

# Canadian Railway and Marine World

March, 1916.

## Passenger Cars for Transcontinental Service on Canadian Northern Railway.

For the inauguration of transcontinental train service on the Canadian Northern, it was found advisable to provide 77 new cars of the latest and most substantial construction, the various types being illustrated by the accompanying plans and divided as follows: 15 baggage-express, 4 postal, 5 second class, 12 first class, 7 colonist sleeping, 7 tourist sleeping, 7 dining, 11 standard sleeping, 2 compartment sleeping and 7 compartment-buffet observation sleeping, all of which were built from the railway company's designs and specifications by the following builders: National Steel Car Co., Hamilton, Ont., Crossen Car Co., Cobourg, Ont., Preston Car and Coach Co., Preston, Ont., and Canadian Car and Foundry Co., at its Amherst, N. S. and Turcot, Que. works.

The body framing throughout is of ample proportions to withstand an assumed buffing shock of 500,000 lbs. with a large factor for safety, the side construction is self-supporting and thoroughly reinforced for window and side door openings. The two body bolsters are of unit builtup form, having suitable cover plates top and bottom, 24 in. wide at the centre, tapering to 15 in. in width at the ends. The centre sills form a box girder with cover plates 23 in. in width, extending from end to end of cars, so far as possible, the principal members being two rolled steel 15 in. by 33 lb. channels placed back to back and provided with a finished camber at the centre of car of  $\frac{3}{4}$  in. when car is ready for service. The vestibules are built entirely of steel, so formed as to constitute separate members each side of centre construction, this being an important item in case of damage admitting of making repairs more easily and also should one corner be swept away there is no liability to distort or disarrange the adjacent end panel on other side of car. The platform buffers are of coil spring design with coupler centring device, furnished by the Standard Coupler Company, of New York, which provides a maximum cushioning effect of 84,000 lbs. per car, which added to that of the A-2-P draft gear allows for a maximum buffing resistance of 387,000 lbs. before the centre construction is directly effected. The top diaphragm buffing attachment is designed to accommodate the railway company's standard coil springs of  $\frac{1}{4}$  in. square crucible steel. The steel end posts extend down in front of the pressed steel end sills and are reinforced by cover plates and connection angles, all forming a rigid panel strong enough to cause the side and centre construction to work in union under direct impact.

General conditions both from the standpoint of maintenance and operation necessitated the use of a steel car insulated inside and outside with wood. The light weight of the cars has been kept down so far as possible, but inevitably a composite construction does not lend itself to the greatest refinement in this respect, and on account of the long journeys a large storage battery capacity

necessitates two sets of batteries being carried, besides considerable other equipment, such as overhead water storage tanks, in conjunction with the usual air pressure water raising system under car.

The lighting equipment conforms to the railway company's standard practice as followed for equipment built in the past, with the exception that the steel conduit for wiring is entirely removed from the roof, and inspection is obtained from special junction boxes with weather-proof covers extending through the roof, the conduit proper passing between the roofboards and the headlining. The annunciator wiring is also executed in conduit. Current is supplied to the lamps and fans by dynamos for all cars, double batteries of 500 ampere hours capacity being furnished except in the case of the baggage cars and colonist sleepers, which have a single set of batteries of 240 ampere hours capacity. The Safety Car Heating and Lighting Co's fixtures are provided and especially designed, metal-cased, slate switchboards are provided for the sleeping and dining cars; these cars are also furnished with electric exhaust fan sets, having a capacity of 400 cub. ft. of air per hour. Fifteen watt, 12 candle power lamps are furnished throughout and 10 in. non-oscillating electric fans with takedown attachment are used. Candle lamps are used for auxiliary lighting purposes. Hot water circulation heating system is used on all cars, except the baggage and postal cars, which are fitted with straight steam equipment in conjunction with stove auxiliary. Composition flooring, laid on sectional galvanized steel, is provided on all cars and so formed as to provide sanitary corners for all outside edges. The baggages and postal cars have sheathed ceilings, the remaining cars being furnished with canvas with gold leaf and dutch metal to the railway company's standard patterns. The end construction throughout is designed to meet primarily the United States standard specifications for mail cars, this being considered a satisfactory basis.

For the baggage cars, the railway company's standard practice was not altered from the equipment of that class purchased previously. Arrangement was made, however, to carry two sets of desks and filing cases, also sleeping accommodation and a vault. Auxiliary lighting equipment for passenger cars is carried in a sealed box located in the centre portion of the car, there being 24 candle lamps and a double set of candles furnished. Emergency wrecking tool cases and auxiliary outfit, also a thaw-out hose 50 ft. long, designed to connect directly to a thawout connection on train line of each car, are maintained in sealed cases on baggage cars. A steam-water mixer is attached to the basin water supply, to heat the water as desired during the winter.

On account of operating for a short distance and being obliged to maintain local mail service through United States territory and for the reason that the

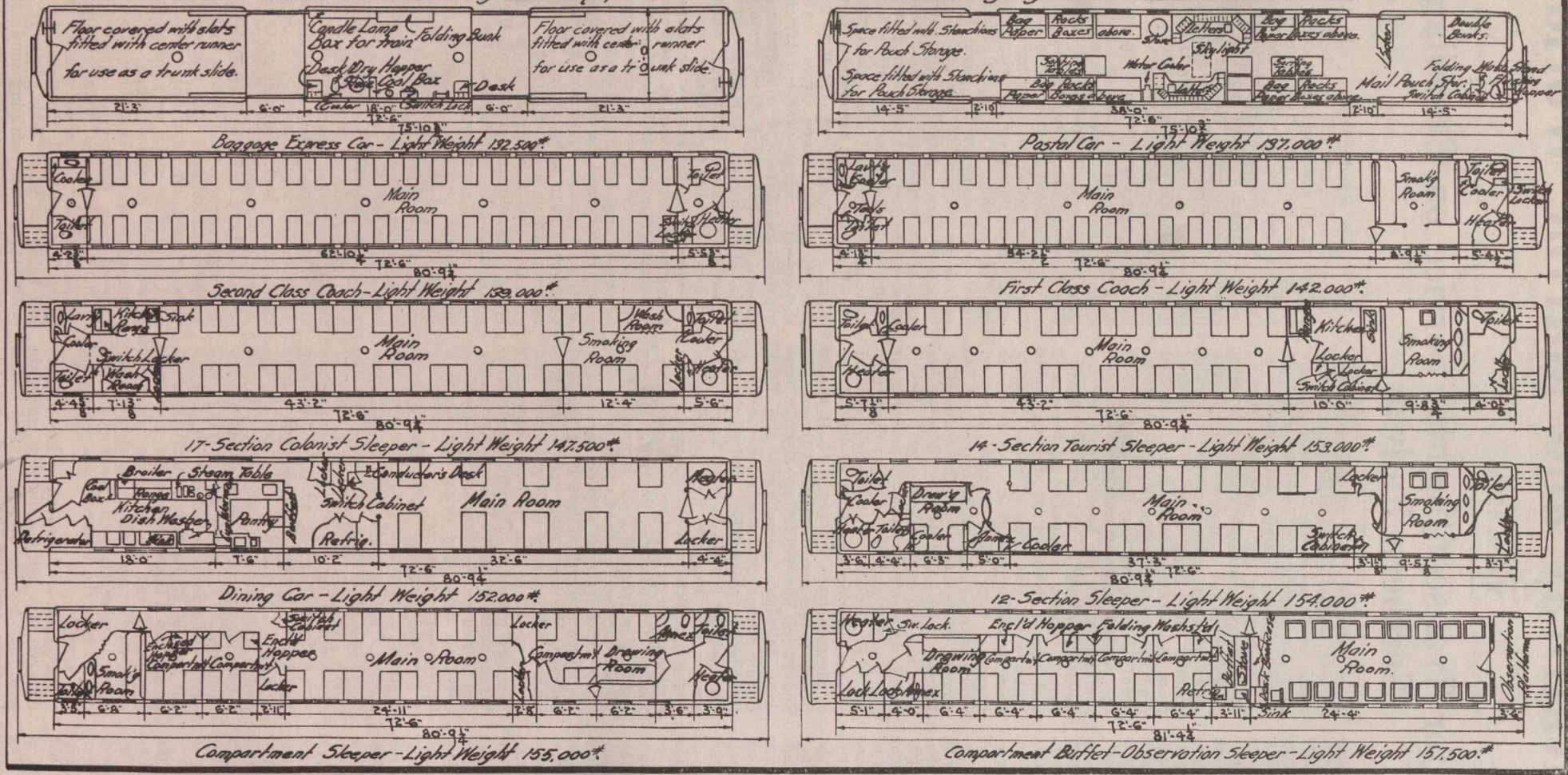
type of car standardized by the U. S. Post Office Department has been satisfactory to all concerned, it was adopted for the cars built recently. Several novel features were embodied in the design, chiefly on account of restrictions from following usual standard practice for this class of equipment. No gas auxiliary lighting was provided, this necessitated the use of a 350 watt electric coffee heater. Double windows, besides storm sashes, for service in winter had to be furnished and therefore a novel scheme of drop sash fixtures had to be devised so as to allow the upper or screened section of top sash to operate as intended. Weather conditions necessitated the use of condensation collectors for skylight over letter cases, and extreme care was exercised in designing the glass fastening frame, which is of sheet copper, to avoid any leakage, which might become serious on account of the possible collection of large quantities of snow and ice. The wiring was carried out entirely in steel conduit and the train line connected so as to draw current as desired from any car in the train. The light distribution is in exact accordance with the latest recommendations for postal cars and 15 watt lamps were installed throughout. Large overhead tanks are provided and furnished with water level gauges, and hot water attachments were included for basins. The sides and ends of car are painted a light grey, while the ceiling is of a lighter shade.

Second class cars are now being generally superseded by colonist sleeping cars for transcontinental train service, but the type of second class car shown in the accompanying plan, is especially well adapted for local business, or through service, where a maximum number of passengers have to be carried. The maintenance cost on a car of this style is considerably less than that of a colonist sleeper, principally because of the absence of bunks and kitchen, the latter being unnecessary for harvester excursions, where men form the great majority of the passengers, as they purchase sardines, crackers and sandwiches from news agents; besides this a second class car weighs about 7 per cent. less than a colonist sleeper. A large water capacity and plenty of ventilation is essential to the proper operation of a car of this class. Square deck and side finish, all in natural birch, was used in conjunction with low back reversible seats upholstered in pantasote.

The railway company's usual design of first class car was used, except that slight modification obtained with respect to the style of smoking room employed. High back reversible seats were installed and upholstered in green plush for main room, while the smoking room sofas were covered with pantasote. Empire deck with oval oak sashes and square outside gothics fitted with clear pressed prism glass, was employed, the finish throughout being of plain mahogany, relieved with three line striping and single white holly striping for curtain boxes.



*Steel Framed Passenger Car Equipment for Canadian Northern Railway System Transcontinental Trains.*



Experience gained from service of a large number of colonist sleeping cars, caused the railway company to provide ample facilities for washing and cooking which are absolutely essential for this type of equipment. The usual square deck and finish throughout was employed, the interior being of natural birch. Ample ventilation and large water supply is necessary also for a large smoking room.

Extreme judgment is required in the design of tourist sleeping cars, in order not to divert first class traffic, and it is also necessary to provide an arrangement of sufficient merit to meet the severest competition. The railway company

considered it inadvisable to furnish berth lamps for this class of car, this being the only exception as compared with standard sleeping car. The upholstery throughout is executed in pantasote and the finish is of plain mahogany. Annunciators are provided and the usual smoking room arrangement as employed in standard sleeping cars is furnished. Extremely large locker accommodation for bedding and provisions is necessary in a car of this type, as the great volume of travel in this service is that of family groups, journeying from coast to coast, or nearly so.

The dining cars are similar to the type

used in the past, having a seating capacity of 30. Square beam ceiling finish in main room and passageways, in conjunction with circular side plate coving, was employed as in previous cars; the interior gothics were changed from leaded art glass to white pressed prism glass with matted back and lamp fixtures to correspond. All inlay marquetry was abandoned, in common with the practice for all other classes of equipment. White enameled steel refrigerators were employed and provided with automatic lighting switches, for use when open. Kitchen table top covering is of nickel-ine, flashed all around and protected on

line, flashed all around and protected on the edges with hard metal moulding. The railway company's standard design of hard coal range was used, also charcoal boiler with coal storage space below, and steam table provided with 2 meat trays, 2 gravy bowls, a soup pot, coffee urn and cup warmer, opening into the pantry. The dish washing machine is hand operated and fed from the overflow line of hot water boiler. An electric exhaust fan set, 2 large globe ventilators and a vanetype range hood deck-ventilator are furnished, and provide extremely good ventilating conditions under all phases of train operation. The kitchen



floor is covered watertight with copper, a longitudinal gutter 3 ins. wide and 1 in. deep being provided in the centre, with holes making it self draining. The use of garbage cans has been avoided by providing a special deflecting device to the garbage chute and fitting it with a covered galvanized iron boxing with hinged lid. The lockers, vegetables bins and provision chests are all unit locked. Thawout tubes for drains are located in ice boxes. The pantry contains the usual storage lockers and sink, and is also furnished with a special water filter. The locker above the conductor's desk contains a special humidor arrangement for cigar storage, consisting principally of a lamp, which burns continually in conjunction with a metal pan filled with an absorbing compound, holding water, which tends to keep the air moist. A central metal perforated shelf is also employed and the doors are fitted with pressed prism plate glass with matted finish, to diffuse the light. Cork tiling is used in the passageways, pantry and main room, so that carpet may be dispensed with during the summer. Vacuum cleaner connections are also installed in common with the practice for sleeping and parlor cars.

Such good results have been obtained with the railway company's standard 12 section sleeping cars that practically no alterations were made on account of the new service, except in the matter of refinement in detail. Electric exhaust fan sets were employed in smoking room and main body of car, entrance buzzers located at entrance to the drawing room, for use by the car porter, specially designed towel boxes were located over washstand in smoking room, to avoid having them saturated with the odor of smoke; boot locker opening into passage way from drawing room, special selfsupporting berth ladder with safety attachment and encased top tread were used, and all berth lamps were divided up in each section, so that a serious car failure would have to obtain if all lights were out in one section.

It is often difficult to design a car, especially a sleeping car, suitable for long distance and local travel as well, and this was the problem which presented itself in the development of the compartment sleeper shown in the accompanying plan which contains 8 standard sections, drawing room and compartments. The car is especially well balanced, and affords a maximum seating capacity without in any way detracting from the generally complex scheme of the layout. The general design embodies all the details which are applicable from the standard 12 section sleeping car already described, including the use of green frieze plush for upholstering throughout, except the smoking room, which is carried out in Spanish leather. The drawing room arrangement is the same as used in the sleeping cars and the compartments are of special design, including a folding washstand, which forms a table when closed, the cover containing a hand mirror, hair brush and comb, tooth brush, holder, clean and soiled towel racks and towel bars also large mirrors. The bottom portion is provided with a central shelf, and doors opening into the compartment and out into the passageway for use as a boot locker. Above the folding washstand is a corner water cooler, which is iced and filled from the passageway, through a small door. The hopper is enclosed and provided with an automatic disinfecting device, which operates continually and can be regulated as desired.

Economy of space was of paramount

importance in the design of the observation cars, in order to include necessary storage room, in conjunction with a depressed platform, a seating capacity of 17 in the observation room, 4 compartments and 1 drawing room, also a buffet. It has been found advisable in this type of a car to locate the heater on the opposite side from the drawing room or compartment and wherever this is possible it should be done, otherwise great discomfort will be experienced by passengers in sections adjacent to the heater, for obvious reasons, and this was accomplished on both the compartment sleepers and observation cars. The buffet contains a compact refrigerator sink, humidor cigar locker, 3-burner gas stove with water urn, percolator and toasting and frying attachments, metal lined bread locker, pie locker, canisters and water filter. The space being small, it was found advisable to provide a pair of 8 in. diam. globe ventilators in the top and connected to electric exhaust fan set, which also serves the observation room, smoking being allowed, and is indispensable for conditions of this sort when trains are standing still.

Auxiliary overhead water storage tanks are furnished in all of the cars and supply boxes as required. Suitable lockers are fitted up in each car for the reception of spare belts, train connectors, bulbs, belt fasteners and fuses. All dining and sleeping cars carry their own complement of candle lamps and spare candles in a sealed locker, also special soiled linen lockers with movable front gratings and floor slats.

The trucks for all cars are of the 6-wheel type, builtup from rolled steel sections and plates and provided with cast steel centre plate supports. The wheels are 36 in. diam., steel tired, of bolted type wire section. Axles have 5 in. diam. journals, 9 in. long. The wheelbase of trucks is 11 ft. The colonist tourist, 12 section compartment and observation sleeping cars and the dining cars have locked centre pins and roller centre plates, and the baggage, postal, second class and first class cars have plain centre pins and flat centre plates.

**Appreciation of C.P.R. in the Prairie Provinces.** The United Farmers of Alberta, in convention at Calgary recently asked the Alberta Government to follow the C.P.R.'s example of pursuing the destruction of gophers. Statistics read, giving a record of the grain movement over C.P.R. lines from Sept. 1 to Dec. 31, evoked applause, and the company was congratulated on the showing made. At a sitting of the Saskatoon Royal Livestock Commission recently, the C. P. R. also came in for praise in connection with its efforts to promote the interest of livestock shippers.

**A Quebec Quarry Railway Dispute—**The dispute respecting the quarry railway connecting with the C. P. R. at St. Fravers de Salis, Que., which was decided in a Montreal court recently in favor of L. Labelle, has entered another stage. The defendant in the original suit is now preventing the plaintiff from using the line, giving as a reason that the purchase price has not been paid in full, and that he cannot avail himself of the right to operate.

The Pennsylvania Rd. has completed two years without a single fatality amongst its passengers; the lines east of Pittsburg have not had a single passenger fatality for three years. During the past year, 361,572,114 passengers were carried.

## The Magnitude of the Railway Industry.

Wm. C. Willard, A.M.Am.Soc.C.E., Assistant Professor of Railway Engineering, McGill University, Montreal, in the introduction to his work on Maintenance of Way and Structures, issued recently, says:

"On June 30, 1914, considering all tracks—single, second, third, fourth, etc., yard tracks and sidings—in round numbers a total of 384,000 miles of track were being operated in the United States, 41,000 miles in Canada and about 20,000 miles in the remainder of North America, making a grand total of approximately 445,000 miles in North America. In order to better realize the vast mileage this represents it can be stated in terms of the circumference of the earth. This track mileage would girdle the earth seventeen times. The distance of the moon from the earth is 239,000 miles and this railway mileage is almost twice that distance. In the year from June 30, 1910 to June 30, 1911, 1,815,239 persons were required to maintain and operate the railways of the United States, 141,224 persons were required to maintain and operate the railways of Canada, and about 75,000 those of the rest of North America. Considering Canada and the United States together, 1,956,463 persons were employed directly by the railways. The combined population of the two countries, according to the census taken in 1910, was 99,178,909. This means that one person out of each 51 was directly supported by the railways. The individual figures are one out of each 51 for both the United States and Canada, a surprising agreement of figures. A study of the report of the United States census for 1910 shows that the production of supplies directly consumed by the railways, but not manufactured by them, such as rails, ties, bridge steel, locomotives, cars, etc., required the employment of about 750,000 persons. In Canada the proportion is doubtless about the same, but if the number is assumed at but 50,000 the total number of persons directly and indirectly employed by the railways of the United States and Canada in 1910 was 2,756,000. The same census report gives the average number of persons per family in the United States as 4.5 in 1910. If it is assumed that but one out of each four persons employed directly or indirectly by the railways had the average family, 2,310,000 must be added, giving 5,066,000 as the number of persons supported by the railways. Dividing this into the total population it is seen that one person out of every 20 of our total population is dependent upon the railways for a living. These figures do not include electric roads or street railways, but stand alone for steam roads."

**Australian Railway Construction.**—It is reported that a conference is to be held between the Australian military advisers and the railway commissioners of the various states of the Commonwealth, to consider the construction of strategic railways in addition to the transcontinental railways under consideration and building.

**The British Government Management Committee,** now operating the railways in Great Britain, has decided to abolish the system of booking individual seats in cars, and will only book whole compartments and sleeping berths. The amount of work involved and the shortage of employes are given as reasons for this.



# Was a Pioneer Tunnel Advisable at Rogers Pass ?

J. G. Sullivan, M.Can.Soc.C.E., Chief Engineer, Western Lines, Canadian Pacific Railway, has favored us with a copy of a letter he has written *Engineering News*, New York, in answer to an article on the above mentioned subject, which was published in that paper and reproduced in *Canadian Railway and Marine World* for February. Mr. Sullivan's letter is as follows:

Your criticisms and questions would appear logical and reasonable, if, as you seem to think, they were based on the idea that speed was the only object we had in mind, but the most important factor, and the one that must govern all good engineering, is the factor of economy, and this was the sole factor that was considered in making our decision. Time was a factor in this larger question of economy, but much smaller than some others. We considered time to be worth approximately \$750 a day. In a circular letter sent out to contractors inviting them to bid, dated April 8, 1913, the following statements appeared.

"The necessity for this tunnel is so great and the expenditure so large that it would be worth considerable money to this company to have the tunnel completed as soon as possible. Therefore, everything also being equal, the party who will guarantee completion in the shortest time will be the party who will receive the work."

"I would be glad if you would give us prices on the European method of tunneling, which is to drive a very small heading and take out the bench, working from several headings into this small drift. Tunnels in Europe have been driven by this method at two or three times the speed that any tunnel was ever driven in the U. S. or Canada, and I would like to be able to place before the management figures for doing this work according to this method. I would be glad if you would state in your proposal the amount per day that you would be willing to have inserted in a contract to be paid as a bonus for time saved over the agreed time, the same amount to be exacted as a penalty for the time lost, being the time between the fixed day of completion and the actual date of completion. We are of the opinion that this sum should be about \$750 a day."

The writer, however, was aware at this time that the chances of American contractors tendering a reasonable figure on the European method was very remote, in fact, after having studied some of the prices paid for labor in some of the large Swiss and Italian tunnels, we were forced to the conclusion that theirs was not a practicable method for this country, where labor is so expensive. On March 13, 1913, the writer reported to the management his ideas on this subject. To quote from that report:

"Referring to the progress that we hope to make in the driving of the Rogers Pass tunnel. I advised you in my report of Oct. 22, regarding the relative speeds of driving tunnels on the American continent compared with those that have been driven through the Alps. I have given the matter considerable study since and have come to the conclusion that the European method of driving a small lower heading and stopping out the remainder of the tunnel is too expensive on this side on account of the difference in the cost of labor."

I then described in general the methods which we proposed and which we have

practically followed out. The method desired was one by which we would be able to handle the minimum amount of material by hand and the maximum amount by steam shovel. By driving a heading in the centre of the excavation required for the completed tunnel, making this heading just large enough so that we could handle in the same, steel that would reach from the perimeter of this advance heading to the perimeter of the completed tunnel, and then drilling holes at right angles to the axis of the tunnel, enabling us to shoot at once the entire section required for the enlargement of the tunnel and this shooting was done in the following manner. Six holes at the bottom of the tunnel, having been previously shot out, they would load six holes in the next ring back in the bottom and all the side holes of the first ring up to a point a little over half way up the sides of the tunnel. This would continue until the tunnel began to fill up, and then some of the advance rings in upper portion of the tunnel would be shot and this process continued until the tunnel was choked full of muck. There was usually shot, about six rounds (or 30) of holes before the steam shovel started to clean up. In some of the harder rocks that shot well, they were able to shoot a greater distance. The most shooting done at one time up to date was 84 feet. This method enabled us to handle about 85 per cent. of the total excavation of the tunnel proper with steam shovels. This was the prime object to be obtained, and how that could be done without interfering with the work of the shovel was solved by driving the pioneer heading or tunnel, to be used as a by-pass for removing the muck from pioneer and advance headings; for ventilating ducts; air, water pressure pipes, etc., the result being that work was carried on continuously at all points, irrespective of shooting at other points, work only stopping at the local points at which shooting was being done. As there were no air pipes or water pipes, or any obstruction whatever passing over the muck pile in front of the shovel, the shovel was able to excavate 85 per cent. of the total excavation almost as easily as if it had been an open cut.

Our expectations have been more than realized, as is proved by the speed and the cost of the work. The cost of driving this tunnel through rock, including in this price the cost of driving 19,610 lin. ft. of pioneer tunnel; 12 cross cuts each about 40 ft. long; installation of plant including freight on same; the proportionate cost of building about 5 miles of temporary railway tracks, and other overhead charges plus 10 per cent. on all expenditures, will amount to a little less than \$5 a cubic yard for tunnel excavation in the tunnel proper. I may add further, that in reply to my invitation of April 8, 1913, the contractors who are doing the work, having in mind the method which was later adopted and which was suggested by myself and one of their engineers, bid \$6.10 a cubic yard with a time limit of 42 months from date of signing contract. Other responsible and supposedly expert tunnel contractors bid from \$8 to \$11.25 a cubic yard, with time limits varying from 42 to 48 months. I do not know what method these latter contractors proposed to employ but I always presumed it would be some modification of the European method. We also received an estimate of \$5.50 a cubic

yard for tunnel excavation from a very reputable American expert tunnel contracting firm who would do the work on a percentage basis and would be willing to forfeit a large portion of their percentage if they did not keep the price within the estimate. They however, estimated the time at 58 months. At the speed they promised for driving tunnel in rock, and figuring the time it took our contractors to get into rock at both ends on account of heavy cuts, it would have taken them 8 or 9 months longer than the estimate, or something over 5½ years. The method that they proposed to employ was to remove tunnel right from a face, loading muck by steam shovel.

Now, as far as speed is concerned, on account of large cuts and soft ground at the approaches, the shovel doing the enlargement work did not reach the rock on the east end until Jan. 1, 1915, and on the west end until Feb. 1, 1916. On Dec. 19, 1915, when the heading was completed, the shovels were two miles apart. Had the conditions been such that we could have got into the tunnel proper at earlier dates, I do not think there is any European record that would not have been broken. We are driving the tunnel at the rate of better than three miles a year for the last year. During Jan. 1916, the shovel in the east end made an advance of 946 lin. ft.

In conclusion, I wish to say, that in Europe, where drill runners, as I understand, get 90 cents to \$1.25 a day, and laborers something like 75 cents, the method followed in driving the Loetschberg tunnel may be economic as well as rapid, but all the evidence that we have goes to show that where we have to pay from \$4 to \$5.50 for drill runners and \$2.25 to \$3 for laborers, per day, the method we have adopted is by far the most economical.

**New African Railway.** A railway which will be of immense importance in time of peace was built with remarkable speed primarily for the purpose of facilitating the invasion of German Southwest Africa by the troops under General Botha. It connects the railway systems of Southwest Africa and the Union of South Africa, extending 300 miles from Kalkfontein in the former to Prieska on the Orange River in the latter. The new line saves many hundred miles of travel between points in South Africa and those in Southwest Africa as compared with the old route by rail to Cape Town and thence by boat to the ports of the late German colony now under British military control. Through trains are now running from South African points to Walfish Bay.

