipment, has to be maintained.



Hose Band Opener, Canadian Northern Railway

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The device shown in the accompanying

securely to a bench before being used. We are indebted to T. Clegg, Air Brake Foreman, Canadian Northern Ry., Winnipeg, for this information.

Windsor, Ont., ratepayers passed a by-law, Mar. 5, to expend \$1,500 for the purchase of a lot to provide railway sidings for the Maxwell Motor Co., of Detroit, Mich., which is establishing a plant in Windsor.

## Interchange of Traffic with Canadian Northern Railway at North Bay.

The Canadian Northern applied to the Board of Railway Commissioners recently, under secs. 317 and 334 of the Railway Act, for an order directing the Grand Trunk to interchange freight traffic with it on an equality with the Canadian Pacific. The Chief Commissioner, Sir Henry Drayton, gave the following judgment, Mar. 9:—

This application was heard in Ottawa, Jan. 25, F. H. Phippen, K.C., appearing for the Canadian Northern, and W. C. Chisholm, K.C., for the Grand Trunk. The questions involved are of great importance to the companies interested, the Grand Trunk being particularly desirous of maintaining its traffic connections afforded by the Timiskaming & Northern Ontario from North Bay to Cochrane, by the National Transcontinental from Cochrane to Winnipeg, and the Grand Trunk Pacific from Winnipeg west; and, apart from any other consideration, the Grand Trunk is, of course, interested, and vitally interested, in the future of the Grand Trunk Pacific. On the other hand, the Canadian Northern is equally interested in transferring freight to Grand Trunk points in Ontario at such a point as will enable it to get the benefit of the long haul on the traffic that it originates, and to obtain its share of the benefit of Grand Trunk construction in Ontario, and to be able to compete with other western carriers for traffic originating on Grand Trunk lines in that district.

The Section particularly relied on by Mr. Phippen is 317, and in particular ss. 1, 2 and 4. They read as follows:—

"All companies shall, according to their respective powers, afford to all persons and companies all reasonable and proper facilities for the receiving, forwarding and delivering of traffic upon and from their several railways, for the interchange of traffic between their respective railways, and for the return of rolling stock."

"2. Such facilities to be so afforded shall include the due and reasonable receiving, forwarding and delivering by the company, at the request of any other company, of through traffic, and, in the case of goods shipped by car load, of the car with the goods shipped therein, to and from the railway of such other company, at a through rate; and also the due and reasonable receiving, forwarding and delivering by the company, at the request of any person interested in through traffic, of such traffic and through rates."

"4. Every company which has or works a railway forming part of a continuous line with, or which intersects any other railway, or which has any terminus, station or wharf near to any terminus, station or wharf of any other railway, shall afford all due and reasonable facilities for delivering to such other railway, or for receiving from and forwarding by its railway, all the traffic arriving by such other railway without any unreasonable delay, and without any such preference or advantage, or prejudice or disadvantage as aforesaid, and so that no obstruction is offered to the public desirous of using such railways as a continuous line of communication, and so that all reasonable accommodation, by means of the railways of the several companies, is, at all times, afforded to the public in that behalf."

And counsel contends that the mere fact that North Bay is the terminus of the Grand Trunk makes the statute absolutely applicable and entitles the Canadian Northern to an order as asked, as a matter of strict right.

Mr. Chisholm argues that where there are satisfactory joint rates and joint routes in existence, no other route should be ordered against the protests of a participating carrier, or at the instance of a company which desires resultant greater revenue. He attacks the financial stability of the Canadian Northern, relying on the action of the Interstate Commerce Commission in declining to force railway companies to have traffic relations with other railways whose stability they did not recognize; and relies on the Board's

decision in the case of the Great Northern against the Canadian Northern, 11 C.R.C., pg. 425. The result of Mr. Chisholm's objections is that the interests of the public must be established before any effect can be given to the application.

The submissions of the Quaker Oats Co. showed that the shortage of grain at Peterborough from which they were suffering was ample justification to require the acceptance of Canadian Northern traffic by the Grand Trunk. Order 24698 was, therefore, made at the hearing, directing the Grand Trunk to concur in joint freight tariffs which were to be forthwith published and filed by the Canadian Northern, applicable on grain and grain products in carloads from Port Arthur, Fort William, and Westfort to Grand Trunk stations via North Bay. A direction was also made that the joint rates were to be the same as those published and filed by the Canadian Pacific from points of shipment to the same destinations, and the grain to be carried was to be accorded milling in transit privileges pertaining to shipments received by the Grand Trunk from the Canadian Pacific. Mr. Chisholm desired the opportunity of taking the question up with the National Transcontinental and the Timiskaming & Northern Ontario Railways; and judgment was reserved on the general issue.

No public interest was established at the hearing in any movement except that of grain and grain products from the west to the east, with the result that the main question, as presented for consideration, is supported by the requirements and interests of the Canadian Northern itself. Interchange tracks exist between the Canadian Northern and the Grand Trunk Pacific, the connecting carrier of the Grand Trunk, at different points west of Winnipeg. None of these need be considered. There are also such interchange tracks in Winnipeg and Fort William. The Grand Trunk itself can interchange traffic at North Bay through the Timiskaming & Northern Ontario's interchange tracks. There are also interchange tracks available to the Grand Trunk and Canadian Northern at James Bay Jet., and different points in Southern Ontario which are not necessary at mention. So far as the facilities for interchange are concerned, no issue is now raised. The question is as to extending their use and the publication of joint tariffs which will render the movement possible.

An application involving somewhat similar principles was the Muskoka Rates Case. The application there was made by the Canadian Northern against the Grand Trunk and Canadian Pacific, and was made under the same sections as those here invoked. The application there was an application compelling the Grand Trunk and Canadian Pacific to issue through tickets at through rates from all points on their lines to all points on the Canadian Northern by any junction the passenger wished to take. The underlying reason of the application was the fact that much of the Muskoka business came through Buffalo and points west of Toronto. The Canadian Northern had a line serving the Muskoka district, but, being without any western connections, had no opportunity of obtaining any of the Muskoka business originating west of Toronto. The late Chief Commissioner Mabee, in his judgment dismissing the application in so far as traffic having its

origin at Grand Trunk and Canadian Pacific points was concerned, said:

"It does not seem to be a reasonable proposition that one railway company should be at liberty to use the act for the purpose of diverting to its line traffic that has been originated only at great expense and trouble by another railway or other railways, without at least showing a great preponderance of convenience to the public. It must be borne in mind that this application comes from the railway company, and no evidence was given that any inconvenience was being caused to the public from existing conditions, or that there would be any appreciable advantage to the public if the change asked for was granted; and that the change would be for the pecuniary benefit of the applicant railway company is not of itself any sufficient reason for granting the application. Under sec. 317, the facilities to be afforded are to be reasonable; the preference or advantage that would be given, or the delay or difference in treatment that may be permitted, is not to be unreasonable; so it is apparent that the whole section is intended to provide for the establishment of fair and reasonable business relations. Is it fair that the applicant should be permitted to make use of the act to divert from the Grand Trunk and Canadian Pacific at Toronto the tourist traffic that they have spent years in developing? That this would be to the advantage of the applicant is clear, but it has not been shown that the public is to any appreciable extent interested. I agree with the argument of the applicant that the physical situation of the railways falls within subsec. 4; but it has not been shown that any 'obstruction is offered to the public desirous of using such railways as a continuous line of communication.' I do not agree with the contention that existing conditions must be changed merely because a few and inconsiderable number of people might desire to change at Toronto to the applicant's lines; and I cannot regard it as reasonable or proper that railways should, in the application of this section, be put to serious loss and inconvenience when it is apparent that the rail object of the application is not to offer greater facilities to the public, but to enhance the earning power of the applicant's lines."

This authority was followed by the Board in the Fort William Coal Case and its principles applied, the Board there stating that its powers under the Railway Act should not be used to divert traffic from the lines of one company to those of another without any benefit to the public. Mr. Phippen distinguishes the coal case, on the ground that no revenue to the Grand Trunk would be sacrificed, this being the terminus of its line. While this in one sense is undoubtedly true, as it occurs to me, the statute makes no difference as to the duties of the companies to provide facilities and joint routes at terminal points as against other points on their systems proper for that purpose. In any event, however, the effect of these decisions, establishing as they do the manner in which the Board in the past has construed the statute, is entirely against the contention advanced on behalf of the applicant that the terms of the statute itself compel railway companies to afford to all persons and companies at all points where an interchange is capable of being made, interchange facilities and joint rates covering any possible movement that might be made over the interchange.

It is, of course, obvious that if the Board could refuse an application under the section because the objecting company would lose revenue thereby, that the application could be refused on other grounds and that the question is one requiring the exercise of the Board's judicial and discretionary functions. It would not be just to the Canadian Northern to refuse the present application, or to carry the principles on which the Muskoka rates and Fort William coal cases were adjudicated to their logical conclusions. There are other questions which must be considered. The rule established by Board's decisions that the initiating company is entitled to the benefit of the long haul would be entirely disregarded

if the application was dismissed in so far as the Canadian Northern is concerned. The effect would be that the Canadian Northern would be obliged to hand over to the National Transcontinental at Winnipeg, or to the Canadian Pacific at Port Arthur, all traffic originating on its lines in the west destined to Grand Trunk Ontario points intermediate to the transfer tracks at Toronto. The business of the Canadian Northern is entitled to just as much consideration as that of the Grand Trunk.

It is necessary for the Board, however, to determine some principle on which these interchange tracks and through rates are to proceed. The statute calls for reasonable and proper facilities for the interchange of traffic and for the return of rolling stock. With the large amount of regrettable duplication of railways, it certainly would not be either reasonable or proper that such interchange tracks, involving reasonable or proper that such interchange tracks, not only for construction but also for maintenance and operation, should be installed at every point possible; and, if joint rates had to be filed as and when such possible interchange tracks were put in, the only result would be to absurdly duplicate tariffs and add to the cost of railway operation without any resultant benefit to traffic conditions. North Bay is a point at which the Grand Trunk should interchange traffic with the Canadian Northern. It is also a point of interchange calling for the establishment of joint rates, bearing in mind the general principle that the initiating carrier is entitled to the long haul on its lines, subject to the limitation, which will be rigidly enforced, that the resultant joint route is reasonable and practical and involves no back haul or increased cost to the public. It occurs to me that in considering the matter of haul, the Grand Trunk and Ontario and Dominion Government lines should be considered as one route.

No formal direction should now be made as to the exact principles on which the joint rates are to be put in. The parties must have an opportunity of making any submissions they desire upon that point; and, in case the bases of division and territories are not agreed to within a fortnight, a hearing will be had at the request of either of the parties to the issue, and the matter determined. So far as divisions are concerned, the Canadian Northern offered to accept the existing divisions between the Grand Trunk, Timiskaming & Northern Ontario and National Transcontinental. This offer would seem to me to be fair and should be adopted unless sufficient cause to the contrary is shown.

**A Snow Plough's Adventures.**—During the recent heavy snow storms in the west, when considerable trouble was experienced in keeping certain of the railway tracks clear, M. Donaldson, vice President and General Manager, Grand Trunk Pacific, who had had his private car attached to a Canadian Northern eastern bound train, was held up near the Yellowhead Pass, on account of the snow. To help matters, he had one of the G.T.P.R. wing snow ploughs transferred to the C.N.R. tracks, at a point where the two lines run parallel. During the operation of clearing the snow, the plough jumped the track and turned turtle on the G.T.P. tracks about 100 ft. below, where it caught fire from the stove carried on board, everything being destroyed but the metal work.

## Railway Finance, Meetings, Etc.

**Algoma Central & Hudson Bay Ry.**—A general meeting of shareholders was called to be held at Sault Ste. Marie, Ont., Mar. 23, to consider a scheme of arrangement between the company and its creditors, and steps taken to have the scheme approved by the Exchequer Court, also to approve an application by the receivers and managers for parliamentary sanction of the scheme proposed.

**Canadian Northern Ontario Ry.**—There has been deposited with the Secretary of State at Ottawa, duplicate original of an additional mortgage, dated Dec. 20, 1915, made between the C.N.O. Ry., the British Empire Trust Co., and the National Trust Co., as trustees, covering certain shares and bonds deposited with the trustees of a trust deed, dated June 28, 1909, made to secure certain 4% perpetual consolidated debenture stock and bonds.

**Greater Winnipeg Water District Ry.**—The report of the Commissioners of the Greater Winnipeg Water District, laid before a meeting on Feb. 25, gave the following information respecting the operations of its railway from near St. Boniface to Shoal Lake, 90 miles: Passengers carried 13,875; freight carried 349,204,159 lbs., of which 27,391,433 lbs. did not produce any revenue; gross revenue \$147,028.88. After paying operating expenses, and charging interest on cost of construction there was an apparent operating loss of \$21,000. The Commissioners expressed the opinion that this was a good showing, and it was stated that the revenue from the train service had increased so as to cover the cost of operation.

**Michigan Central Rd.**—There has been deposited with the Secretary of State at Ottawa, copy of a lease dated Jan 15, made between the Philadelphia Trust Co., and the M.C.R., relating to the Michigan Central Rd. Equipment Trust of 1915.

**Pere Marquette Rd.**—The sale of this line, which has been in the receivers' hands for several years, has been postponed by the United States District Court at Detroit, Mich., until July 5.

**Spokane and British Columbia Ry.**—The officers for the current year are: President and Treasurer, W. T. Beck, Republic, Wash.; Vice President and General Manager, F. M. Holland, Toronto; Secretary, M. Allyn, Republic, Wash.; Superintendent, W. H. Kirkpatrick, Grand Forks, B.C. Connections are made with the Kettle Valley Ry. at the International Boundary, and with the Great Northern Ry. at Republic.

**Temiscouata Ry.**—Net earnings for Dec. 1915, \$4,797, and for six months ended Dec. 31, 1915, \$21,595.

**Timiskaming and Northern Ontario Ry.**—The Treasurer of Ontario stated in the Legislature recently, that the railway's net income for the last year was \$330,000, and of its electric subsidiary the Nipissing Central Ry., \$25,000, of which the commissioners had paid \$250,000 into the Treasury. He looked forward to the time when the railway would meet its annual interest of \$800,000.

**White Pass and Yukon Route.**—Gross earnings for January, \$9,220, against \$6,275 for Jan. 1915.

**C.P.R. Employes on the Western Lines** enlisted in the Canadian Overseas Forces to Feb. 29, numbered 2,336.

## Campbellford, Lake Ontario and Western Ry. Construction Suit.

The judicial committee of the Imperial Privy Council gave judgment recently in the case of Cook v Deeks, etc. This suit which has aroused a good deal of attention in contracting and railway circles, arose in connection with the contract for the construction of the Campbellford, Lake Ontario & Western Ry., otherwise known as the C.P.R.'s Lake Ontario Shore Line Branch, which was commenced in 1912, and amounted to considerably over \$5,000,000.

A. B. Cook, G. S. Deeks, T. R. Hinds and G. M. Deeks had for some years prior to 1912 been associated, as Toronto Construction Company, Ltd., in railway construction and had carried out several important contracts. When, however, the contract for the Shore Line came into the market, Deeks, Hinds and Deeks formed the project of securing it for themselves, to the exclusion of Mr. Cook. This project they successfully carried out, while still maintaining their apparent association with Cook and their position as directors in Toronto Construction Co., keeping Cook in the dark as to the course of events until the coup was accomplished. On learning the facts, Cook protested vigorously, but in vain, his former associates asserting their legal right to do as they had done. Hence the litigation. Cook's action met with no success at the trial, was dismissed by Judge Middleton in May 1914, and the Court of Appeal for Ontario, confirmed that decision. The Privy Council has now allowed his appeal and has ruled, in effect, that his former associates must admit him to a share of the profits of the Shore Line contract.

## Progress of Rogers Pass Tunnel Construction.

The following table, for which we are indebted to J. G. Sullivan, M. Can. Soc. C.E., Chief Engineer, C.P.R., Winnipeg, shows the progress made from Jan. 27 to Feb. 26, and the total progress to Feb. 26:—

	Progress.	Total.
EAST END—		
Main tunnel .....	603 ft.	10,151 ft.
WEST END—		
Main tunnel .....	619 ft.	8,868 ft.

The main tunnel faces, at Feb. 26, were 7,381 ft. or 1.4 miles apart.

**A railway land damage question.**—An interesting point in connection with the expropriation of land for railway construction purposes is before the Ontario courts in Lake Erie & Northern Ry. vs. J. W. Lee. The arbitrators granted Lee \$6,785 for 5 acres taken from a farm near Simcoe and the company appealed against this figure. The matter was argued before the Court of Appeal in Toronto, Mar. 16, and judgment was reserved. The company when incorporated was given power by the Dominion Parliament to use either steam or electricity as a motive power, and during the survey and construction stage it was generally understood that electricity would be the power, although it was not definitely decided until the middle of 1915. It was argued on behalf of the railway company that the difference between the value of the farm without the railway, and its value with the railway should be the measure of damage. In other places farms had been increased in value 25% owing to the building of an electric railway.

# Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

**Athabasca & Fort Vermilion Ry.**—We are officially advised that while preparations have been going on to complete final arrangements for the building of this railway from Athabasca Landing, Alta., to Fort Vermilion, 330 miles, it has been decided to postpone actual construction until the spring of 1917.

**Canada Western Ry.**—The Dominion Parliament has extended the time for the building of this projected railway from Winnipeg, northwesterly via Yorkton, Saskatoon and Battleford to Edmonton, Alta. (Feb., pg. 48.)

**Canadian Pacific Ry.**—Tenders are under consideration for the supply of labor and material to complete all work in connection with paving the approaches to the freight sheds at Regina, Sask.; for the excavation of a reservoir above the dam at Moose Jaw, Sask., and for the building of standard 2 stations at Admiral, Scotsguard, and Meyvonne on the Shaunavon subdivision, Sask.

The Calgary & Edmonton Ry. has been granted an extension of time by the Dominion Parliament for the building of the following lines: From its Macleod Branch in Tps. 19, 20 and 21 westerly to the south branch of Sheep Creek, range 4, west of the 5th meridian; a branch to the north branch of Sheep Creek in range 2, 3 or 4 west of the 5th meridian, and a second branch to Trap Creek in range 2, 3 or 4 west of the 5th meridian, Alta. (Mar., pg. 91.)

**Canton & Grand Lake Ry.**—The New Brunswick Legislature is being asked to incorporate a company with this title to build a railway from Canton, Sunbury County, to Syphers Cove, Queen's County, and to extend the same to Gagetown on the St. John & Quebec Ry. The object is to develop coal mines and other resources. J. S. Armstrong, solicitor for applicants.

**Essex Terminal Ry.**—The Ontario Legislature is being asked to ratify a by-law passed by the Windsor City Council, granting a right of way and other rights to the company. The city, under the provisions of an Act of 1907, was authorized to grant or lease lands for manufacturing sites by way of bonus or aid to industries. In order to make these sites available, the council entered into an agreement with the E.T.R., to lay tracks, sidings, etc., on such lands, and certain tracks and sidings were laid. The bylaw confirms the grant of the right of way to the company, and such future right of way as may be arranged for, the grant to continue so long as the lands are used for the purpose granted; that all material used for the construction of the lines shall be purchased in Canada, and that the city shall obtain the confirmation of the bylaw and pay all costs incidental to the same. The plan dated April 1, 1914, made by Owen McKay, Chief Engineer, E.T.R., is declared to form part of the bylaw. (Feb., pg. 49.)

**Grand Trunk Ry.**—A press report states that construction was started Mar. 20, on a new wharf and dock at Sarnia, Ont., to be 850 ft. long, and built on a pile foundation.

Another report says that the company proposes to build large new freight sheds at Point Edward, Ont., for the Port Huron & Duluth Steamship Line, the sheds to be

1,200 ft. long, but we are officially advised that no decision has been arrived at. The report adds that a new grain elevator will also be built at Point Edward this year. (Mar., pg. 106.)

**High River & Hudson Bay Ry.**—The Alberta Legislature is being asked to extend the time for the building of this projected railway east and west from High River. This project is connected with that of the High River, Saskatchewan & Hudson Bay Ry., and the promoters are also interested in the Calgary & Fernie Ry., for both of which Dominion charters are in existence. (Mar., pg. 106.)

**Intercolonial Ry.**—The acting Minister of Railways, replying to questions in the House of Commons, Feb. 24, said the Blue River M. & L. Co., of Riviere Blue, Temiscouata County, Que., received the permission and support of the Department of Railways for the building of a spur line to its mill. The company agreed to pay the cost of the perishable material and labor furnished by the railway and an annual rental on the rails and fastenings, the railway to make a refund of the cost of perishable material and labor at the rate of \$2 a car on all cars loaded by others than the company since the siding was constructed, and until the railway provides its own facilities at this point. The Department had not been advised that the company was charging exorbitant rates for the use of its facilities, but investigation was being made as to the rates being charged to lumber merchants and colonists.

Senator Lougheed, replying to questions in the Senate recently, said the cost of the subway under Main St., Moncton, N.B., was \$106,960.27, exclusive of property damage claims not yet settled. The contractors were Soper & McDougall, Ltd., Ottawa, and Rhodes, Curry & Co., Ltd., Amherst, N.S., the work being done at schedule prices. (Mar., pg. 106.)

**Lake Huron & Northern Ontario Ry.**—Replying to a question in the Ontario Legislature Mar. 7, the Minister of Lands said the Lieutenant Governor had not issued a proclamation bringing into force the Act passed last session of the Legislature, granting the company an extension of time for proceeding with the construction of the projected extension of its railway from Rock Lake, Algoma, the present terminus, to a junction with the National Transcontinental Ry., between Hearst and Cochrane, Ont. (Sept., 1915, pg. 341.)

**National Transcontinental Ry.**—The citizens of Port Arthur, Ont., have sent a largely signed petition to the Dominion Government, asking that the Lake Superior branch, which is leased by the Department of Railways from the Grand Trunk Pacific, be extended from its present terminus in Fort William, Ont., into Port Arthur. (Dec., 1915, pg. 470.)

**Ontario Niagara Connecting Bridge Co.**—The incorporation of a company with this title is being asked from the Dominion Parliament, with E. R. Wood, Toronto; R. P. Slater, Niagara Falls, Ont.; A. Fraser, F. A. Dudley, E. Shepard, A. J. Porter, Niagara Falls, N.Y.; W. E. B. McKenzie, Chippewa, Ont., and E. G. Connette, President International Ry., Buffalo, N.Y., as provisional directors; office at Niagara Falls, and a capital

of \$300,000. Parliament is asked to authorize the construction of a railway and general traffic bridge with approaches and terminal facilities, across the Niagara River, starting from the Ontario bank at some point not more than 6,000 ft. north of the intersection of the northern boundary line of Welland County with the river bank. No work is to be done upon the bridge or terminals until the plans have been filed with the Railways Department and approved by the Governor in Council; and the works and plans shall in no way interfere with the construction and operation of the low level railway, which the Commissioners of the Queen Victoria Niagara Falls Park has power to build. The Board of Railway Commissioners is to have power to decide what area of land may be required for this purpose. Subject to the provisions of the Railway Act, the company may unite with a company formed under New York State or United States laws for the purpose of building the bridge, and operating any railways crossing it. The company is authorized to issue bonds for \$2,000,000, and may join with the U.S. company in issuing \$4,000,000 of bonds for construction purposes. The bridge is to be begun within two years and completed in five years. Power is given to other railways having terminals in Niagara Falls to use the bridge on terms to be fixed by the Board of Railway Commissioners. (Jan., pg. 11.)

**Peace River Tramway & Navigation Co.**—The Premier of British Columbia announced recently that while the Government did not propose to grant any further aid towards the construction of the Vancouver-Prince George section, the Legislature would be asked to approve of the granting of a short term loan on suitable security. The line between Squamish and Prince George, he said, was approximately 80% completed, and construction was closed down because it was impossible for the company or the contractors to secure further funds. The proceeds of the company's guaranteed securities sold prior to the outbreak of war had been exhausted; the unsold securities had been pledged to secure advances and the contractors had also secured advances from the banks on their own resources. It was estimated that it would require \$6,500,000 additional to complete the line and put it in operation. (Mar., pg. 107.)

**Peace River Tramway & Navigation Co.**—Vancouver, B.C., press dispatch, Feb. 22: "A syndicate of British capitalists, of which Lord Rhondda (D. A. Thomas), the Welsh coal baron, is head, has acquired the Peace River Trading & Land Co., in northern Alberta and the Peace River districts. The Peace River Tramway & Navigation Co., with which the Thomas interests are also prominently identified, is preparing the right of way for the portage line to be built at Vermilion Falls as a unit of transportation system that will provide navigation facilities over 200 miles on northern waterways."

**Peace River Tramway & Navigation Co.**—We are officially advised that the right of way for the tramway over the portage at Peace River Falls, Alta., six miles, is being cleared. It is in the immediate vicinity of the company's oil drilling operations which were discontinued in Oct., 1915. Oil drilling will be re-

sumed, it is expected, about May 1. The interests associated with the company have acquired the entire assets of the Peace River Trading & Lands Co. from the liquidators, consisting of trading posts and stores at Peace River Crossing, Fort Vermilion, and Lake Saskatchewan, warehouses, boat landings and property holdings. The new owners propose to prosecute the development of this business, of which Mr. Sinclair, of Peace River Crossing, has been appointed Manager. (Jan., pg. 11.)

See also Athabasca & Fort Vermilion Ry.

**Prince Edward Island Ry.**—Replying to questions in the Senate recently, Senator Loughheed said A. T. Mackie, Toronto, had the contract for the terminals at Cape Tormentine, N.B., at schedule rates, estimated to amount to \$571,590.56; and that Roger Miller & Sons, Toronto, had the contract for the Carleton Point, P.E. I., terminals at schedule prices, estimated to amount to \$949,250. (Oct., 1915, pg. 352.)

**Quebec Central Ry.**—The Quebec Legislature has extended the time for building the Chaudiere extension, which now terminates at English Lake, Que., to a junction with the Temiscouata Ry. (Feb., pg. 50.)

**Quebec, Montreal & Southern Ry.**—The Dominion Parliament has extended the time for the building of the projected line from Noyan Jct., Que., to the International Boundary, and for the completion of any unfinished line which the old South Shore Ry. was authorized to build. This uncompleted line is that projected along the south shore of the St. Lawrence River, which has its present terminus near St. Francis du Lac. (Jan., pg. 11.)

**Roberval-Saguenay Ry.**—The Quebec Legislature has extended the time for the building of this projected railway from Roberval, on the Quebec & Lake St. John Ry., round Lake St. John to the Peribonka River, and thence southeasterly to Jonquieres, on the Q. & L. St. J. R., for the completion of the lines authorized to be built by the Ha Ha Bay Ry., and for a line to the St. Maurice River. (Dec., 1915, pg. 470.)

**St. Francis Valley Ry.**—The Quebec Legislature has extended the time for the building of this projected railway. The company has secured the charter of the L'Avenir & Melbourne Ry., which had power to build a line from Richmond or Melbourne to Drummondville, and has power under its own charter to build a line to the International Boundary near Stanstead. (Feb., pg. 50.)

**St. John & Quebec Ry.**—The speech from the throne at the opening of the New Brunswick Legislature, Mar. 9, said legislation would be presented providing for the early completion of this railway, and ensuring not only direct connection with the east and west sides of St. John harbor, but, as well, an independent route from that city to the New England States and a new channel for the export of the forest production of central and northern New Brunswick. Referring to this statement, a press report says it is proposed that a spur line will be built to form a connection between the St. J. & Q. R. and the Maine Central Rd.

Replying to a question in the House of Commons, Mar. 6, the acting Minister of Railways said a new arrangement between the Department and the Province of New Brunswick respecting the St. J. & Q. R. has been under discussion for some time, but the negotiations were not completed. The question asked was based

on a press report that an arrangement had been made not to build any further than the present northern terminus at Centreville; to abandon the building of the proposed bridges across the St. John and Kennebecasis Rivers, and to make a connection with the C.P.R. tracks at Westfield, N.B. (Jan., pg. 11.)

**Taber Transit Co.**—The Alberta Legislature is being asked to extend the time for the building of a series of radial railways centering on Taber, to give connection with collieries in the vicinity; the C.P.R. Suffield branch, and with Bow City. No construction has yet been undertaken. (June, 1915, pg. 212.)

**Toronto, Hamilton & Buffalo Ry.**—It was reported, Mar. 9, that the company had acquired the Albion Hotel property,

Hunter St., Hamilton, thus giving it possession of all the property south of the tracks between Macnab and John Sts., with the exception of one piece opposite the station. The report adds that it is proposed to build a modern station on the site of the present building, and to utilize the land acquired for additional trackage. (Feb., pg. 50.)

**Toronto Terminals Ry. Co.**—George Bury, Vice President, C.P.R., while in Toronto, Mar. 10, went over the site of the new union station. He is reported to have said in an interview that the caissons had been sunk, and that the concrete work was being rushed in order to have the foundations in readiness for starting steel work early in April. (Jan., pg. 11.)

## Railway Rolling Stock Notes.

The G.T.R. is reported to have ordered 2 postal cars in the United States.

Sir John C. Eaton, Toronto, has ordered a private car from the Pullman Co., Chicago.

The Canadian Northern Ry., between Feb. 11 and Mar. 11, received 2 first class passenger cars, nos. 8219 and 8220, from National Steel Car Co.

The Minister of Railways stated in the House of Commons recently, that the purchasing of additional cars for the Canadian Government Railways was under consideration.

Canadian Government Railways have ordered one high power self propelling steel track pile driver, for use on the National Transcontinental, from F. H. Hopkins and Co.

The Canadian Locomotive Co. has shipped 10 decapod locomotives for the Russian Government. Description and illustration have already appeared in Canadian Railway and Marine World.

The French Government, according to a press report, has ordered 2,000 additional steel freight cars from National Steel Car Co., Hamilton, Ont., which is said to have already built about 5,000 similar cars for that government.

The Eastern Car Co. has delivered at Halifax, for shipment to Russia, 175 freight cars of an order of 2,000, which has been mentioned in previous issues. The company has also completed the sample car of the lot of 1,000 cars for the French State Railways.

The Canadian Northern sleeping car Virginia is being changed in the company's Winnipeg shops to an official car, to be called Ontario, for L. C. Fritch, General Manager, Eastern Lines, whose present official car, Quebec, will probably be transferred to the Quebec Division for the General Superintendent, W. A. Kingsland.

The Canadian Northern private car Atikokan, which is used by the President, Sir Wm. Mackenzie, is being rebuilt at the company's Winnipeg shops, and Sir William is at present using the all steel private car Natalie, which was formerly used by the late F. S. Pearson, as President of the Denver & Salt Lake Rd., and which was built by the Pullman Co. in 1913 and was lettered "300."

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

and illustrated in Canadian Railway and Marine World.

The Timiskaming and Northern Ontario Ry. has ordered 6 mikado (2-8-2) locomotives from Canadian Locomotive Co., for delivery in July. Following are the chief details:

Weight in working order on drivers.....	188,000 lbs.
Weight, total.....	246,000 lbs.
Wheel base of engine, rigid.....	16 ft. 6 ins.
Wheel base of engine, total.....	34 ft. 8 ins.
Wheel base of engine and tender.....	63 ft. 4 3/8 ins.
Heating surface, firebox.....	208 sq. ft.
Heating surface, tubes.....	3,162 sq. ft.
Heating surface, total.....	3,370 sq. ft.
Driving wheels, diam.....	63 ins.
Driving wheels, centres.....	cast steel
Driving journals, diam. and length.....	10 and 9 by 14 ins.
Cylinders, diam. and stroke.....	25 by 30 ins.
Boiler, type.....	radial stay
Boiler pressure.....	180 lbs.
Tubes, no. and diam.....	216—2 ins.; 32—5 3/8 ins.
Tubes, length.....	20 ft.
Injectors.....	locomotive type
Brakes.....	Westinghouse American E. T.
Packing.....	Metallic
Superheater.....	Locomotive Superheater Co., Type A
Rear frame.....	Cast steel cradle
Engine frame, and springs.....	Vanadium steel
Weight of tender, loaded.....	143,000 lbs.
Tank capacity.....	7,000 U.S. Gals.
Coal capacity.....	12 tons
Truck, type.....	outside equalized
Wheels, diam.....	36 ins.
Wheels, type.....	Steel tired with retaining rings
Journal, diam. and length.....	5 1/2 by 10 ins.
Brake beam.....	Hercules with adjustable heads

In our last issue mention was made that the French Government had ordered 2,000 freight cars from the Eastern Car Co. They are intended for the Paris and Orleans Ry., and will be of the 4 wheeled type with Paris and Orleans Ry. standard pedestals and leaf elliptic springs, and drawbar and buffer arrangements with standard volute springs, standard hand brake separated from the cabin on one end of the car. They will be box cars, with one door on each side with bottom rollers, and shutter windows on each side. Following are the chief dimensions:

Capacity.....	20 metric tons
Length inside.....	25 ft. 0 7/16 ins.
Width.....	8 ft. 4 3/8 ins.
Height.....	6 ft. 8 11/16 ins.

The C.P.R. has ordered 20 all steel Otis dump cars, 50 tons capacity, from Hart-Otis Car Co., Ltd., for delivery in June. They are being built by Canadian Car & Foundry Co. Following are the chief details:

Length over end sills.....	24 ft. 4 1/2 ins.
Width over side sills.....	9 ft. 11 1/4 ins.
Width inside.....	9 ft. 6 ins.
Length inside.....	22 ft. 5 ins.
Height inside.....	5 ft. 6 ins.
Doors, on each side.....	4
Door openings.....	24 by 22 ins. by 22 ft.
Air brakes.....	Westinghouse K.D. 1012
Draft springs.....	M.C.B., Class G.
Trucks.....	Diamond arch bar
Journal boxes.....	McCord mall. iron, 5 1/2 by 10 ins.
Truck bolsters.....	Simplex, 50 tons.
Side bearings.....	Simplex
Brake beams.....	Simplex
Brake shoes.....	Dominion Brakeshoe Co., steel back

# Relief of Grain Congestion in Goose Lake District.

An act passed by the House of Commons and Senate was assented to Mar. 7, by which the following section was added to the Railway Act:

"317A. If the company is unable or fails to provide sufficient facilities for the movement of grain from the western provinces to the elevators at the head of Lake Superior, or to destinations east thereof, after the close of navigation on the Great Lakes and before the next harvest, and grain in certain sections or districts cannot by reason thereof be marketed, the Board (of Railway Commissioners) may require the said company to furnish all facilities within its powers for the carriage of such grain in such sections or districts to any intermediate point or points of interchange with another company or any terminal elevator, and there to make delivery thereof to such other company or companies or to such elevator for carriage by such other company or companies as the Board may direct; and the Board may require such other company or companies to transport such grain and supply the necessary cars and engines therefor, and the rates lawfully published and filed by the company in default and obtaining on its route shall apply over the joint route or routes so directed and shall be apportioned between the companies as the Board may direct."

## The Board of Railway Commissioners' Action.

Sir Henry Drayton, Chief Railway Commissioner, gave the following decision Mar. 4: The Board is advised that bill 47, as passed by the House of Commons, Mar. 1, has been adopted in the Senate without amendment. The duty is cast upon the Board, in view of the admitted congestion in the Goose Lake district, to take immediate action under it. There is no issue whatever which requires the taking of evidence or the consideration of any submissions as to the facts. In co-operation with the Grain Board, the Railway Board has had the question of the movement of grain up with the different railways from time to time.

The first complaint as to the situation in the Goose Lake district was made in October, and the matter was then taken up by the Board's Inspector with Messrs. Murphy and Brown, of the Canadian Northern, and, on Nov. 6, Mr. MacLeod, the General Manager, was telegraphed that at that time the elevators were already filled, if not to capacity, and his personal attention and distribution of cars was required. On Nov. 8, Mr. MacLeod wired that he expected to send in the next 24 hours 250 empty box cars to Goose Lake points; and on Nov. 9, he was advised that, while that supply would help the situation, from the information on hand it would take more than that to really catch up, and that particular attention should be given to the demands of the district, owing to the fact that storage capacity had been practically all taken up, leaving an immense amount of grain which at that time could neither be stored nor forwarded. On Nov. 15, the Board's Inspector advised that the Canadian Northern had supplied in the district in question from Nov. 8 to 13, inclusive, 204 cars, leaving, however, still a shortage in the district of 1,500 cars. The Board's Inspector continued to press for a larger delivery.

The Board sent its Chief Operating

Officer, Mr. Spencer, to the west, with instructions to see that everything was done that possibly could be done by the railways to facilitate the movement both of empty and of loaded cars. Early in January the line was blocked by snow, and the haulage of wheat practically stopped. As it became necessary for the Board to concentrate its whole energy in seeing that districts in the west, many of which were suffering from an acute shortage of coal, should be supplied with it at the earliest possible moment, considerable time was lost in connection with this matter. Weather conditions were very unfavorable, the extreme cold occasioning a scarcity of water along the whole line, and rendering it very difficult to get any proper service from locomotives. In addition to local difficulties, the situation was further complicated by embargoes, which largely obtained from time to time practically at all United States ports from which grain could be exported, and to a limited extent to movements to St. John, N.B. While in the West, Mr. Spencer took up with Mr. Warren, Assistant to the General Manager, C.N.R., the question of the amount of grain which the company had yet to handle. The figures given by Mr. Warden to Mr. Spencer applicable to the Goose Lake district, which includes not only the line from Saskatoon to Calgary, but also the Delisle-Elrose Branch, show that the company estimated that 13,000,000 bush. of wheat and 2,000,000 bush. of other grain remained still to be hauled from the district. Mr. Warren's estimate showed that the grand total of grain yet to be hauled by the Company amounted to 89,000,000 bush. In response to a wire as to the situation in this connection, General Manager MacLeod wired the Board on Feb. 15 that wheat shipments had been made since the estimate so as to reduce the amount of wheat still left in the district to 11,732,000 bush., and 1,945,000 bush. of other grain, or a total of 13,677,000 bush. of grain in the Goose Lake district requiring transportation.

I am of the opinion that the company did its best to move the crop during the past season. It gave the Goose Lake district every consideration that it could, bearing in mind the demands of other districts served by its system. It can do no better now, and it is doubtful if it can do as well. The company's estimate was confirmed by the Secretary of the Saskatoon Board of Trade, who, at the commencement of the movement, wrote drawing the Board's attention to the situation in the Goose Lake district, and who since advised that a conservative estimate of grain still to be hauled out of the district would amount to 60% of the crop. The Grain Commission's attitude is entirely to the same effect. Indeed its figures as to the grain available somewhat exceed the company's. The fact of congestion and danger of deterioration and loss of grain has also been endorsed by the Minister of Agriculture for Saskatchewan, and by a deputation of those interested in the district, headed by Mr. McColl, of Chinook, subsequently reinforced by the Minister of Agriculture for Alberta, and Mr. Buchanan, M.P.

No useful object can be served by an inquiry, resulting as it would in delays and defeating the object of the Bill. The company admits the situation. There can be, and is, no doubt as to it or its urgency.

An order should now go carrying into effect the recent legislation, and requiring the C.N.R. to forthwith place 1,200 grain cars in the Goose Lake district and 36 locomotives. These cars and locomotives must be retained in that district until further order, and be employed in carrying grain either to the terminal elevator at Saskatoon and there making deliveries, or to transfer tracks at Saskatoon, whereby connection is made between the Canadian Northern and Grand Trunk Pacific lines. The order will also require the Grand Trunk Pacific, which has idle cars and locomotives in the west, to use all available cars and locomotives in taking grain from the Saskatoon elevator to eastern points. In so far as deliveries are made by the Canadian Northern into the elevator, there is no difficulty whatever in the company keeping those cars in the districts and immediately returning them. In so far as deliveries are made to transfer tracks, the Grand Trunk Pacific must, in return for each car transferred, supply the Canadian Northern an empty box car in lieu thereof, so that at least 1,200 grain cars will be at all times engaged in the movement. As already intimated, the movement will continue until further order. This order will not go until such time as the Grain Commission advises that there is no longer danger of loss of unstored and unprotected grain in the district, or until such time as the Saskatoon elevator has been filled and the Grand Trunk Pacific is unable to remove from the transfer tracks grain carried by the Canadian Northern from the district. The companies are required to agree as to the proportionals of the rate, which must not be increased. The proportionals should be such as will give the Canadian Northern an increase over the ordinary rate per mile which a pro rata on the through movement would yield over the Canadian Northern mileage into Saskatoon. These proportions are to be agreed to within a week; and, in the absence of agreements arrived at between the parties by that time, will be then settled by the Board on such advice and submissions as either Railway Company desires in the meantime to submit.

The Board of Railway Commissioners passed the following order, 24,784, Mar. 9: Upon its appearing to the Board that the Canadian Northern Ry. is unable in the ordinary course to move the quantity of grain awaiting transportation in the Goose Lake district with reasonable dispatch, within such time as will enable a large quantity of unstored grain to be moved before serious deterioration, it is ordered that, until further order, the Canadian Northern be directed forthwith to place and retain in service on its Goose Lake lines not less than 1,200 grain cars and 36 locomotives, to be used in transporting grain from the said district between Saskatoon and Calgary, either to the terminal elevator at Saskatoon for delivery thereto, or to the transfer tracks at Saskatoon for delivery to the Grand Trunk Pacific Ry. for furtherance east, as the said grain may be consigned in either case; and that with respect to deliveries so made to the said transfer tracks, the Grand Trunk Pacific, in return for each loaded car so transferred, supply the Canadian Northern with an empty grain car in lieu thereof, so that at least 1,200 grain cars shall at all times be engaged in the said service of transporta-

tion to Saskatoon. That the Grand Trunk Pacific be directed, in so far as may be necessary, to use all its available cars and locomotives in the west for the purpose of moving the said grain from Saskatoon to eastern points. That the through rates for the joint carriage of the said grain, as herein prescribed, shall be the rates published and filed by the Canadian Northern Railway for the carriage of grain over its own rails, or jointly with its eastern connections as so published, east of Saskatoon, from the said points

of shipment to the same destinations; the allocation of the said joint rates between the carriers hereby made parties thereto to be arranged between themselves within one week from the date of the Board's judgment herein, viz., Mar. 4, and, failing such arrangement, to be settled by the Board, subject to such submissions in relation thereto as either railway company may desire to make, provided that the uninterrupted movement of the said grain be not impaired pending such settlement.

An investigation into the cause of the fire was concluded Mar. 16 by Fire Commissioner Ritchie, who decided that it was impossible to determine the cause of the fire other than that it was of accidental origin.

## Bonaventure Station, Montreal, Destroyed by Fire.

Fire was discovered in a cupola at the front of the Grand Trunk Bonaventure Station, Montreal, at the front of the building, to the right of the centre, on Mar. 1, at 4.50 a.m., by one of the train dispatching staff, but it had gained such a hold on the inflammable material in the section of the building where records were stored, that when the fire engines arrived there was nothing to do but to keep it, as far as possible, from spreading to adjoining buildings. The isolated posi-

ional, were transferred at St. Henri. Temporary ticket offices for the Intercolonial were opened in G.T.R. ticket booths near Mountain St. The Canadian Express Co.'s shed was untouched. The platform roofs at the rear of the station were undamaged, and temporary buildings have been erected in the vicinity for the transaction of business.

The burned station was a brick building erected in 1886 at a cost of several hundred thousand dollars, and was in its



Bonaventure Station, Montreal, Grand Trunk Railway.

tion of the building aided greatly in preventing the spread of the fire, and although at one time the buildings on the north side of St. James St., facing the station, were in danger, the flames were confined to the station itself. The interior of the building, which was very largely of wood, was entirely destroyed, together with large quantities of records, etc. Only two people were actually sleeping in the building and were got out easily.

Notwithstanding the fire, there was no interruption of traffic, all trains arriving and departing as usual. Within an hour after the discovery of the extent of the fire new sets of railway tickets had been prepared, and the entire train dispatching system duplicated at St. Henri. Trains arrived at and departed from the station platform at Drummond St., and heated cars were provided as waiting rooms. Passengers arriving for transfer to the Intercolonial or the Delaware & Hudson, which use the G.T.R. ter-

minus structure, but it has long been out of date and insufficient for the company's purposes. The question of the erection of a new building has been under consideration for some time, and has been coupled with the elevation of the tracks from the station to St. Henri. Under an agreement entered into with the city in 1883, prior to the building of the burned station, the company agreed that the Bonaventure Station should be maintained in "good order for ever," and that in case of fire it should be reconstructed on the same site, and according to the same plan, unless agreed otherwise by the parties to the agreement.

The Montreal Board of Control on Mar. 9, granted the company a permit to erect a temporary station around the ruins. The intention is to roof in the concourse, and to clear out and utilize part of the burned out building. These alterations are for temporary accommodation pending the settlement of plans for a building.

## Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, for Western Lines, compared with those of 1914-15, from July 1, 1915:

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	\$1,206,100	\$921,000	\$285,100	x\$145,400
Aug.	1,192,800	954,000	238,800	x5,900
Sept.	2,014,500	1,358,000	661,600	1,900
	\$4,413,600	\$3,227,000	\$1,186,600	x\$79,300
Decr.	\$658,300	\$579,000	\$79,300	.....

Mileage in operation at Sept. 30, 1915, 4,965, against 4,670 at Sept. 30, 1914.

Commencing with October, the figures show the earnings of the entire system, both eastern and western lines.

	Gross Earnings	Expenses	Net Earnings	Increase
Oct.	\$3,678,500	\$2,421,500	\$1,257,000	\$537,800
Nov.	3,535,200	2,323,800	1,211,400	618,400
Dec.	3,435,600	2,233,500	1,202,100	768,900
Jan.	2,086,800	1,831,400	255,400	88,100
	\$12,736,100	\$8,810,200	\$3,925,900	\$2,034,700
Inc.	\$4,702,300	\$2,667,600	\$2,034,700	.....

Mileage under operation at Jan. 31, 7,899, against 6,899 at Jan. 31, 1915. Approximate earnings for February, \$2,089,200, against \$1,602,200 for Feb. 1915, and for three weeks ended Mar. 21, \$1,587,200, against \$1,261,500 for same period 1915.

## Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1914-15, from July 1, 1915:

	Gross Earnings	Expenses	Net Earnings	Increase
July	\$7,895,375.47	\$5,094,972.35	\$2,800,403.12	\$978,042.71
Aug.	8,801,451.52	5,359,136.80	3,442,314.72	79,157.02
Sept.	10,273,165.45	5,527,864.81	4,475,300.64	378,252.25
Oct.	13,433,206.88	6,863,780.29	6,579,426.59	3,258,105.79
Nov.	13,351,283.51	6,996,870.48	6,354,413.03	3,710,340.86
Dec.	12,705,673.45	7,003,351.97	5,702,321.48	3,502,797.67
Jan.	8,588,826.04	6,498,417.81	2,090,408.23	954,174.93
	\$75,058,989.88	\$43,344,394.51	\$31,714,595.37	\$10,900,785.81
Inc.	\$2,479,799.10	\$1,529,624.17	\$10,900,785.81	.....

Approximate earnings for February, \$8,546,000, against \$6,503,000 for Feb. 1915, and for three weeks ended Mar. 21, \$6,737,000, against \$5,136,000 for same period 1915.

## Grand Trunk Railway Earnings.

Following are the earnings and expenses for the G.T.R., including the Canada Atlantic Ry., the G.T.W.R. and the D.G.H. & M.R., for January, compared with those for January, 1915.

Grand Trunk Railway.		
	1916.	1915.
Earnings .....	\$3,339,000	\$2,659,300
Expenses .....	2,783,000	2,431,800
Net earnings .....	\$ 556,000	\$ 227,500
Grand Trunk Western Railway.		
Earnings .....	\$ 689,300	\$ 559,500
Expenses .....	558,650	588,900
Net earnings .....	\$ 130,650	\$ 29,400
Detroit, Grand Haven & Milwaukee Railway.		
Earnings .....	\$ 229,100	\$ 192,000
Expenses .....	255,650	219,300
Deficit .....	\$ 26,550	\$ 27,300

TRAFFIC RECEIPTS OF THE SYSTEM.			
Aggregate from Jan. 1 to Feb. 29, -			
	1916	1915	Increase
G.T.R.	\$6,437,336	\$5,287,339	\$1,149,997
G.T.W.R.	1,883,708	1,082,245	301,403
D.G.H.&M.R.	474,761	370,874	103,887
	\$8,295,805	\$6,740,458	\$1,555,347

Approximate earnings for February, \$4,032,715, against \$3,325,036, and for three weeks ended Mar. 21, \$2,916,801, against \$2,567,235 for same period 1915.

## Grand Trunk Pacific Railway Earnings.

The approximate earnings of the Prairie Section, 916 miles, for February, were \$277,619, against \$227,604 for Feb. 1915. Aggregate for two months ended Feb. 29, \$591,962, against \$422,224 for same period 1915.

# Mainly About Railway People Throughout Canada.

**D. Pottinger**, I.S.O., ex-General Manager, Canadian Government Railway, and Mrs. Pottinger are staying in Toronto.

**G. L. Pearsons** has been appointed Secretary-Treasurer and Manager, Goderich Elevator & Transit Co., Ltd., Goderich, Ont., succeeding the late W. L. Horton.

**W. L. Mugliston**, of the Canadian Overseas Railway Construction Corps, and second son of W. L. Mugliston, late Superintendent of the Midland Ry., of England, died in Flanders, Jan. 30.

**T. D. Gray**, General Agent, Shedden Forwarding Co., London, Ont., for about 40 years, died there, Mar. 9. He had been connected with the company for over 50 years.

**J. S. Pyeatt**, who has been elected President, New Orleans, Texas & Mexico Rd., Houston, Tex., was at one time Superintendent, Canadian Division, Pere Marquette Rd., St. Thomas, Ont.

**G. A. North**, Travelling Passenger Agent, Canadian Northern Ry., Winnipeg, was presented with a wrist watch recently by the department's staff, an enlisting in the 61st Battalion, C.E.F.

**F. C. Salter**, European Traffic Manager, G.T.R. and Canadian Ex. Co., London, England, is reported to be progressing satisfactorily after a second operation for abdominal trouble.

**L. R. Silcox**, heretofore chief draughtsman, Mechanical Department, Canadian Northern Ry., Toronto, has been appointed Mechanical Engineer, Illinois Central Rd. Office, Chicago, Ill.

**L. B. Howland**, of Toronto, formerly President & General Manager, Irondale Bancroft and Ottawa Railway, has been elected President of the Ontario Motor League and of the Canadian Automobile Association.

**Lt.-Col. F. S. Meighen**, of the 87th Battalion, Canadian Grenadier Guards, now in barracks at St. Johns, Que., who is a C.P.R. director, has been ordered to England to take command of a brigade as Brigadier General.

**W. H. Olmstead**, yard foreman, G.T.R., died in St. Luke's Hospital there Mar. 19, as the result of injuries received in the yard, Mar. 17, when a box car jumped the track and crushed him between the car and a telegraph post.

**G. W. Verral**, who for many years conducted the Verral Transfer Co., in Toronto, and has latterly carried on an electric car and cab delivery and the Verral Storage Co., has assigned for his creditors' benefit.

**H. K. Wicksteed**, M.Can.Soc.C.E., Chief Engineer of Surveys, Mackenzie, Mann & Co., Ltd., left Toronto, Feb. 27, for Venezuela, in connection with a coal mining and railway proposition, intending to return about the middle of April.

**Hon. Capt. and Paymaster A. L. Griffin**, of the Divisional Train, Army Service Corps, C.E.F., son of F. T. Griffin, formerly Land Commissioner, C.P.R., Winnipeg, died suddenly at Bramshott, Eng., Mar. 26, a week after his arrival there.

**Lt.-Col. C. H. Mitchell**, B.A.Sc., C.E., of Toronto, who has been on active service with the Canadian Expeditionary Forces in France since the early stages of the war, has been given La Legion d'Honneur Croix d'Officier by the President of the French Republic.

Sir William Van Horne's biography is to be written by Miss Katherine Hughes,

who has come to Montreal from England for that purpose. She wrote a life of the Rev. Father Lacombe, the western Roman Catholic missionary, to which Sir William contributed the introduction.

**J. J. Davis**, who was second engineer of the s.s. Port Dalhousie, sunk recently off the English coast, was a son of J. J. Davis of the Hotel Davis, Charlottetown, P.E.I., and a son in law of W. T. Huggan, District Passenger Agent, Prince Edward Island Ry., Charlottetown.

**Hon. Frank Cochrane**, M.P., Minister of Railways and Canals, whose health has been giving some anxiety for some time, has gone south, where he will spend several weeks. Hon. J. D. Reid, Minister of Customs, is acting Minister of Railways and Canals.

**J. G. Sullivan**, Chief Engineer, Western Lines, C.P.R., Winnipeg; H. N. Ruttan, Consulting Engineer, Winnipeg, and R. S. Lea, Consulting Engineer, Montreal, are mentioned as the probable members of a board to investigate the construction of the Greater Winnipeg Water District aqueduct.

**F. E. McCormick**, Travelling Freight Agent, Canadian Northern Ry., Winnipeg, died there, Mar. 17. He was born at Waterville, N.Y., Sept. 17, 1891, and entered C.N.R. service in 1908, in the Freight Department, Neepawa, Man., and was later appointed chief clerk, Freight Department, at Brandon, Man.

**Baron Shaughnessy's** eldest son, Capt. Hon. W. J. Shaughnessy, who has been in the 57th Irish Rangers for over a year, has been appointed Adjutant in the 199th Battalion, Canadian Expeditionary Force. The second son, Capt. Hon. Fred Shaughnessy, and a son in law, Rene Redmond, are in France in the 60th Battalion, C.E.F.

**Robert McKillop**, who was appointed Superintendent, District 2, Atlantic Division, C.P.R., Woodstock, N.B., recently, was born in Scotland, Dec. 26, 1884, and entered C.P.R. service, July 23, 1905, since when he has been, to Feb. 9, 1915, Assistant Engineer and Chief Draughtsman, Engineering Department, Montreal; Feb. 9 to Dec. 13, 1915, Division Engineer, Eastern Division, Montreal.

**J. H. Black**, who has resigned as General Manager, Northern Ontario Light and Power Co., Cobalt, Ont., to enter private business in Toronto, was, for seven years, prior to Aug. 1, 1911, in Timiskaming and Northern Ontario Ry. service, occupying positions as General Freight and Passenger Agent, Superintendent and Traffic Manager, and Superintendent, at North Bay, Ont.

**Frank O'Hara**, Bridge and Building Master, District 4, Eastern Division, C.P.R., Ottawa, died there Mar. 6, aged 52. He was born at Cobourg, Ont., and had been in the C.P.R. service in the Construction and Maintenance Departments since 1885, being appointed Bridge and Building Master at Ottawa 12 years ago. His brother, T. O'Hara, is Bridge and Building Master, C.P.R., London, Ont.

**Joseph Templeton Hawkins**, who has been appointed Freight Claim Agent, Quebec Central Ry., Sherbrooke, Que., was born there, Mar. 26, 1885, and entered Q.C.R. service Nov. 28, 1900, since when he has been, to June 1901, messenger, Sherbrooke; June 1901, to Jan. 1906, stenographer in General Freight and Passenger Agent's office; Jan. 1906,

to Mar. 1, 1916, chief claim clerk, all at Sherbrooke.

**Walter M. Taylor**, familiarly known as "D" Taylor, who was formerly in the C.P.R. Passenger Department in Toronto and Montreal and afterwards in the International Mercantile Marine Co.'s Montreal office, and who was a sergeant in the 5th Battery, Canadian Expeditionary Force, has returned to his home in Toronto to invalided, having lost the sight of one eye owing to a shell wound. His brother, Geoffrey, was killed earlier in the war.

**Theodore Voorhees**, M. Am. Soc. C.E., Vice President of the Philadelphia & Reading Ry., died at Philadelphia, Pa., Mar. 11, following an operation. He entered railway service in 1869, and has held a variety of positions on the Syracuse, Binghamton & New York, now a part of the Delaware, Lackawanna & Western; the Delaware & Hudson; Northern Rd.; Rome, Watertown & Ogdensburg and New York Central. He was born June 4, 1847.

**Richard Wright**, whose appointment as Division Agent, Ontario Lines, G.T.R., Toronto, was announced in our last issue, was born at London, Ont., March. 15, 1885, and entered G.T.R. service, Oct. 17, 1902, since when he has been, to June 1, 1909, clerk in Freight Department, London, Ont.; June 1 to Oct. 15, 1909, freight accountant, London, Ont.; Oct. 15, 1909 to Feb. 7, 1913, chief clerk, Brantford, Ont.; Feb. 7, 1913 to Feb. 1, 1916, agent, Brantford, Ont.

**Gifford David Wadsworth**, who has been appointed Assistant General Freight and Passenger Agent, Quebec Central Ry., Sherbrooke, Que., was born there, July 15, 1884, and entered Q.C.R. service, Nov. 1899, since when he has been, to Nov. 1900, messenger boy; Nov. 1900 to Nov. 1904, clerk in car record office, and stenographer to Superintendent; Nov. 1904 to Jan. 1906, clerk, General Freight and Passenger Department; Jan. 1906 to Mar. 1916, chief clerk, same department, all at Sherbrooke.

**Lt.-Col. J. A. Hesketh**, M.Can.Soc.C.E., formerly Assistant Engineer, C.P.R., Winnipeg, and District Intelligence Officer and Officer Commanding the Corps of Guides, with headquarters at Winnipeg, who went overseas with the Canadian Expeditionary Force shortly after war broke out, and who is now in Strathcona's Horse, was married in England, Mar. 14, while on leave from the front, to the widow of J. E. Schwitzer, who when he died in 1911 was Chief Engineer, C.P.R., Montreal.

**O. Swenson**, M.Am.Inst.E.E., for the past four years Electrical Engineer, Kansas City Terminal Ry., in charge of all electrical work pertaining to the new union station and terminal facilities, has become a member of the engineering offices of P. A. Bates, New York, N.Y. Previous to his work at Kansas City Mr. Swenson was Assistant Electrical Engineer of the Detroit River Tunnel Co. and was engaged on all engineering work in connection with the electrification of the Michigan Central Rd. at Detroit, Mich. and Windsor, Ont.

**W. S. Howell**, who was appointed Industrial Agent, Chicago, Milwaukee & St. Paul Rd., Chicago, Ill., recently, was born at Port Hope, Ont., July 17, 1867, and educated there. He entered railway service in 1888, as operator, G.T.R., and later entered Union Pacific Rd. service as

dispatcher, remaining with that road, until 1890, when he was appointed Traveling Freight Agent, Chicago, Milwaukee & St. Paul Rd., Omaha, Neb. In 1899 he was appointed General Eastern Agent, same road, New York, and transferred to Chicago, Ill., in 1908, as Assistant General Freight Agent.

**George T. Coleman**, who was appointed Car Service Agent, Ontario Division, C.P.R., Toronto recently, was born at Carleton Place, Ont., Aug. 25, 1875, and entered C.P.R. service, May 24, 1893, since when he has been, to Dec. 1909, successively, operator, agent, dispatcher, Yardmaster, Night Chief Dispatcher and Trainmaster, at various points on the Eastern and Lake Superior Divisions; Dec. 1909 to Mar. 1914, dispatcher, and Chief Dispatcher, Moose Jaw, and Regina, Sask.; Mar. 1914, to Jan. 1915, Chief Dispatcher, Winnipeg; Jan. 1915, to Jan. 1916, Car Service Agent, Moose Jaw, Sask.

**George Carruthers Briggs**, who has been appointed Supervisor of Buildings, Eastern Lines, Canadian Northern Ry., Toronto, was born at Cockermouth, Eng., Apr. 23, 1886, and served articles to an architect and surveyor at Workington, Eng., from Mar. 1898 to Mar. 1903. He came to Canada in May 1903, and until Oct. 1906, was engaged in architectural work in Toronto, since when he has been, to Sept. 1912, in draughting office, Engineering Department, Mackenzie, Mann & Co., Toronto; Sept. 1912 to Sept. 1914, Architect, Buildings Department, same company; Sept. 1914 to Feb. 1916, Inspector of Buildings, same company.

**W. K. Thompson**, who retired as Superintendent, District 3, Ontario Division, C.P.R., Toronto, recently was entertained to dinner there, Mar. 7, by a number of the officials, with whom he had been connected since the early days of the company. Among those present were A. Price, Assistant General Manager, Eastern Lines; G. Ham of the headquarters staff; Angus MacMurchy, Solicitor for Ontario; J. T. Arundel, General Superintendent, Ontario Division; A. L. Hertzberg, Division Engineer; and J. J. Murray, Dominion Express Co. Mr. Thompson was presented with a purse of money, and an easy chair for Mrs. Thompson.

**H. P. Borden**, M.Can.Soc.C.E., of Montreal, has been appointed a member of the Board of Engineers of the Quebec Bridge, filling the place made vacant by C. C. Schneider's death. Mr. Borden is a graduate of McGill University and for several years was assistant engineer in the C.P.R. bridge department. From 1904 to 1906 he was Assistant Chief Engineer, structural department, Montreal Locomotive Works, Ltd. From then until 1908 he was Structural Engineer of the C.P.R. In 1908 he became Assistant Engineer, Board of Engineers, Quebec Bridge, and for the last three years has been Assistant to the Chief Engineer, C. N. Monsarratt.

**F. H. Moody**, B.A.Sc., Jr.M.Can.Soc.C.E., Mechanical Editor, Canadian Railway and Marine World, since September 1911, who has been appointed Officer Commanding C Company, 116th Overseas Battalion, Canadian Expeditionary Force, was Lieutenant in the 2nd Queen's Own Rifles of Canada from Mar. 16, 1912, to Mar. 5, 1914, when he joined the reserve corps. During the latter portion of that period he acted as Instructor of Musketry. He was appointed to the 83rd Battalion, C.E.F., in the summer of 1915, and was promoted to Captain in the autumn, and in Jan. 1916 he transferred to the

116th Battalion, and has since been promoted to Major, and is now stationed at Whitby, Ont.

**George Stephen**, who has been appointed Assistant Freight Traffic Manager, Western Lines, Canadian Northern Ry., Winnipeg, was born at Montreal, July 5, 1876, and entered railway service in 1889, since when he has been, to 1899, clerk in C.P.R. service; 1899, to 1900, chief clerk to Assistant General Freight Agent, C.P.R., Winnipeg; 1900, to 1901, Travelling Freight Agent, C.P.R. lines in Manitoba; 1901, to 1903, Contracting Freight Agent, C.P.R., Nelson, B.C.; 1903, to Jan. 1907, chief clerk to General Traffic Manager, Canadian Northern Ry., Winnipeg; Jan. 1907, to May 1909, Assistant General Freight Agent, C.N.R., Winnipeg; May 1909, to March 1916, General Freight Agent, C.N.R., Winnipeg.

**H. J. White**, who has been appointed General Car Foreman, National Transcontinental Ry., Cochrane, Ont., was born at Brownington, Vt., Apr. 1, 1871, and entered railway service in May 1893, since when he has been, Sept. 1894, car repairer and joint car inspector, Boston & Maine Rd., and C.P.R., Newport, Vt.; Sept. 1894 to May 1900, joint car inspector, C.P.R. and Canada Atlantic Ry., now part of G.T.R., St. Polycarpe Jct., Que.; May 1900 to Feb. 1903, Car Inspector, C.P.R. Toronto; Feb. 1903 to Sept. 1906, leading hand carpenter, C.P.R., Outremont, Que.; Sept. 1906 to May 1911, Car Foreman and Wrecking Foreman, C.P.R., North Bay, Ont.; May 1911 to Nov. 1913, General Foreman, C.P.R., West Toronto, Ont.; Nov. 1913 to Aug. 10, 1915, General Foreman Car Department, Quebec Division, Canadian Northern Ry., Quebec, Que.; Aug. 10, 1915, to Mar. 1916, Supervisor of Car Work, Eastern Lines, C.N.R., Toronto.

**Frank Harold Midgley**, who was appointed Resident Engineer, Lake Erie and Northern Ry., Galt, Ont., recently, was born at Cambuslang, near Glasgow, Scotland, May 26, 1884, was educated at the Glasgow and West of Scotland Technical College, and served an apprenticeship, from 1901, to 1906, with Niven and Haddis, Civil Engineers, Glasgow. He came to Canada in 1906, and was, to 1907, draughtsman, Dominion Bridge Co., Lachine, Que.; March to May 1907, topographer with survey party, C.P.R., Woodstock, N.B.; May 1907, to Oct. 1908, topographer and draughtsman, C.P.R., Nominig, Que.; Oct. 1908, to Sept. 1910, draughtsman and instrument man, Campbellford, Lake Ontario and Western Ry.; Sept. 1910, to July 1912, instrument man and transit man, same road; July 1912, to Dec. 1914, Resident Engineer, C.P.R. double track, White River, Ont.; March to Nov. 1915, draughtsman, Lake Erie and Northern Ry., Brantford Ont.

**J. Mitchell Silliman**, who has been appointed Resident Engineer, District 3, Eastern Division, C.P.R., Montreal, was born at Easton, Pa., Sept. 8, 1885, and graduated from Lafayette College, Easton, Pa., with the degree of C.E., in June, 1907, since when he has been, to Aug. 1907, leveller, right of way survey, Atlantic Division, C.P.R.; Aug. to Dec. 1907, transit man, District 2, Atlantic Division, C.P.R.; Jan. to Apr. 1908, rodman, reconnaissance surveys, Lake Superior Division, C.P.R.; May 1908 to Oct. 1909, transit man, District 1, Atlantic Division, C.P.R.; Nov. 1909 to Mar. 1910, transit man, District 1, Lake Superior Division, C.P.R.; Mar. 1910 to Mar. 1911, transit man, District 3, Lake Superior Division, C.P.R.;

Mar. 1911 to Sept. 1912, Resident Engineer, Construction Department, Guelph Jct.-Hamilton Line, C.P.R.; Sept. 1912 to Mar. 1915, Resident Engineer in charge of construction, Forsyth St. Branch, C.P.R., Montreal; Mar. to Dec. 1915, District Engineer of Construction in charge of Lake Erie & Northern Ry., Brantford, Ont.

### Grain Inspection at Western Points.

The following figures issued by the Department of Trade and Commerce, show the number of cars of grain inspected at Winnipeg and other points on the Western Division for railways, for February, and for six months ended Feb. 29, with a comparison of the number of cars inspected for six months ended Feb. 28, 1915.

	Feb.	Six months to Feb. 29, 1916	Six months to Feb. 28, 1915
C.P.R.	6,230	114,070	44,425
C.P.R. Calgary	448	3,285	3,682
C.N.R.	4,063	59,695	28,652
G.N.R. Duluth	439	3,116	1,212
G.T.P.R.	2,059	29,471	11,509
Totals	13,239	209,637	89,480

**Consolidation of Railway Act.**—Replying to a question in the House of Commons, Mar. 1, the acting Minister of Railways said the work of consolidating the Railway Act was in progress. Besides the work usually incidental to consolidation, thorough enquiries and investigations have been made, involving conferences with the Board of Railway Commissioners and other bodies, into the working out of different sections of the act, with particular regard to those in respect of which amendments have been offered in recent years. Seven thousand dollars has been paid in respect of this work to S. Price, K.C.

**Timiskaming and Northern Ontario Ry. and Grand Trunk Pacific Ry. Running Rights.**—Questions were asked in the Ontario Legislature, Mar. 15, as to the refusal of the Grand Trunk Pacific Ry. to live up to its agreement regarding running rights over the Timiskaming and Northern Ontario Ry., and as to the failure of the Ontario Government to take legal action in the matter. The Provincial Treasurer said that the agreement did not give the Government power to bring action until the construction of the G.T.P.R. was completed and trains running over the system.

**G.T.R. Conductor Convicted.**—E. E. Sinclair, who is said to have been a G.T.R. conductor for about 30 years, was fined \$100 and costs, or 30 days imprisonment, in Toronto police court Mar. 17, for stealing \$5 from the company. A detective who boarded a train at Stratford for Toronto, with two of the company's office men, swore that he gave the conductor \$5 and that he and his two companions were given hat checks and permitted to travel to Toronto.

**Lumber Freight Rates Advanced.**—Washington, D.C., press dispatch, Mar. 26:—"Increase to 12c per 100 lbs., making net increases of from 1 to 2c on lumber and lumber products from St. Paul, Minneapolis, Duluth, Minnesota Transfer, Stillwater, Minn., Ashland, Wis., and points taking the same rates to Chicago, and Chicago rate points has been approved by the Interstate Commerce Commission."

The Algoma Steel Corporation has, it is said, arranged to make shells and other munitions at Sault Ste. Marie, Ont., and will erect a building 350 x 120 ft. for the purpose.

# Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

**Canada Steamship Lines, Ltd.**—C. E. CROFT, heretofore General Agent, Toronto, has been appointed Chief of Commissary Department. Office Toronto.

**Canadian Government Rys.**—C. K. HOWARD, heretofore Right of Way Agent, St. John and Quebec Ry., Fredericton, N.B., has been appointed Commercial Agent, Boston, Mass. Office, 294 Washington St. (See also National Transcontinental Ry.)

**Canadian Northern Ry.**—W. H. GRANT, Tie and Timber Agent, has also been appointed acting General Storekeeper, Lines east of Port Arthur, Ont., during the absence of L. C. Thomson, who has been loaned to the Imperial Munitions Board. Office, Toronto.

R. S. GUSCOTT, heretofore rate clerk, Division Freight Agent's office, Toronto, has been appointed Contracting Freight Agent, Toronto, vice C. E. Hudson transferred to the Tariff Department.

W. R. KELLY, Superintendent, Lake Superior District, has had his jurisdiction extended over the Pembroke Subdivision, so far as transportation matters covering the handling and movement of trains are concerned. All other matters on the Pembroke Subdivision, the handling and movement of trains are under the jurisdiction of J. IRWIN, Superintendent, Toronto District, Toronto.

G. STEPHEN, heretofore General Freight Agent, Winnipeg, has been appointed Assistant Freight Traffic Manager, Lines west of and including Port Arthur, Ont., and Duluth, Minn. Office Winnipeg.

W. G. MANDERS, heretofore Assistant General Freight Agent, has been appointed General Freight Agent, Western Lines, vice G. Stephen, promoted. Office, Winnipeg.

J. M. HORN, heretofore District Freight Agent, Edmonton, Alta., has been appointed Assistant General Freight Agent, Western Lines, vice W. G. Manders, promoted. Office, Winnipeg.

J. R. SCOTT, heretofore chief clerk, General Freight Department, Winnipeg, has been appointed District Freight Agent in charge of Fort William and Port Arthur, Ont. Office, Port Arthur.

L. A. FONGER has been appointed chief clerk, General Freight Department, Winnipeg, vice J. R. Scott, promoted.

T. E. COYLE, formerly in Northern Pacific Ry. service, has been appointed Trainmaster at Saskatoon, Sash., vice P. K. Manahan, whose transfer to Kamloops Jct., B.C., was announced in our last issue.

R. H. BELL, heretofore General Agent, Chicago, Ill., has been appointed District Freight Agent, Edmonton, Alta., vice J. M. Horn, promoted.

J. H. MCKINNON, heretofore General Agent, has been appointed District Freight and Passenger Agent, Duluth, Minn.

F. G. WOOD, heretofore Commercial Agent, St. Louis, Mo., has been appointed General Agent, Pittsburg, Pa., vice R. F. Clark, transferred.

R. F. CLARK, heretofore General Agent, Pittsburg, Pa., has been appointed General Agent, Chicago, Ill., vice R. H. Bell, promoted.

L. E. AYRE, heretofore in General Traffic Manager's office, Toronto, has been appointed Commercial Agent, St. Louis, Mo., vice F. G. Wood, promoted.