**Light Railways for War Purposes.**—By the use of light railways, the Germans have been enabled to run lines close up to the trenches. A network of such lines has been built throughout the occupied territory in Belgium and France, thus relieving road traffic and generally assisting in the handling of supplies and men. The lines are narrow gauge, and consist of high grade steel rails of light weight, and the whole is built up in sections, so that track is laid on the level in practically a ready made manner.

The National Union of Railway Men, of Great Britain, announced recently that it had lost 1,020 members by death in the war.



## Birthdays of Transportation Men in March.

- Many happy returns of the day to:—
- W. G. Annable, General Passenger Agent, Canadian Pacific Ocean Services, Ltd., Montreal, born at Ottawa, Mar. 3, 1875.
- John Archibald, Locomotive Foreman, C.P.R., Coquitlan, B.C., born at Edinburgh, Scotland, Mar. 13, 1872.
- C. F. Black, Attorney, Central Vermont Ry., St. Albans, Vt., born at Burlington, Vt., Mar. 5, 1884.
- George Bury, Vice President, C.P.R., Montreal, born there, Mar. 6, 1866.
- Allan Cameron, Superintendent, Land Branch, Department of Natural Resources, C.P.R., Calgary, Alta., born near Owen Sound, Ont., Mar. 14, 1864.
- F. G. J. Comeau, General Freight Agent, Dominion Atlantic Ry., Halifax, N.S., born at Meteghan River, N.S., Mar. 10, 1859.
- W. A. Cooper, Manager, Sleeping, Dining and Parlor Cars and News Service, C.P.R., Montreal, born there, Mar. 22, 1871.
- A. E. Cox, General Storekeeper, Canadian Northern Ry., Winnipeg, born at Huddersfield, Eng., Mar. 12, 1863.
- Hon. N. Curry, President, Canadian Car & Foundry Co., Montreal, born in King's County, N.S., Mar. 26, 1851.
- C. T. Delamere, acting Engineer of Construction, Eastern Lines, C.P.R., Montreal, born at Brainerd, Minn., Mar. 18, 1881.
- Patrick Dubee, Secretary-Treasurer, Montreal Tramways Co., Montreal, born there, Mar. 4, 1876.
- Frederick Elliott, President, Victoria Navigation Co., Ltd., Thurso, Que., born at Montreal, Mar. 8, 1858.
- W. R. Fitzmaurice, Assistant Superintendent, Moncton and Ste. Flavie District, Intercolonial Ry., Newcastle, N.B., born at Bedford, N.S., Mar. 19, 1870.
- C. Forrester, Superintendent, Stratford Division, Ontario Lines, G.T.R., Stratford, born at Wanstead, Ont., Mar. 5, 1876.
- Jas. D. Fraser, Director and Secretary-Treasurer, Ottawa Electric Ry., Ottawa, Ont., and President, Canadian Electric Railway Association, born at St. Andrews, Que., Mar. 26, 1851.
- R. A. Gamble, General Yardmaster, Winnipeg Terminals, C.P.R., born at Dublin, Ireland, Mar. 1, 1876.
- E. P. Goodwin, ex-Inspecting Engineer, National Transcontinental Ry., Baie Verte, N.B., born there, Mar. 17, 1865.
- J. Halstead, Division Freight Agent, C.P.R., Calgary, Alta., born at Bracebridge, Ont., Mar. 2, 1877.
- R. M. Hannaford, M.Can.Soc.C.E., Assistant Chief Engineer, Montreal Tramways Co., Montreal, born there, Mar. 22, 1865.
- C. A. Hayes, General Traffic Manager, Canadian Government Railways, Moncton, N.B., born at West Springfield, Mass., Mar. 10, 1865.
- H. T. Hazen, M.Can.Soc.C.E., Chief Engineer, Toronto Suburban Ry., Toronto, born at Truro, N.S., Mar. 14, 1870.
- Joseph Hobson, M.Can.Soc.C.E., Consulting Engineer, G.T.R., Hamilton, Ont., born at Guelph, Ont., Mar. 1834.
- J. I. Hobson, Treasurer, Canada Steamship Lines, Ltd., Montreal, born at Guelph, Ont., Mar. 30, 1872.
- N. J. Holden, President, The Holden Co., Ltd., Montreal, born at Nobleton, Ont., Mar. 22, 1866.
- A. R. Holtby, Master of Bridges and Buildings, Mountain Division, Grand Trunk Pacific Ry., Prince Rupert, B.C., born at Rawdon, Que., Mar. 23, 1859.
- Frank Lee, M.Can.Soc.C.E., Principal Assistant Engineer, C.P.R., Winnipeg, born at Chicago, Ill., Mar. 7, 1873.
- R. W. Long, Division Freight Agent, G.T.R., Hamilton, Ont., born at Appin, Ont., Mar. 20, 1873.
- T. W. Lowe, General Boiler Inspector, Western Lines, C.P.R., Winnipeg, born at Montreal, Mar. 30, 1858.
- J. M. McKay, Superintendent, District 1, British Columbia Division, C.P.R., Revelstoke, born at Tiverton, Ont., Mar. 13, 1868.
- Owen McKay, M.Can.Soc.C.E., Chief Engineer, Essex Terminal Ry., Walkerville, Ont., born in Ross Tp., Renfrew Co., Ont., Mar. 13, 1848.
- Col. H. H. McLean, K.C., M.P., President, St. John Ry., St. John, N.B., born at Fredericton, N.B., Mar. 22, 1855.
- M. Magiff, Superintendent of Car Service and Telegraphs, Central Vermont Ry., St. Albans, Vt., born at Planks Point, N.Y., Mar. 24, 1852.
- Sir Donald D. Mann, Vice President Mackenzie, Mann & Co., Ltd., and Vice President Canadian Northern Ry., Toronto, born at Acton, Ont., Mar. 23, 1853.
- H. H. Melanson, General Passenger Agent, Canadian Government Railways, Moncton, N.B., born at Scadouc, N.B., Mar. 9, 1872.
- T. Milne, Locomotive Foreman, C.P.R., Windsor, Ont., born at Arbroath, Scotland, Mar. 3, 1856.
- J. V. Murphy, General Agent, C.P.R., Portland, Ore., born at Bowmanville, Ont., Mar. 5, 1885.
- Peter Paton, Purchasing Agent, Canada Steamship Lines, Ltd., Montreal, born at New Lovell, Ont., Mar. 13, 1869.
- F. W. Peters, General Superintendent, British Columbia Division, C.P.R., Vancouver, born at St. John, N.B., Mar. 25, 1860.
- J. W. Pugsley, Secretary, Department of Railways and Canals, Ottawa, Ont., born at Amherst, N.S., Mar. 12, 1861.
- E. H. Sewell, City Passenger Agent, C.P.R., Sherbrooke, Que., born at Quebec, Mar. 17, 1875.
- C. J. Smith, Manager and Secretary, Montreal Warehousing Co., Montreal, born at Hamilton, Ont., Mar. 10, 1862.
- W. Y. Soper, Vice President, Ottawa Electric Ry. Co., Ottawa, Ont., born at Oldtown, Me., Mar. 9, 1854.
- E. F. L. Sturdee, General Agent, Passenger Department, C.P.R., Boston, Mass., born at St. John, N.B., Mar. 29, 1876.
- A. A. Tisdale, Assistant to Vice President and General Manager, and Purchasing Agent, Grand Trunk Pacific Ry., Winnipeg, born at Mount Vernon, Ont., Mar. 8, 1874.
- G. W. Vaux, General Agent, Passenger Department, Union Pacific Rd., Chicago, born at Montreal, Mar. 21, 1866.
- A. D. Watt, District Locomotive Foreman, Grand Trunk Pacific Ry., Prince Rupert, B.C., born at St. Louis, Que., Mar. 5, 1874.
- A. T. Weldon, Assistant General Freight Agent, Canadian Government Railways, Moncton, N.B., born at Dorchester, N.B., Mar. 6, 1876.
- D. O. Wood, General Freight Agent for Ontario, Allan Line Steamship Co., Toronto, born at Kleinburg, Ont., Mar. 16, 1864.
- H. K. York, Car Foreman, C.P.R., North Transcona, Man., born at Victoria Corner, Carleton Co., N.B., Mar. 20, 1881.

Block Signal Systems in Canada and the United States are said to represent an investment of over \$108,000,000.

## The Canadian Overseas Railway Construction Corps in Flanders.

Roland Hill, writing from the Canadian Army Corps Headquarters in Flanders to the Toronto Star, says:—"The specialization in the Canadian army strikes you immediately. Many other units that were looked upon as frills have proved more than useful overseas.

In the Railway Construction Corps each man is a specialist in something. It is such a useful organization that the Imperial authorities have borrowed it. I found them building railways. British military engineering rules are strict and unbreakable, but these Canadian engineers have mastered them and here they are building a standard gauge line within shell zone in Flanders with Canadian rails and ties, even Canadian steel work to brace bridges. Whilst I was chatting with a colonel, a request came in for two divers. They were wanted for the base. There were five in the battalion, so they had no trouble in sending two.

### New Books, Etc.

Any of the books mentioned may be obtained through Canadian Railway and Marine World at the published price.

**MAINTENANCE OF WAY AND STRUCTURES**, by Wm. C. Willard, A.M.Am.Soc.C.E.; Assistant Professor of Railway Engineering, McGill University. Cloth, 6 x 9 in., 451 pages, 232 illustrations, 24 tables, McCraw Hill Book Co. Inc., New York, \$4.

This first edition contains the following chapters: 1, Introduction; 2, Organization and rules; 3, Roadway; 4, Ballast; 5, Wooden ties; 6, Substitute ties, economics of ties; 7, Preservation of timber; 8, Rails; 9 and 10, Track fastenings, rail joints, tie plates, track spikes, rail anchors, other track fastenings; 11, Stresses in the track; 12, Design of track; 13, Signs, fences and highway crossings; 14, Accessories to track; 15, Bridges, trestles and culverts; 16, Switches, frogs and turnouts; 17, Work of maintenance of way department; 18, Roadway machines, small tools and supplies; 19, Records; 20, Accounts; 21, Annual programme for maintenance of way and structures.

**Canadian Pacific Ry. Summer Hotels**—Following are the opening and closing dates for the 1916 season:—Algonquin Hotel, St. Andrews-by-the-Sea, June 20 to Sept. 30; Banff Springs Hotel, May 15 to Oct. 15; Chateau Lake Louise, June 1 to Oct. 15; Emerald Lake Chalet, June 15 to Sept. 30; Glacier House, May 15 to Oct. 15; Kootenay Lake Hotel, June 15 to Sept. 15. The other hotels operated by the company are open during the entire year.

**The Belgo-Canadian Mines and Timber Lands Co.** has been incorporated under the Dominion Companies Act with power, among other things, to construct railway sidings, tramway lines, telegraph and telephone lines on lands owned by the company, and necessary to its development. The company is to have a capital of \$100,000, and office in Montreal. The provisional directors are: C. Laurin, S. E. Melkinan, G. J. Barry, A. Beique, Miss L. Lavigne, Montreal.

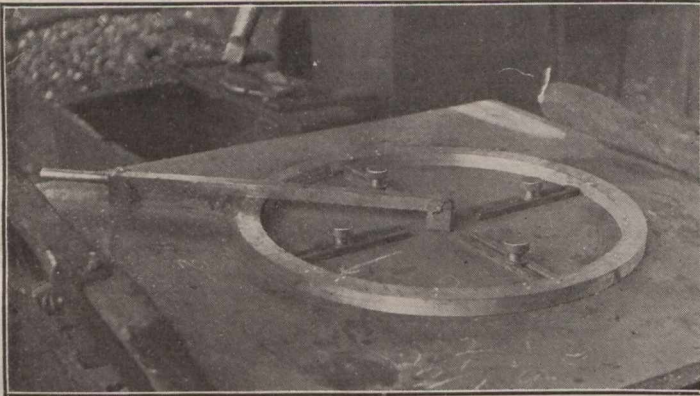
**Canada Nitro Products, Ltd.**, has been incorporated under the Dominion Companies Act, with \$5,000,000 capital and office at Toronto, to manufacture war munitions, explosives, etc., and in conjunction therewith to own and operate steam and other vessels, wharves, docks and other navigation facilities.



# Railway Mechanical Methods and Devices.

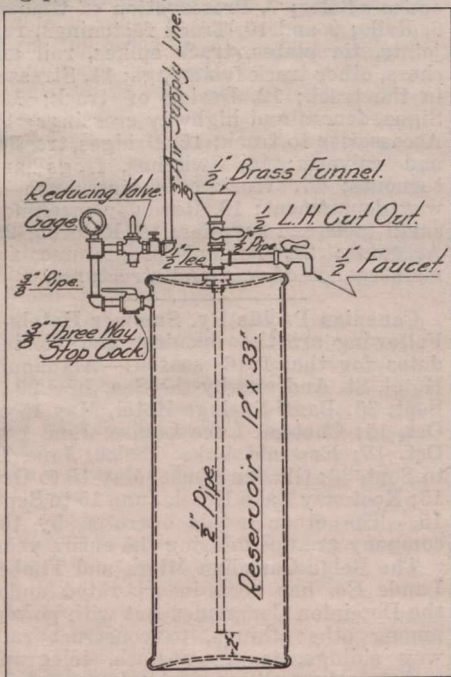
## Laying Off Segmental L Packing in Michigan Central Shops.

The arrangement shown in the accompanying illustration is in use in the Michigan Central Rd. locomotive shops at St. Thomas, Ont., for laying out segmental L packing rings preparatory to cutting and rivetting the sections together. The two component rings from which the final



Laying off Segmental L Packing Rings.

segmental ring is made are first machined and fitted the one on the other, and then taken to the table for laying off. The table consists of a planed face cast iron sheet, which can be mounted on any convenient stand or bench. On it are scribed a number of circles, varying in diameter by about  $\frac{1}{4}$  in., for setting. On the face are four arms, held in quartering positions by means of knurled thumb



Coal Oil Storage Tank.

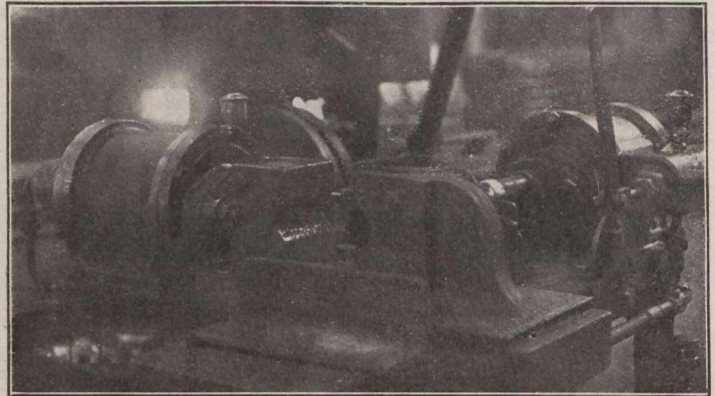
screws, and which can be radially adjusted as may be seen. By means of the scribed circles the radial fingers may be set for the particular sized ring to be marked. Hinged from the centre of the plate is a straight edge arm, fitting when depressed into a block in one corner. Marked on the face of the plate are radial scribed lines at the different angles to which the rings are to be cut.

A mark is first made on the ring with a scribe along the edge of the straight

edge. This scribed mark is then placed opposite the radial angle, which locates the second scribed line, and so, forth, until all the lines are marked off.

The rings are cut off in the lathe by mounting on a table on the tool carriage, with a saw cutter on an arbor between the lathe centres. Following the cutting up, the parts are drilled and rivetted together, forming the commonly found L piston packing ring.

One of these slide valves is shown on the right, the valve on the other cylinder being hid by the cylinder itself. The valve of the cylinder on the right is operated by the short vertical handle, while the other valve is operated from below by a treadle, located directly below the immediate foreground. The tube to be operated on is placed on the angle iron support, against the near jaw, the other jaw being forced against it by a pressure



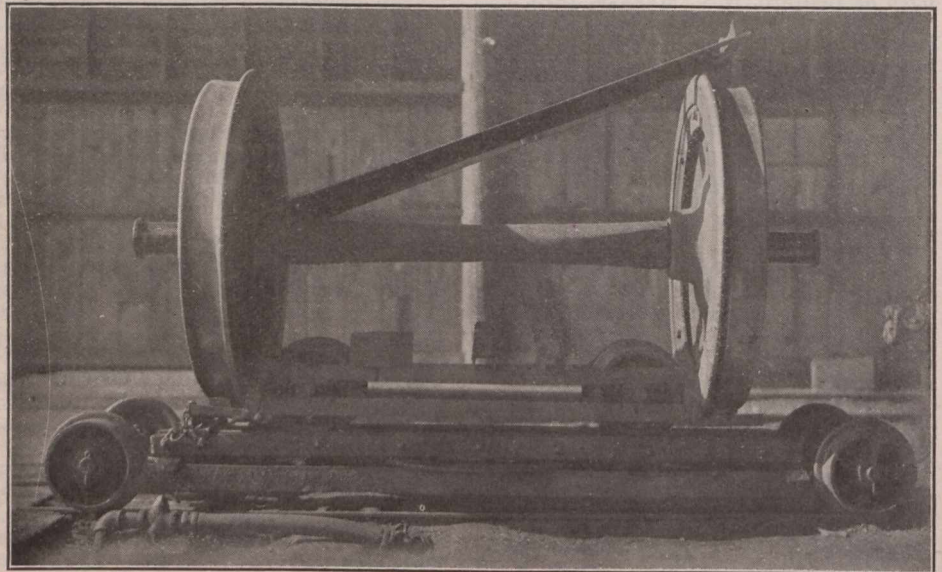
Hydraulic Tube End Expanding Machine with Piston Valves.

## Hydraulic Tube End Expanding Machine in Grand Trunk Shops.

The process of handling locomotive boiler tubes through the safe-ending operation, as practiced in the G.T.R. shops at Stratford, Ont., was described in detail in Canadian Railway and Marine World for Nov. 1912, the article outlining the machine used for clamping the tubes while the end was being expanded

on the treadle, clamping the tube. Pushing in the other handle forces up the expanding mandrel into the tube. With the slide valve, the pressure required on either valve is very small, as the internal valve pressures are equalized as in a locomotive piston valve, as opposed to the ordinary D valve.

**Elevator Record at Fort William.**—It is announced that the Grand Trunk Pacific Elevator Co. has established a record



Car Wheel Handling Truck.

by the forcing in of a mandrel. As originally made, this machine consisted essentially of two hydraulic cylinders, actuated by two flat slide valves. While performing the work satisfactorily, the hydraulic pressing on the back of the flat slide valve made the latter so hard to move that to handle the machine for a whole day was most fatiguing to the operator, especially as each tube end required four valve movements. In consequence, the machine has since been redesigned with piston valves, as shown in the accompanying illustration.

at its elevator at Fort William, Ont., in unloading from cars, between Oct. 1 and Dec. 23, 1915, 21,994,000 bush., or 18,500 cars of grain. This is an average of 241 cars a day of  $12\frac{1}{2}$  working hours. During October, 6,500,000 bush. were loaded into vessels, 8,987,000 bush. in November, a daily average of 300,000 bush. Between Dec. 1 and 12, 5,700,000 bush. were loaded into vessels, a daily average of 475,000 bush.

Railway employes in Canada and the United States number approximately 1,900,000.



**Coal Oil Storage Tank on Canadian Northern.**

On account of the continual risk of accident incidental to the maintenance in sufficient quantities of inflammable oils at divisional points and terminals, it has been considered advisable by almost all good roads to develop a convenient and safe means of caring for this product, instead of allowing a multiplicity of oil cans to accumulate and be scattered around. The following arrangement is used by the Canadian Northern.

An old air brake reservoir forms the container, and is piped with air from the shop line, the oil intake being through a suitable funnel connection. The filling operation is carried out by closing the cut out valve near the reducer and opening the bleed cock, which permits the air to

Clegg, Air Brake Foreman, C.N.R., Winnipeg, for the above information.

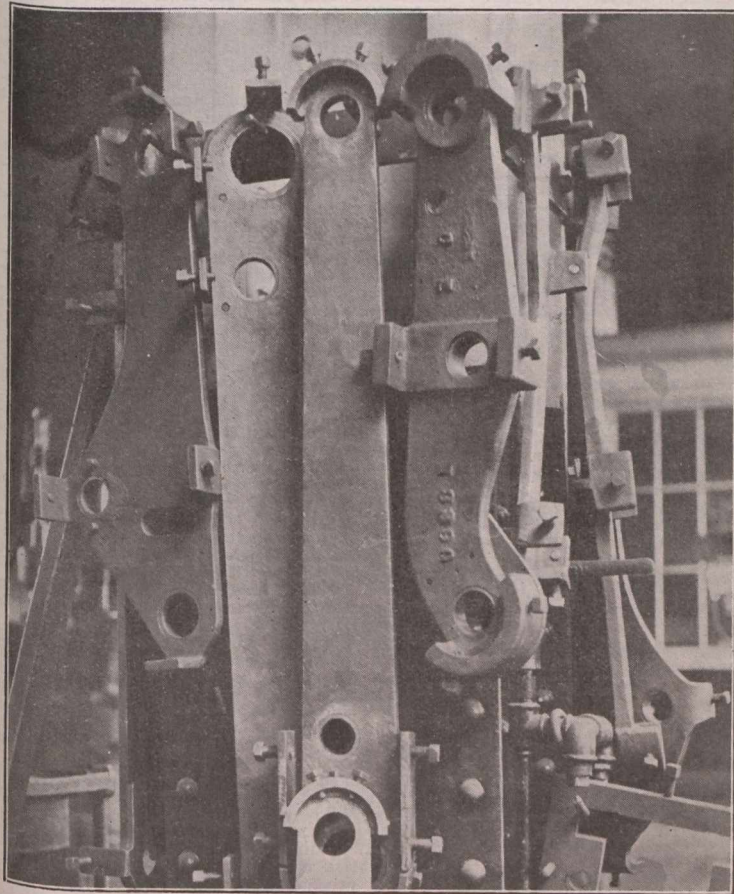
**Small Rod Jigs in Grand Trunk Shops.**

For most of the standard rocker arms, radius links, etc., used on the G.T.R. motive power, the company's shops at Stratford, Ont., have special drilling and reaming jigs. A number of these are shown suspended from a shop column in the accompanying illustration. They are made of either iron castings or steel forgings, with inserted hardened steel bushings at all the holes. In the jig, the article to be drilled or reamed is held and centred by various means, the principal one being by means of set screws in close proximity to the hole in the work, bearings against the work.

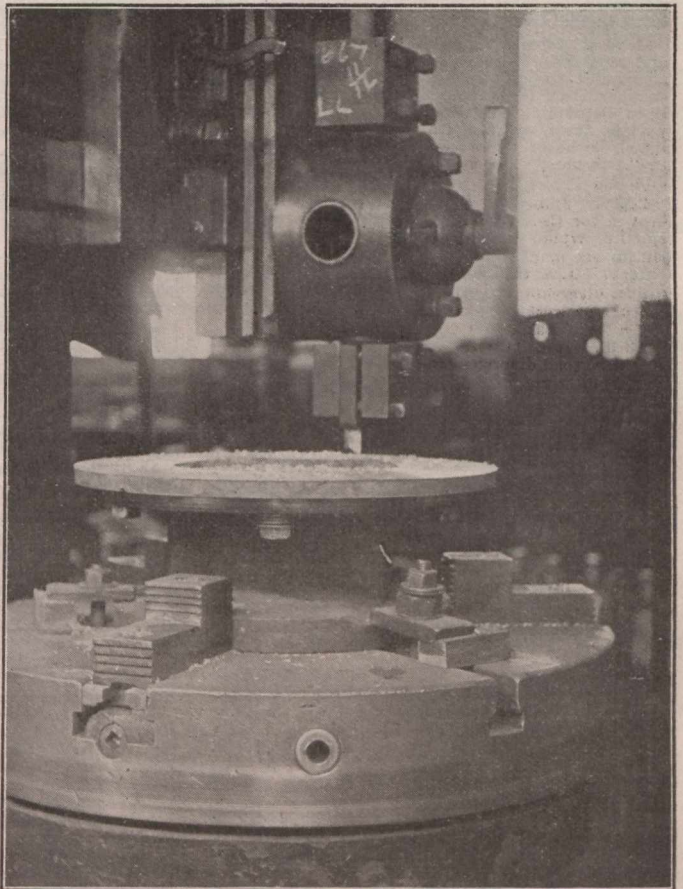
**Car Wheel Handling Truck on Canadian Pacific.**

D. Condell, Car Foreman, Canadian Pacific Ry., Nelson, B.C., has built a unique car wheel handling truck, which, as far as the writer knows, is the only one of its kind in use. As illustrated herewith, it is composed of two small trucks of four wheels each. The lower or main truck runs along a narrow gauge track parallel with and between the main repair tracks, while the upper and smaller truck, which carries the wheels, is placed on a combined revolving table, track and telescoping track section. The latter is adjustable to different distances to be bridged from the truck to repair tracks.

When wheels are to be changed the wheel truck is run along the narrow gauge track until opposite the storage,



Jigs for Drilling and Reaming Rod Pin Holes.



Jig for Machining Hub Liners in the Boring Mill.

**Machining Hub Liners in Grand Trunk Shops.**

The jig on which locomotive hub liners are machined at the G.T.R. shops, Stratford, Ont., is shown in the accompanying illustration. It is an old back cylinder cover, faced on the two ends to sit on the boring mill table, and receive the liner blank. There are 4 holes in the upper flange, corresponding to 4 stud holes that are drilled and tapped in the blank prior to the boring mill operation. By means of these the liners are held on the jig for facing and boring.

The Toronto University Engineering Society has 411 members on active military service.

Russian Freight Rates.—It is announced that rates on grain traffic, except oats, between Russia and China, for export, have been considerably reduced.

where the table is turned around and the telescoping track section pulled out until it engages the main repair track. This is bridged by a separate section carried on the truck at all times. The upper truck is then moved along its track until opposite the storage. The storage being parallel with the repair tracks the truck can be run until it comes in line with the storage, where wheels can be placed on the truck with very little effort, the tracks being level with the truck. The truck and wheels are then returned to the main narrow gauge truck, track sections replaced, table turned round into position, and the truck run along its track until opposite the car requiring wheels. When in position the table is turned at right angles to the repair track and the operation of extending the track sections and running the upper truck into position on the repair track is repeated.

Two hardwood wedges, having boiler plate shoes to cover the track and hold

escape, allowing the whole of the reservoir to be filled with oil, after the cut out valve below the funnel has been opened. The reservoir being filled, it is only necessary to close the cut out valve below the funnel, open the one near the reducer and a good flow of oil will be obtained by opening the faucet. In closing down the system when tank is full of oil, it has been found advisable to shut off the reducing valve cut out, as well as the faucet, and open the bleed cock, which allows any accumulation of air to escape freely to the atmosphere. All piping and valves are located above the oil level, which makes it possible to avoid any leaking or dripping. The 1/2 in. supply pipe inserted inside of the reservoir is held in place by a 1/2 in. coupling, threaded at one end on the outside for 3/4 in. The tank head, being threaded to suit, allows the whole to be inserted and held in place. The reducing valve is set at a pressure of 2 lbs. per sq. in. We are indebted to T.



wedges in position, are placed on repair track in line and on a level with the wheels on truck, which are easily rolled off the wedges to the repair track. The wedges are reversed to the opposite side and old wheels placed and returned to the storage, all with one operation.

This truck was built from the scrap pile, the wheels being removed from an old plain wheel truck, such as is used at nearly every repair track. A pair of car wheels of any size can be easily moved by two men from any part of storage track to repair tracks. In the same yard,

before this truck was built, four to six men were required to place a pair of wheels on repair track. Wheel truck is built low enough so that, while loaded with a pair of wheels, it can be run under a car and the wheels placed in position without removing the car truck.

## Orders by the 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 given of orders, immediately following the numbers, are those on which they were drawn.

General order 156. Jan. 18.—Ordering that, by Feb. 1, all railways which commence, terminate, or intersect any lines listed in Altitudes in Canada, by James White, as well as those which touch tidewater, be based upon mean sea level as provided in that book.

General Order 157. Jan. 31.—Ordering that, on and after Feb. 1, all profiles submitted by railway companies subject to Board's jurisdiction which commence at, terminate at, or intersect with any lines listed in "Altitudes," by James White, as well as those which touch tidewater and are not listed, be based upon mean sea level, as provided in "Altitudes;" and rescinding general order 156, Jan. 18.

24636. Jan. 10.—Authorizing C.P.R. to build branch for Crows Nest Pass Lumber Co. at mileage 1.2, Waldo Subdivision, B.C., to be completed within six months.

24637. Jan. 11.—Authorizing C.P.R. to build at grade, diversion of portions of road allowances on south and west boundaries of s.w. ¼ Sec. 17-39-18, w.3m., Sask.; and close diverted portions.

24638. Jan. 11.—Authorizing C.P.R. to build, at grade, road diversion adjoining southeast boundary of its right of way, in lieu of existing road allowance on western boundary of n.w.¼ Sec. 13-34-3, w.4m., Alta.; and close same.

24639. Jan. 7.—Authorizing Pontiac County, Que., to build highway crossing over C.P.R., in Pontiac.

24640. Jan. 10.—Authorizing the Niagara, St. Catharines & Toronto Ry. to open for traffic portion of its line from St. Catharines to Niagara-on-the-Lake, mileage 0 to 12.2; and extension to lake front on Lot 12, Con. 1, Grantham Tp., mileage 0 to 0.68.

24641. Jan. 10.—Authorizing C.P.R. to refund to Spanish River Pulp & Paper Mills, Sault Ste. Marie, Ont., \$333.84, overcharged on shipment of machinery from Ansonia, Conn., to Espanola, Ont.

24642, 24643. Jan. 10.—Approving Bell Telephone Co. agreement with Arundel Development Co., Dec. 30, 1915, and Lansdowne Rural Telephone Co., Dec. 29, 1915.

24644. Jan. 10.—Ordering Grand Trunk Pacific Ry. to erect, within 30 days, a station at Fort Fraser, B.C., with platform 230 ft. long, station not to be below Board's standard plan 1 B.

24645. Jan. 11.—Authorizing British Columbia Government to build highway crossing over Nelson & Fort Sheppard Ry. (G.N.R.) at Mountain station, Nelson.

24646. Jan. 10.—Ordering G.T.R. to plank Weland Ave., St. Catharines, Ont., from curb to curb; to move cedar post at s.e. corner; and erect crossing signboard at north side of track and street line; Niagara St. Catharines & Toronto Ry. to pay cost of laying and maintaining planking between its rails and for 8 ins. on each side thereof; work to be completed by Feb. 15.

24647. Jan. 12.—Amending order 24628, Jan. 10, re suspension of certain express companies' tariffs.

24648. Jan. 12.—Approving plan and specifications of A. Moore drain, to be built under Canada Southern Ry. in west half of Lot 30, Southwold Tp., Ont.

24649. Jan. 14.—Relieving C.P.R. from providing further protection at crossing at mileage 71.2, about 3 miles west of Point du Lac station, Que.

24650. Jan. 13.—Relieving C.P.R. from providing further protection at crossing at Hatton, Sask.

24651. Jan. 13.—Relieving, subject to certain conditions, C.P.R. from providing further protection at crossing ½ mile east of Binscarth, Man.

24652. Jan. 11.—Amending order 23878, June 18, 1915, re Canadian Northern Ry. crossing north of Sec. 27-46-23, w.2m., Sask.

24653 to 24655. Jan. 14.—Authorizing New York Central Rd. to rebuild bridges A-40, 0.78 mile north of Athelstan; A-71, 1.1 miles north of St. Stanislas, and A-41, 0.83 mile north of Athelstan, Que.

24656. Jan. 15.—Dismissing Grand Trunk Pacific Ry. application to remove its regular station agent at New Hazelton, B.C.

24657. Jan. 14.—Approving revised location of Grand Trunk Pacific Branch Lines Co's. Moosejaw Northwest Branch, and land required for station grounds, in west half of Sec. 26-22-6, w.3m., Sask.

24658. Jan. 17.—Authorizing C.P.R. to build spur for I. Georgetti, Trail, B.C.

24659. Jan. 17.—Authorizing G.T.R. to build extension to siding for William Davies Packing Co., Toronto.

24660. Jan. 15.—Approving Niagara, St. Catharines & Toronto Ry. crossing of road allowance between Secs. 9 and 10, Stamford Tp., Ont.

24661. Jan. 18.—Extending time for reconstruction of C.P.R. bridge at Notre Dame St., St. Pie, Que., so that plans may be filed by Mar. 1 and the work completed by Mar. 31.

24662. Jan. 17.—Authorizing London Railway Commission to construct a branch of London & Port Stanley Ry. for London Rolling Mills Co., and McClary Manufacturing Co., London, Ont., to be completed within six months.

24663. Jan. 18.—Authorizing C.P.R. to build spur for Ingersoll Machine Co., Ingersoll, Ont.

24664. Jan. 18.—Authorizing G.T.R. to rebuild bridges 15, 18 and 24 on District 22, Ontario Lines.

24665. Jan. 19.—Authorizing Canadian Northern Ontario Ry. to divert Park Drive, York Tp.

24666. Jan. 18.—Amending order 23219, Jan. 27, 1915, re Hamilton Radial Ry. tracks at Sherman Inlet, Hamilton, Ont.

24667. Jan. 18.—Authorizing Eastern Canadian Passenger Association to publish general order 151, Nov., 1915, and regulations attached thereto.

24668. Jan. 21.—Extending to June 1 time within which G.T.R. shall install bell at second highway crossing east of Baden station, Ont.

24669. Jan. 19.—Ordering Canadian Northern Ry. to appoint station agent at Plato, Sask., until May 1, and between Sept. 1 and May 1 in each year until otherwise ordered; caretaker to be employed when agent is withdrawn.

24670. Jan. 20.—Authorizing Pennsylvania Rd. pending further order, to operate trains over portion of International Bridge Co. and G.T.R., according to agreement of Mar. 31, 1913.

24671. Jan. 21.—Extending to June 1 time within which Canadian Northern Ontario Ry. shall build crossing over Second Concession road allowance in Goulbourn Tp.

24672. Jan. 22.—Ordering that crossing of London St. Ry. by London & Port Stanley Ry., required by order 24629, Jan. 7, be maintained by London Railway Commission.

24673. Jan. 22.—Suspending, pending further order, certain tariffs of Canadian Northern Ry., Grand Trunk Pacific Ry. and C.P.R., effective Feb. 1, cancelling all free return transportation for live stock shippers west of Port Arthur, Ont.

24674. Jan. 22.—Dismissing Western Retail Lumbermen's Association complaint against increase by railway companies in the carload minimum on brick in Western Canada.

24675. Jan. 24.—Authorizing Canadian Northern Ontario Ry. to build across highway between Lot 35, Con. 2, and Lot 35, Con. 3, Markham Tp.

24676. Jan. 22.—Ordering Canadian Northern Ry. to pay W. Bell, Winnipeg, \$1,600 for damage to his property, as provided under order 19120.

24677. Jan. 24.—Authorizing Grand Trunk Pacific Ry. to remove spur built for Inland Lumber & Building Co. in Edmonton, Alta.

24678. Jan. 24.—Approving revised location of Grand Trunk Pacific Ry. from Lot 5935 to north boundary of Lot 5277, mileage 134 to 144, Yellowhead Pass west, B.C.

24679. Jan. 26.—Amending order 24630, Jan. 7, by substituting Lake Erie & Northern Ry. for London & Lake Erie Ry. The error in the original order was noted and corrected in the summary published in Canadian Railway and Marine World for February.

24680. Jan. 27.—Suspending, pending hearing on Feb. 8, certain tariffs covering charges for the use of heated refrigerator cars on C.P.R., Canadian Northern Ry., G.T.R., and Toronto Hamilton & Buffalo Ry.

24681. Jan. 26.—Authorizing C.P.R. to build additional siding for O'Brien Munitions, Ltd., at Renfrew, Ont.

24682. Jan. 26.—Extending for 60 days from date time within which C.P.R. shall install gates at Talbot Ave., Winnipeg.

24683. Jan. 25.—Authorizing G.T.R. to build temporary spur and trestle in Toronto Harbor Industrial District, for Canadian Stewart Co.

24684. Jan. 26.—Relieving the G.T.R. from providing further protection at crossing at Stamford, Ont.

24685. Jan. 27.—Relieving Canadian Northern Ry. from providing further protection at crossing just east of Ashville station, Man.

24686. Jan. 26.—Dismissing application of milk shippers for general order fixing minimum number of milk cans, or minimum carload rate, necessary to entitle shipping station to separate car.

24687. Jan. 27.—Authorizing British Columbia Southern Ry. to build highway over its track at Erickson Road, Creston, B.C., cost to be paid by British Columbia Government.

24688. Jan. 26.—Dismissing application of village of Forward, Sask., for order directing C.P.R. to furnish site for coal shed; or for Canadian Northern Ry. to grant joint rate to junction at Forward that shall be at least as low as present C.P.R. tariff to Forward spur, or Axford station.

24689, 24690. Jan. 27.—Approving Bell Telephone Co. agreements with Mono Mills Independent Telephone Association, Jan. 13, and Udney Telephone Co., Jan. 11.

24691. Jan. 28.—Authorizing clearances at G.T.R. sidings serving Canada Forge Co., Weland, Ont.

24692. Jan. 28.—Ordering C.P.R. to carry out certain work on ditch at mileage 79.2, Quebec Subdivision, by May 1.

24693. Jan. 28.—Authorizing Grand Trunk Pacific Ry., pending further order, to remove regular agent at Willow River, B.C., caretaker to be appointed for accommodation of passengers and l.c.l. freight and express matter.

24694. Jan. 29.—Ordering G.T.R. to concur in joint freight tariffs to be published and filed by Canadian Northern Ry. to apply on grain and grain products, in carloads, from Port Arthur, Fort William, and Westfort, Ont., to G.T.R. stations, via North Bay, Ont. This order is given fully on another page.

24695. Jan. 22.—Authorizing City of Windsor, Ont., until Dec. 31, to permit pedestrians to cross Michigan Central Rd., pending application to have Michigan Central Rd. build level crossing at Wyandotte St., and reserving leave to city to apply for extension of time, in event of application not being finally determined prior to Dec. 31.

24696. Jan. 31.—Approving schedule showing train service on Vancouver, Fraser Valley & Southern Ry. (B.C. Electric Ry.).

24697. Jan. 31.—Ordering G.T.R. within 90 days to install automatic bell at highway just north of Allanburg station, Ont., 20 per cent. of cost to be paid out of railway crossing fund.

24698. Jan. 31.—Authorizing C.P.R. to build spur for Ford Motor Co. of Canada, Winnipeg.

24699. Jan. 31.—Ordering Canadian Northern Ry. to appoint station agent at Morrin, Alta.

24700. Feb. 1.—Authorizing Canadian Northern Ontario Ry. to build across certain highways in Mara Tp., between mileage 67 and 82.

24701. Jan. 31.—Authorizing Grand Trunk Pacific Ry., pending further order, that, after two weeks notice has been given making Gainford, Alta., a prepaid station, to remove the station agent, caretaker to be appointed for accommodation of passengers and l.c.l. freight and express matter.

24702. Feb. 2.—Ordering Canadian Northern Ontario Ry. to attach passenger car to trains 107 and 108, between Hawkesbury and Ottawa, to and from Henderson Ave. station, Ottawa, for passengers to and from Ottawa only; leaving Ottawa and Hawkesbury as at present; all stations may be treated as flag stations; service to be in effect for three months.

24702. Jan. 29.—Authorizing Canadian Northern Ry., pending further order, to remove station agent at Cumberland, Ont.; caretaker to be appointed.

24704. Feb. 1.—Authorizing C.P.R. to build spur and sidings for Dominion Sugar Co., at Chatham, Ont.

24705. Feb. 3.—Authorizing Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) to remove spur to Britannia Trading & Lumber Co., near Burnaby, B.C.

24706. Jan. 28.—Amending order 24462, Nov. 19, 1915, re sale of Canadian Northern Ry. tickets on main floor of Union Station, Toronto.

24707. Feb. 4.—Authorizing C.P.R. to operate over subway at Main St., Winnipeg.

24708. Feb. 4.—Ordering C.P.R. to keep station as Ashdod, Ont., clean, warm and properly lighted for accommodation of passengers and provide outside bracket lamp for platform, between station door and main walk to train.

24709. Feb. 4.—Extending to June 1 time within which G.T.R. shall install bell at highway just north of Allanburg station, Ont.



### Canadian Pacific Railway Construction, Betterments, Etc.

In an interview at London, Ont., Feb. 8, George Bury, Vice President, is reported to have said there will be no new construction on the eastern lines during the year, and no new large works of betterment will be undertaken; all that will be done will be the necessary work of maintenance and ordinary and essential betterments.

Grant Hall, Vice President and General Manager, Western Lines, in an interview at Winnipeg on his return from a recent visit to Montreal is reported to have said, "There is no possibility of the C.P.R. embarking on any ambitious scheme during the continuance of the war. In view of the rather obscure financial outlook it has been decided not to proceed with the building of any new lines, but this matter will be given further consideration in the spring should conditions warrant. The necessary money for the completion of the Rogers Pass tunnel has been allotted, and that work will be completed this year. Provision has also been made for the erection of a commodious train shed or rather system of umbrella sheds at Winnipeg station, but the exact design to be followed has not been determined. In pursuance of the company's policy to encourage the live stock industry 35 additional stockyards will be built on the western lines during the year. Considerable expenditure will be made upon additions to the reservoir in connection with the water supply at Moose Jaw, Sask.; new icehouses will be erected at Weyburn, Sask., and Edmonton, Alta., and some new stations will be built on the line to Shaunavon. Generally the work for the year will include a considerable expenditure on ballasting, bank widening, etc., and 150 miles of track will be relaid with new heavy rails."

We are officially advised that the distance between Vantage, the present terminus of the Moose Jaw-Expanse branch, to the present terminus of the present Assiniboine branch is eight miles. The building of this mileage to connect the two branches is being urged, but the company has not at present in contemplation the construction of any new lines.

The fact that the water supply at Moose Jaw is to be increased is quoted as a sufficient answer to the press report that the company is considering the removal of the divisional point and shops from Moose Jaw to Swift Current.

We are officially advised that the betterments to be done on western lines during the current year will include the usual amount of renewals, the paving of the approaches to the freight shed at Regina, and the erection of umbrella sheds at Winnipeg station, the details for which have not yet been completed. The replacing of old with new steel will include 19.5 miles of 65 lbs. rails on the Aldersyde Subdivision, and the putting in of new 85 lb. steel as follows:—District 1, Manitoba Division, 41.1 miles; Winnipeg terminals, 5 miles; Brandon subdivision, 26 miles; Broadview subdivision, 12 miles; Swift Current subdivision, 1 mile; Medicine Hat subdivision, 15 miles; Calgary subdivision, 7 miles; Laggan subdivision, 4.4 miles; Cranbrook subdivision, 21.4 miles; Shuswap subdivision, 5.4 miles; Thompson subdivision, 9.2 miles; Cascade subdivision, 9 miles, a total of 177.1 miles.

The points at which new stockyards will be provided are:—Fertile, David and Regent, in Manitoba; Liberty, Brora, Grand Coulee, Lajord, Readlyn, Simpson, Tregarva, Belle Plains, Richardson, Lim-

erick, Renown, Kedleston, Pasqua, Grif-fith, Cadillac, Dilke, Holdfast, Forget, Froude, Kincaid, Young, Siltan, Tyvan, Ogema, Hazenmore, Penzance, Pilot Butte, Sedley, Ponteix, Stalwart, Wilkie, Tramping Lake, Naseby, Markinch, Leipzig, Kandahar and Biggar in Saskatchewan; Portreeve, Sceptre, Coaldale, Parkland and Beddington, in Alberta.

### Railway Finance, Meetings, Etc.

**Canadian Northern Ry.**—There was deposited with the Secretary of State at Ottawa, Jan. 20, duplicate original of a trust agreement between the C.N.R. and the Central Trust Co. of New York, securing an issue of one year 5% secured gold notes. The issue is reported by New York papers to consist of \$2,500,000, of which \$2,000,000 is to be provided immediately and the balance on the deposit of some additional stock, and is secured by the deposit of £205,000 of 4½% debenture stock of the C.N. Pacific Ry., guaranteed by the Province of British Columbia; £209,000 of 4% C.N.R. debenture stock, and £193,000 of 4½ first mortgage bonds of the C.N. Saskatchewan Ry., guaranteed by the Province of Saskatchewan.

**Canadian Pacific Ry.**—The directors on Feb. 15 authorized the payments of the following dividends for the period ended Dec. 31, 1915:—A dividend of 2% for the half year on the preference stock; a dividend of 2½% for the quarter on the common stock. The dividend on common stock is at the rate of 7% per annum from revenue and 3% from special income account. Both dividends are payable April 1 to shareholders of record Mar. 1.

**Michigan Central Rd.**—There has been deposited with the Secretary of State at Ottawa, an agreement dated Oct. 1, 1915, made between John Carstensen and other vendors, the Philadelphia Trust Co., trustee, and the Michigan Central Rd., relating to the M.C.R. Equipment Trust of 1915.

**St. John & Quebec Ry.**—The New Brunswick Government has called in for redemption the 4½% ten year bonds issued with the provincial guarantee, at the rate of 95 and accrued interest.

**Temiscouata Ry.**—Net earnings for Nov. 1915, \$3,502. Aggregate net earnings for 5 months ended Nov. 30, 1915, \$16,798.

**Toronto, Hamilton & Buffalo Ry.**—The Dominion Parliament is being asked to confirm an agreement made between the company, the Michigan Central Rd., the Canada Southern Ry., the New York Central Rd., the C.P.R., and the Trust Co., dated Feb. 1, making certain traffic arrangements for 50 years, and providing for the guarantee of consolidated mortgage bonds to be issued by the company.

**Express Rates on Government Currency.**—Ottawa press dispatch, Feb. 24. The Dominion Express Co. is making a bid for the carriage of all Government currency, exclusive of shipments of gold or silver. It has filed a special competitive tariff of rates on currency based on shipments forwarded or received by the Finance Department at Ottawa, to or from the Assistant Receivers-General, also on shipments moving between the latter at Victoria, Winnipeg, Toronto, Montreal, St. John, Halifax, and Charlottetown. The special currency rate per \$1,000 is \$2.10, and is said to be a decrease of about 60% from the old rates.

24710. Feb. 7.—Authorizing C.P.R. to build diversion of road allowance at mileage 52.3, Wilkie Subdivision, Sask.

24711. Feb. 5.—Authorizing G.T.R. to build siding for Hay & Co., Nissouri West Tp., Ont.

24712. Feb. 7.—Ordering C.P.R. to install bell by June 1 at Main St., Chesterville, Ont., 20 per cent. of cost to be paid out of railway grade crossing fund, cut-out and bonding to be in front of platform on westbound track.

24713. Feb. 7.—Ordering Grand Trunk Pacific Ry. forthwith to appoint station agent at Quinton, Sask., until May 1, and between Sept. 1 and May 1 each year until otherwise ordered.

24714. Feb. 9.—Dismissing complaint of A. H. Mayland, Calgary, Alta., against competition of loading charge and diversion charge made by C.P.R. on pigs or livestock shipments through Calgary.

24715. Feb. 9.—Authorizing C.P.R. to build spur for John Deere Plow Co., Regina, Sask.

24716. Feb. 9.—Authorizing C.P.R. to build spur for Shell Co. of California, Inc., near Barnett, B.C.

24717. Feb. 8.—Approving plans and specifications of Southwold Tp., Ont., showing work to be done on the A. Moore drain under G.T.R.

24718. Feb. 9.—Authorizing Michigan Central Rd. to build siding for Norton Co., Chippawa, Ont.

24719. Feb. 10.—Relieving C.P.R. from providing further protection at crossing of Kemptville Road, near Kempton, Ont.

24720. Feb. 5.—Authorizing Lachine, Jacques Cartier & Maisonneuve Ry. (G.T.R.) to build across certain highways between Cote de la Visitation Road and Belanger or Daniel Sts, Montreal; authority granted herein to be exercised by Dec. 31, 1917, or order to become inoperative.

24721. Feb. 11.—Authorizing C.P.R. to build spur for Port Moody Steel Works, Ltd., Port Moody, B.C.

24722. Feb. 14.—Relieving Canadian Northern Ry. from providing further protection at second crossing east of Oshawa station, Ont.

24723. Feb. 12.—Ordering C.P.R. to install improved automatic bell at highway west of Welsford station, N.B., by June 1, 20 per cent. of cost to be paid out of railway grade crossing fund.

24724. Feb. 14.—Suspending, until further order, proposed cancellation of joint rates from Eastern Canada to points in Western Canada, applying via routes published in Supplement 8 to G.T.R. tariff C.R.C. no. E-2962, and Supplement 18 to G.T.R. tariff C.R.C. no. E-2977, issued to take effect Feb. 15.

24725. Feb. 15.—Authorizing Algoma Central & Hudson Bay Ry. to use bridge at mileage 150.61, over Kiniwabe River, Tp. 28, R. 22, Algoma District, Ont.

24726. Feb. 15.—Approving agreement between Bell Telephone Co. and National Telephone Co., Dec. 31, 1915.

24727. Feb. 16.—Disallowing Canadian Northern Ry. special proportionate freight tariff, C.R.C. no. E-732, applicable from Toronto to Regina, Sask., on tank and steel structural material, in carloads, originating at Sarnia.

24728. Feb. 16.—Rescinding order 23483, Apr. 6, 1915; and ordering that C.P.R. trains crossing Portage Ave., Winnipeg, be limited to 6 miles an hour.

24729. Feb. 15.—Ordering Canadian Northern Ry. to appoint station agent at Brunkild, Man., Mar. 1.

24730. Feb. 15.—Authorizing Premier Coal Co. to carry its roads or entries under railway right of way.

24732. Feb. 15.—Approving agreement between Bell Telephone Co. and Kamouraska Telephone Co. Dec. 30, 1915.

24733. Feb. 17.—Approving clearances at country grain elevators for C.P.R., Grand Trunk Pacific Ry. and Canadian Northern Ry., and rescinding order 24157, Sept. 10, 1915.

24734. Feb. 17.—Authorizing C.P.R. to build extension to siding for M. J. O'Brien, Horton Tp., Ont.; and a siding for Energite Explosives, Ltd., at mileage 69.28, Chalk River Subdivision, Ont.

24735. Feb. 17.—Authorizing Grand Trunk Pacific Ry. to build connection between G.T.P. Edmonton Exhibition Association spur and Edmonton Radial Ry., Edmonton, Alta.

24736. Feb. 17.—Authorizing Canadian Northern Ry. to cross and divert highway in n.w. ¼ sec. 5-35-7, w.2m., Sask.

24737. Feb. 17.—Authorizing Algoma Central & Hudson Bay Ry. to open for traffic revision of its main line in Sec. 37, Vankoughnet Tp., and Lot 12, Con. 1, Deroche Tp., Algoma District, Ont.; and to use bridge at mileage 19.10.

24738. Feb. 17.—Authorizing G.T.R. and City of Toronto to rebuild Bathurst St. Bridge.

24739. Feb. 15.—Authorizing Canadian Northern Quebec Ry. to close Larose station during winter as flag station for passenger trains; station to be open from May 1 to Oct. 31 each year and to be lighted when required for accommodation of passengers.

General order, 158. Feb. 15.—Ordering that provisions of general order 153, Nov. 4, 1915, applicable to Canadian Freight Classification and any proposed new issue or supplement thereto, and to Canadian Freight Association, shall apply to Express Classification for Canada and to Express Association of Canada, in so far as they can be made applicable.







example is rather high and the live load is considered to be 66,000 lbs., which is considerably above the actual requirements for a baggage car or a mail car. The United States Railway Mail Service Department specification for a steel full postal car specifies a maximum of 50,000 lbs. live load. The bending moment in a 74 passenger car is less than in the above example. It can, therefore, be assumed that if an underframe is designed to withstand a bending moment of approximately 5,900,000 in. lbs. and an end shock of 400,000 lbs. it will be suitable for all classes of passenger cars.

The stresses imposed upon the underframe from end shocks must be dealt with separately. The underframe must be considered as a column and both direct and eccentric forces must be considered and for members in compression the stresses must be reduced in accordance with usual engineering practice. The American Railway Engineering Association has adopted an empirical formula reading as follows:—

$$L \\ 16000 - 70 \frac{L}{R}$$

which has been approved by the U. S. A. Mail Service Department and allowed 20 per cent. greater fibre stresses than arrived at by using the above formula.

The above requirements for the underframe could easily be satisfied if the car designer could change the construction to suit the conditions, but unfortunately a number of standards are established which the car designer cannot change, such as truck height, coupler and buffer heights and the general clearance dimensions of cars. The car designer has, therefore, to compromise and be satisfied with a design which as closely as possible comes up to an ideal construction when considered from an engineering standpoint.

The sections shown in figs. 2 and 3 satisfy the requirements for a modern underframe in relation to load and end shocks. It will be observed from the respective figures that the extreme fibre stresses come well below the required limits of the U. S. A. Mail Service specification for all steel full mail cars, which is used as a foundation for all passenger car designs of today. The underframe considered in this example is probably not the most economical construction, for all designs but I have endeavored to give due attention to the construction from a maintenance standpoint, and not employed any section with less thickness than  $\frac{3}{8}$  in., in order to provide ample bearing value for all rivets and to give reasonable allowance for deterioration, and an attempt has been made to reduce the number of different sizes of material so it will be noted that the size of centre sill cover plates and centre sill web plates are all the same. All angles employed are also of one size. All plates are  $\frac{3}{8}$  in., so that the majority of details required can be obtained from the scrap cut from centre sills. The object, however, when analyzing the above underframe is not to produce an ideal design, but to show what a complex problem a car designer has to contend with.