**Canadian Pacific Ry.**—G. B. BURPEE, has been appointed General Travelling Passenger Agent, vice N. R. Des Brisay. Office, Montreal.

J. M. SILLIMAN, heretofore Resident Engineer on construction, Lake Erie and Northern Ry., Brantford, Ont., has been appointed Resident Engineer, District 3, Eastern Division, C.P.R., vice J. H. Forbes, who has enlisted for active service overseas. Office, Montreal.

H. WALKER, heretofore Night Locomotive Foreman, Schreiber, Ont., has been appointed Locomotive Foreman, White River, Ont., vice F. H. Hetherington, who has enlisted for active service.

W. ASHMAN, heretofore Inspector of Investigation, Saskatchewan Division, Moose Jaw, has been appointed Inspector of Investigation, Manitoba Division, Winnipeg.

JAMES WEBBER has been appointed acting Inspector of Investigation, Saskatchewan Division, Moose Jaw, vice W. Ashman, transferred.

J. M. CHESSER has been appointed acting Inspector of Investigation, Alberta Division, Calgary, vice R. G. Carpenter, transferred.

W. J. BARBER, heretofore fitter, has been appointed acting Locomotive Foreman, North Bend, B.C., vice John Macrae, temporarily transferred.

JOHN MACRAE, heretofore Locomotive Foreman, North Bend, B.C., has been appointed acting Locomotive Foreman, Kamloops Jct., B.C.

S. G. DENMAN is acting Assistant Purchasing Agent at Vancouver, in place of A. C. Douglas, who is acting Assistant General Purchasing Agent at Montreal, while E. Fitzgerald, Assistant General Purchasing Agent, is Purchasing Agent for the British War Office and the Imperial Munitions Board.

R. G. CARPENTER, heretofore Inspector of Investigation, Alberta Division, Calgary, has been appointed Inspector of Investigation, British Columbia Division, Vancouver, vice H. P. Winderling.

G. H. GRIFFIN, heretofore City Passenger Agent, Buffalo, N.Y., has been appointed City Ticket Agent, Chicago, Ill., vice E. L. Sheehan, whose appointment as General Agent, Passenger Department, St. Louis, Mo., was announced in our last issue.

**Canadian Pacific Ocean Services, Ltd.**—A. S. MAYNARD, heretofore Chief Commissary Agent, C.P.R., Montreal, has been appointed Purchasing Agent, C.P.O. S. Ltd. Office, Montreal.

G. S. REID, heretofore Accounting Agent, C.P.R., Toronto, has been appointed Travelling Passenger Agent, C.P.O.S.Ltd., Montreal.

**Chatham, Wallaceburg and Lake Erie Ry.**—W. J. CURLE, heretofore Assistant Superintendent, Toronto, District, Ontario Division, Canadian Northern Ry., Toronto, has been appointed General Superintendent, C.W.&L.E.R., with jurisdiction over all departments, vice W. Norris, deceased. Office, Chatham, Ont.

D. L. WELCH, has been appointed General Freight Agent. Office, Chatham. E. C. DAVIES has been appointed Freight Claim Agent. Office, Chatham.

**Duluth, South Shore and Atlantic Ry.** Mineral Range Rd.—I. H. HARSH has been appointed Purchasing Agent, vice P. W. Brown, who after many years of faithful service has retired from active work. Office, 1101 Fidelity Building, Duluth, Minn.

**Duluth Winnipeg and Pacific Ry.**—E. W. MYERS, heretofore chief clerk, Stores Department, Duluth, Minn., has been appointed storekeeper, Virginia, Minn., vice F. S. Matthey resigned, as announced in our last issue. (See also Canadian Northern Ry.)

**Grand Trunk Ry.**—P. M. BUTTLER, heretofore City Passenger and Ticket Agent, Ottawa, Ont., has been appointed General Agent, Passenger Department, in charge of passenger traffic in Ottawa, and will also perform such other special work as may be assigned to him from time to time. Office, Russel House Block.

JOHN CAMPBELL, heretofore Supervisor of Track, District 17, Hamilton, Ont., has been appointed Yardmaster, York yard, Toronto.

H. McPHAIL, heretofore switch gang foreman, has been appointed Supervisor of Track, District 12, Gravenhurst, Ont., vice P. C. Heels, transferred.

P. C. HEELS, heretofore Supervisor of Track, Gravenhurst, Ont., has been appointed Supervisor of Track, with jurisdiction over track between Hamilton and Niagara Falls, and Port Colborne and Port Dalhousie, Ont., vice J. Campbell, assigned to other duties. Office, Hamilton, Ont.

L. H. CANT has been appointed City Ticket Agent, Galt, Ont., vice G. L. Misener, resigned.

G. A. BOND, heretofore agent, Sarnia, Ont., has been appointed agent, Brantford, Ont., vice R. Wright, appointed General Agent, Ontario Lines, Toronto, recently.

R. E. NEWCOMER is reported to have been appointed Trainmaster, London, Ont.

W. E. GERMAIN, heretofore agent, Alvinston, Ont., has been appointed agent, Sarnia, Ont., vice G. A. Bond, transferred.

**Grand Trunk Ry.—Wabash Ry.**—T. J. CASSIDY, heretofore Chief Dispatcher, has been appointed Trainmaster, St. Thomas Division, vice J. A. McLardy, transferred. Office, St. Thomas, Ont.

J. A. McLARDY, heretofore Trainmaster, has been appointed Chief Dispatcher, St. Thomas Division, vice T. J. Cassidy, transferred. Office, St. Thomas, Ont.

**Grand Trunk Pacific Ry.**—H. DARBY, heretofore Locomotive Foreman, Biggar, Sask., has been appointed Locomotive Foreman, Regina, Sask.

W. W. YEAGER, heretofore Locomotive Foreman, Wainwright, Alta., has been appointed Locomotive Foreman, Biggar, Sask., vice H. Darby, transferred.

H. SAUNDERS, heretofore Car Foreman, Endako, B.C., has been appointed Car Foreman, Biggar, Sask., vice H. E. Jell, who has left the company's service.

F. J. LOZO, heretofore Locomotive Foreman, Calgary, Alta., has been appointed Locomotive Foreman, Wainwright, Alta., vice W. W. Yeager, transferred.

J. F. MOFFATT, heretofore Road Foreman of Locomotives, Wainwright, Alta., has resumed his former position as

locomotive driver, and no successor has been appointed.

**J. HONAN**, heretofore machinist, Midland Ry. of Manitoba, Winnipeg, has been appointed Locomotive Foreman, G.T.P.R., Calgary, Alta., vice F. Lozo.

**E. OPIE** has been appointed Car Foreman, Endako, B.C., vice H. Saunders, transferred.

**National Transcontinental Ry.**—**O. LEMAY** has been appointed acting Roadmaster, Quebec Subdivision, vice J. E. Simpson, assigned to other duties. Headquarters, Fitzpatrick, Que.

**H. J. WHITE**, heretofore Supervisor of Car Work, Canadian Northern Ry., Toronto, has been appointed General Car Foreman, N.T.R., with territory from Quebec, Que., to Graham, Ont. Office, Cochrane, Ont.

The territory of the respective Roadmasters of District 2, has been rearranged as follows: O'Brien Subdivision, from O'Brien to Cochrane, not including Cochrane yard; Roadmaster, W. R. MURRAY, Cochrane, Ont.; Cochrane Subdivision, from Cochrane to Hearst, not including Hearst yard; Roadmaster, P. HOUSTON, Cochrane, Ont.; Hearst Subdivision, from Hearst to Grant, not including Grant yard; Roadmaster, M. J. SHERIDAN, Grant, Ont.; Armstrong Subdivision, from Armstrong to Superior Jct., not including Superior Jct. yard; Roadmaster, J. F. FLYNN, Armstrong, Ont. (See also Canadian Government Railways.)

**Quebec Central Ry.**—**G. D. WADSWORTH**, heretofore chief clerk, Traffic Department, has been appointed Assistant General Freight and Passenger Agent. Office, Sherbrooke, Que.

**J. T. HAWKINS**, heretofore chief claims clerk, has been appointed Freight Claim Agent, in charge of all claims for overcharges and loss and damage to freight, also all correspondence concerning over, short, damaged, refused and unclaimed shipments. Office, Sherbrooke, Que.

**Wabash Ry.**—**J. E. TAUSSIG**, heretofore Assistant to President, has been appointed Vice President in charge of operation. Office, St. Louis, Mo.

**L. G. SCOTT**, heretofore Auditor, Texas and Pacific Ry., Dallas, Tex., has been appointed Comptroller in charge of the Accounting and Treasury Departments. W.R. Office, St. Louis, Mo.

**Government Employes and the War.**—The acting Minister of Railways and Canals, stated in the House of Commons, Mar. 9, that 573 employes of the Department and Canadian Government Railways, had been granted leave of absence to enlist for overseas service under the various orders in council dealing with the enlisting of Government employes. The Intercolonial Ry. heads the list with 455 enlisted employes. Of the total number, 8 have been killed in action, 2 have died since enlisting and a number are included in the list of wounded and missing. Officials and employes of the Government railways had made two contributions of one day's pay to the Canadian Patriotic Fund, totalling \$37,973.64.

**Scrap Material** sold by the Pennsylvania Rd. during 1914 brought \$2,157,241.24, which is \$1,000,000 less than was obtained by the same means in 1913. Some of the items and amounts were as follows: Old wheels, metals and wrought iron, \$780,000; locomotives and wooden passenger cars, \$114,326; waste paper, \$19,211; oil barrels, \$22,439; old rubber, \$15,222.

**Canadian Northern Railway Construction, Betterments, Etc.**

**James Bay & Eastern Ry.**—A trust deed dated Sept. 1, 1915, made between the company and the Guardian Trust Co., securing an issue of 30 year 5% debenture stock or bonds has been filed with the Secretary of State at Ottawa. It is reported that some further construction is likely to be gone on with at an early date. J. P. Mullarkey has a contract for grading westerly from Roberval towards James Bay, and some part of the work has been done.

**Canadian Northern Ontario Ry.**—The Minister of Lands informed the Ontario Legislature, Mar. 7, that the company had made application to designate the lands to be granted it under the statute, but that no lands had as yet been assigned by the Minister as subsidy lands.

**Canadian Northern Ry.**—**M. H. MacLeod**, General Manager and Chief Engineer, is reported to have said in an interview at Saskatoon, Mar. 4, that a considerable mileage of steel will be laid on already completed grading in Saskatchewan and Alberta during this year, at the points most urgently required; the mileage will depend upon the quantity of steel that can be obtained.

The Dominion Parliament has extended the time for the building of a line from near Grosse Isle, on the Oak Point Branch, northerly and westerly to Grand Rapids, near the head of Lake Winnipeg, with a branch to Sturgeon Bay, on the same lake.

The Regina Board of Trade passed a resolution, Mar. 3, asking the company to undertake as early as possible this year the completion of the Regina-Avonlea line, for the construction of which the company's bonds have been guaranteed by the Saskatchewan Legislature.

The Premier of Alberta in a statement regarding railway construction in the province, is reported to have said, on Mar. 4, that the rails for the St. Paul de Metis line had been shipped from eastern points, that track laying will be started as soon as the rails arrive, and that it is expected to have track laid on the 85 miles of completed grading by the end of June. The line is being built under the C. N. Western Ry.'s Alberta charter and leaves the C.N.R. main line at Oliver, and its construction for 100 miles is provided for by a provincially guaranteed bond issue. The report of the Minister of Railways for the year ended Dec. 31, 1915, states that 86.2 miles of grading have been completed.

Grading was completed on the company's line south of Calgary to Lethbridge, up to the end of 1915, for 56.49 miles. The distance between these two points is 105 miles, and the provincial guarantees also cover the building of a line from where the Calgary-Lethbridge line crosses the Little Bow River, via Macleod to the International Boundary, 110 miles.

**Canadian Northern Pacific Ry.**—We are officially advised that the building of the line into New Westminster, B.C., is under discussion, but the details will not be settled for some time.

**Vancouver Terminals.**—Sir Wm. Mackenzie, President, C.N.R., was in Vancouver Feb. 26, and met a number of members of the city council and talked over matters connected with the development of the False Creek flats and the proposal to build a union station with the Great Northern Ry. This latter is a definite

C.N.R. proposal, and plans for such a station were sent to the G.N.R. offices in St. Paul, Minn., after having been laid before the city council by M. H. MacLeod, Feb. 15. Mr. MacLeod subsequently went to St. Paul, and on Mar. 9 informed the Mayor of Vancouver by telegram that he had been unable to come to terms with the G.N.R. respecting the building of a union station. The C.N.R. will therefore proceed with the erection of its own station at an estimated cost of \$1,000,000, the plans for which will be submitted for approval on an early date. The city council passed a resolution, Mar. 15, calling on the company to proceed with the laying out of the terminals and building the station at False Creek in accordance with the terms of the agreement. The company agreed to do all the work within five years, two years of which are unexpired.

The specifications for the temporary car ferry slip at Port Mann, call for a structure capable of accommodating a ferry 335 ft. long. Tenders for this work are being invited.

**Lines on Vancouver Island.**—A press report dated Mar. 18 states that track laying has been started on the Victoria-Patricia Bay line. (Mar., pg. 94.)

It was reported Feb. 15 that a contract had been let to W. S. Doe, Victoria, for the building of a bridge across Selkirk water, as the approach to the company's proposed terminals on the Songhees reserve property.

**Grand Trunk Ry. Statement for 1915.**

Subject to audit, the accounts for the year to Dec. 31, 1915, show the following results:—

Gross receipts .....	\$8,292,700
Working expenses .....	6,511,250
Net receipts .....	\$1,781,450
Income from rentals, outside operations and car mileage balances.....	373,200
Total net revenue.....	\$2,154,650
Net revenue charges for the year, less credits .....	1,519,900
Balance .....	\$ 634,750
Deduct Grand Trunk Western deficiency for year ended June 30, 1915.....	\$122,200
Detroit, Grand Haven & Milwaukee deficiency for year ended Dec. 31, 1915.....	1,850
	124,050
Surplus .....	\$510,700
Less interim dividend paid on 4 per cent. guaranteed stock.....	187,500
Balance .....	\$ 323,200

This balance of \$323,200 added to the amount of \$4,300 from Dec. 1914, makes a total amount of \$327,500, which will admit of a further payment for the year of 2½% on the 4% guaranteed stock, making the full dividend for the year, and leaves a balance of about \$15,000 to be carried forward.

The accounts of the Grand Trunk Western Ry. for the half year ended Dec. 31, 1915, after providing for net revenue charges, show a surplus of \$108,500, which amount is carried forward to the current half year.

**Freight on Hides to Boston.**—In the case of Swift & Co. vs. Minneapolis, St. Paul & Sault Ste. Marie Ry., the Interstate Commerce Commission decided at Washington, D.C., Feb. 29, that proposed increased carload rate for transportation of green salted hides from St. Paul, Minneapolis, and Minnesota Transfer, Minn., to Boston, Mass., and Boston rate points, via Sault Ste. Marie, Mich., was not justified, and required to be cancelled.

## Traffic Orders by Board of Railway Commissioners.

### Rates on Tank and Still Structural Material from Sarnia to Regina.

24727. Feb. 16. Re Canadian Northern Ry.'s Special Proportionate Freight Tariff, C.R.C. E732, applicable on tank and still structural material in carloads, ex Sarnia, Ont., from Toronto to Regina, Sask.: Upon hearing the matter at Ottawa Feb. 9, in the presence of counsel for Canadian Northern, Canadian Pacific and Grand Trunk Railways, the Pere Marquette Rd. being also represented, it is ordered that the said tariff be disallowed.

24750. Feb. 19. Re application of Imperial Oil Company, Ltd., under sec. 334 of the Railway Act, for an order requiring the Pere Marquette Rd. Company, the Canadian Pacific, Canadian Northern and Grand Trunk Railway companies, to agree upon and file a joint tariff on tank and still structural material, in carloads at 75c per 100 pounds from Sarnia, Ont., to Regina, Sask. Upon hearing the matter at Ottawa, Feb. 9, in the presence of counsel for the applicant company, the Canadian Northern, Canadian Pacific and Grand Trunk Railways, and Pere Marquette Rd. being also represented at the hearing, it is ordered that the application be dismissed.

### Freight Rates on Whole Peas.

24788. Mar. 9. Re applications of Boards of Trade of Montreal and Toronto for an order disallowing the proposed increase in rates on peas (whole) from stations in Canada to eastern United States points, as published by Canadian Pacific and Grand Trunk Railways: Upon hearing the application at Ottawa, March 7, the Montreal and Toronto Boards of Trade and the Grand Trunk and Canadian Pacific Railways being represented, it is ordered that the elimination of peas (whole) from the list of articles taking grain rates from stations in Canada to points in the eastern United States, as provided in following schedules, issued to become effective March 20 and 21, be suspended until further order, viz., Canadian Pacific, Supplement 1 to Tariff C.R.C. no. E-2935; Grand Trunk, Supplement 20 to Tariff C.R.C. no. E-1860, Supplement 21 to Tariff C.R.C. no. E-1861, Supplement 13 to Tariff C.R.C. no. E-1872; Windsor, Essex & Lake Shore Rapid Ry., Supplement 1 to Tariff C.R.C. no. 158; Chatham, Wallaceburg & Lake Erie, Supplement 1 to Tariff C.R.C. no. 357; Essex Terminal, Supplement 1 to Tariff C.R.C. no. 256. And it is further ordered that provision be forthwith made for continuing until further order the rates on peas (whole) in the following schedules, issued to become effective April 1, viz., Michigan Central, Tariff C.R.C. no. 2507; Chatham, Wallaceburg & Lake Erie Ry. Tariff C.R.C. no. 394; Canadian Northern Ry., Tariff C.R.C. no. E-743; Essex Terminal, Tariff C.R.C. no. 300.

### C.P.R. Release Form, Etc.

24789. Mar. 6. Re the application of C.P.R., under sec. 340 of the Railway Act, for approval of form 1735, being a release and power of attorney to be signed by persons who desire, for special reasons, to travel in cars which are not intended to carry passengers. Upon reading the report of the Chief Traffic Officer of the Board, and what is filed in support of the application, it is ordered that the form of 1735, on file with the Board, be approved.

### Notices of Embargoes.

General order 160. Feb. 24. Re general order 95, Nov. 2, 1912, requiring rail-

way companies to file copies of any embargo issued against any traffic; and re the application of the Canadian Northern Ry. for a ruling as to whether embargo notices given to shippers on its lines as a result of an embargo placed on joint traffic by a connecting carrier should be reported to the Board: Upon reading what is filed, and the report of the Chief Operating Officer of the Board, it is ordered that railway companies be directed to report to the Board embargoes of any kind, within the time and as provided by general order 95, whether such embargoes are placed by companies subject to the Board's jurisdiction or by any carrier having connections with them. And it is further ordered that every such railway company report to the Board by telegram, with all possible dispatch, all accidents, failures, and obstructions on or to the railway, or to engines or rolling stock or other facilities, as a result of which the usual railway operations in any district or at any point will be delayed or impeded for a longer period than 24 hours; the nature of the occurrence creating such a situation; the steps taken to remedy it, and the time necessary to restore the railway sufficient for the requirements of ordinary and regular traffic.

## C.P.R. Colonization Plans.

The C.P.R., according to a press interview with Baron Shaughnessy, has decided on a comprehensive plan of colonization. The details are being worked out and involve the preparation of about 1,000 farms for occupation in the spring. One of the most serious problems to be faced in Canada will be, said Baron Shaughnessy, the handling of the thousands of returned Canadian soldiers and the immigration of the returned soldiers from Great Britain. Provision must be made for them, as large numbers will be so unsettled as to be unfit to return to their former occupations. He also said: "Realizing that the situation must be met, and willing to take its share of the burden, of trying to solve this problem and assist the men who have fought the battles of the empire, the C.P.R. has decided to establish in Western Canada, colonies, which for the moment we are calling returned veterans' colonies, where men who wish to go in for farming can obtain improved farms, on terms which will, in time, enable them to become land owners and to create homes for themselves and their families. These colonies will be given distinctive names, probably with military associations, and will contain a sufficient number of families in each to ensure social, school and church facilities and in each case, will include a central instructive farm under a competent agriculturist so that advice and instruction may be available for the colonist."

The Delaware, Lackawanna & Western Rd. Co. has been licensed by the Ontario Government to maintain passenger and freight offices and to maintain a bank account, and do ordinary matters pertaining to railway business other than actual construction or operation of a railway within the province, but not to use any larger amount of capital than \$40,000. Allen Leadlay, Freight and Passenger Agent, Toronto, has been appointed attorney.

## Weighing and Reweighing Car Load Freight at Detroit.

In the case of the Detroit Coal Exchange and Builders and Traders Exchange of Detroit, vs Michigan Central Rd., Detroit and Charlevoix Rd., Grand Trunk Western Ry. and Grand Trunk Ry., the complaint being that the rules and charges governing the weighing and reweighing of car load freight in Detroit, Mich., were unreasonable and unduly preferential, the Interstate Commerce Commission has decided: That the Commission has jurisdiction of the weighing service, when the freight is moved in interstate commerce. That it is the duty of the delivering carrier, upon reasonable request, to reweigh carload freight which has been transported in interstate commerce. That the present charges for this service in Detroit, Mich., are unjust and unreasonable. Just and reasonable charges prescribed for the future. That the inability of carriers participating in the interstate transportation of a car to agree upon their respective assumptions of costs for reweighing when such reweighing develops a shortage in excess of the limit of tolerance, cannot be used to increase charges against the shipper.

**Alberta Government Aided Railway Construction.**—The Alberta Railways Department annual report for the year ended Dec. 31, 1915, shows that 326 miles of new railways were completed, though not all placed in operation during the year, of which 304 miles were built of the railways, the bonds of which are guaranteed by the province. Altogether the province has authorized the guarantee of bonds for 3,471.87 miles of railways, and the guarantee has been executed for 2,535.97 miles. Of this mileage there has been completed 1,595 miles, upon the following companies' lines:—Canadian Northern Ry., 776 miles; Grand Trunk Pacific Ry., 259 miles; Edmonton, Dunvegan & British Columbia, 337 miles; Alberta & Great Waterways, 175 miles; Central Canada, 48 miles. In addition to the completed mileage, 400.59 miles of grading was done on the following lines: Canadian Northern, 233.57 miles; Edmonton, Dunvegan & British Columbia, 13 miles; Alberta & Great Waterways, 116 miles; Central Canada, one mile; Lacombe & Blindman Valley, 37 miles. The mileage completed and graded represents 70% of the lines for which the provincial guarantees have been executed.

**Shipments of Explosives on Canadian Northern Ry.**—In reference to the Board of Railway Commissioners' decision refusing to make an order directing the C.P.R. and G.T.R. to receive shipments of explosives from the Canadian Northern until that company satisfied the Board that it had appointed a competent inspector and made proper arrangements for the inspection of shipments of explosives originating on its line, and which is given in full on pg. 134, we are officially advised by the Canadian Northern operating management that it is observing all the rules and instructions in regard to handling explosives and other dangerous articles as issued by the Bureau of Explosives, that the inspection of shipments originating on its line is made by its agents' staff at the points where shipments are received, and that it is practically covering the matter as fully as though the Bureau's inspectors were doing the work. The Board, however, has not signed the order applied for and the matter is in statu quo.

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**NOTICE TO ADVERTISERS.**

ADVERTISING RATES furnished on application.  
ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of publication.

TORONTO, CANADA, APRIL, 1916.

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The Winnipeg Traffic Club held its first annual supper at the union station restaurant, Mar. 17, A. Syme being in the chair. The feature of the evening was an address on the railway ticket business by A. Calder, who was referred to as Winnipeg's pioneer ticket agent.

## Rate Increases in Western Classification Territory.

The Interstate Commerce Commission gave a decision at Washington, D.C., Feb. 8, which is summarized as follows: Proposed increase from 30,000 to 40,000 lbs. in the minimum carload weight on grain products and from 40,000 to 50,000 lbs. in the minimum carload weights on wheat and rye found justified. Following 1915 Western Rate Advance Case, 35 I. C. C., 497, 603-611, proposed increased rates on bituminous coal from Illinois mines and other points to points west of the Mississippi River found justified. Cancellation of present interstate commodity rate on gas coke in carloads from St. Charles, Mo., to St. Louis, Mo., found justified. Proposed increased rates on broom corn from points in Kansas and Oklahoma to points in Colorado and New Mexico not justified. Proposed increased rates on wheat and corn between Arkansas stations on the St. Louis & San Francisco Rd. and Memphis, Tenn., justified.

**War Purchasing Staff.**—In addition to E. Fitzgerald, Assistant General Purchasing Agent, C.P.R., who is Purchasing Agent for the British War Office and the Imperial Munitions Board, with office in Union Bank Building, Ottawa, W. H. Stewart, until recently Assistant Superintendent, C.P.R., Farnham, Que, has been "loaned" to the Imperial Munitions Board and is assisting Mr. Fitzgerald. L. C. Thomson, General Storekeeper, Canadian Northern Ry., Toronto, has also been "loaned" to the board and has been appointed its Superintendent of Transportation, attending to all products handled by it. The British War Office Purchasing Department, known as the War Office Service, which was established at 114 Windsor St., Montreal, under Mr. Fitzgerald, in May 1915, and moved to Ottawa a few months ago, has been removed back to its former location in Montreal where it is in charge of K. K. Donnelly, of the General Purchasing Department, C.P.R., representing Mr. Fitzgerald.

**Special Rates for Farm Laborers.**—A press dispatch says that Canadian railways have granted the Dominion Government's request for a passenger rate of 1c a mile in Canada for United States farm laborers, who are expected to come over in considerable numbers as a result of the Interior Department's campaign being carried in the U.S. We are officially advised that the Eastern Canadian Passenger Association considered the conditions so urgent that they acceded to the Government's request and will issue tickets practically on the basis of 1c a mile to farm laborers. Tickets will be sold to points in Ontario from Niagara Falls, Bridgeburg, Windsor and Sarnia from Mar. 21 to May 21 inclusive.

**Cost of National Transcontinental Ry.**—The commissioners' 11th annual report, just issued, covers the year ended Mar. 31, 1915, and is signed by Hon. F. Cochrane, Minister of Railways and Canals, as commissioner. The total expenditure during the fiscal year was \$9,834,746.75, which brought up the total expenditure, from the organization of the commission in 1904 to Mar. 31, 1915, to \$152,802,745.77. Up to that date there had been laid 2,352.58 miles of track, distributed as follows: Main line, 1,803.44 miles; double track and line from bridge to Quebec, 19.61 miles; sidings, yards, pit spurs, etc., 529.53 miles.

## Telegraph Efficiency on the C.P.R.

George Bury, Vice President, C.P.R., has issued a circular to the company's various telegraph offices, reading as follows: "The company having undertaken the transmission of telegrams for the public over its wires, it is of the highest importance that this service be performed in a thoroughly efficient manner, and the most careful attention to this business is enjoined upon every one connected with the telegraph service. Celerity in transmission and delivery, accuracy and privacy, are of the first importance and no shortcomings in these particulars will be tolerated. It must be remembered that no person, not excepting the highest officer of the company, has the right to know the contents of any private telegrams entrusted to the company for transmission, except that telegraph superintendents, inspectors and others designated by the proper authority in the Telegraph Department have the right to examine the telegraph business to check up transmission and delivery, or other defects in service. The greatest care must be taken to prevent private telegrams from being seen by persons for whom they are not intended and any employe of the company divulging the contents of such a telegram will be punished by immediate dismissal. General superintendents are requested to cooperate with the Manager of the Company's Telegraph every possible way to secure the desired efficiency, and to see that all persons connected with the telegraph service on their respective divisions fully carry out his instructions concerning commercial telegraph business."

**National Transcontinental Ry. Grain Shipments.**—Replying to questions in the House of Commons Mar. 1, Hon. J. D. Reid, acting Minister of Railways, said 20 cars of wheat had been shipped on the 6c per bushel rate on the N.T.R. from Armstrong to Montreal, and 80 cars had been shipped at the same rate from Armstrong to Quebec. The rate for grain from Armstrong to St. John, Halifax, and Portland, Me., was 14.22c a bushel, for export. The rate from Armstrong to Montreal for domestic consumption was 12c a bushel, and from Armstrong to Quebec, for domestic consumption, 15c a bushel.

**The Vancouver Transportation Club** was organized in Vancouver, B.C., Mar. 10, with an initial membership of over 100 and the following officers: President, J. W. Faulds of D. E. Brown, Hope and Macauley; First Vice President, E. J. Burns, Great Northern Ry.; Second Vice President, C. E. Laing, C.P.R.; Secretary-Treasurer, H. W. Schofield, C.P.R.; other directors: C. E. Jenney, G.T. Pacific Ry.; A. A. Whitnall, Great Northern Ry.; J. W. Nott, Allan Line Steamships; J. E. Archer, Great Northern Express Co.; C. A. Whitlock, Donaldson Steamship Line. The club has been formed for local purposes.

**Railway Lands Patented.**—Letters patent were issued during February, covering Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:

	Acres.
Alberta Central Ry. ....	.95
Alberta & Great Waterways Ry. ....	.68
Calgary & Edmonton Ry. ....	3,037.00
Canadian Northern Ry. ....	640.00
Grand Trunk Pacific Branch Lines Co. ....	14.43
Qu'Appelle, Long Lake & Saskatchewan Rd. & Steamboat Co. ....	6,566.43
Total .....	10,259.49

**Freight and Passenger Traffic Notes.**

The C.P.R. resumed service over the Outlook branch, Sask., Mar. 15.

The C.P.R. announced in Winnipeg, Mar. 15, that the entire system had been cleared from the effects of the Jan.-Feb. snowstorms.

The Canadian Northern Pacific Ry. was finally cleared for through traffic, Feb. 29, after the effects of the Jan.-Feb. snowstorms.

The Canadian Northern Ry. expect to inaugurate a daily train service between Toronto and Winnipeg, in connection with its transcontinental traffic, June 1.

The G.T.R. started, Mar. 15, running the 6.45 a.m. train from Rouse's Point, N.Y., to Montreal, and the 5.30 train from Montreal to Rouse's Point, via Iberville, Que.

The C.P.R. resumed its steamship service on Okanagan Lake, Mar. 13, which had been stopped on account of the severe weather at the end of January and early in February.

The C.P.R. upper lake steamships will, it is said, arrive at Port Arthur, Ont., during the coming navigation season, at 8 a.m., except the s.s. Manitoba, which will arrive Fridays at 3 p.m.

The Edmonton, Dunvegan & British Columbia Ry. announced Mar. 16 that it would give the same freight rates as the other companies from its territory for the spring horse show, April 4 to 8.

The Grand Trunk Pacific Ry. announces that its steamship, Prince John, will leave Prince Rupert for Skagway every Thursday at noon, returning therefrom every Sunday at 1 p.m., from Mar. 30 to June 8.

The Intercolonial Ry. has discontinued temporarily, the Ocean Limited train between Halifax and Montreal. The last trip eastward from Montreal was on Mar. 7, and the last trip westward from Halifax was Mar. 8.

Petrograd, Russia, press dispatch, Mar. 10: "The Minister of Ways and Communications has announced plans for promoting direct freight trade facilities between Russia and Canada by way of Vladivostock, Siberia, and Victoria, B.C.

The Canadian Northern Ry., according to a Port Arthur press report, is arranging to open up the Lake Nipigon district for tourist purposes. It is proposed to erect a fishermen's lodge on the lake, to accommodate parties up to 20, for which camp equipment will be supplied from the Port Arthur Hotel.

In addition to the regular standard, tourist and observation car service, the C.P.R. inaugurated on Mar. 22 a new tourist car service between Winnipeg, Saskatoon and Edmonton, for the benefit of homeseekers leaving Winnipeg, Thursdays and returning Tuesdays. It will be continued until Oct. 31.

It was reported in Vancouver, Mar. 17, that the Pacific Great Eastern Ry. had been opened for traffic from Squamish to Cheakamus Canyon, B.C., 19 miles, and that the clearing of the track thence to Clinton, mileage 146 from Squamish, was being proceeded with. The railway became blocked in the first snowstorm at the end of January.

To make freight rates east of Levis, Que., uniform with those in effect west thereof and on the National Transcontinental Ry. west of Moncton, the mileage tariff rate on the Intercolonial east of Levis on certain forest products for local consumption, short haul has been raised,

as follows: Distance over 5 to 80 miles, 1/2 cent per 100 lbs.; over 80 to 90 miles, 3/4 cent per 100 lbs.; over 90 to 100 miles, 1/2 cent per 100 lbs.

The Intercolonial Ry., the Prince Edward Island Ry., the New Brunswick & Prince Edward Island Ry., the International Ry. of New Brunswick, the St. John & Quebec Ry., and the National Transcontinental Ry. being Canadian Government railways, only one coupon is required in ticketing to any point thereon, except in the case of the P.E.I. Ry., where a separate coupon is required for the steamship

connection from Point du Chene to Summerside or from Pictou to Charlottetown.

An arrangement has been made by which farm laborers can travel on Canadian lines between Winnipeg and Kingsgate, B.C., at a 1c a mile rate. The special rate came into effect Mar. 20 and will be continued to May 15. No tickets will be sold for less than \$2. This arrangement was made, it was stated in the House of Commons, Mar. 20, in connection with a campaign inaugurated by the Interior Department to secure farm laborers from the United States.

**Grain in Store at Terminal Elevators, Interior Terminal Elevators and at Public Elevators in the East.**

Week ending Mar. 10, 1916.	Wheat bushels.	Oats bushels.	Barley bushels.	Flax bushels.	Totals bushels.
Fort William—					
C.P.R.	4,356,478	892,828	386,770		5,636,076
Consolidated Elevator Co.	1,262,508	293,227	45,963	96,463	1,698,161
Empire Elevator Co.	1,691,212	493,195	128,285	188,620	2,501,312
Ogilvie Flour Mills Co.	1,294,009	139,469	77,589		1,511,067
Western Terminal Elevator Co.	1,444,483	292,234	42,151		1,916,868
G. T. Pacific	3,519,043	2,198,963	143,920	118,225	5,980,151
Grain Growers' Grain Co.	1,616,431	532,431	183,853		2,332,715
Fort William Elevator Co.	1,036,502	340,708	46,945	25,998	1,450,153
Eastern Terminal Elevator Co.	947,841	225,411	56,785		1,230,037
Port Arthur—					
Port Arthur Elevator Co.	4,829,982	2,174,969	401,089	101,642	7,507,682
D. Horn & Co.	185,988	137,705	21,624	184,008	529,275
Dominion Government Elevator	1,840,675	971,552	122,384	85,112	3,019,723
Grain afloat.	2,425,386	974,311			3,399,697
<b>Total Terminal Elevators</b>	<b>26,450,488</b>	<b>9,667,003</b>	<b>1,657,358</b>	<b>937,796</b>	<b>38,712,645</b>
Calgary Dom. Govt. Elev.	71,646	157,341	7,057	x 1,174	237,218
Saskatoon Dom. Govt. Elev.	1,923,635	457,846	30,977		2,453,458
Moose Jaw Dom. Govt. Elev.	1,900,000	318,000	16,000		2,234,000
<b>Total Interior Terminal Elevators</b>	<b>3,895,281</b>	<b>983,187</b>	<b>54,034</b>	<b>x 1,174</b>	<b>4,963,253</b>
Depot Harbor	26,309				26,309
Midland—					
Aberdeen Elevator Co.	251,084	134,702			385,786
Midland Elevator Co.	63,804	145,670			209,474
Tiffin, G.T.P.	600,239	572,385	189		1,172,813
Port McNicoll	1,685,527	106,288			1,791,815
Collingwood					
Goderich Elevator & Transit Co.	376,803	58,310			435,113
Kingston—					
Montreal Transportation Co.					
Commercial Elevator Co.					
Port Colborne	305,290	587,101		8,920	901,311
Prescott					
Montreal—					
Harbor Commissioners No. 1	221,410				221,410
Harbor Commissioners No. 2	316,228	368,654	128,560		813,842
Montreal Warehousing Co.	321,722	972,802	1,391		1,295,915
Quebec Harbor Commissioners	91,947	45,899	5,720		143,566
West St. John, N.B.	393,765	205,554	60,058		659,377
Halifax, N.S.					
<b>Total Public Elevators</b>	<b>4,654,528</b>	<b>3,197,365</b>	<b>195,918</b>	<b>8,920</b>	<b>8,056,731</b>
<b>Total Quantity in Store</b>	<b>35,000,297</b>	<b>13,797,555</b>	<b>1,907,310</b>	<b>x 1,174</b>	<b>51,732,629</b>
				<b>1,026,293</b>	
					<b>x Corn</b>

**Military Railway Construction.**—London, Eng., cablegram, Mar. 1: "A letter signed 'British Railwayman,' given prominence by the Times says that the lack of light railways at the front is hampering military operations. The writer thinks the the probable obstacle to the remedying of this condition is the shortage of rails and rolling stock, but suggests that the Canadians might help." His assertion that numerous plants for railway construction in Canada are lying idle is denied by Canadian railway officials. The latter also say that the British Government has constructed several lines in which the Canadian Overseas Railway Corps has helped.

**G.T.R. employes in military service.**—At the commencement of the war, the G.T.R. allowed six months full pay to its employes volunteering. To Dec. 31, 1915, the amount thus paid totalled, for the G.T.R. and G.T.P.R., \$680,000, and the present monthly payroll for the same purpose is \$62,500. It has since been decided to discontinue this method and to contribute \$10,000 monthly to the Canadian Patriotic Fund.

**Charges Against C.P.R. Conductors.**—Six conductors and three outside men were committed for trial at Ottawa, Ont., Mar. 12, on charges of theft and conspiracy to defraud the C.P.R. The men charged are S. Alexander, C. A. Merriam, M. Baker, R. T. Carter, H. Dunham, C. A. Dunham and F. Nelson, conductors, and C. Borts, H. Merson and A. Pinero. It is alleged that tickets collected from passengers were resold to other parties at reduced rates, the transactions taking place at Ottawa and on the run between Ottawa and Montreal. All the men charged have since been found not guilty and acquitted.

**G.T.R. conductor committed.**—Wm. Neil, Niagara Falls, Ont., a G.T.R. conductor, who was on the Niagara Falls-Sarnia run, was committed for trial at Hamilton, Ont., Mar. 20, on the charge of stealing \$9 from the company. A detective, testified that he gave the conductor \$9 for fare for himself and two companions, and an official swore that the conductor had not made a return of the money on the day in question. Defence was reserved for the higher court.

# Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates of orders, immediately following the numbers, are those on which they were drawn.

General order 159. Feb. 18.—Ordering that following be added to rule 93 of train rules designated the Uniform Code for Canadian Railways, approved by order 7563, July 12, 1919, namely:—"By night or in foggy or stormy weather, proper lights must be placed on cars or engines obstructing main tracks within yard limits."

General order 160. Feb. 24.—Ordering that railway companies report to board embargoes of any kind, within time and as provided by general order 95, whether such embargoes are placed by companies subject to Board's jurisdiction, or by any carrier having connections with them; every such railway to report to Board by telegram, with all possible dispatch, all accidents, etc., on or to railway or to locomotives or rolling stock or other facilities, as a result of which usual railway operations in any district or at any point will be delayed or impeded for longer than 24 hours; also the nature of occurrence creating such situations and steps taken to remedy it, etc.

General order 161. Feb. 23. Prescribing regulations for uniform maintenance of way flagging rules for impassable track, to become effective Mar. 1, for the observance of every railway company within the legislative authority of the Parliament of Canada.

24740. Feb. 15.—Ordering C.P.R. to remove track sufficient to provide required clearance between Canmore Coal & Navigation Co.'s spur at Canmore, Alta., and certain buildings; clearance at tiple 1 and boiler house 2 to be approved until any reconstruction work is done, provided employees are kept off sides and tops of cars where restricted clearance is known.

24741. Feb. 21.—Approving Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) detail plans of station to be built in Vancouver, B.C.

24742. Feb. 21.—Authorizing C.P.R. to build spur for G. McAllister, Guelph, Ont.

24743. Feb. 19.—Approving C.P.R. drawing 55, showing falseworks over tracks at Toronto, where Bloor St. viaduct crosses.

24744. Feb. 21.—Authorizing G.T.R. to rebuild bridge carrying public road over its tracks at milepost 39.99 near Rockwood, Ont.

24745. Feb. 18.—Authorizing Essex Terminal Ry. to build spur for Canadian Postum Cereal Co., Windsor, Ont., connecting with M.C.R.

24746. Feb. 21.—Approving agreement between Bell Telephone Co. and Beatrice Telephone Association, Feb. 10.

24747. Feb. 21.—Authorizing C.P.R. to rebuild pile trestle bridge at 9th Ave., Broadview, Sask.

24748. Feb. 21.—Relieving C.P.R. from providing further protection at highway 1,700 ft. east of milepost 32, Teeswater Subdivision, Ont.

24749. Feb. 21.—Authorizing City of Toronto to build bridge over G.T.R. (old Belt Line), on extension of Mount Pleasant Road, through Mount Pleasant Cemetery.

24750. Feb. 19.—Dismissing Imperial Oil Co.'s application for order requiring Pere Marquette Rd., C.P.R. and Canadian Northern Ry., also G.T.R. and Canadian Northern Ry., to agree upon and file joint tariff on tank and steel structural material, in car loads, at 75c per 100 lbs., from Sarnia, Ont., to Regina, Sask.

24751. Feb. 22.—Amending order 13970, June 19, 1911, re filing and issuing C.P.R. freight tariffs.

24752. Feb. 23.—Authorizing C.P.R. to divert portions of road allowance at mileage 52.20, Winnipeg Beach Subdivision, Man.

24753. Feb. 22.—Ordering C.P.R. to rearrange its time table to provide that train leaving Eastray Jet. for Windsor Mills at 4.45 p.m., shall make connection with train leaving Montreal at 4.10 p.m. and arriving at Eastray Jet. at 6.38 p.m.

24754. Feb. 23.—Ordering G.T.R. to install improved type of automatic bell at crossing of road in Lot. 25, Con. 2, Etobicoke Tp., Ont., 20 per cent. of cost to be paid out of railway grade crossing fund; bell to be installed by June 1.

24755. Feb. 23.—Ordering G.T.R., by June 1, to install bell at Ontario St., Burlington, Ont., 20 per cent. of cost to be paid out of railway grade crossing fund.

24756. Feb. 23.—Approving agreement between Bell Telephone Co. and McNab Telephone Co. Feb. 16.

24757. Feb. 23.—Ordering Bell Telephone Co. to install telephone in Mrs. E. J. Wheler's house, Toronto, and provide all proper facilities for its use.

24758. Feb. 24.—Authorizing McKim Tp., Ont., to build highway crossing over C.P.R. Stobie Branch to continue Wilma St., from Notre Dame St. easterly.

24759. Feb. 23.—Authorizing G.T.R. to build siding for William Kennedy & Sons in Nottawasaga Tp., Ont.

24760. Feb. 24.—Ordering G.T.R. to stop trains 41 and 44 on flag at Martin's siding; neighboring residents to provide necessary shelter or platform.

24761. Feb. 24.—Dismissing applications of City of Hamilton, Ont., and Toronto, Hamilton & Buffalo Ry., to have Hamilton St. Ry. pay portion of cost of building new bridge carrying King St. over T. H. & B. Ry., and ordering that detail plans of bridge to be built under order 24614 be filed by T. H. & B. Ry. within three weeks from date for approval of Board's engineer.

24762. Feb. 24.—Ordering Toronto, Hamilton & Buffalo Ry. to cut off hedge and slope back embankments at crossing of Ancaster Road, to provide view of 1,320 ft. from west; 20 per cent. of cost to be paid out of railway grade crossing fund; work to be completed by July 1; and relieving T. H. & B. Ry. from maintaining watchmen there on Sundays, provided train movements over crossing be flagged.

24763. Feb. 24.—Dismissing application of Ontario Public Works Department, Colonization Roads Branch, for order authorizing grade crossing over G.T.R. near Whitney station.

24764. Feb. 25.—Ordering City of Berlin, Ont., to trim and keep trimmed from time to time trees obstructing view at crossing of King St., by G.T.R., so there shall always be clear and unobstructed view of all approaching trains.

24765. Feb. 17.—Authorizing Lachine, Jacques Cartier & Maisonneuve Ry. (G.T.R.) to divert and cross certain streets and lanes between Park Ave. No. 2 and St. Lawrence Boulevard, Montreal, and to build subway at St. Famille St., between St. Urbain and St. George Sts., with 12 ft. headroom, work to be done by Dec. 31, 1917, or order becomes inoperative.

24766. Feb. 25.—Approving agreement between Bell Telephone Co. and Rockwood & Oustic Telephone Co., Feb. 16.

24767. Feb. 26. Authorizing Canadian Northern Ry. and Grand Trunk Pacific Ry. jointly to build spur to Dominion Government elevator at Saskatoon, Sask., with connection between their respective lines; to cross certain streets and road allowance and rescinding order 23283, Feb. 11.

24768. Feb. 28. Ordering Grand Trunk Pacific Ry., pending installation of bell at crossing of Ottawa Ave., Edmonton, Alta., to protect crossing by day and night watchmen.

24769. Feb. 18. Authorizing Canadian Northern Ry. to connect with C.P.R. at Arthur St., Port Arthur, and near Current River, and rescinding order 24438, Nov. 9, 1915.

24770. Feb. 18. Relieving C.P.R., Canadian Northern Ry. and Canadian Northern Ontario Ry. from complying with provisions of Railway Act requiring consent of shareholders; and recommending to Governor in Council for sanction agreement between these companies dated Oct. 1, 1915.

24771. Feb. 26. Authorizing C.P.R. to build siding for Canadian Consolidated Rubber Co., Montreal.

24772. Feb. 29. Authorizing Canadian Northern Saskatchewan Ry. and C.P.R. to operate over crossing in s.w. ¼ Sec. 9-26-4, w. 2m. without stopping, and relieving them from maintaining night signalman to operate interlocking plant; home signals and derails to be set clear for C.P.R. and key of tower to be left with C.P.R.

24773. Feb. 28. Ordering G.T.R., when required by traffic conditions, to provide a grade of 10 per cent. on approach to Concession Road, Oro Tp., Ont., to widen Ridge Road to 50 ft., and remove trees obstructing view of track; 20 per cent. of cost, not exceeding \$200, to be paid by Oro Tp., and rescinding order 24217, Sept. 25, 1915.

24774. Feb. 24. Authorizing Canadian Northern Ontario Ry. to build spur across Fourth St., Deseronto.

24775. Feb. 29. Authorizing Canadian Northern Saskatchewan Ry. and Grand Trunk Pacific Ry. to operate over crossing at Yorkton, Sask., without first stopping trains, and relieving them from maintaining night signalman to operate interlocking plant; home signals and derails to be set clear for G.T.P.R. and key of tower left with G.T.P.R.

24776. Feb. 28. Ordering that Bell Telephone Co. poles on Main St., Chesley, Ont., be moved from west to east side of street by Hydro Electric Power Commission of Ontario, at cost of town, less salvage value of present plant and added value of reconstructed plant to B.T. Co.

24777. Feb. 29. Authorizing Essex Terminal Ry. to build siding across Shepard Ave., Windsor, Ont.

24778. Mar. 1. Authorizing G.T.R. to build siding for W. Ellis, St. Clair Ave., Toronto.

24779. Mar. 2. Authorizing C.P.R. to build spur for D. Ackland & Son, Ltd., Calgary, Alta.

24780. Mar. 1. Authorizing Quinlan & Robertson, Ltd., to erect structure for track protection over G.T.R. and Canadian Northern Ry. at site of Bloor St. viaduct, Toronto, to be used only for transporting material or equipment required in the viaduct construction.

24781. Mar. 3. Authorizing Grand Trunk Pacific Brnach Lines Co. to build spurs for Im-

perial Oil Co. from its Melville-Regina Branch in w. ½ Sec. 32-17-19, w. 2.

24782. Mar. 6. Authorizing Canadian Northern Ontario Ry. and Timiskaming & Northern Ontario Ry. to operate over crossing at North Bay, Ont., without stopping trains.

24783. Mar. 6. Authorizing C.P.R. to build extension to Gold Medal Lumber Co.'s siding for Maples, Ltd., Toronto.

24784. Mar. 9. Re Canadian Northern Ry. service on its Goose Lake line, Saskatchewan. This order is given fully on another page.

24785. Mar. 7. Ordering Grand Trunk Pacific Ry. to build present level crossing, about 336 ft. west of station at Kitwanger, B.C., to be completed by April 1.

24786. Mar. 7. Approving agreement between Bell Telephone and Derby Telephone Association.

24787. Mar. 7. Amending order 24776, Feb. 28, re G.T.R. grade approach to Concession Road, Oro Tp., Ont.

24788. Mar. 9. Suspending certain schedules, effective March 20 and 21, and eliminating whole peas from articles taking grain rates from stations in Canada to points in eastern United States. This order is given in full on another page.

24789. Mar. 6. Approving C.P.R. Form of Release and Power of Attorney, 1735, to be signed by persons who desire, for special reasons, to travel in cars which are not intended to carry passengers.

24790. Mar. 9. Authorizing City of Winnipeg to connect its tramway line with C.P.R. at Lac du Bonnet, Man., provided rights of C.P.R. at any time to extend said branch at Lac du Bonnet be reserved.

24791. Mar. 9. Authorizing Toronto Suburban Ry. and C.P.R. to operate over crossing near Guelph, Ont., without first stopping.

24792. Mar. 9. Authorizing Canadian Northern Ry. to divert highway between Secs. 26 and 27-39-19, w. 4 m., Alta.

24793. Mar. 9. Authorizing City of Toronto to rebuild bridge over C.P.R. at York St., by reinforcing span 16.

24794. Mar. 13. Ordering Great North Western Telegraph Co. forthwith to install telegraph apparatus in Michigan Central Rd. station in Hagersville, Ont., and appoint necessary operator.

24795. Mar. 14. Authorizing Canadian Northern Quebec Ry. to build three spurs at mileage 169.71 and 169.83 from Quebec, in Pointe aux Trembles parish, and to cross Montreal Terminal Ry.

24796. Mar. 14. Authorizing C.P.R. to build road diversion at mileage 93.4, Portal Subdivision, Sask., in lieu of existing road allowance between n. e. ¼, Sec. 21-7-13, and s. e. ¼, Sec. 23-7-13, w. 2 m.

24797. Mar. 16. Ordering Grand Trunk Pacific Branch Lines Co. to build interchange between its Government elevator spur and C.P.R. Outlook Branch, at Moose Jaw, Sask.

24798. Mar. 16. Ordering that demurrage toll of \$7 collected by C.P.R. from G. Husband, Dec. 12, 1914, on oats from Glen Ewen to East End, Sask., was not properly chargeable and therefore wrongfully collected; and authorizing C.P.R. to refund the amount.

24799. Mar. 14. Authorizing C.P.R. to divert road allowances between Secs. 3 and 4 and Secs. 7 and 8-8-21, w. 2 m., through s.e. ¼ Sec. 4, to common crossin gat mileage 45.54, Weyburn-Lethbridge Branch, Sask.

24800. Mar. 15. Rescinding order 24652, Jan. 11, re Canadian Northern Ry. crossing at Sec. 27-46-23, w. 2 m., Sask.

24801. Mar. 14. Authorizing G.T.R. to build siding for International Harvester Co. of Canada, Ltd., Hamilton, Ont.

24802. Mar. 16. Authorizing C.P.R. to build at grade, its Suffield-Blackie Branch across road allowance at mileage 79.94, road diversion as approved by order 19620, to be closed.

24803. Mar. 16. Extending for five years, instead of three, as required under order 14115, time within which flues of boilers in service on White Pass & Yukon Ry. shall be removed and a thorough investigation made of the entire interior of the boiler.

24804. Mar. 16. Authorizing C.P.R. to build spur for Rigaud Granite Co., Rigaud, Que.

24805, 24806. Mar. 16. Authorizing C.P.R. to build at grade, across highway at mileage 17.0, and to build road diversion at mileage 29, from Golden, B.C.

24807. Mar. 16. Authorizing Bell Telephone Co. to erect its telephone lines on north side of St. George's Crescent, between Wellington and Bruce Sts., Goderich, Ont.

24808. Mar. 18. Dismissing complaint of Nanaimo, B.C., Board of Trade against C.P.R. proposed new tariff, eliminating Nanaimo as a terminal freight point.

24809 to 24812. Mar. 16. Authorizing C.P.R. to build road diversions at mileage 24.25, 15.61, 22.62, and 30, from Golden, B.C.

24813. Mar. 17. Authorizing C.P.R. to build Kootenay Central Ry. at grade across highway at mileage 76.9 from Colvalli, B.C.

# Electric Railway Department

## Recent Developments in Electric Railway Car Equipment.

By W. G. Gordon, Transportation Engineer, Canadian General Electric Co., Ltd.

The Railways and Canals Department's statistics show that the electric railway systems of Canada for the year ended June 30, 1914, totalled 98,917,808 car miles, with a total operating expenditure of \$19,107,807, of which \$513,016 was for the maintenance of the electric equipment of cars. Putting this on a car mile basis, we find a total operating cost of 19.3c. per car mile, of which amount 0.52c. represents the cost of maintenance of the electric equipment of cars, or 2.7% of the total operating cost. A comparison with the figures for the previous year, ended June 30, 1913, is of decided interest. In that year there were 89,005,216 car miles run, with a total operating cost of \$17,765,372, of which \$614,167 was for the maintenance of the electric equipment of cars. On a car mile basis we find a total operating cost of 20c. a car mile, of which amount 0.69c. represents the cost of maintenance of the electrical equipment of cars, or 3.45% of the total operating cost. For the year ended June 30, 1912, the cost of maintenance of the electric equipment of cars was 0.768c. a car mile, or 4.4% of the total operating cost. It will thus be seen that the cost of maintenance of the electrical equipment of cars has been steadily coming down and forming a smaller percentage of the total operating cost. It appears obvious that this reduction has been effected as a result of the greater consideration that the electric railway companies are giving this subject. It must also be borne in mind that in the effort to keep down maintenance costs the railway companies have the earnest co-operation of the electrical manufacturers, who are keeping this phase constantly in mind in the design of new equipment and in the re-design of existing equipment. In this connection we may consider recent advances made in the design of the various items of electric equipment for cars, operating under city, suburban and interurban conditions.

**Motors.**—The ventilation which the modern motor receives has enabled the designers to secure 15% to 25% higher current carrying capacity for the same total weight of motor, with the fully ventilated type, over that possessed, for the same heating values, by the non ventilated type of motor. The method of ventilation further insures all parts of the motor being equally cooled, and eliminates the "hot spots" which exist in the closed motor. Our method of ventilation is by means of a fan which is an integral part of the armature core head, in conjunction with longitudinal ducts through the interior of the commutator and armature. The pinion end frame head with this type of ventilation is provided with a ring which diverts the air from the fan through openings in the head, the incoming air being drawn through a screened intake at the pinion end. Another method is to draw in cool air at the commutator end. This air travels in parallel paths to the pinion end, one path being under the commutator and through ducts in the armature punchings, the other through spaces between the field coils and over the surface of the armature. A fan at the pinion end forces the air out of the frame. In the first case, the air drawn

in at the pinion end first travels over the armature and between the field coils, and then through the armature and out at the pinion end; whereas, in the second case, these two paths are in parallel. If special conditions require that the motor be operated entirely closed, the first method of ventilation is used, the ring being left out. This permits of the air being circulated internally; and, even under these conditions, the motors are capable of increased service capacity over the non ventilated type. The ability of the ventilated motor to dissipate heat depends in a great measure on the amount of cooling air drawn in by the fan as influenced by the armature speed. The advantages gained by ventilation depend, therefore, on the character of service. In city service, with frequent stops and a consequent low average ampere speed, the advantages of the ventilated motor are less than any used for interurban service, having infrequent stops and a high average armature speed. Generally speaking, in city service having frequent stops and schedule speeds of from 8 to 10 miles an hour, the ventilated motor can handle from 10 to 15% heavier loads than the closed motor of the same horse power rating. For interurban service having infrequent stops and schedule speeds of 18 miles an hour or more, the ventilated motor will handle from 25 to 30% heavier loads than the closed motor with the same horse power rating.

Any saving in weight effected in the motors for any given service means a saving in the weight of the total car equipment; and the reduced power consumption is in direct ratio to this saving; it also means a saving in maintenance costs on account of reduced wear on trucks and track. Five cents a pound is the figure generally used in estimating the yearly saving for weight reduction, the limits being from 3 to 8c.

The use of commutating poles, and cutting down the mica between commutator segments, has largely decreased the maintenance costs on commutators, brushes, and brush holders, through greatly reducing brush and commutator wear; and, through improved commutation, eliminating flash overs. With commutating poles there are lower magnetic densities, and commutator and core losses are reduced, resulting in an increase in capacity and efficiency. The use of commutating poles has also made field control practicable for special cases where conditions warrant its use. The use of the shunted field necessarily means some additional complication of the control. With the tapped field it is sometimes possible to use a rather lower speed gearing than would otherwise be the case, thereby reducing accelerating current and resistance losses and giving a lower power consumption. The reduction of the heating effect on the motors and the use of a lower gear speed may possibly permit the use in some cases of smaller motors. Many equipments operating in cities on schedules having a large number of stops per mile are used for interurban running on schedules where the number of stops is very much less. Under these conditions field control affords a saving of from approx-

imately 5 to 8%. For strictly interurban work, however, it is generally considered that saving in energy effected by the tapped field is not sufficient to warrant the increase expenditure and complications.

A very large percentage of the railway motors in use throughout Canada are of the split frame type. The box frame type has numerous advantages over the former and we can safely predict a steady increase in the number of box frame motors used, especially in the larger sizes for the heavier classes of service, although one of our roads has already adopted this type in 40/50 h.p. rating. Eighty to ninety per cent. of the railway motors building at present by one of the large electrical manufacturing firms in the United States are of the box frame type, and of the percentage of split frame motors, 19 out of 20 are under 40 h.p. rating. Many of our railway companies doubtless prefer the split frame type of motor, as their shop facilities are unsuited to readily lifting car bodies and motors from the trucks; however, the matter is worthy of serious consideration in view of the advantages possessed by the box frame type over the split frame type. These principal points of superiority are: For any given capacity the box frame motor can be made lighter in weight, smaller in overall dimensions, and of more rugged and durable construction. The box frame overcomes trouble occasioned in the magnetic circuit by dirt and oil getting between the halves of the split frame, trouble with field coil jumpers, and with oil working into the frame from the axle caps. The box frame also has the advantage over the split frame in a number of mechanical points.

The gear and pinion being integral parts of the motor, it is interesting to note that maintenance on these, as well as the labor in breaking down and assembling when changing, has been very considerably reduced by the use of tool steel, oil tempered forged, heat treated, and armored gears and pinions. With regard to the gear ratio to be selected for a given service, the possibilities of securing a saving in power consumption by exercising care in the proper selection of ratio are much greater than is ordinarily appreciated.

With many of the older types of motors, before grooving of the commutator segments was adopted, the commutators had to be frequently sandpapered or turned. The wear was so rapid that it was considered good practice to make the segments very deep, a wearing depth of 1¼ in. not being considered excessive. With the modern commutating pole motor the wear on the commutators is usually so slight that after a year's run it can hardly be detected. Ten mills wear in a year is not an exceptionally low figure, at which rate a ½ in. wearing depth of copper will last for 50 years.

Reduction in brush wear has kept pace with reduction in commutator wear. I have inspected some equipments that averaged over 250,000 miles a car. The original motor brushes were still in use and showed about one quarter of an inch wear. The original compressor brushes were also running. These cars had not

received special treatment in any way, the practice of the road being to thoroughly clean and inspect the equipments on a 1,500 mile basis, and to give them a general overhauling on a 45,000 mile basis.

In the modern railway motor the armature and axle liners are liberally designed; and a direct result of this, combined with modern methods of waste lubrication, is the increased life of, and the decreased attention required by, the liners. In the earlier motors it was the practice to lubricate bearings every night, and from 10,000 to 20,000 miles life of armature liners was considered normal. Modern motors are lubricated once in 10 days to 3 weeks, and the life of the liners has increased in many cases to 200,000 miles. Improvements in material and manufacture, as well as in design, have contributed to these results. It has been found good practice to set the maximum allowable wear of armature liners at 1/16 in. and axle liners at 1/8 in.

Every detail in the design of the modern railway motor is a case of the survival of the fittest. Only through repeated trials of various designs has it been possible to select the best types for this exacting service; and as a result motors which a few years ago represented a high standard of design have been superseded by others able to perform their work with greater economy and lower maintenance costs.

With reference to motors designed for operating on line voltage higher than 600 volts. Two roads in Canada are now operating on 1,500 volts d.c.—the London & Port Stanley Ry. and the Lake Erie & Northern Ry., and the Toronto Suburban Ry. will shortly be added to the list. The Canadian Northern Ry.'s Montreal tunnel zone will operate both locomotives and car equipments on 2,400 volts d.c. The operation and maintenance of the higher voltage motors have proved to be quite as satisfactory as in the case of the modern railway motor operating at 600 volts. For operation on a 1,500 volt line the motors are wound for 750 volts each and insulated for 1,500. This arrangement permits operation on 600 volt connecting lines. For 2,400 volt operation the motors are wound for 1,200 and insulated for 2,400 volts. In all cases where designed for operation on these higher voltages, the motors conform mechanically and electrically to the best modern practice.

(To be concluded in next issue.)

### Toronto Civic Railway Earnings, Etc.

Following is a comparison of the earnings and mileage for the years 1915 and 1914:—

	1915.	1914.
Passenger revenue.....	\$198,320.87	\$166,994.88
Advertising.....	968.03	
Mileage.....	\$199,288.90	\$166,994.88
Passengers.....	1,219,984.4	1,097,088
	11,712,390	9,829,765

The Bloor St. line did not start operation until Feb. 23, 1915.

**Toronto & York Radial Ry. Appeal.**—The T.&Y.R.R.Co. has decided to appeal to the Imperial Privy Council against the Ontario Appellate Court's decision refusing the company's Metropolitan Division the right to cross Yonge St., at Farnham Ave., Toronto, to the proposed new terminals there. The Ontario Railway & Municipal Board decided that the company might make the crossing, but the Appellate Court reversed this.

### Proposed Hydro Electric Radial Railways in Western Ontario.

It was announced in Toronto, Mar. 8, that the Hydro Electric Power Commission of Ontario had completed surveys and estimates of the cost of construction, with traffic data, for a number of proposed electric railway lines in western Ontario. These figures relate to the following districts: Toronto, Port Credit and Oakville to Hamilton; Hamilton, Grimsby and St. Catharines to Niagara Falls; St. Catharines, Welland and Port Colborne; Dunnville, Port Colborne, Fort Erie, Bridgeburg and Niagara Falls; Elmira, Waterloo, Berlin, Preston, Galt and Hamilton; Owen Sound, Chesley, Brussels, Seaforth, Woodham and Kirkton, connecting with the St. Marys-Stratford-Toronto line. When the figures are got into proper shape they will be submitted to the various municipalities concerned, with copies of the bylaw as voted on in other localities, for further action. A portion of the foregoing, viz., that between Toronto and Port Credit, is covered by the Toronto-London line already voted on, and as a matter of fact, is a part of the Toronto & York Radial Ry., which, it is said, the Commission proposes to purchase, together with the Toronto Suburban Ry. extension from Lambton to Guelph.

The bylaw relating to the Toronto-London line was re-submitted to a vote of the ratepayers, in Blanshard Tp., Mar. 13, the voting being 165 for, and 142 against. When it was voted on Jan. 3, the voting was 102 for and 158 against.

### Lethbridge Municipal Railway Operating Results.

Following is the statement of the Lethbridge, Alta., Municipal Ry. for the calendar year 1915:—

EARNINGS.....	\$41,740.51
EXPENDITURE—	
Motormen's wages.....	\$10,996.75
Salaries.....	1,683.75
Power.....	14,864.80
Auditors.....	245.40
Employees' insurance.....	144.21
Uniforms.....	340.21
Car barn foreman.....	1,320.00
Car barn wages.....	2,784.50
Track cleaning.....	1,516.94
Car barn expense.....	572.79
Car heating.....	206.00
Damages.....	156.32
Repairs overhead.....	220.11
Stores.....	1,398.55
Repairs track.....	1,080.65
Advertising.....	92.91
General expense.....	163.03
Amusements.....	33.29
Printing and stationery.....	158.09
Office expense.....	84.57
	\$38,062.87
Surplus from operation.....	3,677.64
	\$41,740.51
OVERHEAD CHARGES—	
Debenture interest.....	\$18,801.50
Sinking Fund.....	8,756.28
Taxes.....	5,143.19
Insurance.....	682.40
	\$33,383.37
Surplus from operation.....	3,677.64
	\$29,705.73

**Saskatoon Municipal Ry.**—The receipts for the first 51 days of the current year, were \$27,391.45, against \$17,970.30 for same period 1915.

The cost of operating the special market cars on the Calgary, Alta., Municipal Ry., is \$70 for the two days a week on which they are run, and this was on Mar. 4, transferred to the market account from the street railway account on Commissioner Graves' recommendation.

### Additional Car for Toronto Civic Railway.

The Toronto Works Department received tenders to Mar. 14, for the supply of one single truck, double end city car, completely equipped and ready for operation for the Bloor St. division of the Toronto Civic Ry. We have been advised that the contract will be awarded early in April. The specification provided for a car with single arch roof with platform arranged for separate entering and leaving of passengers and to permit of fare collection as passengers enter the car. The bottom framing is to be of steel, the side members to be of steel plate reinforced at bottom by steel angle and rivetted to side sill plate. The sill is to be of steel plate reinforced at bottom edge by steel angle, the platforms with steel knees sheared to shape and reinforced top and bottom by angles, bumper of 6 in. channel from knee to knee and conforming to the shape of the vestibule, with anti-climber section, 3½ ft. long placed on face of each bumper. Steps 11 in. wide, to fold and work in unison with the doors, step to be entirely down when door is open sufficiently wide for passengers to alight, the mechanism to be of the same type as now in use on civic railway cars. There are to be no bulkheads in ends of the car. The interior finish is to be of quartered oak throughout, dull finish. Three automatic ventilators to be provided on each side of the roof, with openings 5¼ by 7¼ ins. with rounded tops on the roof. Eight windows on each side of car at 30¼ in. centres, the lower sash to drop into a well and the upper sash to remain stationary. The seating accommodation to consist of eight transverse seats of the walkover type, and four longitudinal seats, the latter to be closed underneath. The following specialties are also specified, Headlight, Crouse-Hinds type; electric bell circuit and heating, Consolidated Car Heating Co.; fare boxes, Coleman Farebox Co's type 4, as now used on the civic cars. The motors to be of the Westinghouse 533-T-4 fully ventilated interpole type. The trucks to be 8 ft. wheel base, journals 4¼ by 8 ins., car wheels, chilled cast iron, open spokes, 33 ins. dia. The dimensions of the body are as follows:

Length.....21 ft.  
 Length of vestibule.....6 ft. 4¼ ins.  
 Length of car over all.....34 ft. 8¼ ins.  
 Width of car over sheathing.....8 ft. 5¼ ins.  
 Height from rail to top of roof.....10 ft. 9½ ins.  
 Height from rail to top of vestibule.....13 ins.  
 Height from top of step to floor of vestibule.....12 ins.  
 Height from floor of vestibule to floor of car.....11 ins.  
 Weight of car body not to exceed.....13,500 lbs.  
 Seating capacity.....32

### Regina Municipal Railway Earnings, Etc.

Following are earnings, expenses and other statistics for January, compared with Jan. 1915:

	1916.	1915.
Total revenue.....	\$16,746.87	\$15,093.54
Operating expenses.....	19,281.31	17,965.87
Capital charges.....	8,466.61	9,137.57
Operating deficit.....	2,534.44	2,872.22
Total deficit.....	11,001.05	12,009.90
Expenses per car mile without power.....	21.35c.	17.15c.
Expenses per car mile with power.....	28.80c.	22.41c.
Platform wages per car hour.....	75.71c.	78.36c.
Passengers carried.....	360,263	323,484
Expenses, less capital charges, percentage....	115.13	
Expenses, with capital charges, percentage....	165.69	

### Calgary Municipal Ry. Finances.

The financial condition of the Calgary, Alta., Municipal Ry. is again attracting attention, and the Calgary Herald of Mar. 6 said editorially:—

"The deficit for January was very much larger than appears to be healthy, and at the same time there seems to be no remedy in sight. The internal management of the system, as far as the Herald can see, has always been excellent. Mr. McCauley has proved an efficient as well as an economical superintendent, and his reports show that he is keeping his expenses down to the lowest possible figure. The whole trouble is that the railway has been loaded up with outside extensions, due to the rapid spreading out of the city in more prosperous times. Many of these extensions are such as a private company, if it had a franchise in Calgary, would most certainly have refused to build. It is true that they are a great convenience to those citizens who live in the outlying sections, but it is equally true that when they were built they brought little or no additional revenue to the system. But having built these extensions, the city is now morally bound to continue to operate them, even if there is a loss in doing so. . . . The commissioners are now faced with the problem of either doing away with the working men's tickets during the early morning and the evening hours or of reducing the amount annually charged to depreciation, so as to swallow up these constantly recurring deficits. . . . It is quite a serious problem which the commissioners and the city council have to deal with and one that will require a good deal of consideration before a decision is reached."

### Jitney Traffic Notes.

The Sargeant Jitney Association of Winnipeg put in force Mar. 1, a rate of 6 rides for 25c, good on any of its 28 cars, in place of the former straight 5c fare.

The municipality of Oak Bay, near Victoria, B.C., proposes to regulate motor and jitney traffic and on Mar. 1 took up the consideration of a bylaw framed on similar lines to that in force in Victoria. The amount of the bond which each licensed driver will have to put up is \$5,000. The Victoria Jitney Association is assisting the jitney men of Oak Bay in an endeavor to have the bylaw modified in a number of its details.

**Rates for Special Cars.**—Responding to questions in the American Electric Railway Association's question box, G. Gordon Gale, General Manager, Hull Electric Co., Hull, Que., states that his company has only one rate for special or private cars. It is based on the seating capacity and no standing passengers are allowed, and for the first fare zones of four miles, is \$5 one way, \$8 return; for the second fare zone, \$6 one way, \$10 return; for half an hour, \$1 per hour or portion thereof, and for a directors', or so called parlor car, the charge is \$2 a trip additional. In all cases there is a fixed limit as to the number of passengers allowed.

**Toronto Civic Ry. Deficit.**—A Toronto alderman has given notice that in order to reduce the present large annual deficit in operation he will move that the fares be as follows: Cash fares—Adults, 3c. each; children, 2c. each; infants in arms, free. Tickets good every day in the year. Adults, 10 for 25c.; children's, 6 for 10c.

### Work Car, Snow Plough and Sweeper, Port Arthur Civic Railway.

The accompanying illustration shows a combined work car, snow plough and sweeper designed by the Master Mechanic, F. Philp, and built in the Port Arthur, Ont., Civic Ry. shops. It is 45 ft. long over all, and 31 ft. with plough and sweeper removed. It is mounted on no. 27 G-i-e-trucks, equipped with 4 Westinghouse 101 B2 500 volt motors, Westinghouse air brake equipment and hand brake.

The plough is lowered and raised by means of a hand brake, its own weight holding it in position when lowered. The wing is operated by a 3½ h.p., 500 volt motor, and when out to its fullest extent cleans off a strip 14 ft. outside of track. The wing can also be raised to a height of 8 ft. of the extreme end, which has a great advantage in cleaning down heavy snow drifts. The broom is operated by a Westinghouse 12a-500 volt motor. Both broom and motor are on a special platform, which can be removed when not in use. All the appliances are operated from the cab, which is mounted



Work Car, Snow Plough and Sweeper, Port Arthur Civic Railway.

on the front end of the car, and the running of the machine and equipment can be controlled by two men.