**End Framing.**—It is necessary to have a substantial end frame to prevent telescoping, particularly if an efficient anti telescoping device is not employed. An end framing built in accordance with U. S. A. Mail Service Department specifications which calls for a section modulus for vertical end members not to be less than 65, of which 75 per cent. must be concentrated in the door posts and the end posts adjacent to door posts and the en-

tire framing well secured offers a very good construction which is amply strong.

**Side Framing.**—To prove that the superstructure of a wooden car is equally as strong as the steel construction of a steel car, I will compare the side posts in wood and steel cars. Fig. 4 shows a standard section of a wood post and fig. 5 shows a typical design of a steel post for steel cars. For comparison of strength of the two posts, as shown in figs. 4 and 5 consider the ultimate strength of ash to be 12,000 lbs. per sq. in. and 60,000 lbs. per sq. in. for steel; in other words, the steel to be five times as strong as ash, when these materials are subject to bending. In order to get expression as to strength for side posts, I wish to refer to the U. S. A. Post Office Department's specification for the construction of steel full postal cars, which reads as follows:—

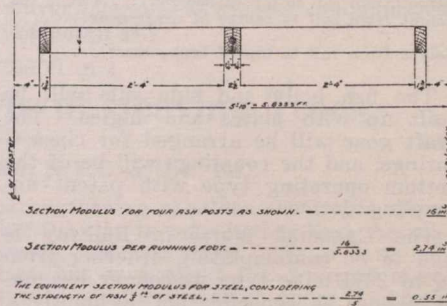


Figure 4.

"The sum of the section moduli taken at any horizontal section between floor line and top line of windows, of all posts and braces on each side of car, located between end posts, shall not be less than 0.30 multiplied by the distance in feet between the centre of end panels, a panel length being considered as the distance between lines of rivets in adjacent vertical post."

The quoted paragraph will probably be clearer to us if we reconstruct it to read as follows:—"The average section moduli on each side of car for side posts must not be less than 0.30 per running foot."

We will now consider one section of one side in a standard railway car, now being largely used, the section being from

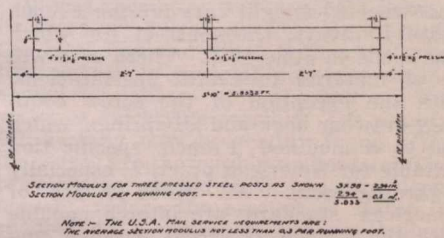


Figure 5.

centre to centre of pilaster, which includes lower windows with gothic above. The length of such section in a railway car is, on an average, 5 ft. 6 ins., or 5.8333 ft. The number of posts in 5.8333 ft. section is 4 for wood cars, 2 narrow and 2 wide, and 3 for steel cars. Referring to figures 4 and 5 we note that comparative section modulus for steel is 0.5 and for wood 0.55, the wood posts being 10 per cent. stronger than the steel post. Both constructions, however, meet the U. S. A. Mail Service requirements. This comparison shows that, as far as the strength of the side of a wooden car, when considered perpendicular to its side, which is vital in case of wreck, is at least in some instances stronger than a steel car. I wish, however, to make it plain that no claim is made to the superiority of the side framing in a wooden car over a steel car, considering same as a carry-

ing member or truss. A combination of wood and steel for side framing seems to me to be most practical.

**Roof.**—No one familiar with car construction and maintenance of cars will deny that the canvas roof, properly laid, gives remarkably good service; in fact, it will outlast the car if given reasonable care. When I say canvas properly laid, I consider it properly laid when it is applied in the same manner as the practice in shipbuilding, when laying canvas on the cabin roof, which lasts almost indefinitely if not abused. The steel roof, on the other hand, has not, up to the present, proved a success. Steel roofs having vertical expansion joint, about 1 1/4 in. in height soon wear out on account of the abrasive action of cinders. The deck screens in an all steel car are objectionable on account of pockets being formed behind the screen, in which gases, moisture and cinders collect which destroy the paint and in a short time a serious corrosion takes place, which cannot be detected before a car is sent to the shops for general repair. A steel car roof must be frequently painted, and it cannot be done with a canvas roof, if the regular "shopping" period for any reason is prolonged. In connection with the canvas roof it is understood that wood roof framing is properly constructed and tied together at frequent intervals with steel carline which should extend in one piece from side plate to side plate, to which they should be firmly secured.

The inside finish in all steel car is hard to restore to its original appearance, in case it must be touched up at isolated places, where the paint has been scratched, worn or peeled off. Wooden cars having stained and polished wood finish, can easily be restored to their original appearance in case the finish should be damaged.

In summing up I realize that I have only outlined passenger car design in a very general way, but I have tried to show what I believe to be the best design of car, looking from every angle, namely, economical from a railway, and safety and comfort from the travelling public standpoint, and to put this in a concise form, I believe that in designing a car for present use the following are the principle points:—

1. A steel underframe which will take care of all loads, strains and buffing shocks imposed on car, with an efficient buffer, draft gear and some device which will lock the trucks to the body of the car in case of accident to prevent telescoping or a turnover of the car, is absolutely necessary.
2. A substantial end frame which will stand a very severe buffing shock and prevent telescoping.
3. A combination steel and wood side framing and wood exterior finish.
4. A combination wood and steel roof covered with canvas properly laid.
5. An interior wood finish.

With this construction the railway can repair its own cars, in the old wooden car repair shops, without going to the expense of installing a considerable amount of modern machinery, which would be necessary with all steel cars. The travelling public will be provided with a car which will compare favorably in strength with an all steel car. The inside finish can be made more artistic, easier to maintain and simpler to renew when required. In case of wreck the passengers will have a chance to cut their way out from the debris, which is impossible in an all steel car.

The adoption of steam from the locomotive for heating passenger cars, and



lighting by electricity, practically eliminates the danger of fire. The all steel car is probably more fireproof, but when we consider that upholstering material and varnish and other details are inflammable, this car is comparatively as fireproof as an all steel car, and the temperature in this car will not be subject to such sudden changes in weather con-

ditions as the all steel car. It will be warmer in winter and cooler in summer, and will not develop any sweating, which is so obnoxious in all steel cars. I am, therefore, convinced that this type of car is the most satisfactory to all concerned from every point of view.

The foregoing paper was read before the Canadian Railway Club recently.

## Railway Rolling Stock Notes.

The G.T.R., during January, received one box car, which had been built at its Elsdon, Ill. shops.

The Canadian Northern Ry. has received three 75 ton wrecking cranes from the United States.

The Intercolonial Ry. has received 2 consolidation locomotives from Canadian Allis-Chalmers Ltd.

The Canadian Pacific Ry. has decided to change the lighting of 62 passenger cars from gas to electricity.

The Nova Scotia Steel & Coal Co., has ordered 200 steel mine cars of 2,000 lbs., capacity from the Eastern Car Co.

The Acadia Coal Co. has ordered 200 composite and 150 steel mine cars of 2,000 lbs. capacity from the Eastern Car Co.

The Timiskaming and Northern Ontario Ry. has received two steel first class passenger cars, nos. 244 and 245, and two steel baggage and express cars, nos. 213 and 214, from the Pullman Co.

The Eastern Car Co. has shipped 1,878 of 2,000 freight cars, which the Russian Government ordered recently for use on the State Railways. The balance was expected to have been shipped by the end of February.

The Canadian Pacific Ry. will probably place an order outside its own works in the near future for 6 Pacific type passenger locomotives which will be more powerful than any others of that type in Canada at present.

The Imperial Oil Co. has ordered 25 two compartment, and 20 three compartment tank car underframes and trucks, from Canadian Car and Foundry Co. They will be delivered at Sarnia, Ont., where they will be equipped with tanks, etc., by the owners.

The Canadian Locomotive Co., between Jan. 1 and Feb. 12, shipped 15 decapod locomotives for the Russian Government. These are part of an order for 50 which were fully described and illustrated in Canadian Railway and Marine World for Jan.

The French Government has ordered an additional 2,000 freight cars from the Eastern Car Co., for use on the State Railways, but whether these are to be the same type as those now under construction by this company, some details of which are given on this page, has not been definitely announced.

The Canadian Pacific Ry. is about to build at its Angus shops, Montreal, in addition to the cars mentioned in Canadian Railway and Marine World for Feb., 825 standard box cars, with steel underframes, wooden body and steel ends; 100 automobile cars, 200 freight refrigerator cars, 50 passenger refrigerator cars, 30 stock cars, 3 furniture cars, 25 steel coal and ore cars.

Following are the chief details of the 150 steel underframes for flat cars of 50 tons capacity, which the Michigan Central Rd. have ordered from the Can-

adian Car & Foundry Co., as mentioned in our last issue:—

Length over end sills	40 ft.
Length over striking plates	41 ft. 1 3/4 ins.
Truck centres	30 ft.
Wheel base	5 ft. 6 ins.
Width over side sills	9 ft.
Width over flooring	9 ft. 4 ins.
Width overall	9 ft. 11 1/4 ins.
Height from rail to top of flooring	4 ft. 2 ins.
Height from rail to centre of draft gear	2 ft. 10 1/2 ins.
Height from rail to top of brake mast	5 ft. 10 ins.

The fish belly and side sills will be built up with plates and angles. The draft gear will be arranged for class G springs, and the couplings will be of the bottom operating type with patent uncoupling device.

The Canadian Northern Railway is said to be contemplating ordering from 16 to 20 Pacific type passenger locomotives and 30 consolidation locomotives. The following are the probable dimensions, etc.

### PACIFIC TYPE.

Gauge	4 ft. 8 1/2 ins.
Fuel	Bituminous coal
Weight on drivers in working order	153,000 lbs.
Capacity of tender, coal	24,000 lbs.
Capacity of tender, water	6,000 imp. gals.
Driving wheelbase	13 ft.
Cylinders	24 in. diam. by 28 in. stroke
Driving wheels	69 in. diam.
Working boiler pressure	200 lbs.
Maximum tractive effort	40,000 lbs.

### CONSOLIDATION TYPE.

Gauge	4 ft. 8 1/2 ins.
Cylinders	24 x 32 ins.
Driving wheels	63 in. diam.
Boiler pressure	200 lbs. per sq. in.
Driving wheelbase	16 ft. 6 ins.
Engine wheelbase	25 ft. 5 ins.
Tractive effort	50,000 lbs.
Tender coal capacity	12 tons
Tender, water capacity	6,000 imp. gals.

The Eastern Car Co. is building 1,000 four-wheeled freight cars for the French State Railways, the contract for which was made in June 1915. These cars will be of material to C.P.R. specifications, with the exception of the screw coupling, drawbar hook and all springs, which are to a modified French specification suitable for American practice, especially regarding tests. All rolled shapes of American standard are interchangeable with the French as far as possible, and the side end stakes and floor stringers are of French section. The siding, ending and sheathing for cabin is of yellow pine, and the floor and cabin framing of oak. The buffers are of cast steel, and the brake of the usual clamp type with counterweights operated from the cabin. Brakeshoes are of cast iron with trussed type brake beam; journal boxes of malleable iron with drop forged wedges, lead lined bearings and special oil lubricator. The wheels are of solid forged steel, interchangeable with the French wheels of spoked type, and are on French type axle with journals 140 by 250 m.m. Following are the chief dimensions:—

Length over buffers	27 ft. 8 5/8 ins.
Wheel base	11 ft. 9 3/4 ins.
Width over side steps	10 ft. 5 1/2 ins.
Length over end sills	23 ft. 11 3/8 ins.
Length inside	21 ft. 7 7/8 ins.
Width inside	8 ft. 2 7/16 ins.
Height from top of rail to top of cabin	11 ft. 4 1/2 ins.

## Canadian Northern Railway Construction, Betterments, Etc.

The Toronto, Niagara & Western Ry. Co., which is the title of the company under which C.N.R. interests have power to build a railway from Toronto to the Niagara frontier, and generally westerly of Toronto, is asking the Dominion Parliament to increase its bonding powers to \$75,000 a mile, and to extend the time limit for the building of the following lines of railway: from Toronto to Hamilton, along Burlington Beach; from Hamilton to the International Boundary at Grand Island or Niagara Falls, N.Y., and from Hamilton to Windsor, Ont. Power is also asked to repeal the statutory prohibition of the use of steam for the operation of the railway.

**Toronto Terminals.**—A 32 stall locomotive house will probably be built at Leaside, Toronto, this year.

**Canadian Northern Ry.**—M. H. MacLeod, Chief Engineer and General Manager, is reported to have said in a recent interview that the work in contemplation during this year includes the keeping up of the line to the standard and the making of improvements at various points where necessary to meet increasing traffic necessities. Track will probably be laid on several branches where grading has been completed, but it is not likely that any new grading will be done.

**The Canadian Northern Alberta Ry.** has been granted power by an order-in-council to occupy a portion of the bed of the Athabaska River in the n. 1/2 of sec. 1, Tp. 51, range 26, west 5th meridian, for building a bridge across the river.

**Vancouver Terminals.**—Negotiations are in progress between the C. N. Pacific Ry., the Great Northern Ry., the City of Vancouver and the British Columbia Government respecting the provision of joint terminals on the reclaimed False Creek flats, Vancouver. The city wants immediate progress to be made in accordance with the terms of the agreements with the two railway companies. The G.N.R. has filed its independent plans under the agreement, which the city and the B. C. Government do not consider to involve the expenditure promised. The C.N.P.R. has agreed to accept the new frontage line for its building, which is not the same as that on which the G.N.R. proposes to build. With the city pressing the companies to build, and the refusal of the B. C. Government to endorse the G.N.R. plans, it is thought that some definite action will be taken in the direction of the provision of a joint station which will suit the conveniences of the companies, with the requirements of the city as to the frontage line, and give the full value demanded by the agreement. M. H. MacLeod, Chief Engineer and General Manager, C.N.R., is reported to have said in Vancouver, Feb. 15, that while the company is prepared to go ahead with the work necessary to fulfil the terms of the agreement, it is undesirable from many points of view to abandon the project of a union station.

M. H. MacLeod, General Manager and Chief Engineer, C.N.R., had an interview with the Mayor of Vancouver Feb. 12, when he discussed the question of station building, dealing with the question of a separate building, and a joint building with the Great Northern Ry. The plans for a separate station are estimated to cost \$1,000,000 to carry out, while those for the union station would involve the expenditure of \$1,500,000. It is claimed that the adoption of the plans for a joint building will not interfere with anything



the Great Northern Ry. is planning at present, except setting the frontage line further back from Main St., than that company's plan shows. The plans were discussed by the city's railway and bridge committee on the same day, and by the City Council on Feb. 15, representatives of the Vancouver Board of Trade being present at the meeting. Further consideration is to be given to the matter.

**Lines on Vancouver Island.**—The Minister of Railways for British Columbia has authorized the making of a temporary level crossing for construction purposes over the Victoria & Sidney Ry. at the north end of the Saanich Peninsula near Bazar Bay, and another one across the British Columbia Electric Ry. at mileage 17.9 north of Tripp station. These two points are almost close together.

Material and supplies for tracklaying on the Victoria-Patricia Bay line have

been delivered in considerable quantities at Victoria, but tracklaying had to be put off on account of the heavy snowfalls at the end of January and in the early days of February. It is expected that a real start will be made with the work in March.

Plans and specifications for the car ferry slips and wharves at Patricia Bay, and for the temporary transfer slips at New Westminster, were given contractors proposing to tender for the works on Feb. 16.

We are officially advised in regard to a press report that the company was surveying a route for a line from Alberni to Nootka Sound, 15.6 miles, that this line was run two years ago, and that the distance between the two points is 160 miles. No other survey work on Vancouver Island is at present contemplated. (Feb., pg. 54.)

## Causes and Preventatives of Heaving Track.

By J. W. Powers, Supervisor, N. Y. C. & H. R. Rd.

The season is at hand when trackmen on practically all roads situated in latitudes where snow and ice are formed, are troubled more or less with heaving roadbed, causing more or less serious defects in surface and line of track, the extent of damage depending on the condition of roadbed as to ballast and drainage. Heaved track is one of the most annoying things and is sometimes the direct cause of broken rails and occasionally of derailments and wrecks.

The cause of heaving roadbeds has been discussed and explained on several occasions but the cause and knowledge of how to prevent same cannot be disseminated too profusely. When water freezes it expands, which means that if one cubic foot of water freezes the resulting ice occupies a space considerably larger than that of water. This takes place when wet soil freezes. Each particle of water expands and takes up more room. Considering these actions of water in connection with track work, it is easily seen how a roadbed soaked with rain will heave when it freezes. The particles of water as they turn to ice expand and since the least resistance is upward, the roadbed raises bodily. If this raising was perfectly uniform it would not be of much consequence, since it would just raise the level of the entire line. As a matter of fact the heaving takes place in a very irregular manner, due to the greatly varying proportion of water in the roadbed and also depending on the depth to which the frost penetrates, the drainage and the amount and kind of ballast.

Clay, on account of its great capacity for holding water, is about the worst material of which a roadbed can be constructed. Hence the composition of the roadbed and ballast, together with proper drainage, is an important factor affecting the heaving of track.

It is not an unusual occurrence when filling up openings, such as culverts, trestles and tops of arches, which are often substitutes for iron bridges, to have the filling made with cinders or gravel. Sometimes this material is several feet deep, and as a result of its porous condition it will not heave in proportion to the track each side of same, which oftentimes consists of clay, making it necessary to shim where openings were filled. This could be avoided by using material to fill the opening similar to that used on each side of same. Another mistake which is sometimes made by the use of clay when

strengthening shoulder on fills, is allowing the clay to raise higher than the subgrade, which is often done to save ballast, but as a result the drainage is retarded and forms a ditch under the track, as dense soil will not allow water which falls on track to pass off freely. Consequently clay should not be placed above subgrade when track is ballasted with more porous material. It is a well known fact that loam is better ballast than clay, sand better than loam, gravel better than sand and broken stone better than gravel, as a preventative for heaving, due to the fact that these materials in the order named are more porous. This provides room for water to expand as it freezes, with the result that heaving is either not noticeable at all or only to a slight extent. Another important reason is that these materials let the water pass through quickly, thus diminishing the amount of water in the roadbed and thereby lessening the tendency of the track to heave.

Where there are wet clay cuts it may be necessary to cut out the clay down to the frost line and fill in with a material like gravel or cinders; also tile drains should be laid so as to carry off the water as quickly as possible. The remedy for heaving may be readily found after its causes are thoroughly understood. The preventative should be in two directions, namely, reduce the amount of water in roadbed to a minimum and use ballast which is sufficiently porous to provide room for freezing water which cannot be entirely eliminated by drainage. The importance of good drainage cannot be overestimated and the further water is removed from track and the sooner it can be diverted, the more stable will become the roadbed. A practical illustration of this occurs during a wet season, while poorly drained sections of roads are troubled with bad track, mud slides and washouts. A mud ballast track can even be made good by keeping water away from it, while rock ballast will not prove satisfactory unless properly drained. The most important work then, in connection with general track work, consists in keeping the roadbed as dry as possible.

As already referred to, good drainage obviates the necessity of shimming. There are various methods of shimming, many of them being good and safe, but it should be the practice to shim according to well defined methods governing such work. Whatever method of shim-

ming is employed it should never be at the expense of safety. The cost of material for shimming, such as wood, frost spike, braces, etc., together with the labor of inserting, renewing and removing shims, is very expensive on some railways and as the work is only temporary, it might be considered a waste of money and material and if the expense chargeable to this work was spent for ballast or to improve drainage, it would in a short time eliminate the necessity of shimming and provide better and safer track.

The probability of accidents, as already referred to, is greatly increased on account of heaving and shimming. As it is at this season of the year more than at any other, the duties of the track forces are of the most exacting and vigorous kind. This is particularly true in reference to protection of the traveling public, and anything accomplished to eliminate the liability to accident, we consider a step in the right direction. Hence the importance of good ballast and drainage which will permit trackmen to devote more time to other duties of equal importance, as for example snow storms which close up cuts in certain portions of the road, snow and ice which have packed solid in road crossings, frogs, switches and guard rails and which keep trackmen constantly on the alert to guard against accidents. Then again occasional warm rains or spells of warm weather fill the ditches with melted snow with little chance to run off. In yards the water formed during the day freezes about the switches during the night, causing much work keeping them in usable condition, and as the melted snow raises the water in streams, causing the ice to break up in the rivers and jam against piers, bridges and trestles, frequently damaging or even carrying them away.

Aside from these points, nearly every section has its own special features which have to be closely watched to avoid accidents to trains. For instance, where water tanks, water pans, interlocking plants, etc., are located, it requires careful watchfulness on the part of trackmen to prevent accidents at such points and shows the necessity for each foreman to study his surroundings carefully in order to best meet the emergencies which may arise, as it rests with the foreman to combat all of these elements and to entirely eliminate the possibility of damage and consequent danger. Thus it is seen that the proper protection of the traveling public depends upon the intelligence, ability and close attention to duty of the track forces who on numerous occasions go many hours without food and sleep when the safety of human lives requires such services.

Not many realize, as they rest on the luxurious cushions of parlor cars and speed along over smooth track at the phenomenal speed of 60 to 80 miles an hour on a cold stormy night, of the hard work, exposure and worry this comfort and safety of themselves has caused the trackman, whose greatest reward is in the knowledge that he has performed his duty faithfully. A little thought on the subject of the duties of trackmen will convince the most skeptical of the burden which rests upon the trackmen and the importance of the work they perform. Any neglect or oversight on their part may be the cause of serious consequences. Therefore they must be eternally alert and vigilant, even to the extent of supplying the deficiencies of men in other departments.—Maintenance of Way Bulletin.



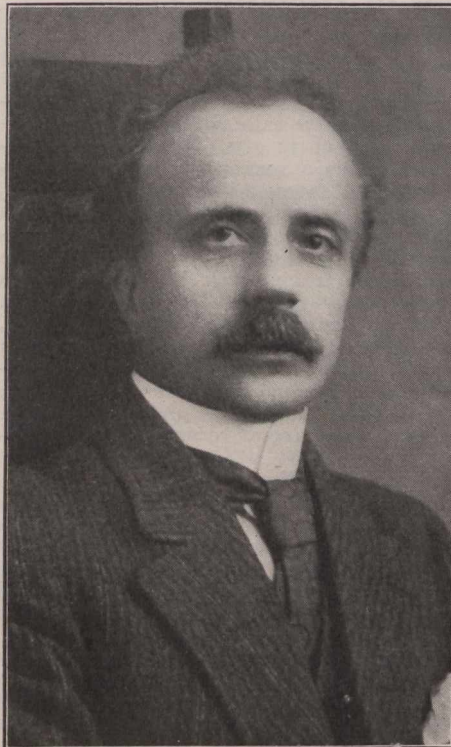
# The Audit Department, and its Relationship to Railway Organization.

By W. C. Blake, Chief Clerk to General Auditor, Canadian Northern Ry., Winnipeg.

It is an extremely difficult task to attempt even merely to outline in one brief paper the relationship that the audit department bears to railway organization. It is a department as comprehensive as all of the other departments which go to complete the whole, consequently within its own sphere of operations it is subdivided into various divisions, thus we have an auditor of agencies, auditor of freight and passenger receipts, auditor of stores and mechanical accounts, auditor of disbursements, and car accountant, all reporting to the general auditor in pretty much the same manner as the heads of the other departments report to the general manager, with this difference, that the general auditor reports to the comptroller. On lines which control their own commercial telegraphs, the telegraph receipts are taken care of usually by the auditor of freight receipts, and in cases of sleeping and dining cars, by the auditor of passenger receipts.

First of all, why is it that the auditor of all the officials is, besides the treasurer, the only one not reporting direct to the general manager? It is because the duties of his office require that he should be free from local influences, in other words, through the comptroller he is responsible to the directors that every dollar due the company is collected and properly applied, and also that no money has been paid out without the proper authority for such expenditure. It is his prerogative to prescribe in what particular manner the books or records of the company shall be kept, and, being free from local influences, any recommendations he may have to make, as to the removal from the service or otherwise of incompetent servants, have more weight, and if they are worthy of consideration are promptly acted upon. To illustrate this let me record the experience of one of the pioneers in railway accounting on one of the trunk lines to the south of us. The line in question had suffered considerably from defalcations on the part of those to whom the collection of the company's moneys was trusted; he was sent for by the executive, and, after an expression of annoyance and apprehension, was asked who was responsible for the collection of the company's receipts. He replied, so far as he could ascertain, no one. The treasurer, traffic department, general manager, through his superintendent, together with himself, exercised a joint supervision, but the local superintendent, who was responsible for the physical operations of the road, had immediate charge, and reserved the right of exercising his discretion about dismissing or removal to inferior positions those caught stealing the company's moneys. They all acted intelligently in the discharge of their respective duties, but neither one nor the other was prepared to assume the responsibility, and consequently either acted hesitatingly, or more frequently not at all. The interview closed by an order being issued that the accounting officer thereafter had sole charge of the company's accounts and the collection of its receipts, and that it was the duty of all officers and agents absolutely to conform to his regulations in regard thereto. This is the basis as in existence at the present day.

In the administration of a railway it is as impossible for one man to be in the position of an oracle, that is, one whose mind is so forward as to be able to conceive and direct all the multifarious branches that exist in the operation of the road, as it is for a professor to say he can be an authority on law, medicine, philosophy, astronomy, and all the other sciences, therefore the auditor is the man who having made his accounts his study performs his work with that object in view. As I said at the start, our department is subdivided, each one whilst working along different lines reports to one head, with the one object in view. The auditor



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of agencies is responsible for the accounts of the different stations and agencies along the line, he has a number of travelling auditors up and down the line visiting and checking up the accounts as they actually exist in the agent's books, he sees that records, etc., are kept in such a manner as to be intelligent, and that any information required can be obtained readily, he checks his cash transactions closely, and generally makes an opportunity of finding out the habits of those entrusted with the company's funds, etc., for instance, a cashier or agent who handles money and spends his time when off duty at an hotel bar or frequenting pool rooms, is not calculated to inspire his higher officials with much confidence. The travelling auditor also reports on the general condition of the stations and buildings, which report is sent to the local superintendent, and coming from what can be termed an independent source is usually of value. His reports on the accounts go to the auditor of agencies, by whom they are criticized and

compared with balance sheets as received from the agents themselves; the balance sheets are in turn checked up with report of remittances from the treasurer's department, as also with the result of the checking of reports and abstracts received by the auditor of freight and passenger receipts. The agents' credits are also checked to see that all cash they have paid out is for legitimate items and properly authorized; their outstandings are scrutinized closely, and any items outstanding for which they have not freight on hand to cover are rigorously followed up.