### Toronto Civic Railway's Deficit.

The Toronto Daily Star says: "Toronto's Civic Ry. went into the hole to the extent of \$380,000 last year despite the fact that the revenue rose from \$166,990 to \$199,300, an increase of 19.3%. The new Toronto transporting commission will have to face the problem of civic car fares as one of its most important duties. With civic revenues failing on all hands, and expenditures going up by leaps and bounds—largely due to Toronto's solicitude for her sons who enlist and those who are quartered within her gates—it is agreed that the time has come when every revenue-producing service should be made to stand on its own feet.

"The T.C.R. is already becoming known as the Toronto Charity Railway. The fare fixed upon by the city council, when the civic car line commenced operation, was 2c. cash, or 6 tickets for 10c. A glance at the average fare collected in 1913, 1914, and 1915, shows that very few passengers pay for their ride in cash. If everyone used the little green ticket, the average fare would work out at 1.66c. In 1913, the average fare was 1.71c.; in 1914, it was 1.69c., while last year it was 1.70c. The annual deficit has more than doubled in three years of operation. At the end of 1913, it totalled \$154,317.

"Works Commissioner Harris has always stood for a 3c. fare on civic cars, declaring that such a fare, while not returning a profit, would carry the system. The council, however, whenever it has been asked to vote on the question, has been overwhelmingly opposed to the increase. At this time last year when civic financing was causing some anxiety, the works committee, by a vote of 6 to 5, carried the Commissioners' recommendation. At the next meeting of council, however, the vote was so overwhelmingly opposed that it was impossible to record it.

"The patronage of the civic cars has increased by leaps and bounds. Last year nearly 2,000,000 more passengers were carried than in 1914. While the number of passengers carried by the Toronto Railway Company showed a marked decline, there was an increase of 19.1% on the civic cars."

### Electric Railway Notes.

The Toronto Suburban Ry. is going to erect an office building on Keele St., West Toronto.

The Sandwich, Windsor & Amherstburg Ry. is in the market for two cars, duplicates of the last ordered.

Over 500 Winnipeg Electric Ry. employees were reported, Mar. 31, to have enlisted with the Canadian Expeditionary Forces.

Express and freight services were established on the Lake Erie and Northern Ry., between Brantford and Galt, Ont., Mar. 1.

At the recent examinations of the British Columbia Electric Ry. first aid class the St. John Ambulance Association, 11 certificates were granted.

A London, Ont. Street Railway motor-man was fined \$5 and costs, Mar. 14, for running his car into the rear of the 142nd Battalion while it was on a route march.

The Winnipeg Electric Ry. expects to start running cars over Arlington Bridge, Winnipeg, early in April, under terms approved by the Manitoba Public Utilities Commission.

The city of Winnipeg, Man., is considering the question of abolishing the position of Traffic Superintendent. This officer looked after traffic on the Winnipeg Electric Ry. for the city council.

The Toronto Suburban Ry. is having two cars built for service between Toronto and Cooksville similar to those which were built there a short time ago for service between West Toronto and Woodbridge.

The Montreal city council is considering the construction of a subway under

the Lachine Canal on Wellington St., at a cost of \$1,200,000 towards which the Montreal Tramways Co. is to be asked to contribute.

Owing to heavy snow fall in the early part of March, the Port Credit Division of the Toronto & York Radial Ry. was snowbound for two days. The portion of the line between Long Branch and Port Credit is somewhat exposed and consequently suffered from drifts.

The Hamilton St. Ry. employees, whose wage agreement expires Apr. 1, are asking for an increase in pay of 7c. an hour, to make the rate 35c., instead of 28c. They are also asking for an eight hour day instead of ten hours, and for the elimination of special early morning cars.

The Brantford, Ont., Municipal Ry. Commission has declined to grant passes to the aldermen and civic employees. When the matter was discussed at a meeting of the council recently, it was stated that in Guelph, the commissioners managing the Guelph Radial Ry. pay their fares on it.

A Mexico dispatch, Mar. 16, says the Mexico City Electric Tramway system, which was taken over and operated by the Constitutional Government over a year ago has been returned to the company, the directorate of which includes: Z. A. Lash, K.C., M. Lash, R. C. Brown, E. R. Wood, J. S. Lovell, Toronto.

The Toronto Ry. is giving preference, in connection with applicants for positions as motormen and conductors, to soldiers who have returned from the front, to men who have applied for enlistment but have been unable to pass the military physical test, and to men past the age for military service, in the order named.

The city solicitor of Hamilton, Ont., has been authorized to prepare the city's case against the Hamilton St. Ry., as to overcrowding, etc., for submission to the Ontario Railway and Municipal Board, and the Mayor stated Mar. 11, that the Street Railway Committee was about to make a revision of the street car service bylaw, so as to make overcrowding impossible.

The members of the public utilities committees of Fort William and Port Arthur, Ont., held a joint meeting in Port Arthur, Mar. 8, to discuss street railway rates between the two cities. Propositions were submitted for 6 tickets for 25c and for a 10c fare, while other members advocated the retention of the present 5c rate. It was arranged to hold another joint meeting about the end of the month to consider reports of travel that crosses the boundaries.

Employees of Brantford, Ont., Municipal Ry. are asking for an increase of pay over the 15c and 20c an hour they now receive, and for a reduction of hours, and the motormen in addition ask to be provided with stools in the vestibules. At a conference Mar. 9, the question of shorter hours was withdrawn, and the commissioners promised to give an answer as to increase of wages April 1. The men promised to submit a sample stool for motormen which it was thought would meet the objection of the Board of Railway Commissioners' inspector that their use was liable to cause accidents.

The Lethbridge, Alta., Municipal Ry. issued a notice Mar. 7, putting in force a new schedule to come into effect Mar. 8. It read: "Commissioner Freeman finds that the new car schedule is not working out satisfactorily. While the receipts

from the red line have increased, due to change of conditions, the blue line receipts have fallen off in greater proportion, and at the same time the operating expenses are higher. The returns from the extra car on the red line do not warrant its operation during the morning hours, and it is not found desirable to run through schedule from loop to loop for the reason that when anything happens to put one car out of time or service, the whole service is disorganized." The schedule put into effect Mar. 8, gives the following service: The blue North Lethbridge line operates from corner of 3rd Ave. and 5th St. to the North Lethbridge loop and return on a 12 minute schedule; the white line runs as heretofore; the red Park line has one car only up to noon on a 32 minute service, and two cars for the balance of the day, on a 16 minute service.

### Opposition to Extension of Railway Charters in Niagara Peninsula.

The proceedings before the Railway Committee of the House of Commons in regard to the Toronto, Niagara & Western Ry., and the Niagara, St. Catharines & Toronto Ry. applications for extension of time for the building of their lines, which are being considered together, had not been terminated at the time of writing, Mar. 25, both bills being down for further consideration on Mar. 28.

The charters of both these companies are held by Canadian Northern interests. There are two points to which opposition to the extensions of time is directed, in the first of which the City of Toronto is concerned, and which has to do with the power which both companies possess to build a line into Toronto. The second point is the building of electric railways from Toronto to Windsor, via Hamilton, Brantford and London, and from Hamilton to St. Catharines, in the case of the Toronto, Niagara & Western Ry., and from Port Colborne to Fort Erie and on to Niagara Falls, from Welland to Brantford, and from the old Niagara Central Ry. to Fort Erie, in the case of the Niagara, St. Catharines & Toronto Ry. The opposition comes from the Ontario Government, the Hydro Electric Power Commission of Ontario, the Hydro Electric Railway Association of Ontario, the City of Toronto, and some other municipalities through which the proposed lines would pass. It was arranged in the course of the discussion that the section giving the Niagara, St. Catharines & Toronto Ry. power to build from St. Catharines to Toronto via Hamilton be withdrawn, and a promise was given that running powers over the Toronto, Niagara & Western Ry. would be granted to the hydro electric lines.

On behalf of the Hydro Electric Power Commission of Ontario, Sir Adam Beck stated that the commission had bought the greater part of a right of way between Port Colborne and Fort Erie, and that there is only room for one line there, and he claimed that this line is vital to the hydro electric railway system. He also offered to haul the company's cars over that section.

The following statement was made by D. B. Hanna, Third Vice President, C.N.R., Mar. 17: "The Toronto, Niagara & Western Ry is designed for a fast main line service connecting up our service with the frontier. It is proposed that this line will come into Toronto over the location already approved for the C.N.O. Ry. That means, therefore, that there will be but

one line into Toronto from the west, so far as the C.N.R. is concerned. There was no discussion with the civic officials as to the elimination of the right to operate electrically. All we told the city's representatives was that we were converting this electric charter into a steam charter by removing the statutory prohibition on the use of steam. All railways in Canada, including the C.P.R., G.T.R., and ourselves, have the right under the Railway Act to operate electrically, and the modern tendency is toward electrical operation of even through lines such as we propose to construct under this charter. It never was our intention to build two main lines between Toronto and Hamilton, nor to have two entrances into Toronto. Our purpose in renewing our Toronto, Niagara & Western charter was simply to facilitate construction. The C.N.O.R. location as at present approved runs from the vicinity of the new North Toronto Union Station westerly, paralleling the C.P.R. to about Dovercourt Road, and from there runs directly toward the new Toronto Suburban Ry. bridge over the Humber near Lambton, which will be used jointly by the Toronto Suburban and Toronto, Niagara & Western. The necessity of connecting the system with the U.S. border has been for years of paramount importance, and at present it would seem that the company's plans are capable of being carried into effect promptly."

In the course of the hearing, Mar. 23, Mr. Hanna stated that the controlling interests had built 76 miles of line, feeding over 100 industries, and tributary to the Canadian Northern system, and that running rights over the hydro electric lines would not be satisfactory, as he claimed the resulting traffic for his company, which naturally desired to earn all the revenue.

On Mar. 28, both bills passed the railway committee, with some amendments. Clauses giving the companies the right to sell power were deleted, the undertaking of the Toronto, Niagara & Western Ry. relating to the entrance to Toronto over the Canadian Northern Ontario Ry. was incorporated in the bill, and a clause was added making the line a constituent part of the security given for loans by the Dominion. In the Niagara, St. Catharines & Toronto Ry. bill, the portion relating to the proposed construction between Port Colborne and Fort Erie was struck out.

### Winnipeg Electric Ry. Co. Dividends.—

The following official statement has been issued:—"At a meeting of the board it was decided that owing to the financial situation the practice of declaring a quarterly dividend has been discontinued for the present. In this connection I would say that the business of the company is showing an improvement, and for the current quarter the net earnings have been sufficient to provide for all accrued fixed charges and also a sum that would have been sufficient to enable the company to declare a moderate dividend for this quarter. Directors feel that at this time, in order to conserve the company's interests, a dividend should not be declared payable for the present quarter and that the matter of further dividends for the year will be considered and dealt with at a later date."

**Design of Passenger Terminals.**—J. L. Busfield, Assistant Engineer, Mackenzie, Mann & Co., Mount Royal tunnel construction, has written a paper on this subject to be read before the Canadian Society of Civil Engineers.

### Brantford Municipal Railway and Grand Valley Railway.

In passing through the House of Commons, the City of Brantford's bill, respecting the Grand Valley Ry., was amended by having its title altered so as to make it read,—An act to enable the City of Brantford to operate the Grand Valley Ry. The act provides that the city may operate the railway between Brantford and Galt, and may extend it to Cainsville in Brantford Tp., under the name of the Brantford Municipal Railway. The railway is to be liable to pay taxes in any municipality through which it passes as if it was owned by a private company. The railway is to be managed by a commission, a bylaw of Nov. 28, 1915, appointing the same being confirmed. The commission has power to act under the bylaw. Any member of the commission removing from Brantford shall be deemed to have resigned and the city council shall at once fill the vacancy. The city may make agreements with other railways for the sale of the line or any part thereof and for other purposes as authorized by the Railway Act. The city council may pass a bylaw to merge the railway management with the duties of any other committee managing a public utility. The Railway Act is made generally applicable. The powers conferred by sections 136 to 139, both inclusive, of the Railway Act may be exercised by the corporation and not by the commission. The city council may issue bonds and mortgages and borrow money. A schedule attached to the act contains the bylaw providing for the Brantford Municipal Railway Commission of three members to be elected by the ratepayers at the municipal election in January of each year.

The Brantford City Council had before it on Mar. 6, a report of the finance committee as to the terms of settlement of all outstanding matters between the city and the commission. The terms of settlement had been agreed to and were adopted by the council. It is provided that the \$30,000 to be paid by the Lake Erie and Northern Ry., for the Grand Valley Ry's, Galt-Paris section, shall be used by the city in liquidation of the \$28,584.28 due the city for arrears of taxes, etc., and that any balance be held for further capital requirements of the railway, the surplus revenue for 1915 over and above the \$9,000 already paid to the city treasurer, which the annual report shows to be \$4,799.44, is to be paid to the city treasurer and applied towards the payment of interest and sinking fund indebtedness for 1915, amounting to \$10,579.99; the commission is hereafter to pay to the city treasurer the revenues of the railway, after deducting disbursements, on Jan. 15, April 15, July 15, and Oct. 15, and in each year, which revenue is to be used by the city treasurer to pay interest on the \$125,000 bond issue, sinking fund on city debentures, and paving tax instalments, and any balance over is to be applied to any balance remaining on the \$10,579.99 liability mentioned above. After the various charges against revenue have been met balances are to be at the disposal of the commissioners for replacements and betterments. When extensions of the system are found to be necessary bylaws will be passed by the council to provide the funds; no taxes for general purposes shall be levied against the railway except the pavement tax, or other local improvement taxes; the cost of

further pavement improvement to be a matter of arrangement between the city council and the commission.

The question of the projected extension to Cainsville was mentioned, and A. K. Bunnell, City Treasurer and ex-commissioner, explained that when the city acquired Mohawk Park, it secured a right-of-way along the canal bank. In the course of time the city might want to extend the line on this right-of-way to the Glue Co. road and back again to the city by way of Eagle Place. Cainsville was simply mentioned so as to have the power, and the commissioners have intentions of building immediately.

The question of the extension of the line to Terrace Hill is under consideration. (Mar. pg. 115.)

### Toronto Advisory Transportation Commission.

The Toronto City Council has appointed an advisory commission to deal with the city's transportation methods and systems. The commission consists of the Mayor, one member of the city council, the Commissioner of Works, the Corporation Counsel, or in his absence, the City Solicitor, the City Engineer, the Chief Engineer of the Toronto Harbor Commission, and the General Manager of the Toronto Hydro Electric System. The duties are defined as follows: To advise the city council as to the proper steps to be taken, and to prepare the way for the taking over of the Toronto Ry. in 1921, and for the termination of the Toronto Electric Light Co's franchise in 1919; to advise as to radial railway problems within the city and as to general transportation problems, improvements in transportation facilities, necessary expenditures in connection with the foregoing, as to the administration and control of the civic railway system, the exercising of authority over the regulation of transportation matters in the city and any other matters which might be referred to the commission by the council from time to time.

The duties of the commission are purely advisory, and the term of office proposed is until the taking over of the Toronto Ry., which is scheduled to take place in 1921, when the franchise expires.

### The St. John Railway's Franchise and Rights.

An agreement has been reached between the St. John Ry. and the City of St. John, N.B., clearing up all matters in dispute between them as to the company's rights under its franchise. The chief dispute centered round the matter of track reconstruction, the type of foundation to be provided, the use of T rail or grooved rail, and the question of grades. These matters have been argued and discussed for some time, and culminated last autumn in a suit by the railway company against the city for damages for an interruption of its service, for a declaration of rights, and for an injunction restraining the city from interfering with the company. When the case came up, it was agreed between the parties concerned that four questions should be submitted for judgment, these questions covering the points at issue. Of three of the questions upon which judgment was given, the verdicts were unquestionably in favor of the company, while on the fourth question, which dealt with the city requiring the company to

restore its tracks from time to time to grades as established by the city, it was held that the city had the right to alter the grades of the streets, and the company must restore its tracks to the levels of the new grades.

The agreement now reached provides for the withdrawal of all legal processes, the company to pay the city at the rate of \$5,000 a mile for concrete work under the tracks, which will be carried out by city labor. The company is relieved of having to relay its track to a grade about which there might be two opinions from an engineering point of view, and agrees to an extension of the term during which the company pays for the removal of snow from its tracks, from Apr. 1, 1918 to Apr. 1, 1923. The company releases the city from any costs or damages in cases heard, and consents to a dissolution of the existing injunction.

### Sale of Peterborough Radial Ry. and Allied Power Properties.

It was announced in Toronto, Mar. 10, that an agreement had been completed between the Ontario Government and the Electrical Power Co. Ltd., for the purchase of the latter's entire business and assets for \$8,350,000, payable in 4% government bonds. Twenty-two properties are included in the purchase among which is the Peterborough Radial Ry Co., and it is stated that the amount mentioned as the purchase price represents the amount of cash invested in the enterprises. In making the official announcement in the Ontario Legislature, the Minister of Lands and Forests, said that the Government had for a long time proposed to serve central and eastern Ontario with power, but the question had arisen as to the water powers on the Trent River, and to secure control of these negotiations were opened with the Electrical Power Co., to acquire its holdings. The Hydro Electric Power Commission of Ontario intends to make the whole power of the Trent River available to the public on the same basis as obtains in western Ontario with Niagara power supplied through the commission. There are certain undeveloped power projects on the Trent River, for which the Dominion Government has been negotiating, and it expected that these will be obtained from the Dominion by the Province and incorporated under the one system. The companies included in the purchase are, Auburn Power Co.; Central Ontario Power Co.; City Gas Co.; Oshawa; Cobourg Utilities Corporation; Cobourg Water and Electric Co.; Cobourg Gas, Light and Water Co.; Eastern Power Co.; Light, Heat and Power Co.; Lindsay; Napanee Gas Co.; Napanee Water and Electric Co.; Nipissing Power Co.; Northumberland Pulp Co.; Oshawa Electric Light Co.; Otonabee Power Co.; North Bay Light, Heat and Power Co.; Peterborough Light, Heat and Power Co.; Peterborough Radial Ry.; Port Hope Electric Light and Power Co.; Seymour Power and Electric Co.; Trenton Electric and Water Co.; and Tweed Electric Light and Power Co.

The Peterborough Radial Ry. Co., was incorporated under the Ontario Companies Act, Mar. 17, 1902, to build and operate by electricity or other motive power except steam, a railway in Peterborough and Ashburnham and from either place through Lakefield and Douro or Smith Tps. to Clear Lake, and from Peterborough through Smith Tps. to Chemong Lake, and through Monaghan

Tp. to Otonabee River, and from either of the first named starting points to Rice Lake. The capital stock was fixed at \$500,000, and the head office at Peterborough. Further power was granted in 1906, to extend the line from Clear Lake through Douro and Dummer Tps., or Smith Tp., to Stony Lake, and in 1914, the company was empowered to issue bonds or other securities to the extent of \$35,000 a mile for each mile of single track, instead of \$20,000 as formerly authorized. The track actually built is all within the city limits of Peterborough and consists of 6.04 miles of main line. The last statistics available are for the year ended June 30, 1914, and show that the gross earnings from operation were \$47,615, operating expenses \$29,566; taxes, funded debt, etc., \$6,690; net income \$11,034; total car mileage 280,092; fare passengers carried 1,060,499.

### Compensation for Injuries in the Queenston Accident.

The International Ry. of Buffalo, N.Y., which operates the Niagara Falls Park and River Ry. in Canada, is said to have paid upwards of \$30,000 for damages, for injuries to children alone as a result of the Toronto church picnic excursion wreck at Queenston Heights, Ont., July 7, 1915. It is said that other sums have been paid in settlements which were not taken into court. In 22 cases have settlements for various sums been ratified by the courts. They are as follows: Beatrice Goodman, \$250 and medical expenses; Elizabeth Harris, \$400 and medical expenses; Annie Hall, \$100; Emily Hall, \$425; Beatrice Hall, \$125; J. R. Hall, \$100; Geo. L. Walters, \$1,500; Calvin de Witta, \$300 and \$180 for medical expenses; Wm. Mitchell, \$350; Norman A. Bent, \$325 and \$205 for medical expenses; Louise Symonds, \$325; Hazel Deverning, \$405; Bessie B. Yule, \$350; Sarah Grelsman, \$650 and \$425 for medical expenses; Earl A. Russell, \$700; Harold F. Hargraves, \$400; Wm. C. Keates, \$3,000; Gordon Dowling, \$700; Ralph, Rayner, \$500; Fred Draper, \$800; Calvin J. Sloan, \$1,800; Hannah Crombie, \$1,500; A. J. Hall, \$120; Katie Grant, \$8,855; Janet Rayner, \$2,500; Gladys Newton, \$1,500; Costs, etc., are said to have brought the total up to \$30,790.

**Increased Service on British Columbia Electric Ry.**—A circular issued by W. G. Murrin, General and Mechanical Superintendent, on Mar. 10, gave details of alterations and improvements in the services on the company's lines in Vancouver, New Westminster and other mainland points, which were put into effect Mar. 15. The circular said: "At a heavy cost the experiment of increased service is being carried out, and if it is found that increased travel can at all justify this experiment it will be maintained. The cost of operating cars is a subject to which the general public naturally does not give much attention, but perhaps it will indicate the fact that improvements in service mean additional expense to the company when I state that these changes represent, as additional out of pocket expenditure, without allowing any cost for power consumed at all, of upwards of \$40,000 a year, compared with the service in operation prior to Mar. 15. It is not, therefore, unreasonable to expect that additional travel should result from these improved services which will make it possible to continue and perhaps still further improve in certain directions."

### Hydro Electric Power Projects at Edmonton.

The Edmonton, Alta., City Council has passed a bylaw repealing the bylaw previously passed, after having been approved by the ratepayers, agreeing to grant a franchise to the Edmonton Power Co. for the delivery in the city of electric energy. The passing of the original bylaw was secured after considerable opposition, and since it was passed there have been some negotiations in the way of concessions being granted by the company, these negotiations taking a more definite form after the proposition of the Alliance Trust Co. to supply power developed by natural gas. A letter from G. W. Farrell, Montreal, representing the Edmonton Power Co., and dated Feb. 13, outlined several modifications of the agreement, and some counter propositions were made by the city power committee. No agreement was reached and the bylaw repealing the original bylaw was passed, only two aldermen voting in its favor. The City Clerk subsequently notified the Clerk of the Provincial Legislature of the action of the council, in view of the fact that the E. P. Co. is applying to the Legislature for confirmation of the agreement.

The Dominion Parliament is being asked to incorporate the Edmonton & Southwestern Ry. Co., to build a standard gauge railway from Edmonton southwesterly to the Saskatchewan River at Blue Rapids, 70 miles. The consent of municipalities must be obtained for the construction of the railway on any highway, street or public place within their jurisdiction. The company also desires to have power to operate steam and other vessels, to build wharves, docks, elevators, warehouses, etc., and may acquire, but not by expropriation, water powers for the development of electricity, and may transmit and distribute electric power, or it may grant an easement on its right of way for a power transmission line. The provisional directors are: H. A. O'Meara, G. W. Farrall, Montreal; T. A. Burgess, L. Cote, R. H. Pringle, Ottawa. This is the railway proposed to be built by the Edmonton Power Co. interests in connection with a hydro electric power plant at Blue Rapids.

The Alberta Legislature is being asked to confirm an agreement between the Edmonton City Council and the Northern Alberta Natural Gas Development Co. for the supply of natural gas for lighting and power within the city. This is said to be the company in which the Alliance Trust Co. is interested and for which larger proposals are being made to the city council in opposition to the Edmonton Power Co.'s proposals.

### Hamilton Street Railway Wages.

Negotiations between the Hamilton St. Ry. and its conductors and motormen have resulted in a new agreement being entered into for two years from April 1. The following table shows the rate paid up to Mar. 31, the rate asked by the men, and the new rate agreed to.

	Old Rate	Rate Asked	New Rate
1st. year.....	20c	25c	22c
2nd. year.....	22c	28c	24c
3rd. year.....	25c	30c	28c

Overtime and Sunday work will be paid 2c an hour extra, 25c being the minimum amount for any one run. Extra conductors and motormen who report at car barns, and relief changes, are guaranteed minimum wages of \$6 a week unless they fail to report at any time during the week.

### The Toronto Railway and the Toronto City Council.

At a meeting of the Toronto Board of Control early in March, it was decided to proceed with the preparation of an indictment against the Toronto Ry. for maintaining a nuisance by allowing overcrowding on its cars. The company has already been indicted on two occasions, and a conviction stands against it for overcrowding, but this is under appeal. In the meantime, the company is acting under orders from the Ontario Railway and Municipal Board in providing increased accommodation, and the time allowed under this order has not yet expired. The getting together of evidence on which to apply for an indictment was urgently pressed by the Mayor, notwithstanding the advice tendered by the legal department as to the standing of the matter under the previous proceedings and the Ontario Railway and Municipal Board's order. A conference took place between the General Manager, Toronto Ry., and the Board of Control, Mar. 13, to see if some arrangement could not be made whereby matters in dispute between the company and the city could not be settled without recourse to litigation. After some consultation, the Board of Control decided not to proceed with the application for an indictment for overcrowding, also to withdraw the application for legislation to compel the company to allow soldiers to ride free. Other matters of a very minor nature, of which some complaints had been made, are to be submitted to the city's advisory transportation commission for adjustment. The General Manager of the Toronto Ry. is reported to have stated that a bylaw was being prepared having for its object the reservation of a space on the rear platform of the cars for easy access to and exit from the cars, and to prevent overcrowding on the back platform. The General Manager also stated that for the first time in the company's history, it had been compelled to advertise for men. During the first 11 days of March, 67 employees enlisted. During February, 175 new men were engaged, but only 43 completed their course. Of the 50 additional cars ordered to be placed in service, by the Ontario Railway and Municipal Board, 25 were already running on the streets, and the material was in hand for the balance.

The City of Toronto is promoting a bill in the Ontario Legislature to compel the Toronto Ry. to build and operate 200 additional cars, and in default to pay to the city a penalty of \$500 a day after a lapse of three months from the passing of the Act. In an interview respecting the suggestion that the company be compelled to carry soldiers free on its cars, the Mayor is reported to have said, Mar. 23, that the city's bill containing such a provision was before the Legislature, and in addition the matter was to be taken up by the Advisory Transportation Commission recently appointed. As a matter of fact, the clause calling upon the company to carry soldiers free, was withdrawn from the bill following the conference between the Board of Control and the company's General Manager, as mentioned above.

The St. John River Hydro Electric Co., is asking the New Brunswick Legislature to revive and amend its act of incorporation authorizing the development of a water power on the St. John River at Pokiok, N.B., and to transmit electric power. R. W. McCarty is Secretary.

## Electric Railway Projects, Construction, Betterments Etc.

**British Columbia Electric Ry.**—A New Westminster press report says track laying was started Mar. 10. on the spur track from the Fraser Valley Branch over the C.P.R. to the western end of the company's waterfrontage adjacent to the C.P.R. wharves. The work of removing the freight sheds from the present location to the outer edge of the harbor front, will, it is expected, be undertaken immediately. (Jan., pg. 30.)

**Buffalo, Fort Erie Ferry & Rd. Co.**—The Ontario Legislature is being asked to incorporate a company with this title, with F. V. E. Barde, A. Fasken, D. McArthur, J. O. Buckley and G. H. Sedgewick as provisional directors, with a capital of \$500,000, and office at Fort Erie, Ont., to take over the railway property of the Buffalo & Fort Erie Ferry & Ry. Co.'s assets. It is declared that the railway extends from the western boundary of the Garrison Reserve, in Bertie Township, to Fort Erie, and the company desires to have power to extend it from the present westerly terminus in Bertie Township to Port Colborne, and from its present terminus in Fort Erie via Bridgeburg to Chippewa, with a branch line to Crystal Beach; and from Fort Erie to any part of Point Albino. The company also desires power to erect wharves at any point where the railway touches navigable waters and to operate steam or other vessels to run between Ontario and the United States. With the consent of the municipalities, the company may lay tracks on streets and highways. It may operate its cars by steam, gasoline or electric power, and may issue bonds for \$10,000 a mile. (Feb., pg. 23.)

**Edmonton Interurban Ry.**—The agreement to lease the company's tracks from 124th St. and 118th Ave., to the G. T. Pacific Ry. tracks on 127th St., to the Edmonton Radial Ry., which is owned by the city, has been approved by the Edmonton, Alta., City Council. Under the agreement, the Edmonton Radial is to bond the rails and to erect all overhead work, to maintain the track, and at the termination of the agreement, to hand it over to the Edmonton Interurban in good condition. The line is to be put in operation within four months of the signing of the agreement, and the Edmonton Radial is to furnish monthly reports of the earnings and the cost of operation. The rental to be paid is to be the surplus of earnings over operating expenses, but the total for the year is not to exceed 8% of the initial cost of the line to the Edmonton Interurban. The latter must be notified within 60 days after any capital expenditure has been made, of its amount. The agreement is to run for one year from April 1, but may be terminated on three months notice on either side; and on giving similar notice, either company can purchase the rights and interest of the other in the line. (Feb., pg. 23.)

**Halifax Electric Tramway Co.**—Plans have been deposited with the Minister of Public Works, at Ottawa, showing site and location of a submarine electric cable under the harbor, at the foot of Hanover St., Halifax, N.S.

**Hull Electric Co.**—The Hull, Que., Board of Trade passed a resolution Mar. 10, asking the city council to grant the company's request to construct a Y on the Chelsea Road, to give a better service to Wrightville. (Mar., 1915, pg. 108.)

**Lacombe & Blindman Valley Electric Ry.**—The Alberta Government is being asked to press for the completion of this railway, the grading of which has been completed from Lacombe to Rimbey, 39 miles. (Jan., pg. 30.)

**Lake Erie and Northern Ry.**—We are officially advised that the connection with the Brantford and Hamilton Ry. in Brantford, Ont., and the building of a union station is under consideration, but no definite arrangements have been made. The distance between the lines of the two companies is approximately 2,000 ft.

**London & Port Stanley Ry.**—The Board of Railway Commissioners has authorized the building of a siding in London, to the Hunt Milling Co. and the City Gas Co.'s premises, and has given the L. & P.S. Ry. the right to use the G.T.R. station in London, where a platform is to be built, from Richmond to Clarence St., for its use. (Feb., pg. 73.)

**Montreal & Southern Counties Ry.**—We are officially advised that it is not expected that the recently completed extension from St. Cesaire to Abbotsford, Que., will be opened for traffic before May 1. (Jan., pg. 30.)

**Mount McKay & Kakabeka Falls Ry.**—The Ontario Legislature is being asked to authorize the company to use steam as an alternative motive power on its proposed railway, and to extend the time for the construction of the remaining portions of the line. The existing line has been operated by electricity, and the company desires to have power to use steam, if it is found expedient to do so. (Mar., pg. 115.)

**Three Rivers Traction Co.**—The Quebec Legislature has authorized the company to extend its line from Wayagamack into the parish of Cap de la Madeleine, notwithstanding the fact that the municipality declined to grant a franchise. The municipality granted a franchise after the company's application came before the Legislature. (Mar., pg. 115.)

**Sudbury Copper Cliff Suburban Electric Ry.**—The town council of Sudbury, is asking the Ontario Legislature to confirm and agreement dated Sept. 15, 1915, made under the terms of a bylaw, providing for the guarantee by the town of the company's bonds for \$75,000. A mortgage dated Jan. 10, 1916, of the company's railway has been made as security for the guarantee, the town council being made trustee. One of the conditions of the mortgage is that the town council may take possession of the line and operate it, and that in the event of its paying any money on account of principal and interest the town council is placed in the position of a bondholder; the town may also borrow to make good the guarantee, and in the event of foreclosure the town may acquire and purchase the company's property, subject to the ratepayers' approval.

**St. John Ry.**—The New Brunswick Legislature is being asked to extend the company's powers in respect of the building of extensions of line into Simonds Parish. (Feb. pg. 73.)

**Toronto Suburban Ry.**—The city of Toronto is asking the Ontario Legislature to pass a bill, which includes the following section relative to the T. S. R.: "All the rights and privileges of the Toronto Suburban Ry. to operate rail-

ways or to exercise any other franchise rights within that part of Ward 7 south of Dundas St., in the city of Toronto, are hereby declared to be forfeited and cancelled." The rights referred to cover the right to operate cars on the branch line running south of Dundas St., or to build lines on the streets in any other part of the municipality lying to the south of that line, and would leave the company, in the city, only its line on Dundas St., the line on the Weston road and that on Davenport road; these lines have their present termini in Lambton Park, at Woodbridge, and at the head of Bathurst St., respectively.

**Vercheres, Chambly & La Prairie Tramways Co.**—The provisional directors named in the act for the incorporation of a company with this title, passed by the Quebec Legislature, are J. W. Domville, Rosemere, Que.; A. Colas, Longueuil, Que.; D. W. Ogilvie, E. Pitt, and E. Ducharme, Montreal. The company is to have a capital of \$500,000 and office at Montreal. The route of the projected line is in the streets of Longueuil, St. Lambert, Montreal South, Greenfield Park, La Prairie; from Longueuil north-easterly through St. Antoine de Longueuil, Boucherville, Varennes, Vercheres, Contrecoeur and St. Riche, then easterly towards the northern shore of Richelieu River, through the parishes of St. Roch, St. Antoine de Richelieu, St. Theodoise, Ste. Marie, Beloeil, Ste. Julie, St. Basile, Chambly, Chambly Basin, Chambly Canton, thence westerly across the parishes and villages of Chambly, St. Basile, and St. Robert to Longueuil, and from several points on the latter line to Montreal South, Greenfield Park, St. Lambert, La Prairie; from La Prairie southwesterly to Caughnawaga, to Chateauguay, with the right to cross the St. Lawrence River and enter the island and city of Montreal. Steam may be used on the lines during construction, but not as a permanent motive power. In passing through the Legislature amendments were introduced providing that while the company may enter the Island of Montreal, it shall not be allowed to operate on it, and that in the event of any municipality refusing consent to the operation of the company's lines within their territory, the company can appeal to the Public Utilities Commission. (Feb., pg. 73.)

**Winnipeg Electric Ry.**—The Winnipeg City Council is considering the desirability of asking the company to lay new lines paralleling Main St. and Portage Ave., and another line between McGregor and Main Sts., North Winnipeg.

The company is reported to be giving favorable consideration to the city's suggestion that the Marion St. car line be extended from its present terminus at the railway tracks to the stockyards.

**Sault Ste Marie Electric Railway.**—A Sault Ste Marie, Ont., press dispatch of Mar. 21, says that the Great Lakes Power Co., a newly organized corporation composed of United States people and represented by James Heyworth of Chicago, has bought the Algoma Steel Corporation's power plant at Sault Ste Marie and also the street railway system and the ferry running between Sault Ste Marie, Ont. and Sault Ste Marie, Mich. The International Transit Co. operates 4.32 miles of electric railway in Sault Ste Marie, Ont. and to Steelton, Ont. and also operates the International Ferry. The Trans-St. Mary's Traction Co. has 7.52 miles of electric railway in Sault Ste Marie, Mich. and connects that place with Algonquin, Mich.

## Mainly About Electric Railway People.

**J. W. Buchanan**, heretofore Assistant Accountant, Winnipeg Electric Ry., has been appointed Accountant.

**Lawrence Palk**, Claims Agent, Winnipeg, Electric Ry., has also been appointed Assistant to the Manager.

**J. E. Hutcheson**, General Manager, Montreal Tramways Co., left Montreal Mar. 5 to have a few weeks rest and change in Florida.

**William Norris**, General Superintendent, Chatham, Wallaceburg & Lake Erie Ry., died in London, Ont., Mar. 6, from pneumonia after three weeks illness.

**Thos. Ahearn**, President, Ottawa Electric Ry., left Ottawa March 10 for Florida accompanied by R. Quain, another director, intending to return early in April.

**Commissioner C. J. Yorath**, of Saskatoon, Sask., gave an address on civic government at a Sunday afternoon gathering of the People's Forum there, Mar. 5.

**C. S. Lockwood**, Office Manager, Niagara, Welland & Lake Erie Ry., has been appointed acting Superintendent, in consequence of the death of F. J. Boyd, Superintendent.

**A. Gaboury**, Superintendent, Montreal Tramways Co., should have been mentioned in the "Birthdays of Transportation Men in April" on page 133 of this issue. He was born at Montreal April 6, 1875.

**R. M. Paine**, local dispatcher, British Columbia Electric Ry., Vancouver, was presented with a silver spirit flask, by the staff, Mar. 15, on leaving for Kingston, Ont., to join Queen's University Artillery.

**Jas. Hilton** was presented with a gold watch, by the motormen and conductors of the Vancouver city lines of the British Columbia Electric Ry., Mar. 16, on retiring from the position of Traffic Superintendent.

**G. A. Henson**, heretofore Chief Accountant, Winnipeg Electric Ry., has been appointed Assistant Treasurer, and is in charge of the accounting department of the general office under the Secretary-Treasurer, F. Morton Morse.

**G. H. Rapsey**, one of the Public Utilities Commissioners of Port Arthur, who operate the Port Arthur Civic Ry., is acting as Secretary, as V. Shipway, heretofore Secretary, has enlisted in the Canadian Expeditionary Force.

**W. J. Curle**, heretofore Assistant Superintendent, Toronto District, Ontario Division, Canadian Northern Ry., Toronto, has been appointed General Superintendent, Chatham, Wallaceburg & Lake Erie Ry., vice W. Norris, deceased. Office, Chatham, Ont.

**R. J. Clark**, who resigned as Assistant Comptroller, Toronto Ry., in 1910, on his appointment as Comptroller, Kansas City Ry. & Light Co., Kansas City, Mo., has been appointed Secretary and Treasurer of the reorganized company, his former title having been abolished.

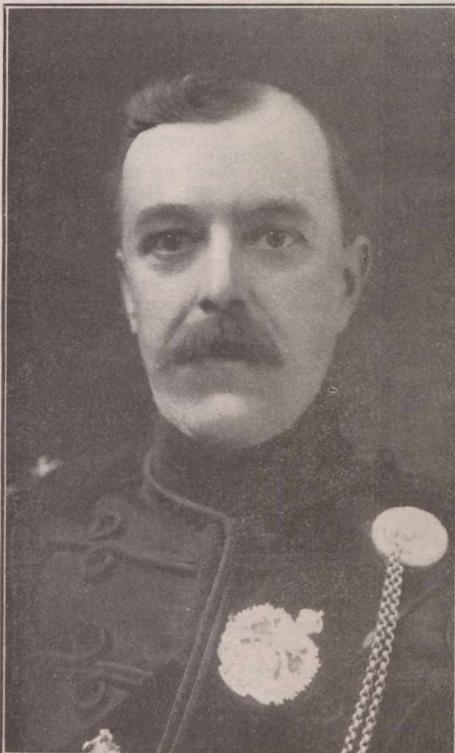
**Duncan McDonald**, ex-General Manager, Montreal Tramways Co., who was a member of the Montreal Board of Control, during the last financial year, is a candidate for the mayoralty for 1916-17, and is making the Montreal Tramways Co's franchise an issue.

**U. H. Holmes**, formerly a conductor on the Saskatoon, Sask., Municipal Ry., has been appointed to the command of the 13th C.M.R., Kingston, Ont. He entered

the Canadian Militia in 1883, and was placed on the reserve list of officers in 1910, with the rank of Lieut.-Colonel.

**G. J. Meyer**, heretofore Chief Engineer, Montreal & Southern Counties Ry., has been appointed Chief Engineer and General Superintendent. Office, St. Lambert, Que. **W. O. LeBer**, heretofore acting Superintendent of Transportation, Montreal, has been appointed Trainmaster at St. Lambert.

**F. S. Woodcock**, heretofore Traffic Manager, Saskatoon Municipal Ry., having left for active military service, the position has been abolished and J. P. McKenzie, formerly Master Mechanic, has been appointed Assistant Superintendent, a new position. The Superintendent is G. D. Archibald, who is also City Engineer. L. V. Clare has been appointed Secretary.



G. W. Lang  
Claims Agent, Ottawa Electric Railway.

**M. M. Inglis**, has been appointed Manager of the Port Arthur, Ont. Civic Ry., succeeding M. O. Robinson. It is said that he will be given the management of the other public utilities of the city by the Public Utilities Commission at an early date. He was born in Scotland, came to Canada in 1911, and acted as Electrical Engineer for the town of Yorkton, Sask. until the end of 1915.

**Lt.-Col. A. T. Thompson**, of Ottawa, who has been on the reserve of officers for the last few years, his late corps being the 5th Infantry Brigade, and who is ex M.P. for Haldimand, Ont., and is the British Columbia Electric Ry.'s Ottawa solicitor, has been appointed to the command of the 114th Battalion (Haldimand County and Six Nations Indian Reserve) Canadian Expeditionary Force.

**Richard Dawson**, who was appointed night superintendent, Detroit United Ry., Detroit, Mich., recently, was born in Seaford, Ont., Dec. 9, 1880. He became connected with the D.U.R. in 1898 as an employe in the Warren Ave. car house. He

went on the line as a conductor shortly after and remained in that capacity for seven years. He was then appointed car house foreman of the Warren Ave. car house and served five years. Subsequently he was appointed Assistant Division Superintendent.

**W. W. Chisholm**, Electrical Engineer, Windsor, Essex & Lake Shore Rapid Ry., was accidentally electrocuted, Mar. 23, while coupling some cars in the Kingsville yard. He was born at Caradoc, Ont., Oct. 17, 1876, and entered railway service in June, 1896, since when he was, to Apr., 1897, switchman, Michigan Central Rd., St. Thomas, Ont.; Apr. 1897 to Mar. 1898, yard conductor and Assistant Yardmaster, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont.; Mar. 1898 to June 1903, brakeman, Michigan Central Rd., St. Thomas, Ont.; May 1905 to Nov. 1907, Assistant Chief Engineer, City Pumping Station, St. Thomas, Ont.; Nov. 1907 to Jan. 1, 1915, Chief Engineer, Windsor, Essex & Lake Shore Rapid Ry., Kingsville, Ont., on which latter date he was appointed Electrical Engineer of the company, following a change of staff consequent on the accidental death of A. W. Westman, Superintendent, under somewhat similar circumstances at Kingsville in Dec. 1914.

### Electric Railway Finance, Meetings, Etc.

**Brantford Municipal Ry.**—Total earnings from Jan. 1 to Feb. 28, \$6,169.41 against \$5,640.70 for same period 1915.

**British Columbia Electric Ry.**—The traffic returns for the Vancouver city and suburban lines for February, show increases over those for Feb. 1915. The percentage paid to the city in respect of the city lines, for February, was \$1,654.20 against \$1,414.50.

**Cape Breton Electric Co.**—

Gross earnings	\$34,120.37	\$29,054.06
Operating expenses	19,189.56	17,782.38
Net earnings	14,930.81	11,271.68

**Nippissing Central Ry.**—The Treasurer of Ontario informed the Legislature recently, that the net amount of the railway for the last financial year was \$25,000.

**Saskatoon Municipal Ry.**—Total revenue for Jan., \$16,468.62; operating expenses \$11,648.08; net operating revenue \$4,820.54; capital charges \$4,575; net profit \$245.54; total miles run 59,162; passengers carried 321,539; receipts per car mile 27.836c.; operating expenses per car mile 19.688c.; capital charges per car mile 7.733c.; total kilowatt hours 188,370; kilowatt hours per car mile 3.182; passengers per car mile 5.434.

**Saskatoon Municipal Ry.**—Net earnings for February, \$1,300, against a deficit of \$4,839 for Feb. 1915. Net operating result for two months ended Feb. 29, \$1,545, against a deficit of \$9,523 for same period in 1915.

**Toronto Ry.**—

	City		City	
	1916	percentage	1915	percentage
Jan. ....	\$473,784	\$68,847	\$471,226	\$70,486
Feb. ....	470,764	70,614	440,313	66,047
	\$944,548	\$139,461	\$911,539	\$136,533

**Toronto Civic Ry.**—The cost of operating in 1915 was \$214,969 and for this year it is estimated at \$241,270. The receipts for this year are estimated at \$200,000. The Works Commissioner has asked for \$55,682 for the operation of the portions of the Toronto & York Radial Ry.'s Mimico and Scarboro divisions which have passed into the city's hands.

# Marine Department

## Coast, Lake and River Steamship Officers for 1916.

The following appointments, made by navigation companies, engaged in Canadian navigation, for their various steamships and tugs, have been reported to Canadian Railway and Marine World. The first column gives the names of the vessels, the second, those of the captains, and the third, those of the chief engineers.

### ALGOMA CENTRAL STEAMSHIP LINE, SAULT STE. MARIE, ONT.

Agawa J. A. Brown J. L. Smith  
 J. Frater Taylor R. H. Boyle L. B. Cronk  
 Thos. J. Drummond A. McIntyre W. T. Rennie  
 W. C. Franz W. C. Jordan G. Sylvester

### BATHURST LUMBER CO., LTD., BATHURST, N.B.

Betty D. A. Hains G. Howland  
 Nipisiguit A. Martin L. Spragg

### BOWRING BROS., LTD., ST. JOHN'S, N.F.L.D.

Eagle E. Bishop A. McKinlay  
 Florizel W. J. Martin J. V. Reader  
 Portia J. W. Keane A. Smith  
 Prospero A. Keane J. McKinlay  
 Ranger W. Bartlett, Jr. F. Mahers  
 Stephano C. Smith J. M. Fernandez  
 Terra Nova S. R. Winsor A. F. Osmond  
 Viking W. Bartlett C. Lewis

### CANADA ATLANTIC AND PLANT LINE STEAMSHIP CO., HALIFAX, N.S.

Evangeline F. H. Hawes Jas. Smith  
 Halifax H. Doyle R. Mackay

### CANADA ATLANTIC TRANSIT CO. LTD., MONTREAL

Arthur Orr John Simons D. E. Mance  
 Geo. N. Orr H. Jaenke J. B. Wellman  
 Kearsarge W. Baxter A. P. Williams

### CANADA STEAMSHIP LINES LTD., MONTREAL

A. E. Ames W. H. Montgomery G. Jarrell  
 A. E. McKinstry C. Robertson A. Langlois  
 Acadian C. C. Hunter G. Stephen  
 Aletha James Crawford  
 America R. H. Carnegie James Gillie  
 Beaverton W. Bryan H. Myler  
 Belleville W. Bloomfield John Kennedy  
 Bickerdike T. S. Patterson S. LaRue  
 Boucherville A. Lavolette C. Hamel  
 Brockville D. B. Christie  
 C. A. Jaques B. P. Powell G. Belanger  
 Cadillac H. S. Beauvais A. S. Hawkins  
 Calgarian R. Pyette A. Black  
 Canadian J. Mitchell C. M. Metcalf  
 Cascapedia John Hearn John Koenig  
 Cayuga C. J. Smith J. Mains  
 Chippewa W. Malcom H. Parker  
 City of Hamilton O. Patenaude W. Dungan  
 City of Ottawa J. L. Baxter C. Holmes  
 Corona B. A. Bongard J. Kennedy  
 D. A. Gordon J. Ritchey G. W. Crossan  
 Doric R. McIntyre Jos. Aston  
 Dundee R. N. Anderson E. Shaw  
 Emperor G. W. Pearson G. Smith  
 Empress of Midland W. D. Shepperd W. Byers  
 Fairfax M. Heffernan A. S. Vallee  
 Fordonian J. E. Mann Jas. Kettles  
 Glenellah D. MacKinnon E. C. Watons  
 H. M. Pellatt O. W. Patterson W. Harman  
 Haddington R. J. Wilson C. LeRiche  
 Hamiltonian A. B. McIntyre A. E. Kennedy  
 Ionic C. M. Wing A. E. Crosswaitte  
 J. H. Plummer N. McKay A. McCauley  
 Kenora S. H. Cook Jas. Kelly  
 Kingston E. A. Booth W. Chipman  
 Laurentian Jos. Boucher E. Cantin  
 Longueuil H. Noel  
 Louis Phillippe H. Mandeville A. Chayer  
 Macassa J. Henderson E. A. Prince  
 Mapleton R. A. McLellan A. E. House  
 Martian J. F. Davis R. Foote  
 Midland King P. McKay Jas. McGregor  
 Midland Prince Jas. Tyndall J. A. Pickard  
 Modjeska P. Walsh A. McLaren  
 Montreal F. X. LaFrance N. Beaudoin  
 Murray Bay Jos. Latour A. Charbonneau  
 Natronco W. Beatty G. McDonald  
 Neepawa J. Aikman W. Donahy  
 New Island Wanderer W. C. Hudson  
 Quebec Jos. Rinfret J. Matte  
 Ramona E. M. Charlebois  
 Rapids Prince S. Putnam G. M. Hazlett  
 Rapids Queen J. P. Stephenson J. E. Kane  
 Renvoyle J. Harrison  
 Rosedale H. J. Aitkens G. H. Dryburgh  
 Ste. Irene W. Gagne O. Bonin  
 St. Lawrence John Bertrand B. F. Farrell  
 Saguenay Jos. Simard A. Godin  
 Sarnian D. W. Burke I. J. Boynton  
 Saskatoon N. McGlennon J. McKellar  
 Stadacona H. J. Page W. W. Norcross  
 Strathcona J. Clarke J. Douglas  
 Syracuse A. F. Hamelin  
 Tadousac Jos. Dugal G. Gagnon  
 Tagona J. Snowden W. Taylor  
 Thousand Island C. H. Kendall W. H. Willis  
 Three Rivers A. Mondor C. Gendron  
 Toronto J. J. Jarrell L. J. Lealie

Turbinia B. W. Bongard W. Noonan  
 W. G. Morden N. Campbell R. Chalmers  
 Wahcondah Jas. Woolner W. A. McLaren  
 Wiley M. Egan N. Hudgins  
 Winona C. O. Allen J. J. Palmer

### C.P.R. BRITISH COLUMBIA LAKE AND RIVER SERVICE, NELSON, B.C.

Hosmer F. L. Orr N. Hawthorn  
 Kokanee L. McKinnon J. G. Cameron  
 Minto A. Forslund J. Fyfe  
 Naramata J. B. Weeks J. P. Sutherland  
 Nasookin W. Seaman D. H. Biggam  
 Sandon W. Wright W. Edwards  
 Sicamous G. Robertson D. Stephens  
 Slocan W. Kirby D. McLeod  
 Valhalla W. Ferguson T. C. I'Anson  
 Whatshan J. Fitzsimmons F. Matheson

### C.P.R. DETROIT RIVER CAR FERRIES, WINDSOR, ONT.

Ontario R. Brown C. A. Sullivan

### C.P.R. GREAT LAKES STEAMSHIP SERVICE, PORT McNICOLL, ONT.

Alberta F. J. Davis C. Butterworth  
 Assiniboia J. McCannel A. Cameron  
 Athabasca M. McKay G. D. Adam  
 Keewatin M. McKee W. Lewis  
 Manitoba J. McIntyre R. Sinclair

### CANADIAN NORTHWEST STEAMSHIP CO. LTD., TORONTO

Atikokan W. J. Brown J. H. Loudon  
 George A. Graham J. A. Ewart H. C. Harrison  
 Paipoonge P. McIntyre H. H. Moore  
 Thunder Bay H. Finn

### CANADIAN PACIFIC CAR AND PASSENGER TRANSFER CO., PRESCOTT, ONT.

Charles Lyon W. Henry L. Black

### CANADIAN TOWING AND WRECKING CO. LTD., PORT ARTHUR, ONT.

Bowman H. Gehl A. Debernardi  
 James Whalen A. Morrison H. Cross  
 Salvor W. Nuttall A. Vigars  
 Sarnia A. E. Fader E. L. Williams  
 Superior A. E. Watson J. Farquharson

### HUGH CANN AND SONS LTD., YARMOUTH, N.S.

Bruce Cann J. A. Banks H. Goodwin  
 Hugh D. E. B. McKerson A. Wise  
 John L. Cann A. L. McKinnon John Nixon  
 La Tour F. E. Smith C. R. Weddleton  
 Malcolm Cann J. R. Durkee D. E. Read  
 Mary H. Cann F. L. McKerson W. Amerro  
 Percy Cann (spare) J. A. Banks H. Goodwin  
 Robert G. Cann W. E. Morris H. C. Doune  
 Wanda B. C. Newell A. Rogers

### CAPE BRETON ELECTRIC CO. LTD., SYDNEY, N.S.

Electronic I. H. Lewis B. Dixon  
 Hygeia J. Brown A. Tulke  
 Peerless A. McLeod J. B. Weeks

### CENTRAL CANADA COAL CO. LTD., BROCKVILLE, ONT.

Samuel Marshall W. A. Tullock J. R. Ferguson  
 CHICAGO, DULUTH AND GEORGIAN BAY TRANSIT CO., CHICAGO, ILL.

North American G. M. Cummings J. F. Buritz  
 South American C. M. Haight C. H. Menmuir

### COAST STEAMSHIP CO. LTD., VANCOUVER, B.C.

British Columbia G. Foellmer J. Ellison  
 Celtic J. Finlay H. Buxton  
 Clansman M. F. MacDonald H. Nissen  
 Fingal R. W. H. Lloyd H. Spencer

### DARTMOUTH FERRY COMMISSION, DARTMOUTH, N.S.

Chebucto J. Hare W. Case  
 Dartmouth W. Jennex A. McLeod  
 Halifax C. Ozon S. Stevenson  
 N. Allen

### DEER ISLAND AND CAMPOBELLO STEAMBOAT CO. LTD., ST. STEPHEN, N.B.

Viking F. Johnson F. H. Rowe

### FARRAR TRANSPORTATION CO. LTD., TORONTO

Collingwood John Ewart D. McLeod  
 Meaford T. W. Verity

### GASPE AND BAIE DES CHALEURS STEAMSHIP CO. LTD., QUEBEC, QUE.

Gaspesian Jos. Vezina N. Protomastro  
 Percesian L. D. Morin Jos. Ruel

### GLOUCESTER NAVIGATION CO. LTD., CARAQUET, N.B.

Beaver F. Hache E. H. Haviland

### GRAND MANAN STEAMSHIP CO. LTD., GRAND MANAN, N.B.

Grand Manan N. S. MacKinnon J. F. McGray

### GRAND TRUNK PACIFIC STEAMSHIP CO. LTD., VANCOUVER, B.C.

Prince Albert W. S. Morehouse R. Bell  
 Prince George D. Donald I. O. Handy  
 Prince John C. W. Wearmouth A. S. Munro  
 Prince Rupert D. Mackenzie D. G. Ferrier

### GRAND TRUNK RY. DETROIT RIVER CAR FERRIES, WINDSOR, ONT.

Great Western M. Bausette Jos. Ladds  
 Huron O. Lalonde A. Cook  
 Lansdowne John Jackson W. Belsom

### GRAND TRUNK AND WABASH RY. DETROIT RIVER CAR FERRIES, WINDSOR, ONT.

Detroit R. Aikin H. Lawry  
 Transfer G. Honner W. Taylor  
 Transport W. Norvell F. Robinson

### GREAT LAKES DREDGING CO. LTD., PORT ARTHUR, ONT.

A. F. Bowman H. Gehl B. Debehardi  
 E. C. Whalen J. Friday C. Saunders  
 Edward Fiske J. McGinnis J. Bennett  
 J. D. Morrison N. McLeod N. Taylor  
 P. Gorman T. Strong D. Moore  
 Thos. Fisher H. Friday T. McHugh

### GREAT LAKES TRANSPORTATION CO. LTD., MIDLAND, ONT.

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 Glenfinnan W. E. Linton C. McWilliams  
 Glenfoyle J. H. Crocker J. P. Davidson  
 Glenlivet F. Burke G. Price  
 Glenlyon A. Hudson D. A. Sinclair  
 Glenmains F. H. Brickenden  
 Glenshee W. LeVigne F. Goodwin  
 Major S. Carson P. Eagles  
 Toiler F. A. McMann E. Scott

### F. E. HALL AND CO., MONTREAL

Byron Whitaker R. McLeod F. Patterson  
 Compton B. Bowen L. Smith  
 Robert R. Rhodes W. H. Ransom F. A. Collier  
 Stanstead E. Groulx M. J. McFaul

### HALL AND ELIGH LTD., OTTAWA, ONT.

Roberval P. Eligh P. Trotter

### GEO. HALL COAL CO. OF CANADA LTD., OGDENSBURG, N.Y.

A. D. MacTier S. V. Anderson Jas. Estes  
 Adrien Iselin D. Hourigan E. A. Barker  
 F. P. Jones H. M. Russell W. Thomson  
 Fred Mercur S. J. LeBeau B. J. Manwaring  
 Geo. L. Eaton W. A. Russell W. J. Brown  
 John Rugee H. Russell J. W. Cline  
 L. W. Robinson J. J. Powers R. Jardin  
 Phenix D. A. Kiah E. A. Hyatt

### IMPERIAL OIL CO. LTD., SARNIA, ONT.

Imperial H. C. Minnett G. E. Down  
 Imperoyal J. Wilkie J. Smith  
 Iocolite A. R. Fleming  
 Iocomo G. T. Cross C. Amburg  
 Royalite N. McL. Scott A. M. Davidson  
 Samalite G. Finley E. Condon

### INSULAR STEAMSHIP CO. LTD., WESTPORT, N.S.

Westport III St. Clair Cann Jas. Strickland

### INTERNATIONAL TRANSIT CO., SAULT STE. MARIE, ONT.

Algoma F. Frech C. Innes

### ISLAND TUG CO. LTD., CHARLOTTETOWN, P.E.I.

Fred M. Batt W. M. Snow G. H. Beers  
 Harland J. T. McLaine A. Roebuck  
 Islander John McIsaac W. A. McEachern

### KEENAN TOWING CO. LTD., OWEN SOUND, ONT.

Keenan J. Rutherford W. Owens

### KEYSTONE TRANSPORTATION CO. LTD., MONTREAL

Keybell L. Beaufre E. W. Sparling  
 Keynor J. Martin J. Robertson  
 Keyport J. Mullen R. J. Muchmore  
 Keyvive G. Bunting Jas. Boak  
 Keywest A. Barrett W. H. Jennison

### LA HAVE STEAMSHIP CO. LTD., WEST LA HAVE, N.S.

Trusty J. Crouse A. Zwicker

### LAKE ERIE NAVIGATION CO., WALKERVILLE, ONT.

Marquette and Bessemer No. 1 J. A. Patterson H. Culp

### LAKE SIMCOE NAVIGATION CO. LTD., TORONTO

Modello L. Johnson  
 Otonabee W. Williams T. A. Cooley

### THE LEVIS MARITIME AND INDUSTRIAL CO. LTD., LEVIS, QUE.

Champion D. Leamy C. Barras  
 Frontenac Jos. Plante P. Plante

### MAGNETAWAN RIVER AND LAKE STEAMBOAT CO. LTD., BURKS FALLS, ONT.

Armour J. Mortimer R. Dunn  
 Glenada W. Kennedy J. Kennedy  
 Gravenhurst S. Creswell M. Pritchard  
 Wanita W. Keetch C. Rasplant

### MARITIME STEAMSHIP CO. LTD., BLACKS HARBOR, N.B.

Connors Bros. E. H. Warnock G. Cowie

### MARQUETTE AND BESSEMER DOCK AND NAVIGATION CO., WALKERVILLE, ONT.

Marquette and Bessemer No. 2 John Vanbuskirk T. Elliott  
 MATHEWS STEAMSHIP CO. LTD., TORONTO

Easton D. N. Laroche J. T. Myler  
 Edmonton C. R. Albinson F. A. Pringle  
 Malton W. J. Moles G. H. Finn  
 Masaba J. A. Smith W. Whipps  
 Riverton H. Maitland J. G. Fisher  
 Steelton W. J. Kirkwood J. A. McGill  
 Yorkton R. Alexander D. McKenzie

### MIDLAND TRANSPORTATION CO. LTD., MIDLAND, ONT.

C. W. Chamberlain B. W. Morgan W. Malcom  
 Onaping A. Cuff G. Lamb

MONTREAL AND CORNWALL, ONT. A. Anderson N. Marchand	UNITED STATES AND DOMINION TRANSPORTATION Co., CHICAGO, ILL. America E. C. Smith F. McMillan Easton G. Exe	VANCOUVER TUG AND BARGE Co. LTD., VAN- COUVER, B.C. Clayburn H. Jones A. McGuire Dola W. J. Verge W. McGuire
NIAGARA, ST. CATHARINES AND TORONTO NAVI- GATION Co. LTD., ST. CATHARINES, ONT. Dalhousie City J. W. Maddick J. H. Brown Garden City G. Blanchard H. R. Welch	VALLEY CAMP COAL Co., MIDLAND, ONT. Marida H. L. Jones J. O. Connor Stewart J. P. McCarthy W. C. Houston William S. Mack W. Ferguson W. J. McSweeney	VICTORIA NAVIGATION Co. LTD., THURSO, QUE. Victoria F. Elliott P. Belanger
NORTH VANCOUVER FERRY Co. LTD., NORTH VANCOUVER, B.C. North Vancouver W. Fatke I. N. Kendall No. 1 North Vancouver R. R. Spicer D. Becker No. 2 North Vancouver W. J. Sprackton J. W. Whitworth No. 3	VALLEY STEAMSHIP Co. LTD., ANNAPOLIS ROYAL, N.S. Granville C. W. Collins James McCollough	WESTERIAN TRANSPORTATION Co. LTD., OTTAWA, ONT. Westerian A. Lefebvre M. Marchand
NORTHERN NAVIGATION Co. LTD., SARNIA, ONT. City of Midland E. Walkinshaw J. Osburn Germanic F. G. Moles S. Burgess Hamonic A. L. Campbell John Smith Huronic A. M. Wright J. McLeod Noronc R. D. Foote S. Brisbin Rochester Saronic J. D. Montgomery A. W. White Saubic G. W. Kinnee S. Beatty		WINDSOR AND PELEE ISLAND STEAMSHIP Co. LTD., PELEE ISLAND, ONT. Pelee J. N. Sheats
ONTARIO CAR FERRY Co. LTD., MONTREAL Ontario No. 1 S. McCoig D. L. Smyth Ontario No. 2 F. D. Forrest J. A. Nicoll		
OTTAWA RIVER NAVIGATION Co. LTD., MONTREAL Duchess of York A. Biondin A. L. deMartigny Empress E. Piche		
OTTAWA TRANSPORTATION Co. LTD., OTTAWA, ONT. Dolphin Z. Lavigne N. Lavigne Florence E. Lefebvre A. Madore Glen Allan A. Clark Hall J. C. Barclay John Drury Ottawan A. Mallette D. Moranville Scotsman E. Francoeur V. Lavigne Sir Hector W. Mainville James Schryer		
PEMBROKE TRANSPORTATION Co. LTD., PEMBROKE, ONT. Oiseau Jos. Tessier J. Trotter		
PENINSULA TUG AND TOWING Co. LTD., WIARTON, ONT. Crawford W. M. Tyson R. H. Isbester Homer Warren F. Wood W. C. Fox		
PENNSYLVANIA-ONTARIO TRANSPORTATION Co., CLEVELAND, OHIO. Ashtabula C. F. Meyers S. M. Sylvester		
PORT COLBORNE TUG Co. LTD., PORT COLBORNE, ONT. J. V. O'Brien D. McGrath W. Bush Meteor John McGrath W. Taylor		
PORT HURON AND SARNIA FERRY Co., PORT HURON, MICH. Hiawatha E. M. Thomas H. Myers James Beard G. Waugh W. Winterhalter Linden W. J. Cowles E. Wehner O. D. Conger W. S. Major R. Cameron Pawnee Jas. Cassin F. Cadotte		
PRESCOTT AND OGDENSBURG FERRY Co., PRESCOTT ONT. Miss Vandenburg H. Black W. J. Jenks S. J. Delaney		
QUEBEC TRANSPORTATION AND FORWARDING Co. LTD., QUEBEC, QUE. Florence V. Gendron S. Legendre J. H. Hackett Jos. Thibault A. Legendre Margaret A. Hackett M. Allison O. Croteau		
REID WRECKING Co., SARNIA, ONT. J. M. Diver W. Glass G. Green James Reid F. Sennett J. W. Roberts Manistique W. C. Sparling R. Campbell S. M. Fischer A. J. Bonuah D. Reed Sarnia City G. Hindman Jas. Hopwood Spokane ..... A. Cascadin		
ROYAL MAIL STEAM PACKET Co. LTD., HALIFAX, N.S. Caraquet W. H. Lainson W. Hobson Chaleur T. A. Hill J. Bassett Chaudiere F. Willan A. L. Bennee Chignecto C. Adam G. H. Madge		
St. LAWRENCE AND CHICAGO STEAM NAVIGATION Co. LTD., TORONTO. E. B. Osler C. E. Robinson W. Robertson Iroquois J. H. Hudson J. E. Readman J. H. G. Hagarty S. Hill C. Robertson W. D. Matthews W. Cunningham W. Harwood		
J. F. SOWARDS, KINGSTON, ONT. H. N. Jex M. M. Shaw W. McCabe Shanly J. F. Sowards John Maloney		
SPARROW LAKE STEAMER LINE, SPARROW LAKE, ONT. Glympse A. F. Stanton G. T. Stanton Lakefield F. Stanton W. Tracey		
STEAMER PREMIER, SAULT STE. MARIE, ONT. Premier W. Hyland John Bilmore		
TERMINAL STEAM NAVIGATION Co. LTD., VAN- COUVER, B.C. Ballena J. A. Cates A. Pirie Bowena F. W. Gilbert W. E. Brown Britannia J. W. Cates A. Coole		
CITY OF THREE RIVERS, QUE. Le Progres N. W. Lewis A. Frenette		
UNION STEAMSHIP Co. OF BRITISH COLUMBIA LTD., VANCOUVER, B.C. Camosun A. E. Dickson A. Beattie Cassiar G. Gaisford P. J. V. Farina Cheakamus J. Cockle J. F. Wilson Chelohsin J. F. Edwards G. H. Foster Comox J. Brown A. T. Roy Coquitlam N. Gray J. Hogan Cowichan C. Moody L. P. Thomas Venture J. Park C. Arthur		

### Shipping Companies and Longshoremen at St. John.

The decision of the conciliation board appointed to deal with the dispute between the shipping companies and the longshoremen at St. John, N.B., has already been given in Canadian Railway and Marine World. The details of the agreement made cover the following main points: Ten hours shall constitute a day's work, or a night's work, from Nov. 15 to Apr. 20 inclusive, and nine hours from May 1 to Nov. 15. The same men are not to be ordered back to work either day or night when other men are available, except when a vessel is within reasonable time of finishing, or shifting from berth to berth. If any gang be required to work through any meal hour, double time at the prevailing rate to be paid for such meal hour and for such time thereafter until relieved. Prevailing rate of wages to be paid for rigging and unrigging gear, hauling, staging and handling hatches, etc. Half the prevailing rate to be paid for men waiting when ordered out at 7 p.m. until 12 p.m., and when men are ordered out again at 1 a.m., full rate must be paid from that time until regular knocking off time in the morning, or when ordered out to work during meal hours. Double the prevailing rate to be paid for work on Sundays, Dominion Day, New Year Day, Good Friday and Christmas Day, and should any of these holidays fall on a Sunday and the following day be declared a holiday, such Monday shall be considered a holiday for which double the rate shall be paid. No work is to be performed on Labor Day. For handling sulphur or salt in bulk, 5c. an hour extra, Sundays and holidays pro rata.

Any vessel taking nothing but deals after discharge of cargo shall be termed a deal boat, and any taking a general cargo and deals shall be termed a cargo boat. A gang for loading and discharging a cargo boat is to consist of 15 men, except in case of bulk coal, salt, sulphur or maize, over side into scows or cars when 13 shall constitute a gang, the other two men to be employed otherwise, and in the case of deal boats, a gang shall not be less than 10 men. No man shall stay in the hold of a vessel when grain is running. All orders to men shall be issued through their respective foremen. All freight when trucked outside between sheds must have two men to truck. The rate of wages shall be 35c. an hour by day or night during the winter, and 40c. an hour during the summer; 12½c. an hour extra to be paid for handling bulk grain on weekdays, 25c. an hour extra on Sundays and holidays, until Apr. 30, 1917 inclusive, and thereafter the rate of wages shall be 40c. an hour day or night, summer or winter, and 50c. an hour for handling bulk grain on weekdays, and \$1 an hour for Sundays and holidays. Should work on any vessel begin during the summer or winter months, and continue into the winter or summer months, the schedule of wages for such vessel shall continue the same

until completion, as at the beginning of the work. The agreement is to continue in force until Dec. 1, 1919, and thereafter from year to year unless either party serve notice to the other at least 30 days prior to Dec. 1 in any year.

The board also recommended that the shipping companies enter into an agreement with the Longshoremen's Association, to give preference in employment to members of that association when available; and that a permanent local board be appointed to deal with any matters which may arise for settlement under this agreement. Further protective measures during loading and unloading at St. John, and the provision of suitable shelters at the sheds at West St. John, were also recommended. The board consisted of W. E. Foster, President and General Manager, St. Martins Ry., St. John, Chairman; J. Herbert Lauer, General Manager, Marconi Wireless Telegraph Co. of Canada, Montreal, representing the shipowners, and J. E. Tighe, St. John, on behalf of the men.

The schedule of working conditions for the handling of cargo at the port of St. John, covered by the agreement, is as follows: Pine and spruce deals per sling, 14 pieces 3 in.; 16 pieces 2 in., and where spruce and pine scantlings or deals shall be slung together, not less than the equivalent of 14 of 3in. deals. Pine and spruce 1 in. 31 pieces per sling, pine and spruce scantling, 20 pieces per sling, and pine and spruce deal ends, 30 pieces per sling. Sawn birch per sling, 8 pieces 4 in.; 10 pieces 3 in.; 15 pieces 2in.; 20 pieces 1 in.; laths, 20 bundles per sling. Not less than 12 men in a gang. Flour, 140 lb. sacks, 10 per sling, 5 per truck; 280 lb. sacks, 5 per sling, 2 per truck; 98 lb. bags, 15 per sling, 5 per truck. Pig iron, large, 10 pieces per sling, 10 pieces per truck; small, 15 pieces per sling and per truck. Salt in sacks, 5 sacks per sling and per truck; when stacked in shed or when stacked outside of shed, 2 men per truck; when discharged and stowed into decked vessels, 7 bags per sling, and when discharged into open scows, 9 sacks per sling, and not less than 6 men in steamer hold to sling same. Oil cake, 6 bags per sling and per truck; in bales, 6 bales per sling and 2 per truck. Axles, large, 1 per sling and per truck; small, 2 per sling and per truck. Car rims, one shall constitute a sling, large or small. Apples in barrels, 6 per sling, 3 per truck. Potatoes in barrels, 5 per sling, 3 per truck. Sugar, large, 5 bags per sling; small, 15 bags per sling. Hay, 6 bales per sling.

The Dominion Government s.s. Hoche-laga, which was purchased by the Government July 31, 1915, cost \$70,000 and \$22,642.18 additional was spent on overhauling and fitting out. She was in service during the autumn of 1915, and not being required during the winter, was laid up at Halifax, N.S., Dec. 20.

# Canada Steamship Lines, Ltd. Annual Report and Meeting.

Following are extracts from the report for the calendar year 1915, presented at the annual meeting in Montreal, Mar. 15:

Your directors are pleased to be able to record a substantial improvement in the company's affairs owing partly to the higher freight rates, partly to their ventures on the Atlantic Ocean, and partly to the vigorous application of economy throughout the system by the management. The scarcity of tonnage all over the world caused by the war, the bountiful crops of Canada, and the return to more prosperous conditions by our industries, are the principal factors in expanding the operations of your fleet. Your directors wish to point out that the improved conditions referred to only began to show tangible results in the closing months of 1915, the spring and summer business having been below normal. As far as the future is concerned, your directors are of the opinion that the outlook for 1916 is promising and warrants the fullest confidence in the success of your undertaking.