The auditor of freight receipts and of passenger receipts is sometimes one and the same person, and as their duties are somewhat along the same line they can be treated of together. The waybill is the foundation upon which the freight auditor works; the system differs on almost every road, but the results obtained are the same. The waybill covers the movement of freight traffic, it contains all information necessary for the identification of the freight, who shipped it, to whom it is consigned, what it consists of, weight rate upon which its charges are assessed, and so forth. The agent issuing it hands it to the conductor of the train carrying the goods, in fact a conductor is not allowed to handle freight unless he has a waybill. On arrival at destination it is turned over with the freight to the receiving agent, who checks it up in every detail as to quantity, marks, weight rate calculations, etc., making notations as to any discrepancies. If it is a prepaid shipment, and there is an undercharge on it, he collects the difference from the consignee before delivering the goods. On some roads, after the waybills are entered on the agents' abstracts the originals are sent either daily or weekly to the auditor of freight receipts, and the rates and extensions are again checked; on other roads they are filed away by being pasted in books in which case the agent issuing the bill forwards an impression copy (carbon or tissue) to the auditor, where the same process of checking is performed as when the original waybill is sent to him. At the end of the month abstracts, both forwarded and received, are checked and balanced in weight of freight, charges to collect, advances, pre-pays, etc., and on some roads they are then summarized in that office and sent to the auditor of agencies as the basis of checking with station balance sheets. As regards freight for a point destined on another company's line, settlement between companies can be made either between agents, on what is known as the junction settlement plan, where settlements are made mutually between agents at junction points, and draft drawn on whichever company the balance is due from, or by what is known as the audit office plan. When the latter system is adopted the receiving road is the principal factor in the handling of the waybill and accounting for it, all balances being drawn for on the 25th of the month following. Where there is no statistical department, other information, such as tonnage, movement, description of freight, etc., is got out to be used later, or when compiling the statistics required by the government, or for the company's annual



report. With passenger traffic, the system is much the same, only the ticket forms the basis on which the work is performed, instead of the waybill. Agents are required to report their tickets consecutively, the closing number from previous month is carefully recorded and they are promptly charged up with tickets not promptly. As all tickets are turned in by conductors, they are sorted and checked up with report of tickets sold as sent in by agents, as also with the conductors' reports of tickets issued by them. Through or interline tickets are handled much after the same manner as through freight traffic, with the exception that all settlements between companies are on the audit office plan. Baggage, milk, sleeping car, and dining car receipts are checked up on the same principle from the reports of agents, conductors, porters or stewards. The system in this respect differs from that in vogue in the United Kingdom, where there is no such a thing as a coupon ticket, or junction settlement. All settlements between companies are made through the Railway Clearing House, and no matter how many roads you travel over you only receive a card ticket. Thus, if you are travelling from London to Edinburgh, say via the east coast route, your ticket would read from London (King's Cross) to Edinburgh (Waverley), but to reach there, between London and York, you would travel over the Great Northern, the North Eastern, and the North British, your only transportation being a card the size of an ordinary card ticket as used in this country. The working of the Railway Clearing House would form a most interesting topic for discussion and comparison with our methods.

The Departments whose workings I have thus briefly covered, from the amount of detail required, engage possibly the largest clerical staff of any department, owing to the amount of detail required.

The auditor of disbursements is neither a divisional nor departmental accountant, each division or department should have its accountant to satisfy its superior officer as to the expense of his own particular branch. Our position is to review the work of the accountant in so far as his distributions, etc., are concerned, thus as it were forming a sort of court of review. Our present state of efficiency has more or less evolved by the lapse of time since the introduction of railways. In their infancy, the auditing department was, as it exists today, unknown, the accounts of the company were crude and in the majority of instances much of a one-man concern. As railways multiplied and commercial interchange was established, more elaborate systems were required than those kept by each department, as at that point they ended, a summary of the whole being presented to the directors and shareholders at the end of the year. As they so appeared they were formally audited by chartered accountants much as they are now, but when it came to a question of comparison as to expenditures of say maintenance of bridges, or equipment for one period against another, or one division against another, it was not forthcoming, and when asked for from the superintendents, the reply usually was, "We are not experts in the accounting department, and only keep such records as enable us in a rough way to show what we are doing." It goes without saying that such a situation could not last long, the result being that a department entirely separate and distinct from those already existing was

created to attend to this business, and not yearly nor half yearly, but month by month, submit for the directors such a tabulated statement as would show them at a glance how their road was progressing, or otherwise.

The auditor of disbursements must satisfy himself that expenditures for wages, material or other causes have been made on the requisition of the proper authority and charged to the proper accounts. We will assume the road has been constructed by capital raised by any of the various means for that purpose, the traffic revenue I have already dealt with, the maintenance of the road, and its operation must be met from the revenue derived, stores and supplies have to be purchased, and as the road is not run as a family institution nor for charitable purposes, economy with efficiency is the motto, and you can only obtain that end when an independent check is made of the working of each department, so as to arrive at the actual result as compared with previous periods. This perhaps will only appeal to my hearers as to the result of operation as a whole, but how does it affect us individually? How far am I concerned with the audit department? One or two illustrations will I think suffice for this, and these I may say are not what may be termed academic, but from my own experience. A passing track has been authorized to be put in at a certain mileage, requisition has been made on the storekeeper for spikes, bolts, switches, etc., and in due time they arrive on the section where the track is to be put in. For certain reasons, the track is not proceeded with. Eight or nine months afterwards, when it is decided to go on with the work, another requisition is put in, and another set of material sent out for the job, but what has happened to the first lot? Investigation will show that the material has been taken away and used, goodness knows where, for renewals, and neither section foreman, roadmaster nor anyone else thought for one moment it was necessary to notify headquarters that such a misappropriation had taken place. This is only one instance of many of a similar nature, and it illustrates the fact that maintenance of that particular section has been maintained at the expense of new work, for new work is not a charge against operating expenses, and when the material is taken for other than the purpose it was ordered, the accounts should have been promptly adjusted without entailing a volume of correspondence, tracing, etc., to get it done.

Occasionally the auditor is notified that a tool house, oil house, or coal shed has been erected at a certain place, and to effect the necessary insurance. He can find no record of any authority having been given from the general manager's department for the work, nor any requisition for material. He, however, discovers after a lot of correspondence, that the building has been erected from left over material from other structures. The theory of using up material left over may be and no doubt is a good one, but it is bad policy and management to erect a tool house or any other structure at the expense of a water tank say some thirty miles away, and probably the cost of the water tank was a charge against insurance, as its predecessor was destroyed by fire. Instances such as these should go to show why the audit department insists upon minute details as to distribution of not only labor and material, but what becomes of what is left over. This information is rarely, if ever, got from divisional

or departmental accountants, who give for their excuse:—"The supervisor or roadmaster did not advise me." This is one more instance of the old saying that the smart railway man is he who can shoulder the responsibility for his own deficiencies on to someone else.

To show that such discrepancies are not confined to any one branch of railroading, I have a very vivid recollection of an official car being ordered to the shops for remodelling. It was of rather ancient date, and to bring it up to standard a large sum was to be spent on it, new lighting fixtures and internal fittings were ordered and delivered, a period of depression set in, and the car was in the shops for some six months or more, before it was decided to proceed with the work, and it was then found necessary to order a new set of fixtures, etc., those already supplied having been used on sleeping and day cars for renewals. Material ordered for specific work should be used for that work only, and not for any other purpose, except on order from the official ordering in the first instance, in which case the accounting department would have a clear record, and could adjust its charges accordingly.

Railway companies pay out a considerable amount each year for grain doors. In the west they are generally purchased ready made, and are calculated to fill the purpose for which they are required. They were never intended for flooring for a stock yard or building a section foreman's pig pen, neither were they intended to be used for the construction of a coal bin for the station agent, but still they are used, and when a shortage of doors is reported at the end of the month, the inquisitive auditor has to get busy to locate the missing doors, usually at some expense. Again, the majority of employees belong to one of the various brotherhoods which are governed by schedules, framed so as to be as incapable of interpretation in diverse ways as an act of parliament, and no matter how fine the line is drawn, there is always some one trying to step over on to the other side. So long as human nature exists, I presume it will always be so. To guard against this, as in all other infringements, the management has to rely on its auditing department. When question of interpretations of certain rules are required they are obtained from the proper authority, and when thus armed, the auditor gets after the party concerned through the head of his department.

In the operating accounts of a railway on this continent there are 182 sub-accounts, divided up as follows:—

Maintenance of ways and structures.....	79
Maintenance of equipment .....	36
Traffic department .....	8
Transportation rail and water lines.....	42
Miscellaneous operations .....	5
General administrative .....	12

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These have all been agreed upon between the railways, the Dominion Department of Railways, and the Interstate Commerce Commission. The text books covering these accounts are explicit and the auditor's duty is to see that all expenditures in connection with the operating are strictly in accord therewith, so that at the end of the month when the operating statement is submitted to the president, it will exhibit to him (or rather should do so) a correct statement as to what it implies. To arrive at this result, an independent body must analyze the accounts and distributions of the various departments, drawing attention to any irregularities that may appear, and



promptly object to any charges for work done without the proper authority on file. You cannot get these results in any other manner, and the knowledge that your work is going to be, as it were, overhauled by such analysis, has, or should have, a great tendency to cause others to keep within bounds. We do not profess or presume to be experts like tracklayers, carpenters and builders, machinists, engineers, or any of the other multitudinous trades and professions that find scope for their energy on the railway, but we are responsible to the directors to see that all expenditures made are covered by proper authority and charged to their proper accounts, and also that material is economically used and properly cared for. Our relationship to the various departments comprising the operation of the road is along those lines, to enable us to obtain the results required. To put the whole thing in a nutshell, suppose you give a contractor a contract to build a house, say for \$8,000; when he has finished, or even before he has done so, you find it is going to cost you nearer \$10,000 than \$8,000. What do you do? You go right down into details to see where the fault lies, and even if your house is built for the \$8,000, you satisfy yourself that you are getting value for your money before paying. That is the position of the auditor. He is the one to see that value has been received for all of the company's funds expended, and that distribution has been made in accordance with government requirements.

In this department, to which is closely allied the stores and miscellaneous accounts, travelling auditors are employed on some roads, in fact, should be on all, whose duty is to visit all divisional points and storehouses, check up material and report as to condition of accounts, material and stock, and as to whether the same is properly cared for. Occasionally these men, instead of travelling on regular trains, cover the ground by motor car, and thus have an opportunity to see how section material is taken care of along the line, constituting as it were a check on the interest the roadmaster is taking in the care of the company's property entrusted to his keeping.

In this paper I have endeavored to deal with one of the principal points connected with the audit department. Of all the departments which comprise the whole in regard to railway management, so far as knowledge of our brother employes with whom we have to work, we are least known in person, and I think the most misunderstood. The comptroller of one of our large trunk lines to the south says it is because we are located usually on the top floor at headquarters, and to get there would necessitate a special journey, which is not considered worth while. When heads of departments, roadmasters, supervisors and others who report to the audit department, visit headquarters, it would, I think, be worth their while, occasionally to make the trip on the elevator or ascend the winding staircase to make the acquaintance of those whom hitherto they have known by correspondence only. It is true the natural instinct with mankind is to feel relieved when the auditor has finished his duties, and taken his departure. The audit department, I am glad to be able to say, has not now the reputation of being an asylum for useless and aged employes of other departments, and round men to fill square holes sent to officials for positions by well meaning friends with begging letters, and so far as our dealings with other departments are concerned, our interests in the wel-

## The Canadian Pacific Railway's Roll of Honor.

C. H. Buell, Staff Registrar and Secretary, Pension Department, C.P.R., has issued list 8, which is prefixed as follows:—"Several thousand officers and employes of this company enlisted for active military duty with the Canadian Expeditionary Forces, and the majority of them are now in Europe, bravely battling for Canada and the Empire. As particulars of army reservists are not available, these lists of those who have given up their lives for their country or been wounded in action are necessarily incomplete, and do not therefore indicate fully the extent to which the Company's officers and employes have participated in the great struggle."

Ackerley, Percy	Clerk	Angus	Wounded
Allen, Charles T.	Freight checker	Montreal	Wounded
Blackett, William C.	Stenographer	MacLeod	Killed in action
Buchan, John	Loco. fireman	Ogden	Killed in action
Carr, Frederick	Apprentice	Quebec	Suffering from shock
Clent, George	Shed clerk	Regina	Killed in action
Clough, B. G.	Elevator boy	Vancouver	Wounded
Cummings, John	Painter	Winnipeg	Wounded
Daniels, F. W.	Chief clerk	Revelstoke	Wounded
Deblois, Joseph	Loco. engineer	Quebec	Wounded
Duff, John	Fitter	Ogden	Died of wounds
Gay, Aubrey H.	Loco. engineer	Calgary	Wounded
Geddes, Percy M.	Waiter	Montreal	Believed drowned
Glithero, John H.	Cabinetmaker	Angus	Wounded and prisoner
Goulet, Emanuel	Helper	Quebec	Wounded
Henry, William	Porter	Pt. McNicoll	Killed in action
Hodge, Robert S.	Hostler	Winnipeg	Died of wounds
Johnson, Lacey A.	Draughtsman	Angus	Died of wounds
Lacey, Richard	Watchman	Fredericton	Wounded
Laurence, Benjamin	Constable	Fort William	Wounded
Marr, Henry E.	Clerk	Keewatin	Wounded
Metherall, Percy	Trainman	Brit. Col. Dvn.	Wounded
Middleton, James	Loco. fireman	Medicine Hat	Wounded
O'Connell, W.	Clerk	Toronto	Killed in action
Pratt, Richard B.	Freight porter	Medicine Hat	Wounded
Pushie, William J.	Loco. engineer	Medicine Hat	Wounded
Robertson, Oliver	Helper	Angus	Killed
Saxelby, Walter	Ass't. accountant	Fort William	Killed in action
Shaw, Francis W.	Stenographer	Montreal	Wounded
Skinner, Sidney E.	Baggage checker	Winnipeg	Wounded
Sutherland, Benjamin	Loco. engineer	Kenora	Killed in action
Syder, James	Clerk	Montreal	Died of wounds
Thomas, George W.	Brakeman	MacLeod	Wounded
Wheelhouse, C.	Helper	Glen Yard	Wounded
Wood, Herbert	Template maker	Angus	Wounded

The following casualties to members of our European staff on active service have also been reported:

Candeland, William	Clerk	Liverpool	Killed in action
Harden, Robert J.	Junior clerk	London	Wounded
Moore, Edward G.	Clerk	London	Wounded
Paterson, John S.	Clerk	Liverpool	Killed in action
Rosci, Joseph	Clerk	Antwerp	Wounded
Stannard, Herbert J.	Clerk	London	Wounded

fare of the operation of the road are as theirs, and if there is any misunderstanding, let us know what it is, and have it put right. Neither one of us can claim to know it all, and our little differences can assuredly be adjusted. If, therefore, the observances I have made have a tendency to facilitate the working between other departments and ourselves, to remove the hitherto imperfect knowledge of our requirements, and to show why we ask for certain details, the preparing of this paper will not have been in vain.

(The foregoing paper was read before the Western Canada Railway Club recently.)

**An Amusing Contretemps.**—As the chief guest at a public dinner at St. John, N.B., recently, F. P. Gutelius, General Manager, Canadian Government Railways, in responding to a toast to himself, spoke enthusiastically on the work accomplished on the Government railways, and optimistically as to the future. His speech was immediately followed by another toast, under the title of "Castles in the Air."

Jno. Martin, an Allan Line Steamship Co's official for 40 years, died at Liverpool, Eng., Feb. 24.

**British Columbia Southern Ry. Land Grant.**—The Imperial Privy Council on Feb. 6 gave judgment in the action of the British Columbia Government against the late F. A. Heinze's estate respecting taxes on the British Columbia Southern Ry. land grant. The grant covers some 600,000 acres in the West Kootenay district. The railway was built and passed by purchase to the C.P.R., and a few years ago that company forced a division of the land grant, upon which the Government sought to levy taxes on the part remaining in the hands of the Heinze estate. The matter went through various courts until now the Privy Council has decided that the land is to be taxed.

NOTICE is hereby given that the Annual Meeting of the Shareholders of the Victoria Rolling Stock & Realty Company of Ontario, Limited, will be held at the offices of Messrs. Osler and Hammond, 21 Jordan Street, Toronto, on Wednesday, March 1, 1916, at twelve o'clock noon, for the reception of the Annual Report and election of Directors for the ensuing year.

By order,  
G. T. CHISHOLM,  
Secretary.

Toronto, February 16, 1916.



## Traffic Orders by Board of Railway Commissioners.

### Carload Minimum on Bricks.

24674, Jan. 22. — Re complaint of Western Retail Lumbermen's Association of Canada against increases by railway companies in carload minimum on brick over their lines in Western Canada, from 40,000 to 50,000 lbs. Upon hearing the matter at Winnipeg, May 25, 1915, the Western Retail Lumbermen's Association of Canada, and the Canadian Pacific, Canadian Northern, and Grand Trunk Pacific Railway Companies being represented, and upon reading the further submissions filed, it is ordered that the complaint be dismissed.

### Charges for Heated Refrigerator Cars.

24680, Jan. 27.—Re complaint of Fruit Growers' Association of Ontario against proposed tariffs of the Canadian Pacific, Grand Trunk, Canadian Northern and Toronto, Hamilton and Buffalo Railway Companies, making charges for the use of heated refrigerator cars. It is ordered that the following tariffs be suspended, pending hearing at Ottawa, on Feb. 8, Canadian Pacific, C.R.C., no E-3093; C.R.C., no. E-3094; Canadian Northern C.R.C., no. E-728; C.R.C., no. E-729; Grand Trunk, C.R.C., no. E-3319; C.R.C., no. E-3321; Toronto, Hamilton and Buffalo, C.R.C.; no. 1080; C.R.C., no. 1081.

### Unloading Empty Milk Cans.

24686, Jan. 26.—Re application of milk shippers for a reconsideration of order 15413, Sept. 26, 1911, requiring, inter alia, that shippers supply a man to assist in unloading empty milk cans, and the question of the general handling of the same. And re the question of a general order fixing the minimum number of milk cans, or minimum carload rate, necessary to entitle a shipping station to a separate car. Upon hearing the application at Ottawa, Oct. 19, 1915, the Montreal Milk Shippers' Association, the Canadian Pacific and Grand Trunk Railway Companies and New York Central R.R. Co. being represented at the hearing, W. F. Empey appearing in person, it is ordered that the application be refused.

### Charge For Diversion of Livestock

24714, Feb. 9, the complaint of A. H. Mayland of Calgary, Alta., against "completion of loading charge" and "diversion" charge made by the C.P.R. on shipments of pigs or on livestock shipments billed through Calgary. Upon hearing the complaint at Ottawa, Jan. 18, 1916, the Montreal Board of Trade and the C.P.R. being represented at the hearing, and the railway company, in the Board's opinion, having established that the charge is justifiable—it is ordered that the complaint be dismissed.

### Interchange of Freight at North Bay.

24694, Jan. 29.—Re application of Canadian Northern Ry. Co., under sections 317 and 334 of the Railway Act, for an order directing the Grand Trunk Ry. to interchange freight traffic with the applicant company at North Bay, on an equality with the C.P.R. Co. Upon hearing the application at Ottawa, Jan. 25, 1916, the applicant company, the Grand Trunk Ry. Co., the Canadian Pacific Ry. Co., and the Quaker Oats Co. being represented, it is ordered that the Grand Trunk be directed to concur in joint freight tariffs to be forthwith published and filed by the applicant company to apply on grain and grain products, in carloads, from Port Arthur, Fort William and Westfort, Ont., to Grand Trunk stations, via North Bay, Ont., the joint

rates to be the same as those published and filed by the C.P.R. Co. from the said points of shipment to the said destinations, the said grain to be accorded the milling-in-transit privileges pertaining to shipments received by the Grand Trunk from the C.P.R.; the Grand Trunk proportion of the joint freight charges, when prepaid, to be paid to the Grand Trunk by the applicant company at North Bay upon the transfer of the car containing the grain or grain products in each case.

### Sale of Canadian Northern Tickets at Toronto Union Station.

24706. — Re application of Canadian Northern Ry., for an order amending 24462, Nov. 19, 1915, directing the Grand Trunk Ry. Co. to sell tickets for the applicant company's and exchange the applicant company's tickets for orders, the applicant company to pay one-third of the cost of operating the ticket office, including salaries and actual disbursements, but not rental charges. Upon hearing the application at Ottawa, Jan. 25, 1916, in the presence of counsel for the railway companies interested, and what was alleged, it is ordered that the operative part of order 24462 be rescinded and the following substituted therefor: That temporarily, and for a period of six months from the date of this order, during which time the G.T.R. shall keep an account of the cost of operating and maintaining the ticket office and the amount chargeable pro rata against the applicant company on a wheelage basis, exclusive of rental charges, the G.T.R. be directed to sell tickets for the applicant company and exchange the applicant company's tickets for orders, the applicant company to pay to the G.T.R. in advance \$25 a month.

### Rates from Eastern Canada via Fort Frances.

24724, Feb. 14.—Re complaint of Canadian Northern Ry., against the cancellation by the Grand Trunk Ry. of rates from points in Eastern Canada to stations in the Canadian Northwest, via Fort Frances, Ont., Upon reading what has been submitted, and in accordance with the understanding reached at the sittings in Ottawa, Feb. 8, 1916, that certain joint rates were to remain in effect pending arrangements between the Canadian Pacific, Grand Trunk, and Canadian Northern Railway Companies, it is ordered that the proposed cancellation of joint rates from Eastern Canada to points in Western Canada, applying via the routes specified below and published in Supplement 8 to G.T.R. Tariff C.R.C. no. E-2962, and Supplement 18 to G.T.R. Tariff C.R.C. no. E-2977, issued to take effect Feb. 15, 1916, be suspended until further order.

Canadian Northern via Duluth, Minnesota, Duluth, Winnipeg and Pacific Ry., and Fort Frances; via Duluth, Minnesota Duluth, Missabe and Northern Ry., Duluth Winnipeg and Pacific Ry., and Fort Frances; via Superior, Wisconsin, Duluth, Winnipeg and Pacific Ry., and Fort Frances.

Grand Trunk Pacific via Duluth, Minnesota, Duluth, Missabe and Northern Ry., Fort Frances, Canadian Northern Ry., and Winnipeg.

Grand Trunk Pacific via Duluth, Minnesota, Duluth, Winnipeg and Pacific Ry., Fort Frances, Canadian Northern Ry., and Winnipeg, via Superior, Wisconsin, Duluth, Winnipeg and Pacific Ry., Fort Frances, Canadian Northern Ry. and Winnipeg.

## 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		Net		Increase or Decrease
	Earnings	Expenses	Earnings	Expenses	
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.	668,300	\$579,000	\$79,300		
	x Decrease.				

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		Net		Increase
	Earnings	Expenses	Earnings	Expenses	
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	
	\$10,649,300	\$6,978,800	\$3,670,500	\$1,925,100	
Inc.	\$4,033,400	\$2,108,300	\$1,925,100		

Approximate earnings for January, \$2,086,800, against \$1,439,400 for Jan., 1915, and for three weeks ended Feb. 21, \$1,441,500, against \$1,155,800 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		Net		Increase
	Earnings	Expenses	Earnings	Expenses	
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	
	\$66,470,163.84	\$36,845,976.70	\$29,624,187.14	\$9,950,610.88	
Inc.	\$10,532,038.26	\$581,427.38	\$9,950,610.88		

Approximate earnings for January, \$8,380,000, against \$5,908,000 for Jan., 1915, and for three weeks ended Feb. 21, \$5,881,000, against \$4,688,000 for same period 1915.

## Grand Trunk Railway Earnings.

The following figures show the earnings of 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:—

	1916		1915		Increase
	Earnings	Expenses	Earnings	Expenses	
G.T.R.	\$3,341,263	689,786	\$2,661,080	559,938	\$680,183
G.T.W.R.	229,279	192,131	192,131	97,148	129,848
D.G.H.&M.R.	4,260,328	581,427.38	3,413,149	847,179	\$847,179

Approximate earnings for three weeks ended February 21, \$2,858,616, against \$2,426,849 for February, 1915.

## Grand Trunk Pacific Railway Earnings.

The approximate earnings for the Prairie Section, 916 miles, for January, were \$314,344, against \$194,620 for January, 1915.

**Canadian Locomotive Co., Ltd.**—Consequent on the resignation of A. W. Wheatley, Vice President, to become President of the Lima Locomotive Corporation, F. G. Wallace, formerly of Pittsburg, Pa., who has lived in Kingston for several years and is one of the Canadian Locomotive Co's directors, has been appointed Managing Director, and Wm. Casey, heretofore Assistant to the General Manager, has been appointed Manager.

**Canadian Transfer Co., Ltd.**—The directors for the current year, elected at the recent annual meeting, are: C. C. Sils, Hugh Paton, G. R. Starke, Sir H. Montagu Allan and F. W. Molson. F. M. McRobie is General Manager and Secretary.

**Canadian Exhibits in France.**—A London, Eng., cablegram says that three booths at the Lyons Industrial Exhibition have been taken by the C.P.R. The Canadian Consolidated Rubber Co. have engaged booths.



# Mainly About Railway People Throughout Canada.

**Sir Wm. Mackenzie**, President, Canadian Northern Ry., and Lady Mackenzie left Toronto Jan. 21 for Winnipeg.

**J. H. McKechnie**, President, Canadian Consolidated Rubber Co., died in Montreal Feb. 8, of bronchial pneumonia.

**M. W. Furlong**, K.C., of St. John's, Nfld., who died at Montreal, Feb. 8, aged 53, was a director of the Reid Newfoundland Co.

**J. H. Conklin**, a member of the firm of J. D. McArthur Co., railway contractors, Winnipeg, died suddenly at Edmonton, Alta., Feb. 17, aged 74.

**H. C. Rochester**, Secretary to General Manager and Chief Engineer, Canadian Northern Ry., Winnipeg, has recovered after an operation for appendicitis.

**A. Watt**, District Locomotive Foreman, Grand Trunk Pacific Ry., Prince Rupert, B. C., was married at Winnipeg, Jan. 26 to Miss Jessie McMillan, of Magnetawan, Ont.

**B. Winger**, a G.T.R. Car Inspector, Stevensville, Ont., was killed Feb. 15 near Bridgeburg, Ont., by being run down by a train while riding on a motor car on an inspection trip.

**A. Ferguson**, a former station agent of the Great Western Ry., and G.T.R., at Brantford, Simcoe and other points in Ontario, died at Simcoe, recently, aged 82.

**C. R. Morgan**, City Passenger and Ticket Agent, G.T.R., Hamilton, Ont., has enlisted as a private in the 120th city of Hamilton Battalion, for overseas service.

**Albert H. Scherzer**, President, Scherzer Rolling Lift Bridge Co., was killed by falling down an elevator shaft in the Monadnock Building, Chicago, Ill., Jan. 28.

**F. H. Phippen**, K.C., General Counsel, Canadian Northern Ry., left Toronto Feb. 22 for Mexico, intending to be away about six weeks in connection with some of Sir Wm. Mackenzie's enterprises there.

**F. P. Gutelius**, M.Can.Soc.C.E., General Manager, Canadian Government Railways, was entertained to dinner at the Union Club, St. John, N.B., recently by a number of business and commercial men.

**F. C. Salter**, European Traffic Manager, G.T.R., and Canadian Express Co., London, Eng., underwent an operation for abdominal trouble, Feb. 7, and is reported as progressing satisfactorily.

**Mrs. F. M. Spaidal**, who died suddenly at Brockville, Ont., Feb. 16, was widow of the late F. M. Spaidal, General Superintendent, Quebec Division, Canadian Northern Ry., who died in Sept. 1915.

**Mrs. McArthur**, mother of J. D. McArthur, President, Alberta and Great Waterways Ry., Central Canada Ry., and Edmonton, Dunvegan and British Columbia Ry., died at Bainsville, Ont., recently, aged 98.

**Hon. F. Cochrane**, M.P., Minister of Railways and Canals, returned to Ottawa, Feb. 7, from a trip to Europe, in the course of which he visited a portion of the battlefield in Flanders, meeting two of his sons there.

**E. J. Wearing**, who has been appointed General Agent, G.T.R., Central Vermont Ry., and Canadian Express Co., Liverpool, Eng., was born at Birkenhead, and entered G.T.R. service in 1888, at Liverpool.

**J. G. Taylor**, General Superintendent, Saskatchewan Division, C.P.R., Moose Jaw, who has not been in good health for some time, has been granted leave of absence, and will spend the balance of the winter in the south.

**Hon. George Riley**, who died at Ottawa, Ont., recently, was born in St. Catharines, Ont., and settled in Victoria, B. C. in 1885, when he took service with the general contractors engaged in the construction of the Esquimalt and Naaimo Ry.

**Lieutenant J. E. Vaughan**, 166th Battalion, who died at Toronto General Hospital, Feb. 7, after a few days illness, of pneumonia, was a nephew of R. C. Vaughan, Assistant to Third Vice President, Canadian Northern Ry., Toronto.

**J. M. Gibbon**, General Publicity Agent, C.P.R., Montreal, has written a novel, "Hearts and Face," dealing with the career of a young Scottish artist in London and Paris, and which is being published in London, Eng.

**P. K. Manahan**, who has been appointed Trainmaster, Pacific Division, Canadian Northern Ry., Vancouver, B. C., was, prior to leaving Saskatoon, Sask., where he had occupied a similar position, presented with a dining table and two leather covered chairs, by the local staff.

**Duncan Macdonald**, who died at Winnipeg, Feb. 2, aged 74, was formerly engaged in railway construction for several years, his last contract being on the Grand Trunk Pacific Ry., for a section between Portage la Prairie, Man., to near the Saskatchewan River, about 275 miles.

**James Esslemont**, Roadmaster, Vancouver-North Bend Subdivision, British Columbia Division, C.P.R., Vancouver, died there suddenly, Jan. 29, aged 54. He had served on the British Columbia Division for five years, and prior to that had been at other points west of Winnipeg, and at Fort William, Ont.

**Hon. F. Cochrane**, M.P., Minister of Railways and Canals, is suffering from a severe cold, and taking into account the fact that his health has not been good for some time, he has been ordered complete rest for a short time. Hon. J. D. Reid, Minister of Customs is acting also as Minister of Railway and Canals.

**J. H. Plummer**, President, Dominion Steel Corporation Ltd., controlling the Dominion Iron and Steel Co., the Dominion Coal Co., the Sydney and Louisburg Ry. and the Cumberland Steel and Coal Co., has retired from that position owing to ill health, and will in future act as Chairman of the Board, a new position.

**E. H. Fitzhugh**, formerly Vice President, G.T.R., and afterwards President and General Manager, Central Vermont Ry., and **C. J. Crowley**, M.Can.Soc.C.E., who was Resident Engineer on the G.T.R. at Toronto and afterwards at Detroit, Mich., some years ago, have established The Fitzhugh-Crowley Corporation, engineers, constructors and railway specialists, with office at 60 Broadway, New York.

**A. L. Hertzberg**, M.Can.Soc.C.E., Division Engineer, C.P.R., Toronto, was officially notified Feb. 17 that his son, Lieut. O. P. Hertzberg, of the 5th Battalion, Canadian Overseas Expeditionary Forces, had been slightly wounded in action. Another son, Capt. H. F. Hertzberg, of the Royal Canadian Engineers, was

wounded at the battle of Ypres, and a third son, Lieut. C. S. L. Hertzberg, of the Canadian Engineers, is also overseas.

**M. J. O'Brien**, contractor, of Renfrew, Ont., and President, Canada & Gulf Terminal Ry., has placed his yacht at the Minister of Militia's disposal, and on the opening of navigation it will cruise along the north and south shores of the St. Lawrence River to recruit for the Canadian Overseas Expeditionary Forces. The recruiting campaign will be in charge of H. J. Lyons, Vice President in charge of operation, Canada & Gulf Terminal Ry., who is qualifying for a captaincy.

**W. B. Howard**, whose appointment as District Passenger Agent, C.P.R., Toronto, was announced in our last issue, was entertained to dinner by a number of friends at St. John, N.B., Feb. 1, and was presented with a gold headed umbrella, a smoking set, and a desk clock, by the staff, and local conductors, on his leaving after having occupied the position of District Passenger Agent there for some years.

**J. J. Hill**, formerly President, and Chairman, Great Northern Ry., is reported from St. Paul, Minn., to be engaged on a plan for the reconstruction of Belgian finances in preparation for the settlement after the war. This work, it is stated, has been undertaken at the request of the King of the Belgians, who, some years ago, was a guest of Mr. Hill on a tour through the western United States.

**A. B. Smith**, who owing to ill health resigned the position of Manager of Telegraphs, Grand Trunk and Grand Trunk Pacific Rys., has been presented with a very handsome gramophone and records panies who came under his jurisdiction, by officials and employes of both companies as a token of their regard and a souvenir of pleasant relations that at all times existed between himself and the staff. A bouquet of roses was presented to Mrs. Smith at the same time.

**William Brunswick Howard**, whose appointment as District Passenger Agent, C.P.R., Toronto, was announced in our last issue, was born at Chatham, N.B., Sept. 15, 1877, and entered C.P.R. service, Aug. 1897, since when he has been, to Aug. 1899, clerk; Aug. 1899 to Feb. 1902, Travelling Passenger Agent; Feb. 1902, to June 1906, chief clerk; June 1906, to Jan. 1907, acting District Passenger Agent; Jan. 1907, to Jan. 31, 1916, District Passenger Agent, all at St. John, N.B.

**William E. Allison**, who has been appointed Assistant General Baggage Agent, Eastern Lines, C.P.R., Montreal, was born at St. Eugen, Ont., Aug. 1, 1886, and entered C.P.R. service in Mar. 1905 since when he has been, to Mar. 1910, clerk in General Baggage Department, Montreal; Mar. 1910 to Nov. 1911, Travelling Baggage Agent, Montreal; Nov. 1911 to Mar. 1912, General Travelling Baggage Agent, Winnipeg; Mar. 1912 to Mar. 1913, District Baggage Agent, Calgary, Alta.; Mar. 1913 to Jan. 1, 1916, chief clerk, General Baggage Department Montreal.

The Minister of Railways and Canals, replying to questions in the House of Commons, Feb. 8, stated that **W. R. Devenish**, A.M.Can.Soc.C.E., who was recently appointed Superintendent, District 2, Intercolonial Ry., Campbellton,



N. B., was of Irish birth and had always been a British subject. His jurisdiction covers 290 miles of main line, 92 of which are in Quebec, and 362 miles of branch lines, including the Canada Eastern, International Ry. of New Brunswick and the St. John Valley Ry., none of which is in Quebec. He acted as secretary to F. P. Gutelius, M.Can.Soc.C.E., who was appointed a commission to enquire into the construction of the National Transcontinental Ry., and received a salary of \$2,400 a year.

**C. C. Kirby**, A.M.Can.Soc.C.E., whose appointment as Division Engineer, Atlantic Division, C.P.R., St. John, N. B., was announced in our last issue, was born at Newport, Monmouth, Eng., Mar. 8, 1880, and from 1898 to 1907, was pupil and Assistant Engineer with Kirby Son and Brown, there. He came to Canada in 1907, and has been, from June 1907 to Feb. 1908, instrument man, location survey, Kingston, Smiths Falls and Ottawa Ry., G.T.R., June 1908 to Apr. 1909, not in railway service; Apr. 1909 to May 1910, transit man, C.P.R., Ottawa, Ont.; May 1910 to Feb. 1912, Resident Engineer, District 3, Eastern Division, C.P.R., Montreal; Feb. 1912 to Jan. 1913 Resident Engineer, Montreal Terminals, C.P.R.; Jan. 1913 to Dec. 31, 1915, Assistant Engineer, C.P.R., Montreal.

**William Tansley**, who has been appointed Assistant Superintendent, District 2, Ontario Division, London, was born at Shelburne, Ont., Dec. 27, 1872, and entered C.P.R. service in 1889 since when he has been, to 1900, operator and agent at various points on the Ontario Division; 1900 to 1907, dispatcher, Toronto; 1907 to 1912, Chief Dispatcher, Toronto; 1912 to 1914, Assistant Superintendent, District 1, Ontario Division, Havelock; 1914 to May 18, 1915, Assistant Superintendent, District 3, Ontario Division, Toronto; May 18 to June 1915, Assistant Superintendent, District 5, Eastern Division, Smiths Falls, Ont.; June to Dec. 1915, acting Superintendent of Car Service, Eastern Lines, Montreal; Dec. 1915 to Feb. 1916, Assistant Superintendent, Montreal Terminals.

**Alfred G. Richardson**, who has been appointed District Passenger Agent, C.P.R., Winnipeg, was born at Rockford, Ill., Oct. 16, 1880, and entered railway service in Oct. 1898, since when he has been, to Dec. 1900, clerk in local freight office, Illinois Central Rd., Chicago, Ill.; June 1901 to Dec. 1903, clerk in general passenger office, Chicago Burlington and Quincy Rd., Chicago, Ill.; Jan. 1904 to Oct. 1905, stenographer general passenger office, Southern Pacific Co., Portland Ore.; Nov. 1905 to June 1907, ticket clerk, Northern Pacific Ry., Portland, Ore.; July 1907 to Apr. 1908, Travelling Passenger Agent, Chicago Rock Island and Pacific Ry., Portland, Ore.; Apr. 1908 to Mar. 1910, City Passenger Agent, C.P.R., Portland, Ore.; Apr. 1910 to Jan. 31, 1916, City Passenger Agent, C.P.R., Winnipeg.

**August Kastella**, Mechanical Superintendent of Dredges, Public Works Department, Ottawa, was dismissed from his position, Feb. 11. It appears that he was born in Germany, and came from Hanover to Canada in 1909, and entered G.T.R. service, in that year, as electrical engineer at Stratford, Ont., remaining there until Mar. 1913 when he was transferred to Ottawa in charge of light, heat and power at the G.T.R. station and the Chateau Laurier. He was appointed Mechanical Superintendent of Dredges, Public Works Department, May 20,

1914. It is stated that he had applied for naturalization since the outbreak of war. The Minister of Public Works has stated that the dismissal was owing to some irregularities and to unsatisfactory work in connection with the discharge of his departmental duties.

**Herbert George Dring**, whose appointment as General Passenger Agent, C.P.R., London, Eng., was announced in our last issue, was born at Easton, Northamptonshire, Eng., Mar. 8, 1881 and entered C.P.R. Passenger Department service in London, Mar. 1, 1897, since when he has been, to Sept. 30, 1897, junior clerk; Oct. 1, 1897 to Dec. 31, 1898, clerk; Jan. 1, to Dec. 31, 1899, shorthand clerk; Jan. 1, 1900 to June 30, 1901, general and correspondence clerk; July 1, 1901 to Mar. 31, 1904, booking and correspondence clerk; Apr. 1, 1904 to Aug. 31, 1905, chief booking and correspondence clerk; Sept. 1, 1905 to Mar. 31, 1907 chief clerk to General Passenger Agent; Apr. 1, 1908 to Dec. 31, 1915, Assistant General Passenger Agent. Since his appointment as General Passenger Agent, his former position has been abolished.

**J. H. Boyle**, who has been appointed Superintendent, District 1, Eastern Division, C.P.R., Farnham, Que., was born at Waterloo, Que., June 25, 1896, and entered C.P.R. service Apr. 12, 1888, since when he has been, to Aug. 1890, freight brakeman; Aug. 1890 to Nov. 1903, conductor; Nov. 1903 to Sept. 15, 1906, Trainmaster, District 1, Eastern Division, Farnham, Que.; Sept. 15, 1906 to Aug. 15, 1907, Trainmaster, District 3, Eastern Division, Montreal; Aug. 15, 1907 to Jan. 1, 1908, Trainmaster, District 2, Eastern Division, Smiths Falls, Ont.; Jan. 1 to May 13, 1908, Trainmaster, District 3, Eastern Division, Montreal; May 13, 1908 to Apr. 29, 1911, Assistant Superintendent, District 3, Eastern Division, Montreal; Apr. 29, 1911 to Apr. 1912 Assistant Superintendent, District 4, Eastern Division, Ottawa, Ont.; Aug. 1912 to Jan. 7, 1916, Superintendent, District 3, Lake Superior Division, Schreiber, Ont.

**Sir Charles Rivers Wilson**, G.C.M.G., C.B., former President, G.T.R., died in London, Eng., Feb. 9, after a long illness. He was born in London in 1831, and served the British Government in various capacities. He was for two years Finance Minister in Egypt, and was also one of the administrators of the Suez Canal Co., and later Vice President, and acting President during the absence of Count Ferdinand de Lesseps. From 1874, to 1894, he was also Comptroller-General of the National Debt Office, London, and resigned that office and also his connection with the Suez Canal on his appointment as President, G.T.R., early in 1895. During his period of office, the G.T.R. carried out what was really a scheme of general reconstruction, and undertook the building of the Grand Trunk Pacific Ry. He retired in 1909. In addition to receiving the Order of the Bath in recognition of his work in Egypt, he was given the Turkish Order of the Medjidie.

**E. W. DuVal**, who has been appointed acting General Superintendent, Saskatchewan Division, C.P.R., Moose Jaw, was born at Toledo, Ohio, June 5, 1885, and entered railway service July 1, 1902, since when he has been, to June 1, 1905, in Superintendent's office, Canadian Northern Ry., Winnipeg; June 1, 1905, to Jan. 2, 1911, successively, secretary to General Superintendent, Central Division,

C.P.R., Winnipeg; assistant chief clerk to General Superintendent, Central Division, C.P.R., Winnipeg; chief clerk to General Superintendent, Western Division, C.P.R., Calgary, Alta.; chief clerk to Assistant General Manager, and later to General Manager, Western Lines, C.P.R., Winnipeg; and Trainmaster, C.P.R. terminals, Calgary, Alta.; Jan. 2, 1911, to Apr. 6, 1912, Superintendent, District 1, Saskatchewan Division, C.P.R., Moose Jaw; Apr. 6, 1912, to May 1913, Superintendent, District 4, Manitoba Division, C.P.R., Souris; May 1913, to Feb. 1, 1916, Superintendent, District 3, Saskatchewan Division, C.P.R., Saskatoon.

**Fred M. Rutter**, A.M.Can.Soc.C.E., who has been appointed Superintendent, District 3, Ontario Division, C.P.R., Toronto, was born there, Dec. 26, 1880, and educated at Upper Canada College and the University of Toronto. He entered C.P.R. service Apr. 21, 1902, since when he has been, to Sept. 10, 1902, chainman, Labelle Extension; Sept. 10, 1902 to Apr. 18, 1908, clerk, Operating Department, Woodstock, N. B.; Apr. 18, 1903 to Apr. 7, 1904, rodman, North Bay, Ont.; Apr. 7 to Sept. 19, 1904, transitman, Sudbury, Ont., and Megantic, Que.; Sept. 19, 1904 to Feb. 8, 1906, Resident Engineer on construction, Toronto-Sudbury Line; Feb. 8, 1906 to Mar. 22, 1907 Assistant Engineer, Maintenance of Way, District 3, Eastern Division, Montreal; Mar. 22, 1907 to May 9, 1911, Resident Engineer, Maintenance of Way, Woodstock, N.B.; May 9, 1911 to July 16, 1913, Resident Engineer, Toronto, July 16, 1913, to May 1, 1915, Assistant Division Engineer, Eastern Division, Montreal; May 1, 1915 to Feb. 1, 1916, Assistant Superintendent, District 3, Ontario Division, Toronto.

**A. W. Wheatley**, who has been appointed President, Lima Locomotive Corporation, Lima, Ohio, on a change of ownership, was born at Ashford, Kent, Eng., and served an apprenticeship as machinist in the South Eastern Ry. shops there. In 1892 he went to the United States, since when he has been, to 1894 in Northern Pacific Ry. service, St. Paul, Minn.; 1894, in same service, Staples, Minn.; 1895 to 1900, Roundhouse Foreman, same place; 1900 to 1902, General Foreman same road, Livingstone, Mont.; Dec. 1902 to June 1903, Master Mechanic, Yellowstone Division, same road, Glendive, Mont.; June 1903 to Mar. 1904, General Master Mechanic, same road, St. Paul, Minn.; Feb. 1905 to Mar. 1906, Shop Superintendent, Chicago, Rock Island and Pacific Ry., Moline, Ill.; Mar. 1906 to June 1, 1907, Assistant Superintendent of Motive Power, Union Pacific Ry., Omaha, Neb.; June 1 to Oct. 1907, General Inspector, American Locomotive Co., Schenectady, N. Y.; Oct. 1907 to Nov. 1910 Manager, Montreal Locomotive Works, Ltd., Montreal; Nov. 1910 to Aug. 1911, Manager, American Locomotive Co. Dunkirk, N. Y.; Aug. 1911 he was appointed General Manager, and on the reorganization of the company, also Vice President, Canadian Locomotive Co., Ltd., Kingston, Ont.

**Adam Rutherford Creelman**, K.C., a director, and former General Counsel, C.P.R., died at Montreal, Feb. 6, after a lengthened illness. He was born at Richibucto, N. B., Sept. 21, 1849, and educated there and at Chatham, N. B. He studied law with the late Adam Crooks Q.C., and was called to the bar at Toronto in 1875, and entered the firm of Crooks, Kingsmill and Cattanach, leaving there in 1877 to become a partner in the firm of McCarthy, Osler, Hoskin



and Creelman, Toronto. He was created a Q.C. in 1889, and remained in private practice until July 1901, when he was appointed Chief Solicitor, C.P.R., Mon. He subsequently was appointed General Counsel, and was elected a director of the company in 1910, and was also a director of the Kingston and Pembroke Ry. He retired from active service in June 1913, when the following circular was issued over the signature of the President: "A. R. Creelman, K.C., General Counsel, having asked to be relieved of his duties that he may enjoy a well earned rest and recreation, the Board of Directors and Executive Officers in acceding to his wish, and accepting his resignation, desire to express their hearty appreciation of his advice and co-operation during the company's most progressive years. He continues his connection with the company, as a director, and will act on occasion as Special Counsel." The funeral took place at Toronto, Feb. 8, only relatives and intimate friends being present. E. W. Beatty, K.C., Vice President and General Counsel, C.P.R., represented the company.

**Alexander Forrester Stewart, M.Can. Soc.C.E.**, who has been appointed Chief Engineer, Eastern Lines, Canadian Northern Ry., Toronto, was born at West Bay, Cape Breton, N.S., Jan. 8, 1864, and graduated from Dalhousie University, in arts, in 1887. He entered railway service May 15, 1887, since when he has been, to July 1887, chainman, Boston and Quebec Air Line, Skowhegan, Me.; Aug. to Dec. 1887, rodman, St. Paul, Minneapolis and Manitoba Ry., Dakota and Montana; Jan. to June, 1888, leveller on survey in Ontario, C.P.R.; June 1888 to Apr. 1889, leveller and transit man on surveys in Manitoba and Northwest Territories, C.P.R.; Apr. 1889 to Mar. 1891, leveller and transit man on surveys and Resident Engineer on construction in British Columbia, C.P.R.; Mar. 1891 to June 1895, Engineer in charge of branch line surveys and construction in British Columbia, C.P.R.; July 1895, to July 1896, Contractor's Engineer, South Coast Ry., Natal, South Africa; July 1896, to Mar 1897, District Engineer of Surveys, Pretoria-Pietersburgh Ry., Transvaal, South Africa; Mar. 1897, to Nov. 1899, District Engineer on Construction, Orange Free State Government Railways, South Africa; Nov. 1899, to Feb. 1900, District Engineer of Surveys, Zululand Ry., Zululand, South Africa; Feb. to Aug. 1900, District Engineer of Surveys, Pauling and Co., Ltd., contractors, Cape Colony; Aug. 1900, to Dec. 1901, District Engineer of Maintenance and Reconstruction, Imperial Military Rys., Eastern Transvaal; May to June 1902, Division Engineer of Surveys, Halifax and South Western Ry., Halifax, N.S.; June 1902, to Mar. 1903, District Engineer of Maintenance, Central South Africa Government Rys., Pretoria; Mar. 1903, to Dec. 1904, District Engineer of Surveys, Cape Government Rys., Cape Colony; Dec. 1904, to Dec. 1906, District Engineer of Maintenance, Cape Government Rys., Kimberley, South Africa; Jan. 1907, to Dec. 1908, Assistant Chief Engineer of Construction, Mackenzie, Mann and Co., Ltd., Toronto; Dec. 1908, to Jan. 1916, Chief Engineer of Construction, Mackenzie, Mann and Co., Ltd., Toronto. In addition to being a member of the Canadian Society of Civil Engineers, he is a member of the Institute of Civil Engineers, (England), and of the South African Society of Civil Engineers.

**George Herrick Duggan**, who has been elected President of the Canadian So-

ciety of Civil Engineers, was born in Toronto, Canada, in 1862, and was educated at Upper Canada College, Toronto, and at the School of Practical Science, Toronto University. In 1884 he entered Canadian Pacific Ry. service and was assigned to location work on the mountain division. He remained with the railway until the end of 1885, before which time he had been assigned to the drawing office and placed in charge of the division of bridge erection and of a section of grading. In Jan. 1886, he entered the Dominion Bridge Co.'s drawing office, becoming chief draughtsman in 1889 and Chief Engineer in 1891, which position he held until the end of 1901. During this period the company erected a number of bridges, including the first Coteau bridge, the Grand Narrows and St. Mary's River bridges, the Interprovincial bridge at Ottawa, the swing bridge and the emergency dam at Sault St. Marie, Ont., as well as the first Canadian hydraulic liftlock on the Trent Canal, at Peterborough, Ont. He went to Sydney, N.S., in Jan. 1902 as Assistant to the President of the Dominion Iron & Steel Co. and of the Dominion Coal Co. A considerable amount of civil engineering work was then being prosecuted by both companies, and he was placed in charge of it. In 1907 he became Third Vice President of both companies, and in 1905, when the companies separated, he was appointed Second Vice President and General Manager of the Dominion Coal Co., remaining in that capacity until 1910. He was responsible for the engineering work of the Dominion Coal Co. and for the opening of a number of new mines, the construction of docks and unloading plants and the extension and operation of the company's railway service. In 1910 he returned to the Dominion Bridge Co. as Chief Engineer, in which capacity he was responsible for the preparation of the design for the new Quebec bridge, for which tenders were being prepared at the time he became Chief Engineer. In 1912 he was appointed Vice President and General Manager of the Dominion Bridge Co. and Chief Engineer of the St. Lawrence Bridge Co., a company which was formed to bid on the superstructure of the new Quebec bridge and which was awarded that contract. He has continued actively since then in the great work of building this bridge.

**Alleged German plots Against Canadian Railways.**—A total of 81 indictments were returned against Francis Bopp, Consul General of the German Empire, and other officials and German firms and individuals in San Francisco, C.I., Feb. 10. Among the specific charges alleged by the United States Government agents, is that the accused or some of them had conspired to blow up the G.T.R. tunnel between Sarnia, Ont., and Port Huron, Mich., and the proposed conveyance of explosives into Canada for the purpose of blowing up C.P.R. tunnels in British Columbia.

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

Calgary & Edmonton Ry. ....	Acres. 322.00
Canadian Northern Ry. ....	4,315.90
Grand Trunk Pacific Branch Lines Co. . . .	51.99
Grand Trunk Pacific Ry. ....	195.14
Qu'Appelle, Long Lake & Saskatchewan Rd. & Steamboat Co. ....	5,356.80
Total .....	10,241.83

**A Strategic Railway** of about 100 miles is reported under construction between the Hadjaz Ry. and the Egyptian frontier.

**Canadian Society of Civil Engineers' Officers.**

The following officers, etc., were elected at the annual meeting in Montreal, Jan. 27:—President, G. H. Duggan, Vice President and General Manager, Dominion Bridge Co., Montreal; Vice President, T. H. White, Chief Engineer, Canadian Northern Pacific Ry., Vancouver.

Councillors:—District 1: W. J. Francis, Montreal; H. R. Safford, Chief Engineer, G.T.R., Montreal. District 2: H. Donkin, Deputy Commissioner, Public Works and Mines, Halifax, N.S.. District 3: A. E. Doucet, Quebec. District 4: E. D. Lafleur, Chief Engineer, Public Works Department, Ottawa. District 5: J. R. W. Ambrose, Chief Engineer, Toronto Terminals Ry., Toronto. District 6: D. A. Ross, Winnipeg. District 7: D. O. Lewis, District Engineer, Canadian Northern Pacific Ry., Victoria. B.C.

Treasurer, E. Marceau, Montreal. Secretary, C. H. McLeod, Montreal.

Two vice presidents and 16 councillors remain in office from the previous year.

**Lima Locomotive Corporation.**—The control of this corporation has been bought by J. S. Coffin, President, and S. G. Allen, First Vice President, Franklin Railway Supply Co., New York. The new officers are as follows:—Chairman of Board of Directors, J. S. Coffin; President, A. W. Wheatley, heretofore Vice President, Canadian Locomotive Co., Ltd., Kingston, Ont.; Vice President and General Sales Manager, J. E. Dixon, formerly of the American Locomotive Co.; Secretary and Treasurer, J. H. Guess, formerly General Purchasing Agent, Grand Trunk Ry., who will be in charge of purchasing.

**The Canadian Railway Club's** annual dinner in Montreal Jan. 29 was largely attended. In the absence of the President, L. C. Ord, Assistant Works Manager, Angus shops, C.P.R., on active military service, the Vice President, R. M. Hannaford, Assistant Chief Engineer, Montreal Tramways Co., occupied the chair. Among the other speakers were Sir Sam Hughes, Minister of Militia; F. P. Gutelius, General Manager, Canadian Government Railways; J. Coleman, Superintendent, Car Department, G.T.R.; T. C. Hudson, Division Master Mechanic, Canadian Northern Ry., and W. McNab, Valuation Engineer, G.T.R.

**Interest on Guaranteed Railway Bonds.**—Replying to question in the House of Commons Feb. 17, the Minister of Finance said the Government had not paid by special warrant the half yearly interest on Dominion and provincial guarantees of the Canadian Northern Ry., nor of the half yearly interest on the Dominion guarantee of the Grand Trunk Pacific Ry. There were no interest payments made on guarantees to railways by the Government during 1914 and 1915, nor up to the date of the answer given.