You will be asked to approve appropriations covering directors' fee, the payment in part of salaries of employes who have enlisted for active service at the front, and also contributions to the patriotic and other funds occasioned by the war.

Several losses have occurred during the year to the fleet as a result of the dangers of navigation and the King's enemies, all of which, however, were covered by insurance. We regret, however, the loss of the crews who went down with the tug Frank C. Barnes on Lake Ontario, and the steamer Dunelm on the Atlantic. We can replace our steamships but these good men are gone forever. Your directors may state that in order to maintain the earning power of the company they are negotiating for replacement of some of the vessels lost.

Your vessels, docks, and other properties have all been well maintained and in many cases materially improved by additions and betterments.

As a result of the improved condition of affairs, your directors have decided to pay on May 1, part of the cumulative dividend due on the preference shares, viz., 1¾%. This payment will be made to shareholders of record at the close of business April 1.

## OPERATING ACCOUNT.

Operating Revenue:	
Vessels .....	\$7,399,818.66
Docks and wharves.....	165,707.20
Miscellaneous .....	114,884.04
	\$7,680,409.90
Other revenue .....	94,624.58
Total revenue .....	\$7,775,034.48
Expenses .....	6,042,977.08
Net earnings .....	\$1,732,057.40
Interest on mortgage bonds .....	\$140,201.54
Interest on debenture stock .....	317,583.30
Other interest .....	85,276.39
Reserve for depreciation .....	476,937.91
Reserved for doubtful debts, claims, etc. ....	35,000.00
Directors' fees .....	14,906.66
	1,069,905.80
Profit for year.....	\$ 662,151.60

## SURPLUS ACCOUNT.

Profit for year.....	\$ 662,151.60
Loss on sales, etc., of fixed assets.....	\$ 3,971.44
Proportion of following charged off:	
Organization expenses ..	\$65,835.64
Discount on	

debtenture stock .. ..	1,028.34	
		66,863.98
		70,835.42
Deficit Dec. 31, 1914.....		\$ 591,316.18
		570,432.59
Surplus .....		\$ 20,883.59

**Jas. Carruthers**, President, in moving the adoption of the report at the annual meeting, said: "When we met here this time last year I do not think the most optimistic would have expected an increase in net earnings of about \$800,000 over the previous year. Your directors certainly did not, yet in the report now before you the net earnings are shown as over \$1,700,000. The management entered a field of operations quite foreign to anything heretofore attempted by the company or any of its subsidiaries, viz.: the Trans-Atlantic trade. There were many difficulties in the way which, however, were overcome, and owing to the scarcity of tonnage and the consequent high rates prevailing, the venture has been highly satisfactory. Many of the cargoes carried were war supplies and munitions for Great Britain and her allies."

He dealt at some length with the big crops last year and their relation to the company as concerned in the transportation problem and proceeded: "Only part of this great crop has been moved as yet. All the terminal elevators at Port Arthur and Fort William are full of grain; the elevators in the interior also have vast quantities stored and it is estimated that over 50,000,000 of wheat alone are in the farmers' hands unmarketed, besides even larger quantities of oats. The railways cannot hope to cope with the situation, their efforts during the winter have hardly made an impression on the quantity to be moved. In fact, it will probably take all the rail and water facilities of the country combined to get this great crop away to the seaboard before the next crop begins to move. The rates being offered today for grain cargoes for spring and early summer movement and the large fleet your company has at its disposal for handling this traffic assures a sound business situation on the Great Lakes and St. Lawrence so far as we are concerned. We must not, however, overlook the fact, that last year's crop was a phenomenal one and we cannot expect as large a one in 1916, or, in fact, until the population of our Northwest increases. When our country can raise 750,000,000 bush. of grain in one crop with our present small population, what may we not expect when the population is doubled or trebled? Is it any wonder that we Canadians are optimistic as to the future? I am strongly convinced that after the war there will be a great flood of emigration from Europe and that it will be chiefly directed towards Canada, where the opportunities are greater than anywhere else in the world. I am also sure that the exodus of high class farmers from the United States to Canada will continue. Let us hope that our Government will make every effort to secure to us that proportion of new settlers that is undoubtedly our due."

After referring to the other features of the company's service he said. "On the whole, therefore, our prospects for 1916 may be considered promising, with every prospect of the promise being fulfilled."

"On the statement as presented, your directors would not be justified in declaring any dividend, however small. But your company in Jan. and Feb., 1916, earned from the operations of its boats on the Atlantic very satisfactory returns, as you will hear from our Vice President. From these earnings and entirely independent of the results of 1915 your directors decided to distribute on account of cumulative preferred dividends now owing to their shareholders, a part payment to the extent of 1¾%. These deferred dividends will continue to be paid in instalments, from time to time as circumstances may warrant. From present prospects it would be reasonable to expect a further additional payment in the near future."

"The majority of our preferred shareholders were once shareholders of Richelieu and Ontario Navigation Co., and I among other of the then directors of that company was more or less criticized in certain quarters for advocating the transfer to the Canada Steamship Lines, but as the results of the last two years have shown, the earning power of this company is largely in its freight boats, and the passenger boats, of which the R. and O. fleet was principally composed, have had two very disappointing years. If you are getting back dividends today it is the freight boats that are earning them for you. I feel, therefore, that the policy advocated by the directors and myself, namely, that it would be in the interest of the R.&O.N. Co. to enter into the arrangement, has been amply confirmed."

**J. W. Norcross**, Vice President and Managing Director, said: "Until the last of Aug., 1915, water transportation was almost a dead letter. This was due in freight transportation to the abnormally small crop of the year previous, and the fact that a large portion of this had been moved in the autumn of that year, therefore, leaving very small quantities of wheat and other grains for movement in the spring of 1915. The latter part of the year, however, was exceptionally good, and enabled us to recover a considerable portion of the losses which occurred earlier in the year. We sent seven of our lake ships to sea during the early part of this year, but as we had spent considerable money in getting them ready for this service, they did not begin to show results until near the end of the season, and the other vessels which were put in the ocean trade later in the year did not begin to show results until November. These latter vessels did not require as much expense in alterations. The 15 ships which we now have at sea, including the Quebec Steamship Co., are all making splendid returns. The passenger business, which before the opening of the season looked promising, did not fulfil our early impressions, due to a combination of circumstances, such as the continued reports that it was necessary to have passports.

"Prospects for the coming season, are very encouraging, the company on its freight vessels alone having earned approximately \$500,000 net to the end of Feb. This is very gratifying, as last year, up to April 15, we were minus in the neighborhood of \$370,000, comprising fitting out expenses, overhead expenses, etc. We have recently re-chartered a number of ships which are coming off time charter, at a greatly increased price

## Shipping Letter from the Head of the Great Lakes.

per month. We have booked a very large quantity of grain for movement in spring and summer, at a high rate, and there will be no scarcity of grain freights this year. Some of our assets have increased under present conditions from 50 to 70%, and in some cases over 100%, principally in freight tonnage. The passenger outlook is also very good. We have booked more party business up to the present time than in 1913, which was a very good year. Notwithstanding the exceptional expenses which we have been put to, and the higher cost of operating on the ocean at present, we reduced our operating expenses from 85.98% in 1914 to 77.74% in 1915."

The directors for the current year, who were re-elected, are: Commander Sir Trevor Dawson, R.N., Honorary President; Jas. Carruthers, President; J. W. Norcross, Vice President and Managing Director; Sir H. Montagu Allan, C. A. Barnard, J. R. Binning, J. C. Newman, H. B. Smith, E. Bristol, M.P., M. J. Haney, Hon. J. P. B. Casgrain, J. E. Dalrymple, G. H. Smithers, D. B. Hanna, Aemilius Jarvis, J. P. Stedman. The London advisory committee are: Sir Trevor Dawson, Chairman; Sir Vincent Caillard, F. W. Lewis, W. G. Morden, Lord Furness, Albert Vickers, C. G. Bryan.

### Richelieu & Ontario Navigation Co.

The annual report of the directors of this subsidiary company says: "The shareholders of the company who have not yet exchanged their shares are now bearing the annual expenses of the company. The company has still to make Government tax and other returns, and in other ways incur occasional expenses, which, when all the shares of the company have been exchanged, will be paid by Canada Steamship Lines, Limited, but in the meanwhile can only be paid out of the dividends of Canada Steamship Lines, Limited when any are received, and when no such dividends are received, as during the past year, by means of advances obtained from Canada Steamship Lines, Limited."

**Passengers on Great Lakes Freight Steamships.**—The United States Department of Commerce has issued an order that boats carrying passengers must conform to certain requirements in their construction, and instructions have been issued to the inspectors to see that the rules are strictly observed. It is anticipated that this rule will put an end to the practice of carrying passengers on the average freight steamship, which, it is stated has grown to a considerable extent. The rule is interpreted as precluding masters of freight vessels from taking their wives on trips, but it is stated that vessel owners will leave that matter to the masters to decide, and protests are expected from the Shipmasters' Association as to such an interpretation being placed on the rule.

**Henry Steamship Co., Ltd.**, has been incorporated under the Dominion Companies Act, with \$250,000 authorized capital stock, and office at Vancouver, B.C., to build, own and operate steam and other vessels, wharves, docks, piers, etc., and to carry on a general transportation business by land and water.

**By-Water Magazine.**—Canada Steamship Lines, Ltd., has commenced the publication of a monthly under this title, its particular aim being to advance the employes' welfare and to furnish information about the company's services, etc.

F. & W. Jones, lake transportation brokers in Fort William, Ont., wrote on Mar. 11: Coal stocks at the Canadian head of the lakes are all pretty well depleted. Commercial coal has been drawn on almost to the vanishing point and there is still a big demand all through the western provinces. There is still a fair quantity of railway coal, but it is considered only sufficient for prospective requirements. By the time navigation opens coal piles are expected to be cleaned up and there will be ample space for all the coal that can be shipped up here. Dispatch in coal unloading will, without doubt, be on a record basis for a long time and every ton of coal will be required for quick shipment west. Our forecast at the close of navigation "that the amount of receipts were not at all adequate for the demand" has been fully verified.

Ice conditions are in every way favorable for an early opening. The large quantity of snow which has fallen has had the effect of preventing the making of over much ice. It would probably not measure more than 2 ft. thick in any of the passages and, at that, is brittle and easily broken up. Arrangements have been made for the ice breaking tugs to be ready for commission as soon after Mar. 15 as is found necessary and, under present conditions and prospects, movement in and out of the harbor should be active by April 1. There are 17 vessels (12 Canadian, 5 United States), all loaded with grain and ready for fitting out. These are expected to clear at any time after April 15. The s.s. Rosedale is still in dry dock light.

Terminal elevator grain stock at the Canadian head of the lakes stand, at the time of writing, at 35,000,000 bush. of all grains. They have been steadily piling up since the close of navigation. For many weeks the car arrivals from the west have been between 1,500,000 and 2,000,000 bush. a week, while the east bound rail shipments have not exceeded 750,000 to 1,000,000 per week. The total possible storage at these ports is 45,000,000 bush. It will thus be seen that there is ample space to take care of all arrivals pending opening of navigation, although it is anticipated that elevators will be blocked by then.

The all rail movements since the close of 1915 navigation have been disappointing, the total amount shipped scarcely reaching the 20,000,000 mark. Probably this will be increased by an additional 5,000,000 before the opening, making a possible total of 25,000,000 bush. shipped east. Arrivals from the west, up to time of writing have been slightly in advance of 45,000,000. If the stocks on hand at the close of 1915 are added (approximately 10,500,000), we have a total of 55,500,000 bush. handled during winter months at these terminals. Of this amount, 35,000,000 is still in store, with a possibility of reaching 40,000,000 to 42,000,000 by the opening of navigation. This small movement, while unavoidable on account of lack of railway facilities, is very disappointing as it leaves a large volume of grain yet to be moved and for which millers have been in urgent need.

Our earlier forecast of the total Canadian crop as 720,000,000 still stands as approximately correct, and is made up as follows: Wheat, 342,000,000; oats, 333,000,000; barley, 35,000,000; flax, 10,000,000. Of this there had gone forward at

the close of navigation by lake movement 171,000,000. All rail winter movement will account for about 25,000,000, as previously explained. 250,000,000 can be accounted for for domestic use, thus leaving a balance of 274,000,000 to be accounted for as available for shipment. The disposition of this balance would appear to be as follows: In store, terminals, 40,000,000 (at next opening); in store, Duluth, 5,000,000; in store, line elevators, 55,000,000; afloat, Fort William, 3,500,000; balance, 170,000,000. From these figures it will be seen that there is some 170,500,000 in various granaries, barns, farms and the land generally. Several million bushels are computed as still awaiting threshing and are considered in a precarious position. Reliable authorities calculate that it will be well into August before the whole of the 1915 crop has gone forward. The same authorities state that only approximately one third of the total crop has been moved. A steady good demand for vessel space must therefore be looked for right along and overlapping the new crop of 1916. With the large stocks of grain available and the assistance which the Board of Grain Commissioners will undoubtedly give, the dispatch in grain loading will probably be on a record basis.

### The Lighthouse Board of Canada.

The Minister of Marine, in response to various questions in the House of Commons, recently, gave the following information respecting the Lighthouse Board of Canada. The board was constituted by order in council, Feb. 26, 1904. The Deputy Minister of Marine was appointed Chairman, June 8, 1910; the Chief Engineer, Marine Department, was appointed to the board, Feb. 26, 1904; the Commissioner of Lights, July, 1, 1908; Superintending Engineer of the St. Lawrence Ship Channel, Sept. 19, 1912; the President of the Shipping Federation of Canada, as representative of the shipping interests in the Atlantic division, Jan. 20, 1911; the President of the Dominion Marine Association, as representative of the shipping interests of the Inland division, Feb. 3, 1916; Capt. J. W. Troup, Victoria, B.C., as representative of the shipping interests in the Pacific division, June 6, 1906. The duties of the board are to enquire into and report to the Minister of Marine, to whom the board is responsible, upon all matters assigned to the Minister under section 833 of the Canada Shipping Act. The members of the board who are not officials of the Marine Department are allowed their travelling expenses for attending the board's meetings, and an honorarium of \$5 a day each, while attending such meetings. Since the dates of their appointment, A. A. Allan, President, Shipping Federation of Canada, has received \$576.30, and Capt. J. W. Troup, \$768.65. The Minister also stated that the Department had no knowledge of the connection of members of the board with transportation or steamship companies, except in the cases of Capt. J. W. Troup, who is Manager of the British Columbia Coast Service, C.P.R., and of W. E. Burke, President, Dominion Marine Association, who is Assistant Manager, Canada Steamship Lines Ltd.

## Welland Ship Canal Construction.

The acting Minister of Railways and Canals, in speaking of the Welland Ship Canal, in the House of Commons recently said, "We are continuing the construction of the Welland Ship Canal, which we commenced in 1913, and the work under contract consist of sections 1, 2, 3, 4a and 5, no additional sections having been placed under contract during 1915. Section 1, which is under contract to the Dominion Dredging Co., consists of the construction principally of the new harbor at the Lake Ontario entrance to the canal, which covers 1½ miles of dredging in the lake, and considerable pier work, 1½ miles of canal excavation inland and the construction of lock 1, with its weirs and entrance walls. This contract is progressing satisfactorily and a very good showing has been made during the past year on the various works comprised in the contract. The estimated cost of section 1, based on schedule rates, is \$3,487,725, and \$1,529,120 has been paid to date.

"Section 2, which is under contract to Baldry, Yerburgh and Hutcheson, includes in addition to the excavation of the canal prism, the construction of locks 2 and 3 with their regulating and waste weirs, the substructure of four bridges, in addition to the one over the head of lock 2, and a large amount of watertight embankments, and the contractors have been prosecuting the work vigorously during the past season. Their operations in the main have consisted of prism excavation, building watertight embankments, and the construction of the breast wall and upper entrance wall of lock 2. The estimated cost of section 2, based on schedule rates, is \$5,377,185.75, and the amount paid to date is \$2,351,970.

"The work on section 3 is under contract to O'Brien & Doheny, and Quinlan & Robertson, and comprises a very large amount of work, aggregating about \$10,000,000 in value, and consisting principally of the excavation of 2,700,000 cub. yds. of rock and 3,400,000 cub. yds. of earth, the diversion of the G.T.R., rendered necessary to obtain satisfactory location for the canal, the building of a large earth dam with concrete core walls, the building of twin locks 4, 5 and 6 in flight, and single lock 7, which together with their entrance walls, etc., will contain about 1,200,000 cub. yds. of concrete. The contract also comprises the crushing and furnishing of 1,250,000 tons of stone for concrete for sections 1 and 2. On this contract, \$2,249,290 has been paid.

"Section 4a is a small contract for certain portions of work which were to have been included in section 4, which could not be deferred when it was decided to postpone the letting of the larger contract. This has been completed by the contractors, Maguire and Cameron. The work was estimated to cost about \$80,000, and actually cost \$72,731.31. In consisted of the construction of a new supply weir opposite lock 25 on the present canal, to supply water to the old canal instead of the one at Allanburg which is being discontinued, as the old canal between Allanburg and the new weir is being filled in with excavated material from section 5, also the construction of two reinforced concrete culverts to take the place of open ditches across the area between the present and old canals, which is also being used as a dumping ground for excavated material from section 5.

"Section 5 is under contract to the Canadian Dredging Co., and consists of the deepening and widening of the deep

cut in the present canal between Allanburg and Port Robinson, to the new dimensions. Dry excavations above the water line have progressed continually during the past year, with the exception of a short interval last winter. Four or five steam shovels are operating day and night, the material mostly being disposed of on the dumping ground on section 4 between the present and the old canals. A long embankment dumped from a trestle has been formed, which, with the present canal tow path, encloses a large area of low ground which has to be filled to canal tow path level by the hydraulic suction dredge, thus reclaiming and making it valuable. On schedule prices this contract should cost about \$1,945,788, and \$903,720 has been paid on account."

## Grain Clearance Association.

Montreal press dispatch, Mar. 23:—"A grain clearance association to adjust the differences arising between loading and unloading elevators and the shortages and overages of cargoes was formed at a special meeting this morning of the Dominion Grain Commission. It will be organized by A. A. Wright, Toronto; F. H. Piper, or D. Horn, representing the lake head elevators; D. Seath, representing the Montreal Harbor Commission elevators, and W. T. Stead, Port Colborne. Until the association is ready for business last year's arrangement whereby a fixed allowance for ultimate shortages and overages was agreed upon will remain in force. In view of the decision to form the clearance association the commission resolved not to make any further move toward securing Government weighing officials at the elevators."

In reference to the foregoing press dispatch we are advised that it goes too far in emphasizing the formation of a clearance association. The regulations for last year have been renewed for this year with practical unanimity in the trade, and the persons named in the press dispatch were appointed a committee to consider the formation of some general scheme to take care of all discrepancies in out turn in future years. The committee has no definite instructions and may consider any plan suggested, as that of the Buffalo Clearance Corporation, or a plan to pool shortages or overages under government supervision. The committee will report later on and any proposals must be confirmed by all parties. The meeting in Montreal was very satisfactory. All elevators from the head of the lakes to Montreal were represented and the Grain Commissioner was complimented upon the way in which the regulations are working out. The steamship owners were represented by W. E. Burke, Assistant Manager, Canada Steamship Lines Ltd., and President, Dominion Marine Association; A. A. Wright, Managing Director, St. Lawrence and Chicago Navigation Co.; L. L. Henderson, Managing Director, Montreal Transportation Co.; and F. King, Counsel, Dominion Marine Association.

**Certificated Officers on Motor Boats.**—The Minister of Marine has given notice of the introduction of a bill into the House of Commons, amending the Canada Shipping Act, and providing that there need be only one certificated officer on a motor boat of over 5 tons and up to a maximum length of 65 feet, instead of two as at present. The amendment is desired by owners of sea going motor boats used in the fishing fleets, chiefly on the Pacific coast.

## Canada Steamship Lines Ltd. Internal Organization.

The Canada Steamship Lines management has appointed a number of committees from among its officials, almost all the committees having, besides the head of the department immediately concerned, the assistance and advice of others who have close departmental intercourse with them. One of the effects of this arrangement is that all those who are affected by the questions arising have an outlet for ideas, criticism and suggestions on matters which, although not particularly concerning their own department, have an intimate relation to it. The committees are composed as follows:

General: W. E. Burke, F. S. Isard, H. W. Cowan, H. H. Gildersleeve, P. Paton, T. Henry, F. P. Smith, L. A. W. Doherty, G. Johnston, R. Duguid, J. F. Pierce, M. Cussen.

Pursers and Ticket Collectors: W. E. Burke, F. S. Isard, H. H. Gildersleeve, T. Henry, L. A. W. Doherty.

Appointment of Agents: W. E. Burke, F. S. Isard.

Captains and Engineers: W. E. Burke, H. W. Cowan, H. H. Gildersleeve, R. Duguid, G. Johnston.

Stewards: C. E. Croft, W. E. Burke, F. S. Isard, H. W. Cowan, H. H. Gildersleeve, T. Henry.

Purchasing: P. Paton, F. S. Isard, H. W. Cowan, H. H. Gildersleeve, R. Duguid, G. Johnston.

Terminal: W. E. Burke, H. W. Cowan, H. H. Gildersleeve, L. A. W. Doherty, T. Henry, R. Duguid.

The Treasurer, J. I. Hobson, is chairman of all the committees.

**Trent Canal Progress.**—The acting Minister of Railways and Canals, stated in the House of Commons, Mar. 9, that the Government engineers hope to have the Ontario-Rice Lake Division of the Trent Canal, lying between Peterborough and Lake Ontario, completed and open to navigation by the spring of 1917. The work still to be done consists of dredging river channels. All structures have been completed except the G.T.R. bridge at Campbellford, a few sluices in the dam at lock 10, and the hanging of the lock gates between Glen Ross and Healey Falls. When completed, vessels with a draught of 8 ft. will have access to Peterborough from Lake Ontario. The total estimated cost of this division is \$7,660,000, and about \$750,000 is still to be expended. On the Georgian Bay end of the Severn Division, the Port Severn lock and approaches have been completed, giving access to Gloucester pool from Georgian Bay. Good progress has been made on sections 2 and 3, which provide for the canalization of the upper reaches of the river. Owing to the war, the letting of the contract for section 1 has been deferred, and the completion of this will be necessary for through navigation. The total estimated cost of the Severn Division is \$3,575,000, and work to the value of \$1,250,000 has been done.

**The Dominion Salvage and Wrecking Co. Ltd.**, has been incorporated under the Ontario Companies Act, with \$25,000 authorized capital and office at Toronto, to carry on a general salvage and shipping business.

**The Panama Canal**, which has been closed to navigation since Sept. 18, 1915, owing to landslides, will be reopened for vessels of deep draught, Apr. 15, according to an announcement by the acting Governor of the Canal Zone.

## Atlantic and Pacific Ocean Marine.

A. Calder and Sons have been appointed agents for the Holland American Steamship Line, in Winnipeg.

From reports as to ice conditions in the St. Lawrence during March, it is anticipated that navigation will be opened between Apr. 20 and 27.

The Allan Line Steamship Co., and the American-Hawaiian Steamship Co., have each entered an action against the other, claiming \$82,000 for damages sustained by their respective steamships, Pretorian and Kansan, in a collision off the White Point light, in the St. Lawrence River, Sept. 15, 1915.

The Cunard Co. is reported to have purchased the steamships Anglo Bolivian, Anglo Californian, Den of Airlie, Den of Ogil and Luceric, renaming them, Vinovia, Vandalia, Valeria, Valodia and Valacia, respectively. They are all comparatively new vessels and have been engaged in trans-Atlantic trade for some time.

## Maritime Provinces and Newfoundland.

The Eastern Car Co., Ltd., has deposited with the Public Works Department, plans and description of a wharf to be built, and a turning basin to be dredged in the East River, at Stonehouse Point, Pictou, N.S.

Meetings of shareholders in the Thetis Steamship Co., and the Nascopie Steamship Co., were called to be held at St. John's, Nfld., recently, to receive the accounts and reports of the winding up of these companies.

The old immigration building situated on pier 2 at Halifax, was destroyed by fire, Mar. 14. In addition to this building, the Intercolonial Ry. building was also destroyed, together with records, as was the pier. The damage is estimated at \$100,000.

The Dartmouth Ferry Commission reports the earnings for two months ended Feb. 29, as \$11,866, against \$10,783 for the same period 1915. The expenditures for the same periods were \$8,543 and \$8,194 respectively. Respecting the carrying of soldiers free on the ferries, it was stated that the orders referred only to soldiers on military duty, and not to those travelling for pleasure.

With reference to the recent report that the Nova Scotia Steel and Coal Co. was to undertake the building of steel vessels, we are officially advised that it is not at all unlikely that the company will, during the coming summer, build a steel coasting steamship of about 2,000 tons deadweight capacity, at its New Glasgow, N.S., works. Such a vessel will be specially designed for the company's coasting trade.

The port of St. John, N.B., is having a record season. Up to the end of February the arrival of ocean steamers for the winter season numbered 125, against 94 for the same period last year. The C.P.R. has delivered nearly 500,000 tons of freight this season, against 300,000 last winter. The pay roll to longshore men this winter is estimated at from \$250,000 to \$300,000. During one week recently the C.P.R. paid out \$37,000 for labor on its steamships alone.

Agents representing fishing companies in Newfoundland are visiting shipping centres in Canada and the United States, for the purpose of buying up any avail-

able sailing vessels for the fishing industry. Most of the steamships usually engaged in the Newfoundland trade have been otherwise employed during the war, and as elsewhere, there is a shortage of tramp steamers, so that sailing vessels will have to be employed to carry salt fish to Mediterranean ports.

## Province of Quebec Marine.

The Quebec and Levis Ferry Co's s.s. Queen, which has replaced the same company's s.s. Pilot on the Murray Bay-Tadoussac route, made her first trip Mar. 15.

The Quebec Board of Trade has started a campaign amongst local members of the Dominion Government, to obtain a share in the overseas shipment of Government war supplies, etc., equal to Montreal.

The Quebec Harbor Commissioners' new grain elevator with capacity for 1,000,000 bush. is complete with the exception of conveyors for steamship delivery. Some local grain has already been handled there, and western grain is now being stored. Considerable progress was also made during the past year with the new steamship frontage on the north side of the Louise dock, and when completed there will be accommodation for four additional steamships.

## Ontario and the Great Lakes.

Work on the construction of the new wharf at Sarnia, for the Northern Navigation Co., was started Mar. 18, by the G.T.R.

Work is reported to have commenced on the construction of two large steel steamships for the lake trade, at the ship-building plant at Port Arthur.

The G.T.R. is reported to have decided to build a freight shed, 1,200 ft. long, at Point Edward this year, and it is also reported that a large grain elevator will be built there.

The Public Works Department commenced taking soundings in Kingston harbor early in March, in preparation, it is said, for extensive improvements to be made in connection with a deep waterways scheme.

It is reported that the Northern Navigation Co., in arranging its summer schedule, has decided to eliminate Mackinac Island as a calling port, owing to the tourist trade having fallen off considerably during the past few years.

The Geo. Hall Coal Co's s.s. George L. Eaton was launched at Wyandotte, Mich., Mar. 11. She is 244 ft. long, 43 ft. beam and 20 ft. deep, with carrying capacity of 3,000 tons. On completion she will enter the coal trade on the lakes and St. Lawrence River.

The Northern Navigation Co's s.s. Saronic, which was damaged by fire recently, when the same company's s.s. Majestic was destroyed, is being repaired at Sarnia, and it is expected will be ready for the reopening of navigation. It is reported that the repairs will cost about \$25,000.

The s.s. Quinte Queen was announced to be offered for sale by public auction, at Ottawa, Mar. 28. She was built at Kingston in 1902, and was formerly known as Salaberry. Her dimensions are, length 99.5 ft., breadth 20.9 ft., depth 4.7 ft.; tonnage, 203 gross, 143 register. She is equipped with fore and aft compound

condensing engine, with cylinders 9 and 18 ins. diar., by 12 ins. stroke, electric light, etc.

Canada Steamship Lines, Ltd., has decided to establish a wharf at Port Metcalfe, at the foot of Wolfe Island, St. Lawrence River, and it is said that the transfer of passengers from the steamships Toronto and Kingston for Clayton and other Thousand Island points in the United States will probably be made there instead of at Clayton.

The Dominion Privy Council has concurred in the recommendation of the Ministers of Marine and Public Works, regarding the establishment of a permanent harbor head line at Toronto, from Bathurst St. to a point opposite Yonge St., beyond which line, wharves, piers, breakwaters and other similar structures shall not in future be built.

The C.P.R. steamships Assiniboia and Keewatin, which are about completing their winter overhaul at Owen Sound, will when ready for the reopening of navigation, present a somewhat different appearance than heretofore. The upper works at the stern are being extended for the full length of the main deck, providing additional cabin and other passenger accommodation.

The Rainy River Navigation Co's steamships Agwinde and Keenora, were offered for sale by auction at Toronto, Mar. 27, by order of the Exchequer Court of Canada, Toronto Admiralty District, as the result of a suit by the Imperial Bank. The s.s. Agwinde was built at Kenora, Ont., in 1900, her dimensions being, length 105 ft., breadth 22.5 ft., depth 4 ft., tonnage, 307 gross, 143 register. The s.s. Keenora was built at Kenora in 1897, her dimensions being, length 119.9 ft., breadth 28 ft., depth 8.3 ft., tonnage, 486 gross, 269 register.

The Northern Navigation Co's s.s. City of Midland was burned to the water's edge, at Collingwood, Mar. 17. She was undergoing a general overhaul and repair, and it is assumed that the fire was due to carelessness on the part of some of the workmen. She was built at Owen Sound in 1890 and was originally owned by the North Shore Navigation Co., the forerunner of the Northern Navigation Co., which is now subsidiary to Canada Steamship Lines Ltd. The hull was of oak, and she was equipped with fore and aft compound engines with cylinders 20 and 40 ins. diar. by 32 ins. stroke, 380 i.h.p. at 85 r.p.m., and supplied with steam by a single Scotch boiler 12 by 11¼ ft. at 127 lbs. Her dimensions were: length 176 ft. 4 ins., breadth 28 ft. 3 ins., depth 10 ft. 7 ins.; tonnage, 974 gross, 662 register.

The s.s. Sarnor, owned by H. M. Norris, Montreal, is announced to be offered for sale Apr. 1. She has been laid up at Port Colborne for about a year, with claims of about \$20,000 against her. She was built at West Bay City, Mich., in 1888, and rebuilt in 1901, and was formerly known as Britannic. The hull is of oak with diagonal strapping on the frames, and with the bow sheathed for ice, steel arches and steel boiler house. The propelling machinery consists of fore and aft compound engines with cylinders 24 and 48 ins. diar. by 40 ins. stroke, 495 i.h.p. at 82 r.p.m., and is supplied with steam by a boiler of the fire-box type, 10½ by 15½ ft. at 115 lbs. Her dimensions are: length 219 ft., breadth 36 ft., depth 20 ft.; tonnage 1,319 gross, 1,152 register. She was used in the coal trade between Lake Erie ports and Montreal.

### Manitoba, Saskatchewan and Alberta.

The Peace River Tramway and Navigation Co's s.s. D. A. Thomas, at present under construction at Peace River Crossing, Alta., is expected to be ready for service by May. She will be 175 ft. long by 40 ft. beam, and will have a speed of 16 knots an hour in still water. The Peace River has a current of about 4 miles. She will be placed on the run from Vermilion Chutes, Alta., to Hudsons Hope, B.C., about 570 miles, and will handle a cargo of about 2,000 tons, of which 500 will be on her decks, and the balance in scows. She is being equipped with every modern convenience, including electric light, hot and cold water supply, etc. Oil storage tanks are also being installed, but until the oil supplies are developed, cordwood will be burned. All the timbers for the hull were shipped from Vancouver via Calgary and Edmonton, and thence by the Edmonton, Dunvegan and British Columbia Ry. to the end of rail, from whence they were teamed for the remainder of the distance, 35 miles, to Peace River Crossing. She is being equipped with two boilers, supplied by Polson Iron Works, Ltd., Toronto.

### British Columbia and Pacific Coast.

The Union Steamship Co's s.s. Camosun, grounded near Lima Point, at the entrance to Prince Rupert harbor, Mar. 7.

The C.P.R. s.s. Princess Maquinna, which was beached at Menzies Bay, after striking on Maud Island, Feb. 1, has been overhauled and repaired at North Vancouver and resumed service. The work included the fixing of a number of plates and repairs to the engine room.

The C.P.R. s.s. Otter, which was wrecked on Sidney Island, Oct. 9, 1915, when going to assist the wrecked s.s. Mariposa, which had run ashore on Napier Point, Campbell Island, the previous day, has been salvaged, and was taken to Victoria for overhaul and repairs at the end of February.

The Grank Trunk Pacific Coast Steamship Co's s.s. Prince Albert commenced a fortnightly service, Mar. 15, from Vancouver, calling at way ports to Prince Rupert and Stewart, returning to Prince Rupert and thence to Queen Charlotte Islands, returning again to Prince Rupert and thence to Vancouver.

M. H. MacLeod, General Manager, Canadian Northern Ry., is reported to have stated, while in Vancouver recently, that two steam tugs had been purchased in Victoria, for the company's ferry service between the mainland and Vancouver Island, and that tenders for the construction of barges for transferring cars would be called for shortly.

The Grand Trunk Pacific Coast Steamship Co. has sold its s.s. Henriette to the Coastwise Steamship & Barge Co., Vancouver. The Henriette, which was formerly a sailing vessel, was acquired by the G.T.P.C.S. Co. in 1910, and is equipped with engine of 32 n.h.p. driving a screw. Her dimensions are, length 160 ft., breadth 30 ft., depth 18.9 ft.; tonnage, 762 gross, 518 register.

The Dominion Government s.s. Quadra, which was sunk off Nanaimo harbor, Feb. 26, as the result of a collision with the C.P.R. s.s. Charmer, is to be sold as she

lies under water, just visible at low tide, near the entrance light of the harbor. She was built at Paisley, Scotland in 1891, and was screw driven by engine of 120 n.h.p. Her dimensions were, length 174.5 ft., breadth 31.1 ft., depth 13.6 ft.; tonnage, 573 gross, 265 register. She was valued at about \$80,000, and was utilized in the lighthouse and buoy service along the Pacific coast. An official enquiry was opened early in March at Nanaimo, by Capt. J. D. Macpherson, Wreck Commissioner for British Columbia.

A bill has been introduced in the House of Commons granting additional powers to the Vancouver Harbor Commissioners to charge certain fees within the territory of their jurisdiction. The Shipowners' Association of British Columbia, on Mar. 10, telegraphed a protest to the Minister of Marine, intimating that a press report that the bill had been introduced was the first knowledge that the Association had of the matter, and asking that shipping and lumber interests should be given an opportunity of expressing their views. The Minister replied that the bill merely gave authority to the Commissioners to enforce fees subject to the approval of the Governor in Council, and that no fees would be imposed without due consideration.

**Steamship Line between America and Russia.**—R. Martens and Co. Inc., has been incorporated in Delaware, with the object of establishing a steamship line between United States and Russian ports. Lord Rhondda, who is associated with several transportation projects in Canada, is President of the company, R. C. Martens of Petrograd is Vice President, and J. H. Torney, until recently Assistant Manager, Atlantic Steamship Lines, Southern Pacific Co., has been appointed Manager. For the present, it is stated that a service will be given between New York and Archangel, and on the conclusion of peace, a direct service between New York and Black Sea ports will be provided. The company has leased the new municipal pier at Stapleton, Staten Island for 20 or 30 years, at an average rental of \$50,000 a year. While visiting in Canada recently, Mr. Martens is reported to have stated that should the Canadian traffic offering justify it, some of the vessels would call at Canadian ports, and as such trade grew, vessels would sail direct to Montreal or Halifax.

**Closing of Lights in the Gulf of St. Lawrence.**—The statement in the preface to the Marine Department's list of lights and fog signals on the Atlantic coast, to the effect that the lights are maintained in operation whenever navigation in the vicinity is open, is qualified by the announcement that experience has shown that the average date for placing lightships in the spring, is Apr. 20, and for their removal, Nov. 28. As it is impossible to communicate with many isolated stations in the Gulf late in the autumn, navigation in the river and Gulf will be declared closed on Dec. 23, and the lights will be extinguished after the night of Dec. 22. If for any exceptional reason it is found desirable to extend the date, arrangements can be made through the Quebec agency for notifying such stations as can be reached by telegraph or telephone, but the most remote stations and some island stations cannot be reached. The lights at Cape Ray and Cape Anguille, Nfld., are kept in operation until Jan. 31.

### Mainly About Marine People.

H. A. Calvin, of the Calvin Co., Kingston, Ont., has been elected President of the Kingston Canadian Club.

Francis King, M.A., Counsel, Dominion Marine Association, has been elected President of the Kingston, Ont., Board of Trade.

A. S. Maynard, heretofore Chief Commissary Agent, C.P.R., Montreal, has been appointed Purchasing Agent, Canadian Pacific Ocean Services, Ltd., Montreal.

Capt. Isaac Watt, a local shipmaster, has been appointed wharfinger of the Government dock at Windsor, vice Jas. Reid, who has resigned on account of ill health and pressure of other duties.

G. P. Browne, Managing Director, Montreal and St. Lawrence Ports Stevedore Co., died at the Royal Victoria Hospital, Montreal, Mar. 7, aged 65, from blood poisoning, the result of an accident over a year ago.

J. J. Nelligan, District Freight Agent, and Geo. Hearn, Soliciting Freight Agent, Canada Steamship Lines, Montreal, have qualified as officers at Halifax, N.S., and will go to the front in the 199th Battalion, Irish Rangers, C.E.F.

Lady Montagu Allan, of Montreal, who is living at Folkestone, Eng., for the present, is devoting much attention to wounded soldiers in the local hospitals, and frequently takes parties of them for drives or to moving picture shows.

**Shortage of Ships on Atlantic Coast.**—In the House of Commons, Mar. 21, Hon. W. Pugsley asked whether the Canadian Government was consulted in connection with the requisitioning of Canadian vessels engaged in the coastwise trade. A coal famine was threatened in St. John, N.B., as the result of the taking away by the British authorities of many vessels so engaged. Sir Robert Borden replied that the whole situation was a very difficult one, not only so far as Great Britain was concerned, but all the other allied countries which needed tonnage. With regard to the requisitioning of Canadian coasting vessels, he agreed that the Canadian Government should be consulted. Sometimes it had, but not always. The needs of the war might be so great that Canada could not object. In any case, he hoped the St. John situation would be satisfactorily alleviated.

The s.s. Port Dalhousie, owned by Forwarders Limited, Kingston, which has been engaged in ocean service in Europe for some time, was sunk at sea, Mar. 19, presumably by a German torpedo, while bound from South Wales to France with grain. She was built at Middlesbrough, Eng., in 1913, and was of steel with watertight and 2 nonwatertight bulkheads, steel boiler house, and equipped with triple expansion engines with cylinders 14½, 24½ and 40 ins. diam., by 30 ins. stroke, 650 i.h.p. at 85 r.p.m., supplied with steam by a Scotch boiler 14 by 11½ ft. at 180 lbs. Her dimensions were, length 250 ft., breadth 42½ ft., depth 19 ft.; tonnage, 1,744 gross, 1,129 register.

**Tonnage of Canadian Registered Vessels.**—The Minister of Marine stated in the House of Commons recently, that the aggregate net tonnage of all steam vessels on the Canadian register for 1910, was 337,721, and the aggregate annual increases were, 1911, 17,864 tons; 1912, 34,149 tons; 1913, 39,562 tons; 1914, 25,772 tons; 1915, 7,387 tons.

# Economic and Strategic Aspects of Enlargement of Welland Canal and of Construction of Georgian Bay Ship Canal.

By R. W. Leonard, M. Can. Soc. C. E., St. Catharines, Ont.

This is a most important subject for debate by the Canadian Society of Civil Engineers, because it involves vitally the probability of continued existence of our international boundary, as well as the question of the economic expenditure of vast sums of money, and because it is a question that should be solved by civil engineers. Internationally, the question involves the use of constricted waterways at Sault Ste. Marie, St. Clair River, Detroit River, Welland Canal and St. Lawrence River by both peoples, some of which waterways are on one side of the boundary and some on the other, and the effect of such a condition in case of friction unhappily arising between Canada and the United States. Commercially, the economics of the projects can be compared with transportation by rail and with one another. The expenditure involved and where it is spent, and the effect of the expenditure upon the country as a whole, are most important. Civil engineers alone can make the surveys and determine the physical possibilities of construction, the cost of construction, and the relative engineering advantages or disadvantages in the construction, maintenance and operation, as compared with railway transportation on the one hand, and the one canal project with the other on the other hand. This question is apparently of such wide scope, and involves technical detailed knowledge of so great variety that the writer submits it affords ground for much valuable discussion, which it is to be hoped will be elicited by this admittedly imperfect and faulty paper, contributed with diffidence, but in good faith, by the writer as his view.

The present canal system of commercial importance consists of:—

- Sault Ste. Marie Locks:—
- 1—on Canadian side 900 x 60 x 19 ft. draft being operated.
  - 1—on United States side 600 x 100 x 14 ft. draft being operated.
  - 1—on United States side, 800 x 100 x 19 ft. draft being operated.
  - 1—on United States side 1,250 x 80 x 24½ ft. draft, opened Oct. 21, 1914.
  - 1—on United States side expected to be ready in two or three years.
- Channels in United States territory below locks at Sault.
- Channels in Canada and United States in St. Clair River.
- Channels in Canada and United States in Detroit River.
- Welland Canal, including 24 locks, 270 x 45 x 14 ft. draft.
- St. Lawrence canal system, 26 locks, 270 x 45 x 14 ft. draft.

After the war of 1812 the British Government, recognizing the necessity of having a line of communication for military purposes away from the boundary, canalized the Ottawa River from Montreal to Ottawa, and the Rideau and Cataraqui Rivers from Ottawa to Kingston for barges drawing 5 ft. of water, at a cost of \$3,911,700, which system they subsequently gave to Canada free of cost. These last two systems, however, interesting to the summer tourist as canoe and yachting routes, are not of great economic or strategic importance under modern conditions. The cost, maintenance, operation and repairs for the year 1913 was \$309,822.65, and the tonnage passing through (mainly pleasure boats, cordwood, lumber and sand) amounted to 227,023 tons.

About 1904 the Dominion Govern-

ment's Public Work Department started a survey of the Ottawa-French River route for the purpose of arriving at the cost of a 22 ft. ship canal. The result is embodied in a very voluminous report, dated 1908, including estimates as follows:—

Total length of canal.....	440 miles, including:—
Free navigation.....	346 miles
Improved channels.....	66 miles
Excavated canal.....	28 miles
Total .....	440 miles, 22 ft. deep.
Costing .....	\$100,000,000.00

The system is estimated to be capable of developing 1,000,000 h.p. on the direct canal route, and this estimate might probably be doubled by figuring the power developed in regulating the tributary streams.

It is significant that about the same time the Department of Railways and Canals commenced to make surveys to determine the possibility of enlarging the Welland Canal from the present 14 ft. draft to 30 ft. These surveys were completed in 1913 and the parliamentary estimate for that year included \$2,000,000 for the enlargement of the Welland Canal and \$5,000,000 for canalizing the French River from Georgian Bay to Lake Nipissing. The total estimate of the cost of enlarging the Welland Canal, 26 miles, is reported to be \$50,000,000, probably two-thirds of which will be expended in the United States for fuel and machinery, and in various foreign countries in the form of wages sent home by laborers. The lift of 325 ft. is overcome by 7 locks of 46.5 ft. lift, 800 ft. long x 80 ft. wide x 30 ft. draft.

The St. Lawrence Canals enlargement has not been surveyed and no information is therefore available to indicate whether corresponding enlargement to suit that at the Welland Canal is physically possible at any cost of construction, and the people of Canada have not been informed of any treaty with the United States sanctioning such deepening of international dams, etc.

During 1913-14 contracts were let for construction of about 10 miles of the the Welland Ship Canal, including all the locks, at a cost of probably \$35,000,000 and the work of excavation is possibly half done.

Internationally considered, this question is of supreme national importance, as involving such questions as national defence and the very possibility of holding Canada for the Empire. In this connection, it must be borne in mind that New York State is enlarging the Erie Canal from Troy to Oswego and to Buffalo, from 6 or 7 ft. draft to 12 ft. with a lock length of 311 ft., and width of 45 ft., to accommodate barges of 1,500 tons capacity, and these canals will open Lakes Ontario and Erie to formidable U.S. war vessels, giving them absolute control of these lakes at all times, unless Canada be supplied with similar transport facilities apart from the boundary waters of the St. Lawrence River from Kingston to Prescott. The enlargement of the Welland Canal will also carry a great preponderance of large U.S. steel freighters into Lake Ontario, thus giving to that country an undisputed control of that lake. Canada has enjoyed a century of peace with her powerful southern neighbor, and it is the wish of all good

citizens to enjoy another one, even avoiding in the coming century such incidents as the Trent affair, the Fenian raids, Venezuela messages and the Panama Canal question, and serious boundary disputes, fishery disputes, international water power questions, etc., to say nothing of United States Senate Reports, 1889-1890 (testimony of Joseph Nimmo, Jr.), etc. Such questions having arisen in the past, however, they will naturally arise in the future, and the peaceful settlement of them depends largely upon the temper and temptations at the time. So long as an international boundary is to be retained, so long should the policy of Canada be to preserve peace while safeguarding her honor and interests.

It is not apparent to the public that this canal problem, probably Canada's most expensive commercial project under construction, has been considered by the Canadian people from the national point of view, though pamphlets have been published ad nauseam by boards of trade of various municipalities treating the subject in a spirit of parochial politics, each exaggerating the advantages of one route and the disadvantages of the other, the very apparent incentive in each case being the expenditure of public money on the construction in the immediate vicinity of the municipalities interested. If the question be approached from a purely economic point of view, it is probable that freight (and grain from the prairies to the Atlantic seaboard in Canada is the most important commodity at present) can most cheaply be handled by rail from Winnipeg to Fort William and Port Arthur, by ship to Georgian Bay, and by rail over a direct line with easy gradients to Montreal, cheaper than by any canal at present built or proposed. On this route the C.P.R. has a double track from the west to Fort William; the Grand Trunk Pacific and the Canadian Northern have each a single track between the same points. There is a large fleet of U.S. steamships engaged in the coal, grain and ore trade on the lakes, and the Canadian fleet is growing rapidly. The C.P.R. has a line with easy gradients from Port McNicoll, on Georgian Bay, where it has built large grain elevators, to connect with its Toronto-Montreal line, with a view to carrying grain in competition with the canals, and it probably has estimates of comparative cost warranting the expenditure, even under the unequal conditions that the traffic by the railway must pay interest, depreciation and upkeep, while the Government assumes these enormous sums in the case of the waterways, making the canals free to all ships alike, Canadian and foreign.

The people are educated to demand water transportation "to regulate rail freights," and to what extent a larger canal than the present 14 ft. Welland-St. Lawrence system will result in a reduction of rates is a question that can be figured in many different ways with varying results. Figures have been prepared by competent authorities showing that the maximum saving in freight on wheat from Fort William to Montreal by the enlargement of the Welland Canal will be ¾c. a bushel, which will amount to \$187,500 a year on 50,000,000 bushels at a cost in interest on \$50,000,000, of say

\$2,000,000 a year, plus depreciation, upkeep and operation. Return cargoes of coal are obtained in Lake Erie port. Probably few will contend that 14 ft. draft ships are not economical for package freight from Lake Ontario or St. Lawrence points. It would be of interest in this connection to have a report on the feasibility and cost from an engineering point of view of lengthening the existing locks on the Welland and St. Lawrence canals 100 ft., and the economic results of such lengthening if it be practicable.

To analyze and compare the respective advantages and disadvantages of these two routes. Assuming that the Government enlarges the Welland Canal and proposes to canalize the French River to North Bay only. The estimate for the enlargement of the Welland is generally stated to be \$500,000,000; which amount at 4% interest, together with amortization, upkeep and supervision of the two existing canals and the proposed canal, may be estimated at another \$1,000,000, or a total of \$3,000,000 a year, which sum is probably under the mark, unless all past experience in cost of Government contracts be reversed.

Assuming the distance from Port McNicoll to Montreal to be 400 miles, and a paying freight rate to be 4/10c. a ton mile, or \$1.60 a ton, or 5c. a bushel, then \$3,000,000 a year would pay the rail freight from Georgian Bay to Montreal on 60,000,000 bushels, which is much greater than the amount of grain and flour shipped in the past from Montreal in any one year, and 50% greater than the greatest Canadian tonnage through the Welland Canal bound down in one year.

This enlargement of the Welland Canal will not materially increase the water power development, as that is regulated by international treaty, and works out so that, though Canada owns two thirds of the water flowing over Niagara Falls, she gets the use of only one third of the power development therefrom, the U.S. getting two thirds. It is manifest that the only saving effected by enlarging the Welland will be that effected by the difference in freight rates between 2,000-ton ships from Port Colborne to Montreal vs. 8,000-ton ships from Port Colborne to Prescott, plus 2,000-ton ships from Prescott to Montreal, estimated above at 3/8c. a bushel on wheat.

Oswego is about 150 miles nearer by Erie Canal to Troy than is Buffalo, and, as the enlarged Welland Canal will be, by treaty, free to U.S. ships, their largest lake ships will deliver grain cargoes to 1,500-ton U.S. barges at Oswego, in the New York State Barge Canal, for New York, instead of into 200 or 300-ton barges at Buffalo as at present, and thus compete with large Canadian ships discharging into 2,000-ton barges at Prescott or Kingston for Montreal. In the past the little Erie Canal boats taking grain from Buffalo to New York have been very keen competitors against the St. Lawrence route. What will be the result of the new conditions when in operation? It would appear that the expenditure on the proposed Welland Canal enlargement when completed will be quite as much to the advantage of the U.S. as to Canada and during construction probably much more than half the cost goes to the U.S. for coal and machinery.

The canalization of the French River to North Bay to a depth of 22 ft., a distance of 82½ miles, is estimated to cost \$14,275,000, and would develop 35,000 h.p. It could bring coal and coarse

freight to North Bay for railway distribution, and return pulp-wood and probably ores from that district, and partially develop a lot of power for which there is probably no immediate market in sight, but the value of which will doubtless be very great in a few years if we judge from the phenomenal increase in the use and value of hydro electric power during the past 20 years. Probably this construction is warranted only in anticipation of the completion of the entire canal to Montreal.

Assuming that the appropriations in the estimates for the Welland and French River works are preliminary to the extension of each system through to Montreal. The Welland-St. Lawrence system, unless an entirely new route inland to the north of the St. Lawrence can be found, passes through international waters from Kingston to Cornwall, and probably nothing can be done toward enlarging this portion without international agreement, including a natural demand by the U.S. for a share of the power development, (loosely estimated at 20,000,000 h.p. by some writers in the press.) Would the U.S., having the free use of the enlarged Welland to carry their big ships to Oswego, the end of their Erie canal, consent to the enlarging of the St. Lawrence system to divert the trade from Troy and New York to Montreal? What share of the expense would they bear? What share of the power development would they demand? Sufficient information is not available to indicate the nature or cost of such an enlargement of the St. Lawrence canals, to a depth of 22 feet.

In the case of the Ottawa-French system, careful surveys and estimates have been made by the Public Works Department. The total length of the canal is 440 miles, of which 346 is free navigation, 66 in improved channels and 28 in excavated canal. The cost is estimated at \$100,000,000. The system is estimated to be capable of developing 1,000,000 h.p. on the direct route and 3,000,000 h.p., including the tributaries which probably within 2 years will, if carefully conserved and utilized by the nation be worth from \$20 to \$100 a year per horse power utilized, over the cost of production from coal, depending upon the purpose for which it is used.

In the absence of authentic estimates and reports on the St. Lawrence route, it is impossible to compare the two routes as to practicability, cost, time of transit and economy of operation. It is not known whether the St. Lawrence enlargement is at all possible due to international questions. If it be possible, then the two systems can be compared in regard to length and total height of locking only. From Lake Superior to Montreal the Ottawa route is 661 miles long, and the total lockage up and down is 780 ft. The Welland-St. Lawrence route is 943 miles long, and the total lockage is 578 ft. Both routes pass through U.S. waters in the St. Mary River. The St. Lawrence route passes through contracted international waters at St. Clair River, Detroit River and St. Lawrence River. The deepened Welland-St. Lawrence Canal would be found to have probably three times the length of actual excavated canal and about the same length of restricted river navigation, as compared with the Ottawa route. Much has been written about fogs, rock excavated channels and sharp curves on the Ottawa route. Any Canadian knows that the St. Lawrence probably suffers quite as much as the Ottawa from fogs. About

half of the existing Welland Canal is in rock excavation and the new canal will not have less. It is not known how much of such channels the proposed St. Lawrence enlargement will include. The Ottawa route has sharp curves, so has the Thames below London, and it is not known what curves will be required on the proposed St. Lawrence enlargement. There are, however, sharp curves in swift currents in St. Mary River at Neebish and other points. Without surveys the distances through restricted waters cannot be compared and therefore neither the time necessary to pass through, nor the dangers of navigation. The St. Lawrence route is known to be longer and will demand greater fuel consumption per ton of freight, and probably more time in transit. The weeks per year when they will open for navigation will probably not greatly differ, although the St. Lawrence system would doubtless have a slight advantage in this respect.

If, as shown above, the annual expense of enlarging the Welland Canal alone would pay the freight on double the quantity of wheat and flour at present carried per year from Lake Huron to Montreal, it is unnecessary to prove that, commercially speaking, neither scheme can be defended as a canal solely. Without further information they cannot be compared physically, nor is the possibility of the St. Lawrence enlargement even sure.

Pending the result of discussion the writer cannot avoid the following conclusions: 1.—Neither canal system can be made, as a canal, a commercial success; 2.—On account of the geographical position and abundance of power capable of being developed along the Ottawa-French River system, that canal and power development, if undertaken by the Government, could probably be made a commercial success in a few years and would be a very valuable asset in case of international disputes, giving Canada a chance for defence on the Upper Lakes that she can never enjoy without it. This canal might be considered by the Dominion Government on the same basis as colonization railways which have been freely encouraged all over Canada. 3.—The possibility of the enlargement of the St. Lawrence system is as yet undetermined, as it requires the co-operation of the U. S. 4.—The cost and value of the power development thereon is unknown as no international agreement, surveys or estimates have been prepared. 5.—The enlargement of the Welland Canal, without a corresponding enlargement of the Welland-St. Lawrence system, will at least benefit U.S. quite as much as Canadian interests, and it is questionable if it will not divert trade from Montreal to New York. 6.—It would give the U.S. control of Lake Ontario in case of international trouble, and be an important factor contributing to the probable loss of the wealthiest and most populous part of Canada.

The Dominion Government has appointed a Commission recently to report on the proposed Ottawa Ship Canal, which doubtless will add much to the present knowledge of the commercial feasibility of this project, and it is to be hoped of an alternative project of a 14 ft. barge canal. It is to be hoped that it will also give some similar information regarding the enlargement of the Welland Canal and the proposed extension of the enlargement to Montreal that will guide the Government in deciding on the wisdom of such vast expenditure of public money before the projects are actually

undertaken. It is to be regretted that a similar Commission had not been appointed before the Government committed the country to the expenditure of several hundred millions, on the simultaneous construction of two additional transcontinental railways, and numerous other expensive projects.

The following figures are added for reference. They have been taken from Canal Statistics, Department of Railways and Canals, 1911, and Report of Government Engineers on Georgian Bay Ship Canal, 1908. It is very difficult to get definite and accurate information regarding water transportation costs, which heretofore have not been obtained by the Government, and some of these figures are subject to correction; especially those relating to freight rates, insurance charges and interest, which are liable to change from year to year.

Distances—	Miles
Fort William to Montreal, via Georgian Bay Canal .....	934
Fort William to Montreal, via Welland Canal .....	1,216
Fort William to New York, via Erie Canal .....	1,358
Proposed Georgian Bay Canal—	
French River Village to North Bay...	82½
North Bay to Montreal harbour.....	357½
	440
Free navigation.....	346
Improved channel.....	66
Canal excavation.....	28
	440
Canal Depths—	
Proposed Georgian Bay Canal... 22 ft.	
Welland-St. Lawrence Canals... 14 "	
Proposed Welland Canal..... 24 "	
Sault Ste. Marie Canal (Canada) 20.2 "	
Sault Ste. Marie Canal (U.S.)... 16 and 20.5 ft.	
Erie Canal .....	7 ft.
New York State Barge Canal... 12 "	

Excavation in St. Mary River, below the locks, has materially reduced depths over lower sills below figures in the above table.

Lockage—	Up and down
Proposed Georgian Bay Canal	27 locks 758 ft.
Existing Welland Canal.....	26 " 326 "
Proposed Welland Canal.....	7 " 326 "
St. Lawrence Canals.....	22 " 207.5 "
Erie Canal .....	72 " 660 "

Rates—	Bush.
Water rate on grain Fort William to Montreal .....	4½c.
Water rate Fort William to Buffalo .....	3½c.
Rail rate Buffalo to New York .....	5½c. 9c.
All water rate Fort William to New York. 5.3c.	
Water rate Fort William to Buffalo is at times as low as 1½c. per bush.	

Although distance and rates are in favor of Montreal, diversion to U.S. ports is due to the following reasons: Availability of ocean tonnage at New York. Lower ocean rates between New York and foreign ports. Lower insurance rates from New York.

Insurance—	
Montreal, 65c. to \$1.10 per \$100.	
New York, 12½c. to 15c. per \$100.	
Cost of existing Canadian canals, Fort William to Montreal.....	\$80,000,000
Interest at 3½ per cent.....	\$2,800,000
Maintenance and operation. 1,400,000	4,200,000
Water freight rate per ton mile, Fort William to Montreal.....	0.163c.
Interest and maintenance.....	0.135c.
	0.298c.

Government contribution. 0.135c. per ton mile. Welland Canal traffic, 1912, 2,537,629 tons, of which 51 per cent. was Canadian and 49 per cent. U.S.

On the 51 per cent. of Canadian traffic the Government contribution would amount to 0.265c. per ton mile, as compared with a freight rate of 0.163c. per ton mile. Rail freight, Fort William to Montreal on grain 0.421c. a ton mile. Water freight, Fort William to Montreal, including interest and maintenance, 0.428c. a ton mile.

It will be seen that the all water rate from Fort William to Montreal, including interest and maintenance of canals would exceed the all rail rate by 0.007c. a ton mile, based on the amount of Canadian traffic passing through the Welland

Canal, but in case tolls were charged to meet these interest and maintenance charges, the U.S. traffic would also have to contribute towards this revenue, and the ton mile charge for the all water route would be reduced to 0.259c. per ton mile.

Government contribution does not include cost and maintenance of harbors, lighthouses, buoys, etc.

The foregoing paper, which was prepared in 1914, was read before the Canadian Society of Civil Engineers in Montreal recently.

Discussion by H. K. Wicksteed.

H. K. Wicksteed, B.A.Sc., M.Can.Soc. C.E., Chief Engineer of Surveys, Mackenzie, Mann & Co., Ltd., Toronto, contributed the following to the written discussion of the paper: I have read with particular interest Mr. Leonard's paper on the economic aspect of canal enlargement and construction; the more so as for a time I was one of the few champions of the Ottawa-French River route. On the whole, I heartily endorse Mr. Leonard's views, and such fault as I have to find with his paper is rather as to his failure to emphasize some of his points. His estimate of the value of waterpower, for instance, to be controlled on the Ottawa is 1,000,000 h.p., which he values in the future at from \$20 to \$100 per h.p. per annum. This power would not be developed by the canal works, it would merely be made susceptible of development. Turbines and power houses, etc., would have to be added to the capital cost, and in an essay of my own on the subject, I was content with the very modest estimate of \$5 per h.p. per annum for the use of the water so controlled and rendered available. This is sufficient to pay 5% on the estimated cost of \$100,000,000. The canal could be made practically free to navigation without imposing any burden on the nation.

But this does not represent the whole of the interest which the public has in the development, by any means. The gathering of the iron ores of Minnesota, and the coal of Ohio, in one spot, which has resulted in the enormous steel production of the United States, was rendered possible by the navigation of the upper lakes; the railways alone could not have accomplished it. The conjunction of cheap power and cheap transport in the Ottawa Valley would inevitably result in industrial development quite impossible under ordinary conditions. There are numerous other natural products which, like iron ore, cannot pay for a long railway journey; and in such products the Laurentian wilderness is very rich; crystalline limestones, phosphates, marbles, graphites, feldspars, etc., etc. The carriage of grain to the sea is not the only useful purpose which our east and west lines of communication are intended to serve.

At the time my last essay was written, no one was thinking of the war, and allusions to what Mr. Leonard terms the strategic aspect of the question, merely provoked a smile. He points out that the enlargement of the St. Lawrence Canals, if feasible, would be carried out and operated within a stone's throw of the International Boundary, and would require a very large force, and probably permanent fortifications, to protect them, but he neglects to mention that it was this very consideration, 100 years ago, which led up to the construction of the Rideau Canal. While we are on terms of perfect amity with our friends to the south, as a nation, we do not consider it unnecessary to guard the Welland Canal,

and the time may come, it may even be close at hand, when an approach to Lake Huron and Lake Michigan and the outlet of Lake Superior may be worth to us many times the \$100,000,000 which he quotes, and which is somewhere about four days' expenditure of Great Britain on the present war. Our present treaty with the United States forbids the maintenance of armed vessels on the Great Lakes except such light armament as is necessary for revenue or police purposes. Consequently in time of trouble any attempt to run even a destroyer or submarine further up the river than Cornwall would be considered a hostile act or casus belli. In the case of the Georgian Bay Canal, on the other hand, no exception could be taken to the mustering of a fleet on Lake Nipissing, which could overrun Lake Huron and blockade the entrances to Lakes Michigan and Superior in 24 hours. We all hope it may be long before such a step is called for, but the mere possibility would be a deterrent to acts of hostility. One of the transcontinental railways is on the edge of boundary waters at a dozen points. Surely it is a matter of some importance to be able to take steps for the protection of such points. Even in these times, when we have ample evidence of the goodwill of the United States as a nation, a raid of Teuton sympathizers organized in the U.S. without the knowledge of the authorities, has not been considered an impossibility.

This is only one aspect of the question, and we will hope an unimportant one, although the events of the last few months have lent to it an importance which it was hard to realize as possible before. The main justification must be in the commerce which it would serve and foster. The people of Canada have decided that an enlarged waterway from the lakes to the ocean is worth a great deal of money, at least the \$100,000,000 of the Georgian Bay estimate, for however the necessity for the enlargement from Prescott to Montreal may have been ignored or kept in the background, there are few who have not realized that the enlargement of the Welland in itself could do little good to anyone or any seaport, except perhaps that of New York.

Like Mr. Leonard, the writer regrets extremely that vast expenditures such as are involved in these public works should have been determined on so largely as matters of local advantage, or as he puts it, "in the spirit of parochial politics," instead of the broad basis of national advantage. If a great artificial highway is to be built at the expense of the nation, it should surely be such a one as will do the nation the most good, and as will be completely within the territory and under the control of that nation; and it is a matter of surprise to the writer that the two communities which should be most vitally interested in the matter, the city of Montreal, and the farmers of the central plains, should have displayed such comparative indifference, and allowed the matter to be decided by Ontario politicians who had little to gain or lose, except while the expenditure was going on.

The arguments adduced against the Georgian Bay route, by some of the Toronto papers, for instance, dealing with sharp curves and high waves on the Georgian Bay, and early morning fogs on the Ottawa, are too unspeakably silly to be repeated; yet the writer was refused publication of a perfectly friendly letter of remonstrance against such childishness. Mr. Leonard's figures as to distances and lockages differ slightly from

the writer's, but are substantially correct. Yet in the face of them it has been claimed that the extra lockage on the Ottawa-Georgian Bay route, and some alleged construction of channel calling for reduction of speed, would offset the difference of 282 miles in distance, or 24 hours' steaming at 12 miles per hour. No one who has taken the slightest pains to study the alternative routes, or even the published reports, could possibly hold such an opinion.

J. S. Armstrong, B.A., M.Can.Soc.C.E., Fredericton, N.B., wrote suggesting that, in view of the subject's importance, the preliminary discussion be printed and discussed the second and third time at intervals of a month or so apart, the discussions to be published from time to time.

**Grounding of the s.s. Frankier.**

An investigation into the grounding off the Cranberry light, N.S., Dec. 10, 1915, of the s.s. Frankier, owned by Bryce and Galvin, London, Eng., was held at Halifax, N.S., Mar. 2, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. John Fleming and D. C. Stuart as nautical assessors. The Frankier, 3,336 tons gross, 2,443 register, sailed from Portland, Me., Dec. 7, with 215,000 bush. of grain. The weather from the time of sailing to the casualty was squally with snow and heavy seas, and no observations for compass adjustment were possible, but the standard compass had no more than 3 deg. deviation, and the vessel was well supplied with all necessary instruments. Yet it transpired that the vessel was navigated with a blue-black chart published in 1906, and without sailing directions. The master stated that he was unable to obtain a 1912 edition in Portland. He is a stranger on the coast, and his log, a cherub, was incorrect, but he did not know to what extent.

The court found that the evidence adduced was of such an extremely contradictory nature as to awaken suspicion, and that the master, John Trattles, in his evidence, made many statements not in accordance with entries in the logs or statements made by other members of the crew. The court wondered at his statement that he failed to secure an up to date chart or sailing directions in Portland, in view of the fact that so many Canadian vessels, and others, sail from that port. He admitted that his log could not be depended on. After steering a number of courses on the morning of the casualty, without keeping count of them as regards time and distance, he laid a course which would bring him about 6 miles from Cranberry light, in a neighborhood full of hidden dangers, and after obtaining a bearing, he deliberately left the bridge, leaving the second officer in charge until he was relieved by the mate, T. George at 4 p.m. He also signed the log, which did not include all the facts, thus showing additional indifference in the navigation of his vessel, and it is noted that certain entries were made and then erased, apparently with some purpose, by some person, whom the court was unable to ascertain. The court stated that while there was nothing to show that the grounding was premeditated, no better methods could have been adopted had it been the intention to lose the vessel. The court noted with interest the master's statement respecting his lack of confidence in the mate, whom he declared to be inefficient, and in view of this the lack of care the master showed

in not remaining on the bridge until the change of watches, and warning the mate to be very careful, and if in doubt, to call him, did not strike the court favorably.

The Frankier was carrying a precious cargo, which, though consigned to a private firm, would eventually have been forwarded to the allies, and being entrusted with this great responsibility, it behoved the master to adopt every precautionary measure to bring his vessel safely to its destination. For these reasons the court considers it a duty to prevent him from having any further responsibility with respect to this vessel on this mission and therefore suspends his certificate for three months from Mar. 3. Respecting the mate's share in the responsibility for the casualty, the court held that the moment he entertained a doubt as to the vessel's position, he should have given the danger he apprehended a wider berth, and communicated his doubts to the master, which would have relieved him from any responsibility. In view of his failing to call the master and meanwhile to adopt means of safety, the court suspended his master's certificate, for two months from Mar. 3. The court decided to retain the scrap log so that it may be forwarded to the British Board of Trade for its information.

**Signalling Requirements for British Vessels.**

The British Board of Trade's Marine Department has published the following regulations relating to signalling and signalling lamps, Under Regulation 37 of the regulations made under the Defence of the Realm Act, British vessels are required to comply with any orders given, whether by signal or otherwise, by any officer in command of any of His Majesty's ships, or by any naval or military officer engaged in the defence of the coast. Under regulation 37a, which came into effect, Mar. 1, British vessels of 500 tons and upward, must be provided, before going to sea, with suitable hand flags for signalling by the semaphore code, and with an efficient flash lamp for signalling by the Morse code. The lamp shall be of such power and size that the signals made with it may be distinctly visible at a distance of three miles on a dark night in clear weather. In view of these requirements and the penalties for noncompliance, all such vessels should be provided with the necessary lamp and flags, and there should be an officer or seaman on board competent to receive and transmit signals both in the Morse and semaphore codes.

**Ice Patrol Service in the North Atlantic.**

For the purpose of carrying on the ice observations and ice patrol service provided for by the International Convention for the Safety of Life at Sea, the s.s. Seneca left New York about Feb. 15 and proceeded to the Grand Banks of Newfoundland, to locate ice fields and icebergs, and to make such observations as might be practicable on the quantity of ice, its kind, extent and drift, and to obtain other information. The object is primarily to ascertain the location and progressive movement of the limiting lines of the regions in which icebergs and field ice exists in the vicinity of

Grand Banks, and to disseminate such information for the guidance and warning of navigators. Co-ordinately with these duties, the s.s. Seneca will make such oceanographical and meteorological observations as will contribute toward a knowledge of the causes why the limiting lines assume their observed locations. During the period of ice observations, the Seneca will be the only vessel employed on this duty, but when ice has moved southward so as to make a constant patrol necessary, an additional vessel will be detailed. The experience of previous years has shown that a continuous ice patrol should be established about Apr. 1, and continued throughout the season of dangerous ice conditions. Upon getting in touch with ice, the Seneca will report daily to New York, and endeavors will be made to communicate direct with coast radio stations, but should the Seneca be unable to communicate with any of these stations, the messages will be relayed through any vessel within reach. Endeavors will also be made to keep all vessels at sea advised by daily radio messages of the limits of the ice fields, etc.

**Among the Express Companies.**

The Canadian Ex. Co. has opened offices at Dugald, Man., and Coleville and Ferintosh, Sask.

The Dominion Ex. Co. has opened offices at Daaquam and English Lake, Que., and Speedwell, Ont.

The Dominion Ex. Co's office at Three Rivers, Que., was destroyed by fire, Mar. 20, together with other offices in the Page Block.

W. C. Webb has been appointed chief clerk to Superintendent, Canadian Northern Ex. Co., Winnipeg, vice Z. M. Middleton, whose appointment as agent, C.N.E. Co. at Vancouver, B.C., was announced in a previous issue.

J. R. Stone, who died at St. John, N.B., recently, aged 73, entered express service over 50 years ago as agent for the Eastern Express Co., there. He was later appointed agent for the American and Canadian Ex. Cos. there, and continued in that capacity until 1906, when he retired owing to ill health.

Mrs. V. G. R. Vickers, wife of the Manager Foreign Department, and Superintendent Atlantic Division, Dominion Ex. Co., Montreal, was attacked by a former maidservant, Mar. 17, a revolver shot being fired, but going wide of the mark, the bullet grazing Mrs. Vickers' thumb and burying itself in her clothing.

The Board of Railway Commissioners reserved judgment, Mar. 21, on the application of the Canadian Fisheries Association and the W. J. Guest Fish Co. of Winnipeg, to compel express companies to deliver shipments of fish to dealers' places of business without extra charge. Heretofore the companies have been carrying from coast points at \$3 per 100 lbs., and they desire to add 15c. per 100 lbs. for delivery.

The Canadian Ex. Co's receipts and expenditures for Oct. 1915 compared with those for Oct. 1914, were as follows:

	1915.	1914.
Mileage of lines covered .....	10,238	9,676
Transportation charges .....	\$351,416	\$280,551
Express privileges, Dr. ....	165,433	140,379
Operation other than transportation .....	5,612	5,565
Total operating revenue .....	191,595	145,737
Operating expenses .....	138,964	131,534
Net operating revenue .....	52,630	14,152
Express taxes .....	4,200	4,000
Operating income .....	48,411	10,152