**Railway Taxation in Manitoba.**—The Manitoba Legislature has passed an act repealing the Revised Statutes of 1913, chap. 193, sec. 16, which enacted that "nothing contained in this act shall take away or lessen any exemption from taxation heretofore granted any railway company by or under any act of the Legislature of Manitoba."

The Public Works Department received tenders to Feb. 28, for the construction of timber lock gates and equipment, for the East River lock, near New Glasgow, N. S.



# Canadian Railway AND Marine World

ESTABLISHED 1898

Devoted to Steam and Electric Railway, Marine, Express, Telegraph, and Railway and Canal Contractors' Interests.

Official Organ of various Canadian Transportation Associations.

Published on the first of each month.

ACTON BURROWS, LIMITED - Proprietors,  
70 Bond Street, Toronto, Canada.

ACTON BURROWS, A.Can.Soc.C.E.  
Managing Director and Editor-in Chief.

AUBREY ACTON BURROWS - Secretary and  
Business Manager.

Associate Editors  
JOHN KEIR AND DONALD F. KEIR

Canadian Business Representative,  
W. H. HEWITT, 70 Bond Street, Toronto

United States Business Representative,  
A. FENTON WALKER, 143 Liberty St., New York

European Business Representative,  
J. MEREDITH MCKIM, 16 Regent St., London, Eng.

Authorized by the Postmaster General for Canada,  
for transmission as second class matter.

Entered as second class matter, July 25, 1913, at the  
Postoffice at Buffalo, N.Y., under the Act of Congress  
of March 3, 1879.

SUBSCRIPTION PRICE, including postage any-  
where, \$2 a year.

SINGLE COPIES, 20 cents each, including postage.  
The best and safest way to remit is by express money  
order. Where one cannot be obtained, a post office  
money order, or bank draft, payable at par in Toronto,  
may be sent. Cheques or drafts not payable at par in  
Toronto cannot be accepted. Remittances should be  
made payable to Canadian Railway and Marine World.

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, MARCH, 1916

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## 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 Dec. 30, 1915, to Jan. 17, and the total progress to Jan 27:—

EAST END.	Progress.	Total.
Main tunnel .....	806 ft.	9,548 ft.
WEST END.		
Main tunnel .....	557 ft.	9,849 ft.

**One-man Car Operation.**—Investigation by the American Electric Railway Association shows that out of a total of 111 American cities in which one-man car operation is in use, 30 cities in 1910 had a population of more than 25,000, which means that 27% of the cities using the one-man method of operation are cities of large population. Eight other cities ranged between 20,000 and 25,000 population and 45 others are between 10,000 and 20,000, leaving for the small city of less than 10,000 a total of but 28. Of the 30 companies operating in cities with more than 25,000 inhabitants there are two companies the population of whose cities are more than 500,000; one city over 200,000, and one over 100,000, which shows the favor with which one-man operation is being met, and its ascending popularity for larger city operation.

**Navigation Seasons at Port Nelson.**—The record of the first steamship arrivals at, and the last departures from, Port Nelson, Hudson Bay, for 1912 to 1915, was given in the House of Commons, Feb. 7, as follows:—1912, s.s. Beothic arrived off Nelson roads, July 24, but for lack of pilot did not proceed up river until July 29; after clearing, she proceeded to James Bay. 1913, s.s. Bonaventure arrived at Port Nelson, Aug. 6, and cleared from there, with the steamships Bellaventure and Sinbad, Oct. 13, being followed on Oct. 19 by the Dominion Government survey steamship Acadia. 1914, s.s. Bonaventure arrived at Port Nelson, Aug. 14; the steamships Bellaventure and Sheba cleared from there, Oct. 17. 1915, s.s. Bellaventure arrived at Port Nelson Aug. 1, and cleared from there, with the steamships Adventure and Sheba, Oct. 22.

**Judgment was given in the October Court of Appeal, Jan. 24, in an action in which the County of Wentworth, the City of Hamilton and the Hamilton Radial Ry. were concerned.** The railway extends from Hamilton to Oakville, the city and county authorities granting franchises, in respect of which certain payments are made. Some difference arose between the city and county respecting these payments, with the result that action was brought, and a verdict was given July 2, 1914, in favor of the county. Against this the city appealed, with the result that the appeal has been allowed and the original action dismissed.

**Alaska halibut fishermen** have petitioned the United States Government to take steps to protect the industry. It is alleged that owing to the opening of the Grand Trunk Pacific Ry., the centre of the fisheries in Alaskan waters has been shifted from Ketchikan, Alaska, to Prince Rupert, B.C.

**The Canadian Ticket Agents Association** will hold its next annual meeting and outing at Port Arthur, Ont., early in June.

**The Dominion Government Railway to Hudson Bay** engineering staff has given \$513.97 as a special donation to the Manitoba Patriotic Fund.

## Grain Inspection at Western Points.

Following are the number of cars of grain inspected on the Canadian Pacific, Canadian Northern, Great Northern and Grand Trunk Pacific Rys. at Winnipeg and other points in the Western Division, in Jan. 1916, in the 5 months ended Jan. 1916, and in the 5 months ended Jan. 1915, respectively:—

		5 months to	5 months to
	Jan. 1916	Jan. 1916	Jan. 1915
C.P.R. ....	5,630	107,840	41,089
C.P.R., Calgary...	599	2,837	2,831
C.N.R. ....	3,802	55,632	25,922
G.N.R., Duluth ..	101	2,677	893
G.T.P. ....	1,593	27,412	10,634
Total .....	11,725	196,398	81,369

## Too Late for Classification.

The Dominion Government s.s. Quadra was sunk off Naniamo, B.C., Feb. 26, in collision with the C.P.R. s.s. Charmer, the crew being saved. She was valued at about \$80,000 and was engaged in the fishery patrol and lighthouse and buoy service on the Pacific coast.

Canada Steamship Lines' s.s. Empress of Fort William, which since Aug. 4, 1914, has been engaged in ocean service, was sunk by a mine off Dover, England, Feb. 26, while attempting to rescue the crew of the s.s. Maloja, which had struck a mine. The Empress of Fort William was built at Newcastle, England, in 1908, and was formerly owned by the Empress Transportation Co., Midland, Ont., and was later absorbed by Canada Steamship Lines, Ltd. Her dimensions were: Length 250 ft., breadth 43 ft., depth 25 ft., and she had a cargo capacity of 3,440 tons.

The Transit Co., Ltd., has been incorporated under the Dominion Companies Act, with \$250,000 authorized capital, and office at Toronto, to carry on a general shipowning and operating business, and in connection therewith to own and operate steam and other vessels, and to enter into agreements with steam and electric railway companies to move and operate their rolling stock. The incorporators are all connected with a Toronto legal firm.

The Manitoba Public Utilities Commissioner recently suspended the order directing the Winnipeg Electric Ry. to operate its cars over the Arlington St. bridge, Winnipeg. The Board of Control on Feb. 5, instructed the City Solicitor to apply for a renewal of the order. This new application will enable the question of the sufficiency of the existing brakes on the cars, to ensure safety on the gradient at the bridge, to be settled.

The Saskatchewan Co-operative Elevator Co. proposes to extend its system to include the ownership and operation of terminal elevator facilities at the head of the lakes, and is taking steps to have the matter discussed in the Legislature, with the view of having such extension authorized, and if necessary, obtaining the financial co-operation of the province.

C. H. Gaunt, heretofore General Manager, Pacific Division, Western Union Telegraph Co., San Francisco, Cal., has been appointed General Manager at Chicago, Ill., with jurisdiction over the company's lines in ten States. He is succeeded at San Francisco by M. T. Cook, heretofore Assistant General Manager, Chicago, Ill.

During 1915, 89,195,875 tons of bulk freight were handled on the Great Lakes, an increase of 16,256,272 over 1914.



# 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.

**Algoma Central & Hudson Bay Ry.,** Algoma Eastern Ry.—I. L. GODFREY, Comptroller, has also been appointed Treasurer, vice R. Barber, resigned to enter Algoma Steel Corporation's service. He will act in the dual capacities for the Receivers of the A.C. & H.B.R. and Algoma Central Terminals, Ltd., Algoma Eastern Ry., Algoma Eastern Terminals, Ltd., Superior Rolling Stock Co., British American Empress Co., and Algoma Rolling Stock Co. Office, Sault Ste. Marie, Ont.

E. B. BARBER has been appointed Assistant Comptroller and Assistant Treasurer of the above named companies. Office, Sault Ste. Marie, Ont.

**Algoma Central Steamship Line.**—W. J. McCORMACK, heretofore Superintendent. Northern Navigation Co., Sarnia, Ont., has been appointed Superintendent, Algoma Central Steamship Line, vice S. V. McLeod, resigned. Office, Sault Ste. Marie, Ont.

**Canadian Northern Ry.**—A. F. STEWART, heretofore Chief Engineer of Construction, Mackenzie, Mann & Co., Ltd., Toronto, has been appointed Chief Engineer, lines east of Port Arthur, Ont., C.N.R. Office, Toronto.

G. C. BRIGGS, heretofore Inspector of Buildings, Mackenzie, Mann & Co., Ltd., has been appointed Supervisor of Bridges and Buildings, Eastern Lines, C.N.R., his jurisdiction covering the design and construction of new buildings only. O. KERR, Supervisor of Bridges and Buildings, is in charge of the maintenance of bridges and buildings. Office, Toronto.

G. CLISSOLD, heretofore Night Locomotive Foreman, has been appointed Assistant Foreman, Rainy River, Ont., vice E. R. Mills, promoted.

B. T. PATTERSON, heretofore machinist, has been appointed Night Locomotive Foreman, Rainy River, Ont., vice G. Clissold, promoted.

E. R. MILLS, heretofore Assistant Foreman, Rainy River, Ont., has been appointed Locomotive Foreman, Dauphin, Man., vice J. Duncanson, assigned to other duties.

C. R. STOKES, heretofore Car Foreman, Saskatoon, Sask., has been appointed Car Foreman, Dauphin, Man., vice J. Grant, transferred.

J. GRANT, heretofore Car Foreman, Dauphin, Man., has been appointed Car Foreman, Saskatoon, Sask., vice C. R. Stokes, transferred.

P. K. MANAHAN, heretofore Trainmaster, Saskatoon, Sask., has been appointed acting Trainmaster, Kamloops Jct., B.C.

T. R. MacLEOD, heretofore Superintendent, New Westminster, B.C., has been appointed acting Superintendent of tracklaying on Patricia Bay Branch, Vancouver Island. Office, Belmont Block, Victoria.

F. A. YOUNG, who at the time of his retirement from the C.N.R. service some two years ago was Division Freight Agent, Ontario Lines, Toronto, has been appointed General Agent (Freight and Passenger) at 233 Broadway, New York, N.Y., where the company has opened an office.

**Canadian Pacific Ocean Services, Ltd.**—In addition to a number of appoint-

ments and transfers following on the organization of this company, already mentioned in Canadian Railway and Marine World, the following are reported: CAPT. E. BEETHAM, Marine Superintendent, Vancouver, B.C.; JAMES McGOWN, Assistant Superintendent Engineer, Vancouver, B.C.; W. J. SERGENT, Chief Superintendent Engineer, Liverpool, Eng.; KENNETH MACKENZIE, Assistant Superintendent Engineer, Liverpool, Eng.; L. J. COATES, Chief Accountant, Liverpool, Eng.; W. ADAM, Purchasing Agent, Liverpool, Eng.; Capt. D. R. W. PARSONS, Marine Superintendent, London, Eng.; G. H. BUTTERWORTH, Assistant Superintendent Engineer, London, Eng.; A. S. RAY, Agent, Bristol, Eng.; W. D. GROSSET, Agent, Glasgow, Scotland; Capt. W. CHRISTIE, Marine Superintendent, Glasgow, Scotland; JOHN RUSSELL, Assistant Super-



W. B. Howard,  
District Passenger Agent, Canadian Pacific Railway, Toronto.

intendent Engineer, Glasgow, Scotland; H. T. RICHARDSON, Assistant Superintendent Engineer, Hong Kong, China.

**Canadian Pacific Ry.**—W. E. ALLISON, heretofore chief clerk, General Baggage Department, has been appointed Assistant General Baggage Agent, Eastern Lines. Office, Montreal.

J. H. BOYLE, heretofore Superintendent, District 3, Lake Superior Division, Schreiber, Ont., has been appointed Superintendent, District 1, Eastern Division, vice F. W. Cooper, whose transfer to Schreiber was announced in our last issue. Office, Farnham, Que.

J. B. BLAIR, heretofore General Yardmaster, Windsor, Ont., has been appointed Assistant Superintendent, Montreal Terminals, vice W. K. Tansley, transferred.

F. M. RUTTER, A.M. Can. Soc. C.E., heretofore Assistant Superintendent, District 3, Ontario Division, has been appointed Superintendent, District 3, On-

tario Division, vice W. K. Thompson, retired. Office, Toronto.

D. PAISLEY, heretofore conductor, has been appointed General Yardmaster, Windsor, Ont., vice J. B. Blair, promoted.

G. TWIST, heretofore Locomotive Foreman, Brandon, Man., has been appointed Locomotive Foreman, Fort William, Ont., vice A. Brown, promoted.

J. NEILL, formerly District Master Mechanic, Moose Jaw, Sask., who was recently appointed District Master Mechanic, Calgary, Alta., vice W. J. Renix, transferred to Revelstoke, B.C., has since been appointed District Master Mechanic, Kenora, Ont., vice S. West, transferred.

A. W. CLARK, heretofore Locomotive Foreman, Kamloops, B.C., has been appointed Locomotive Foreman, Brandon, Man., vice G. Twist, transferred.

A. BROWN, heretofore Locomotive Foreman, Fort William, Ont., has been appointed District Master Mechanic, Winnipeg, vice A. Piers, whose appointment as District Master Mechanic, Moose Jaw, Sask., was announced in our last issue.

A. G. RICHARDSON, heretofore City Passenger Agent, Winnipeg, has been appointed District Passenger Agent, there.

R. L. LOWE has been appointed Commissary Agent, Winnipeg, vice T. M. McKeown, whose appointment as Commissary Agent, Victoria, B.C., was announced in our last issue.

E. W. DUVAL, heretofore Superintendent, District 3, Saskatchewan Division, Saskatoon, has been appointed acting General Superintendent, Saskatchewan Division, during the absence of J. G. Taylor, who has been granted leave owing to ill health. Office, Moose Jaw.

S. WEST, heretofore District Master Mechanic, Kenora, Ont., has been appointed District Master Mechanic, Medicine Hat, Alta., vice R. Brown, who has received a commission as Lieutenant for overseas service.

P. S. BEATT, heretofore Locomotive Foreman, Coronation, Alta., has been appointed Locomotive Foreman, Ogden, Alta.

B. S. HUTCHINSON has been appointed General Foreman, Ogden, Alta., vice W. H. Wortman, transferred.

W. H. WORTMAN, heretofore General Foreman, Ogden, Alta., has been appointed Locomotive Foreman, Calgary, Alta., vice J. Neill, transferred.

H. HERLICK has been appointed Locomotive Foreman, Coronation, Alta., vice P. S. Beatt, transferred.

J. USHER, heretofore locomotive man, has been appointed Locomotive Foreman, Bassano, Alta.

L. FISHER, heretofore District Master Mechanic, Revelstoke, B.C., has been appointed District Master Mechanic, Cranbrook, B.C.

E. L. SHEEHAN, heretofore City Ticket Agent, Chicago, Ill., has been appointed General Agent, Passenger Department, St. Louis, Mo., vice A. J. Blaisdell, promoted. Office, 725 Olive St.

**Duluth, Winnipeg & Pacific Ry.**—E. W. MYERS is reported to have been appointed storekeeper at Virginia, Minn., vice F. S. Matthey, resigned.

**Grand Trunk Ry.**—SIR ARTHUR YORKE, C.B., formerly Inspector of Railways under the British Board of Trade, and a director of the Great Western, South Eastern, and London, Chatham & Dover Railways of England, has been



elected a director G.T.R., succeeding the late Lord Welby.

T. RODGER, heretofore Supervisor of Telegraphs, Grand Trunk Pacific Telegraph Co., Montreal, has been appointed Superintendent of Telegraphs, G.T.R. System. Office, Montreal.

R. WRIGHT has been appointed Division Agent, Ontario Lines, vice G. A. Stokes, who was appointed Superintendent, Sarnia Tunnel Terminals, Port Huron, Mich., in Nov. 1915. Office, Toronto.

S. R. JOYCE, heretofore ticket clerk in the City Ticket Office, Toronto, has been appointed Travelling Passenger Agent there, vice Jas. Anderson, promoted.

JAMES ANDERSON, heretofore Travelling Passenger Agent, Toronto, has been appointed City Passenger and Ticket Agent, Hamilton, Ont., vice C. R. Morgan, who has enlisted for military services overseas.

S. E. DEWEY, heretofore Commercial Agent, New York, has been appointed General Eastern Freight Agent, there, with territory as covered by him as Commercial Agent. The positions of General Agent and Commercial Agent have been abolished. We are officially advised that the position of General Agent, Passenger Department, New York, held by F. P. Dwyer, remains as before.

E. J. WEARING, heretofore Passenger Agent, G.T.R., and acting General Agent, Canadian Express Co., Liverpool, Eng., has been appointed General Agent, G.T.R. System, Central Vermont Ry., and Canadian Express Co., vice W. Cuthbertson deceased. Office, 20 Water St., Liverpool.

Grand Trunk Pacific Ry.—J. ABBOTT, heretofore Chief Dispatcher, Regina, Sask., has been appointed Assistant Superintendent there. The name was given as J. Brewer in error in our last issue.

B. B. EIDSON, heretofore Road Foreman of Locomotives, Smithers, B.C., has been appointed Road Foreman of Locomotives, Regina, Sask. No successor has been appointed at Smithers, B.C.

C. A. MUNRO, heretofore Car Foreman, Edson, Alta., has been appointed Car Foreman, Melville, Sask., vice W. Mills, resigned.

B. WOODCOCK, heretofore Car Inspector, Melville, Sask., has been appointed Car Foreman, Edson, Alta., vice C. A. Munro, transferred.

J. MORIARTY, heretofore Roadmaster, Edson, Alta., has been appointed Roadmaster, Subdivision 11 and 12, Endako, B.C., vice J. A. McM. Brown, resigned.

Michigan Central Rd.—A. K. MASTERS has been appointed Freight Claim Agent, and F. B. McILVAINE has been appointed Assistant Freight Claim Agent, Detroit, Mich.

National Transcontinental Ry.—A. DEVINE, heretofore District Master Mechanic, Districts 1 and 2, Cochrane, Ont., has been appointed District Master Mechanic, District 1. Office, Parent, Que.

JAMES CLARK has been appointed Locomotive Foreman, Parent, Que.

J. E. RIOUX has been appointed acting Roadmaster, Doucet Subdivision, Doucet, Que.

J. J. DOONER has been appointed acting Roadmaster, Parent Subdivision, Doucet, Que.

J. R. CASSIDY, heretofore acting Roadmaster, Parent, Que., has been appointed acting Roadmaster, Fitzpatrick Subdivision, Fitzpatrick, Que.

J. E. SIMPSON, heretofore Road-

master, Parent, Que., has been appointed acting Roadmaster, Quebec Subdivision, Fitzpatrick.

A. J. ROBERTS, heretofore Locomotive Foreman, Transcona, Man., has been appointed District Master Mechanic, District 2, vice A. Devine, District Master Mechanic, Districts 1 and 2, whose jurisdiction is now confined to District 1. Office, Grant, Ont.

C. H. MOULTON, heretofore acting Road Foreman of Locomotives, District 3, Redditt, Ont., has been appointed Locomotive Foreman, Transcona, Man., vice A. J. Roberts promoted, and his former position has been abolished.

Wabash Ry.—F. H. TRISTRAM, heretofore Assistant General Passenger Agent, Ill., has been appointed General Passenger Agent. Office, St. Louis, Mo. J. S. WALSH, Jr., has been appointed Industrial Agent. Office, St. Louis, Mo.

**Dominion Government Elevator at Calgary.**—The Minister of Trade and Commerce, in response to questions in the House of Commons, Feb. 3, gave details of the operation of the Dominion Government grain elevator at Calgary, Alta., as follows: It was opened to receive grain, Aug. 27, 1915, and from that date to Dec. 31, received 185,455 bush. It has a total capacity of 2,500,000 bush. The intention is that the elevator shall serve all territory from which grain can be shipped economically by the Pacific Ocean, either to the Orient, or Europe by way of Cape Horn or through the Panama Canal. It is also for storage purposes, cleaning and treatment, and was not intended primarily for the shipment of grain east. Up to Jan. 14, 248,367 bush. of grain had been received.

It is announced that Canadian Government Railways is making a division of its telegraph lines along the Intercolonial Ry. so that certain wires may be used exclusively for railway purposes, and others exclusively for commercial purposes. It is stated that the work of division has been under way for some time, and will be completed early in March. The commercial business is operated under lease by the Great North Western, and Western Union Telegraph Companies.

The Toronto, Hamilton & Buffalo Ry. has ordered 780 tons of 100 lbs. steel rails and 315 tons of 80 lbs., from the Algoma Steel Corporation. Delivery is to be made during April and May. The 100 lbs. will be used for relaying on the east mountain section and the 80 lbs. for relaying on other parts of the line. The released rails will be used for siding purposes. (Feb., pg. 50.)

**Quebec Central Ry. Offices Burned.**—Fire broke out in the Quebec Central Ry. offices at Quebec, Que., Feb. 15, and considerable damage was done to the building and contents, all of which, it is said is covered by insurance. The fire started in the upper story of the south wing, and spread throughout the building. Most of the valuable property in the building was saved.

**Canadians Woods for Railway Work.**—The Canadian Pacific Ry. management, in order to encourage the use of Canadian woods for interior decorations, has decided to use Canadian forest products exclusively for the interior finish of its buildings and passenger cars.

**G.T.R., vs Pere Marquette.**—The Grand Trunk has issued a writ at Osgoode Hall, Toronto, against the Pere Marquette Rd., claiming \$16,506 for the use of the G.T.R. station at London from Jan. 1909, to June, 1915.

**Steam Railway Track Laid in 1915.**

Since the issue of our February number we have received further information as to tracklaying done on Canadian Northern Ry. western lines, which adds 15.64 miles to the figures given before, making the total mileage of track laid by C.N.R. lines during the year 247.88 instead of 232.24. This alters the total for the Dominion to 729.90 miles; and increases the mileage laid in Alberta from 299.60 to 315.24 miles.

The mileage laid in the several provinces in comparison with that laid in 1914 was:—

	Miles.	Miles.
<b>Alberta and Great Waterways.</b>		
Mileage 78 to 174.5, Alberta.....	96.50	
<b>Canadian Northern System.</b>		
Canadian Northern Quebec—		
Arundel to Rouge River, Que..	2.00	
Canadian Northern—		
Grand Marais to Victoria Beach, Man. ....	14.07	
Canora to Sturgis, Sask.....	21.44	
Bienfait to Estevan, Sask.....	8.91	
Elrose to Eston, Sask. ....	34.81	
Peace River Line .....	2.15	
Canadian Northern Sask. Ry.—		
Wroxton to Willowbrook, Sask.	41.01	
Canadian Northern Western Ry.—		
Camrose southeasterly .....	56.49	
Canadian Northern Pacific.—		
Gladwin to bridge 4 .....	32.00	
Bridge 5 to bridge 7. ....	8.00	
Hells Gate to Goose Creek, mileage 370 to 382 .....	12.00	
Mileage 382 to 397 .....	15.00	
	—	247.88
<b>Canadian Pacific.</b>		
Coronation, Sask., west .....	0.75	
Foremost to Pakowki, Alta. ....	22.30	
	—	23.05
<b>Central Canada.</b>		
McLennan to Heart River, Alta. ....	47.60	
<b>Edmonton, Dunvegan and British Columbia.</b>		
Mileage 246.7 to 336.9 .....	90.20	
<b>Essex Terminal.</b>		
Near Sandwich to Ojibway, Ont..	1.00	
<b>Grand Trunk Pacific.</b>		
Track on Saskatchewan River bridge, Prince Albert Branch..	0.20	
<b>Halifax South Western.</b>		
Jordan Falls Station to Jordan Falls, N.S. ....	1.29	
<b>Hudson Bay (Dominion Government.)</b>		
Mileage 197.4 to 241.24 .....	43.84	
<b>Intercolonial.</b>		
Connection with National Transcontinental, Moncton .....	0.85	
Dartmouth branch—Edenbrook to Upper Musquodoboit, N.S. ....	17.00	
	—	17.85
<b>Kettle Valley Lines.</b>		
Between Midway and Merritt, B.C.	31.00	
Coquihalla River Section .....	33.00	
	—	64.00
<b>Pacific Great Eastern.</b>		
D'Arcy to Clinton, B.C. ....	81.20	
<b>Quebec Central.</b>		
From mileage 5 east of St. Camille to English Lake .....	14.00	
<b>St. John and Quebec.</b>		
From Fredericton, N.B., south....	1.29	
Total .....	729.90	
	1915.	1914.
Alberta .....	315.24	513.12
British Columbia .....	212.20	679.26
Saskatchewan .....	107.12	215.97
Manitoba .....	57.91	300.15
Nova Scotia .....	18.29	47.80
Quebec .....	16.00	52.51
New Brunswick .....	2.14	29.99
Ontario .....	1.00	200.01
Prince Edward Island .....		2.50
Miles .....	729.90	2,041.31

**U. S. Census Figures**—Reference was made in Canadian Railway and Marine World for Feb., pg. 61, to Canada's remarkable tracklaying record, and comparison was made with the tracklaying in the U.S., using census figures to obtain certain averages. It was stated that the population of the U.S., according to the census of 1910, was 99,451,000. These figures were obtained from a semi-official source, but it has been discovered that a mistake was made, the figures of the 1910 census showing a population of 91,972,266.



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

**Alberta & Great Waterways Ry.**—J. D. McArthur, President, in an interview at Edmonton Feb. 7, is reported to have said that after the completion of track laying into Fort McMurray, which it was expected to have done by Mar. 31, that the company's energies will be devoted to the ballasting of the line, and the completion of the necessary buildings, and that no further construction beyond Fort McMurray is contemplated at present.

The A.&G.W.R. is now receiving about 7,000 tons of 60 lb. steel rails, to complete an order for 25,000 tons given the Algoma Steel Corporation last year (Feb., page 49).

**Athabasca & Fort Vermilion Ry.**—The following telegram is said to have been received in Athabasca Landing, Alta., from C. F. Law, Vancouver, B.C., representing Lord Rhondda (D. A. Thomas), who is behind this projected railway:—"Everything all right. Official authority to proceed." What this telegram implies is known only to the company's agents, but probably the only manifestation of activity is the work of a survey party, and the preparation of a bill for presentation to the Alberta Legislature, providing for the guarantee of the company's bonds for the building of the line from Athabasca Landing to Fort Vermilion. A deputation from the district is being arranged to ask the Government to take charge of the bill. (Nov., 1915, pg. 437.)

**Atlin Ry.**—The Dominion Parliament is being asked to extend the time for the building of this projected railway from Atlin, B.C., southerly to where the Taku River crosses the International Boundary between British Columbia and Alaska. (July, 1914, pg. 323.)

**Canmore Ry.**—The Alberta Legislature is being asked to incorporate a company with this title to build a railway from the C.P.R. to No. 2 Mine, Canmore, with branches to the Georgetown Colliery and No. 1 Mine, Canmore, in Tps. 24 and 25, ranges 10 and 11 west of the 5th meridian. Clarke, Carson, Macleod & Co., Calgary, Alta., solicitors for applicants.

**Central Canada Ry.**—In an interview at Edmonton, Alta., Feb. 7, J. D. McArthur, President, is reported to have said it is expected to have the Hart River bridge completed by Mar. 31. The track will then be laid to Peace River Landing, and train service will be established through to that point from McLennan on the Edmonton, Dunvegan and British Columbia Ry. Plans are being prepared for the steel bridge to be built across the Peace River at this point, the estimated cost of the bridge being \$750,000. It will be a combined railway and traffic bridge. At present traffic is carried across the river by a ferry under the British Columbia Government's control, but is liable to be interrupted by ice. It is not intended to do any work on the bridge this year, but it is hoped to start construction in the spring of 1917. The province has guaranteed bonds for the construction of the railway for 50 miles beyond the Peace River, to the Waterhole district. Although the line has been located, according to Mr. McArthur's statement, no grading will be done this year, the only work to be done being the ballasting of the 50 miles from McLennan to Peace River, and the completion of the buildings on the line.

We are officially advised that surveys have been made for an extension of the main line from Peace River Crossing to the Alberta-British Columbia boundary, 10 miles; and that a branch line is under contract from mileage 101 on the Alberta & Great Waterways Ry. easterly for 10 miles. Surveys are being made for an extension of this branch from mileage 10 to the Alberta-British Columbia boundary. (Feb., pg. 49.)

**Churchill Southern Ry.**—The Manitoba Legislature has extended the time for the building of this projected railway from Fort Churchill to Kettle Rapids on the Hudson Bay Ry., with branch lines to any point in Manitoba. A motion to read the bill a third time in six months was defeated Jan. 28 by 38 votes to 3. (Feb., pg. 49.)

**Dominion Government Ry. to Hudson Bay.**—It was stated by Mr. Blondin, on behalf of the Minister of Railways, in answer to questions in the House of Commons, Feb. 3, that there had been expended on account of this railway to Jan. 6, \$15,465,304.70. Of this amount, \$10,446,592.90 was expended upon the railway proper, including \$683,166.75 on bridges, trestles and culverts, while there had been expended on harbors and approaches \$5,018,711.74, including \$163,012.30 expended upon bridges. There were 378 miles of grading completed and steel had been laid to mileage 242. It is expected that steel will be laid to Port Nelson early in 1917, and that the harbor will be ready for traffic, though incomplete, about the time the railway will be ready for operation. The Marine Department had expended \$21,293.96 on the project.

Delivery has commenced of 10,000 tons of 80 lbs. steel rails ordered for this line last year from the Algoma Steel Corporation and is expected to be completed by the end of March. They are being shipped by rail from Sault Ste. Marie to Pas, Man. (Jan., pg. 10.)

**Edmonton, Dunvegan & British Columbia Ry.**—Tracklaying is reported to have been completed to Spirit River, 357 miles from Edmonton, Alta. It is expected to extend the train service from McLennan to Spirit River Mar. 1. Tracklaying on the branch line from Spirit River to the Grand Prairie Settlement was started Feb. 1, and was expected to be completed by Mar. 31. This branch will be 60 miles long. J. D. McArthur, President, in an interview at Edmonton, Feb. 6, is reported to have said that no further construction will be gone on with after the completion of tracklaying this year, as the whole of the company's energies will be devoted to ballasting and completing the lines already graded. (Feb., pg. 49.)

**Gananoque & Arnprior Ry.**—The Ontario Legislature is being asked to revive the company's act of incorporation and to extend the time for the building of the projected railway from Gananoque to Arnprior, with branches from Morton to Lyndhurst, and from an unnamed point on the line to Ottawa. The lines are to be operated by steam, electricity or other motive power. Chrysler and Higgerty, Ottawa, solicitors for applicants.

**The Grand Trunk Ry.** has ordered from the Algoma Steel Corporation 1,100 tons of 90 and 100 lb. rails, in short lengths, for frog and switch purposes. Delivery is to be made within 6 months.

**Grand Trunk Pacific Ry.**—The grading of the Prince Albert Branch we are officially advised has been completed into Prince Albert, Sask., and track was laid across the bridge over the Saskatchewan River, at mileage 57 from Young, during 1915. A train service is being operated to this point. The distance from the river to Prince Albert is about 25 miles, but it has not yet been decided when track laying will be gone on with.

The Saskatchewan Government has approved of plans for the carrying by the Grand Trunk Pacific Saskatchewan Ry. of Coteau Ave., Morton Ave. and Fourth Ave., across its Weyburn Branch. (Feb., pg. 49.)

**Great Northern Ry. Lines in Canada.**—The Minister of Railways for British Columbia informed the G.N.R., Feb. 2, that the plans submitted for the new station on the False Creek flats, Vancouver, do not fulfil the requirements of the agreement. In an interview the Minister of Public Works is reported to have said: "No detailed plans have been submitted, but in the preliminary drawings our engineer has seen, it appears, that the value guaranteed by the G.N.R. is not there, and we are not going to pass the plans until the value mentioned in the agreement signed by the G.N.R. is shown. We certainly expect the G.N.R. to live up to its agreement and spend the \$500,000 agreed upon."

O. S. Bowen, of the G.N.R. engineering staff, was in Vancouver Feb. 1, and is reported to have said the contractors had been given plans for the foundation work of the new station, and were preparing to start work. The question of the new frontage was being considered, but no decision had yet been reached. The proposal is that the frontage be set 75 ft. further back from Main St. than the plans showed. (Feb., pg. 49.)

**High River, Saskatchewan & Hudson Bay Ry.**—The Dominion Parliament is being asked to extend the time for the building of this projected railway from any point in Tps. 25 to 28, range 1, west 4 meridian, Alberta, to Saskatoon, Sask., to the Saskatchewan-Manitoba boundary between Tps. 52 and 56, and on to Pas, Man. The provisional directors mentioned in the original act, passed in 1912, are:—H. N. Sheppard, F. Crandell, T. E. Le Claire, C. A. Gigot and G. D. Stanley, High River, Alta., where the head office is situated. (Dec., 1914, pg. 544.)

**Intercolonial Ry.**—F. P. Gutelius, General Manager, Canadian Government Railways, is reported to have said at a public dinner in St. John, N.B., recently that the entire surplus of the Intercolonial Ry. for the year, which was estimated at \$1,000,000, would be expended upon betterments. Referring to the question of elevator accommodation at St. John, he said the improvements contemplated ultimately made reconstruction of the elevator on the old location impossible, and he was of opinion that the remedy was the provision of a slip and elevator on the Reid's Point area.

In an interview at Montreal, Jan. 31, Mr. Gutelius is reported to have said it was hoped to begin doing business at the new terminals at Halifax, N.S., next year. The cutting on the new line round the city was about completed, and it was expected that the contract for the new



station buildings would be given out in the spring. If that were done, construction would be well under way by the end of the year. (Jan., pg. 10.)

Replying to a question in the House of Commons Feb. 17, the Minister of Railways said the cost of the new ocean terminals at Halifax, N.S., to Dec. 31, 1915, was \$4,745,632.56. As detailed plans for the finishing of these works have not been completed, and are subject to modifications, it is impossible to give any estimate as to the final cost.

**The Kootenay & Alberta Ry.**, which runs from the C.P.R. Crows Nest branch, about a mile west of Pincher, to the coal mines of the Western Coal & Coke Co., Beaver Creek, Alta., about 13 miles, formed part of the Canadian Coal & Coke Co.'s property sold at auction at Calgary recently for \$3,000,000, the purchaser being the North American Collieries, Limited. The line was built in 1911-12, and was operated solely for coal traffic. (Oct., 1912, pg. 501.)

**Magdalene River Ry.**—The Quebec Legislature has passed an act confirming the charter of incorporation, and extending the time for building the authorized line from near Cap a la Ours, Gaspé County, to the Little Falls of the Magdalene River, thence to a connection with the Atlantic, Quebec & Western Ry.'s projected inland section. The provisional directors named in the act of incorporation passed in 1907 were:—C. W. Mullen, S. H. Boardman, Bangor, Me.; C. D. Lansing, Boston, Mass.; J. O. Drouin, E. Brassard, Montreal. (Dec., 1913, pg. 574.)

**National Transcontinental Ry.**—An order-in-council was passed Jan. 28 granting the N.T.R. Commission an area of 6.06 acres of land across the s.w. ¼ of sec. 35, Tp. 10, range 11 east of the first principal meridian, Manitoba, for right of way purposes. (Dec., 1915, pg. 470.)

**Pacific Great Eastern Ry.**—The Minister of Public Works for British Columbia recently completed a tour of inspection through the province, and in an interview at Victoria, Feb. 7, is reported to have said the question of the completion of this railway from Vancouver to Prince George was of primary importance to the Province. The assurance which he was able to give to the people along the route of the line that the Government was making plans to bring this to pass were heartily received. There could be no doubt as to the necessity of pushing the construction of the line as far as Prince George at the earliest possible date and subsequently to the Peace River country. The resources of the country through which the line was projected amply justified construction. The Government's plans would be laid before the Legislature, which is called to meet Mar. 2. (Feb., pg. 49.)

**Quebec Bridge.**—A press report states that with the erection of the main cantilever arm all the steel work on the north shore end of the bridge across the St. Lawrence River, near Quebec, has been completed. Practically all the steel work for the south shore section of the bridge is reported to be ready for erection and is expected to be completed ready for the erection of the cantilever arm in the spring. It is expected to have this arm built this year. The steel work for the suspended span is being got ready and it is expected to have it erected on scows during the year, ready for floating into position in the spring of 1917. If these operations are fulfilled it is probable that trains may be operated over the bridge in the summer of 1917.

## The Canadian Pacific Railway's Remarkable Earnings.

The C.P.R.'s earnings statement for December, apart from phenomenal gains shown in both gross and net earnings for the month, as compared with Dec. 1914, is notable as bringing to a fitting climax what is in many respects the greatest six months in the company's history. Gross earnings for the half year fell short of the corresponding totals for both 1912 and 1913, but net earnings established a new high record, passing the 1913 figures by about \$2,400,000 and the 1912 figures by about \$2,500,000.

As a result of the remarkable showing made through the last three months of 1915, the company earned the equivalent of its full 7% dividend on the common stock, paid out of railway earnings, and with something to spare. Estimates of the half year's surplus can only be approximate, as factors enter into fixed charges and earnings which later go to special income account, for instance, which are not easily determined in mid-year. But taking the various items of the income account for 1914-15 and allowing a corresponding proportion for the six months to Dec. 31, there would have to be deducted for the half year, before common stock dividends, the following amounts:—

Fixed charges .....	\$5,223,255
Pension fund .....	62,500
To special income account .....	747,076
Preference dividend .....	1,613,638
<b>Total .....</b>	<b>\$7,646,469</b>

Deducting this from the \$29,624,187, shown as net earnings for the six months, there would be a balance of \$21,977,708, against the \$18,200,000 required for a full year's payment of the 7% dividend on the common stock. That is, if charges and other deductions are allowed for the six months to Dec. 31, on a proportional basis with corresponding items for the full year 1914-1915, the company had a surplus equal to approximately 8.4% on its common stock. In saying then that the full 7% dividend has already been earned, there is a margin for error of nearly 1½% or about \$3,700,000.

The figures for the first half of the company's fiscal year, as compared with 1914 show gains of 19.1% in gross and 50.6% in net as follows:—

	1915	1914	Increase
Gross .....	\$66,470,163	\$55,938,125	\$10,532,038
Exp. ....	36,845,976	36,264,549	581,427
<b>Net .....</b>	<b>\$29,624,187</b>	<b>\$19,673,576</b>	<b>\$ 9,950,610</b>

Gross earnings for the six months, as already noted, have been exceeded in two years in the company's history, but net earnings constitute a record. Figures for five years, gross and net are:—

	Gross.	Net.
1915 .....	\$66,470,163	\$29,624,187
1914 .....	55,938,125	19,673,576
1913 .....	75,286,162	27,211,436
1912 .....	73,526,191	27,131,152
1911 .....	62,566,365	24,470,247

Although both gross and net earnings for Dec. naturally fell below the levels of Oct. and Nov., they were notable in two respects. For one thing both gross and net were the largest ever reported by the company for the month and for another the percentage gains passed the already remarkable increases reported in the months immediately preceding. As compared with Dec. 1914, gross increased \$5,261,711, or 70.7% and net \$3,502,797, or 159.4%, Dec. comparisons follow:—

	1915	1914	Increase
Gross .....	\$12,705,673	\$7,443,962	\$5,261,711
Exp. ....	7,003,351	5,244,438	1,758,913
<b>Net .....</b>	<b>\$5,702,321</b>	<b>\$2,199,523</b>	<b>\$3,502,797</b>

As compared with the best previous

Dec. on record, the final month of 1915 showed an increase of about \$500,000 in gross and of about \$1,300,000 in net. Dec. figures for five years follow:—

	Gross.	Net.
1915 .....	\$12,705,673	\$5,702,321
1914 .....	7,443,962	2,199,523
1913 .....	11,814,325	4,226,821
1912 .....	12,219,278	4,395,719
1911 .....	10,654,871	4,105,730

In detail by months, since the opening of the current fiscal year, gross and net figures offer the following comparisons with a year ago:—

	Gross.	in year. Change	P.C.
July .....	\$ 7,895,375	—\$ 2,586,596	24.2
Aug. ....	8,801,451	— 1,116,312	11.3
Sept. ....	10,273,165	— 480,974	4.5
Oct. ....	13,443,214	+ 4,160,285	44.8
Nov. ....	13,351,283	+ 5,293,924	65.7
Dec. ....	12,705,673	+ 5,261,711	70.7
<b>Totals .....</b>	<b>\$66,470,163</b>	<b>\$10,532,038</b>	<b>19.1</b>

	Gross.	in year. Change	P.C.
July .....	\$ 2,800,403	—\$ 978,042	25.9
Aug. ....	3,442,314	+ 79,157	2.4
Sept. ....	4,745,300	+ 378,252	8.7
Oct. ....	6,579,434	+ 3,258,105	98.1
Nov. ....	13,351,283	+ 5,293,924	65.7
Dec. ....	5,702,321	+ 3,502,797	159.4
<b>Totals .....</b>	<b>\$29,624,187</b>	<b>\$9,950,610</b>	<b>50.6</b>

### Manitoba Public Utilities Commission

—In connection with the appointment of P. A. MacDonald as Commissioner, which was mentioned in Canadian Railway and Marine World for Feb., we are officially advised that he will be assisted by an expert engineering staff, following the system in vogue in certain of the United States, where public utility laws have been more fully advanced. This staff will not only be servants of the commission in aiding investigations, and in settling technical disputes, but will also be available for the purpose of conferring with and advising on operation of telephones, gas, electric and water supply systems whether private or municipal, as to matters arising in the course of business. By this means the Commissioner will be relieved of the hearing of conferences between persons interested in purely technical matters, which has heretofore been found to increase the burden of his office.

**Woodsmen's Battalion.**—At the British War Office's request a Canadian forestering battalion is to be formed under Lt.-Col. Alex. McDougall, railway contractor, Ottawa. B. R. Hepburn, M.P., for Prince Edward, Ont. and formerly President, Bay of Quinte Steamship Co., will probably be one of the majors. Canadian woodsmen are wanted at once in Great Britain for timbering operations in connection with war requirements. Lumber is at an almost prohibitive price there, and ocean rates practically stop export from Canada. In Great Britain there are still large resources of standing timber which can be cut down and utilized for building operations, trench construction work, etc. It is planned to raise companies of experienced woodsmen from British Columbia, Alberta and northern Saskatchewan, the Ottawa Valley, Quebec and New Brunswick.

**Prince Edward Island Ry.**—It transpired in an action in the Queen's County Court, Charlottetown, P.E.I., recently, that the P.E.I. Ry. was not included as a Dominion Government railway in the statute respecting actions against the Government railways. The action was to recover \$140 damages for fire alleged to have been caused from a locomotive on the Murray Harbor branch.



## Unprecedented Weather Conditions in the West.

The prairie provinces and British Columbia in Canada, and the United States territory southerly thereof as far as San Francisco, experienced during the last week in January and the first week of February the heaviest snowfalls and the most severe cold weather that has occurred for many years. The first snowfall covering practically all of this territory occurred between Jan. 21 and 24, and terminated in some parts of the area with rain. The fall of snow was particularly heavy, and with the low temperature, which accompanied the rain, in the coast regions, the snow was turned into an icy mass, making its removal difficult. The second storm, which was particularly severe in British Columbia, and the State of Washington, occurred Jan. 31, and Feb. 1, Vancouver reporting a continuous fall for 38 hours, while in Seattle, Wash., 18 inches of snow fell.

Electric railway traffic in all the Canadian western cities was interrupted, and steam railway trains were stalled all over the territory. So far as electric railway traffic was concerned the Brandon Municipal Ry. was worst hit. The council ordered the stoppage of traffic on Jan. 27, and the laying off of the conductors and motormen until the streets were cleared. In Winnipeg, Regina, Saskatoon, Calgary, Edmonton and Lethbridge and the British Columbia Electric Ry. the services were kept up, without very much delay, the railways having the necessary appliances to keep the tracks clear. General Superintendent Murrin of the last company reported, Feb. 12, that the snow clearing in Vancouver cost \$13,546. Between Jan. 6 and Feb. 9, the company's snow clearing equipment was being operated to its full extent on 24 days, running 4,149 miles in Vancouver, and 3,000 miles on the interurban lines. During the worst period 300 men were at work in the snow clearing gangs. The only real delay on the company's mainland lines was one of a couple of hours on the Burnaby Lake Branch, where owing to the weight of icy snow a section of trolley wire came down.

On the steam railways, while there was a general stalling of trains at various points on the lines during the first storm, there were not any very great delays on the Canadian Pacific and the Grand Trunk Pacific's prairie lines. The first named of these companies reported traffic normal Jan. 27, and to have been very little interrupted by the second storm. This applies to the British Columbia Division equally with the prairie divisions. West of the prairie provinces the G. T. Pacific traffic appears to have been held up for about a week. The Canadian Northern Ry. appears to have been hit the worst, the heaviest obstruction being in British Columbia, the lines in the prairie provinces being cleared with comparatively short delays. One report stated that for 200 miles the C.N. Pacific was a mass of snow and ice over a foot thick, which would have to be removed with pick and shovel. A number of trains in the prairie provinces were cancelled, and the traffic on the line in British Columbia was practically closed temporarily. The train with passengers from Winnipeg, Jan. 28, was held up on the Boston Bar section, B.C., and the passengers reached Vancouver Feb. 12, having been transferred across the Fraser River by an aerial cable and carried over the C.P.R. One of the passengers was M. H. MacLeod, General Manager and Chief Engineer, who reported 200 men with a

rotary and two other snowploughs between Pyramid and Lucerne, and gangs at work near Boston Bar and at other points. The drifts he said ran up to 30 ft. in depth, and with the changing character of the weather had packed in such a way that much of it had to be moved with pick and shovel, but the line was cleared within a few days, sufficient to allow trains to go through, and although the conditions in Canada were bad, those in the States appear to have been worse, as following the snow and the frost came a sudden thaw, which brought on mud slides on the Great Northern Ry., and other obstructions to traffic on other lines. The first train into Vancouver over the Great Northern got in Feb. 11, but prior to that passengers had been taken round the mud slides, to a second train, and then on to Vancouver.

So far as branch line traffic was concerned conditions were worse, as the chief attention of the officers of the companies was necessarily given to the opening up of the transcontinental lines. One Canadian Northern branch line is reported to have been blocked since Jan. 5, and other lines of this and the other companies, from 5 to 15 days. The result of this, following the congestion of freight traffic at the divisional points, passenger traffic being given the preference, caused almost a coal famine throughout the west.

The Pacific Great Eastern, between Squamish and Clinton, was blocked by the first storm, and as the company has no snowplough or other similar equipment, traffic was abandoned.

On Vancouver Island the conditions were not much different. The British Columbia Electric Ry. was able to maintain a service in Victoria, although some of the streets remained blocked from Feb. 1 to 3, and the Saanich Peninsula line was not opened up until Feb. 11. Traffic on the Esquimalt & Nanaimo and the Victoria & Sidney Railways was abandoned Feb. 1, but the lines were opened up again within a week.

### Track Elevation or Depression in Hamilton.

The question of the elevation or depression of the Toronto, Hamilton & Buffalo Ry. tracks in Hamilton, Ont., which has been under consideration for a couple of years, has been advanced a stage by the report of G. A. Mountain, Chief Engineer of the Board of Railway Commissioners, a copy of which has been sent to the City Engineer.

Mr. Mountain discusses the elevation and depression plans, pointing out the merits and defects in each, and making suggestions in regard to them, and concludes: "In summing up, and taking everything into consideration that I can think of, I am of the opinion that if grade separation is to be made at this point, then in the greater interests 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. business at present through the city of Hamilton with gates protecting practically all its level crossings and with half interlockers protecting the electric car systems at crossings with the T.H. & B. warrants any change being made in the location of the tracks. I would add that there is an objectionable feature in the way that

the 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 the train has passed through and is objectionable. I would 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 disperses instead of it coming out of the roof of the tunnel and flowing over Park St. This is merely a suggestion which might be looked into."

### Railway Profiles to be Based on Mean Sea Level.

The Board of Railway Commissioners general order 157, published in Canadian Railway and Marine World of Feb., has been rescinded and general order 157, dated Jan. 31 substituted of it, as follows:—Re matter of proposal that profiles of railway companies, whose lines commence at, terminate at, or intersect with, any of the lines listed in the work entitled *Altitudes in Canada*, edited by James White, Assistant Chairman, Commission of Conservation, including the lines of the said companies which touch tidewater, be based upon mean sea level as provided in *Altitudes*. Upon reading what is filed on behalf of the Canadian Pacific, Canadian Northern, Grand Trunk Pacific, and Grand Trunk Railway Companies, the said companies consenting to the proposal, and the report and recommendation of the Chief Engineer of the Board. That, on and after Feb. 1916, all profiles submitted by railway companies, which commence at, terminate at, or intersect with any of the lines listed in *Altitudes*, as well as those which touch tidewater and are not listed, be based upon mean sea level, as provided in *Altitudes*.

**Port Mann Shops, Canadian Northern Ry.**—Following is a list of machinery which has been procured by these shops to meet immediate requirements, and which will be added to as necessity arises: 80 in. driving wheel lathe; 26 in. x 36 in. x 14 ft. gap engine lathe; 24 in. upright shaper; 30 in. upright drill; stationary engine; 20 in. x 12 ft. engine lathe with quick change gears; 16 in. x 8 ft. engine lathe, with quick change gears; 48 in. car wheel boring machine; 84 in., 300 ton hydraulic wheel press, inclined type; single axle 1 the for journal turning; 4 ft. plain radial drilling machine; 1,150 lb. single frame, steam hammer; pneumatic drop pit jack; straight line, compound steam driven air compressor with one A-39 and A-36 air and steam regulating valve for automatic control of steam supply; variety saw M-275 with tilting table; 2 in. triple head bolt cutter; No. 9 steel pressure blower with countershaft; 2 only, No. O O S, 38 x 42 stationary blacksmith forges with tank; 36 in. band saw; 24 in. pony planer.

**British Columbia Halibut Fisheries.**—During 1915 there were landed at five British Columbia ports 25,866,000 lbs. of halibut, valued at \$1,557,960, or about 42% of the total catch on the North Pacific Coast. Over 15,000,000 lbs. of this catch was landed at Prince Rupert, representing the major portion of the catch of 100 vessels which now make that port their outfitting station, and was shipped via Grand Trunk Pacific Ry. This portion of the trade, prior to the opening up of Prince Rupert and the G.T.P. Ry., went to Seattle, Wash.



## Freight and Passenger Traffic Notes.

Magnolia is the name of a new Grand Trunk Pacific station at mileage 855 west of Winnipeg.

During the summer, weekend (Saturday to Monday) excursions will be run from Toronto to allround Muskoka Lakes and return at \$5.

The G.T.R. informs all ticket agents that tickets must be filled in with ink and not with indelible or other pencil. Reports on tickets must also be made out in ink.

The Canadian Government Railways has issued a folder containing the timetables of all the lines operated for the Dominion, viz., the Intercolonial, the National Transcontinental and the Prince Edward Island Railways.

The Canadian Northern Ry., according to a western press dispatch, has raised the embargo on grain shipments to Port Arthur in that it will now accept shipments consigned to Canadian Northern elevators at Port Arthur.

The Canadian Northern Ry. will probably make its transcontinental passenger service between Toronto and Vancouver daily beginning June 1, instead of three trains a week each way as at present.

The Canadian Northern Ry. has had in operation two agricultural trains for short course lectures in conjunction with the Alberta Government up to Feb. 23, and a similar train in Saskatchewan started a route on the Goose Lake Branch Feb. 29, to run to Mar. 14.

W. Eastland was fined \$20 and costs by a Vancouver, B.C., magistrate recently for selling a railway ticket in contravention of the Railway Act. He lent some money on the security of the ticket and was afterwards told to sell it for what he could get, the original holder of the ticket sending a purchaser.

In a recent interview at Edmonton, Alta., J. D. McArthur, President, Edmonton, Dunvegan and British Columbia Ry., said that after Apr. 1 three trains a week in each direction would be run between Edmonton and the Spirit River, 357 miles, and that it was expected to put a similar service on the branch from Spirit River to Grand Prairie by Aug. 1.

The C.P.R. through service between Nelson and Revelstoke, B. C. via West Robson has been temporarily discontinued owing to the conditions on Arrow Lake, and through passengers are being carried via Slocan. A local steamboat service is being operated on Arrow Lake between West Robson and Edgewood three times a week.

The Vancouver City Council decided, Feb. 1, to appoint a sub-committee to investigate Canadian Northern Pacific Ry. freight rates, in connection with the application being made to bring the railway under the Board of Railway Commissioners jurisdiction. The Vancouver Board of Trade has passed a resolution deprecating the city's action, and it is not unlikely that it will be stopped.

The Pacific Great Eastern Ry. announced Jan. 28, that it would have to abandon for an indefinite period the operation of trains on its Squamish-Clinton section. The heavy snowfalls of the end of January completely blocked the line, and it cannot be cleared without the aid of a rotary snowplough. As the other railway companies are using all such equipment on clearing and keeping their own lines clear, it is impossible to borrow one.

The Vancouver City Council decided, Feb. 4 to postpone for the present its application that the Canadian Northern Pacific Ry. be declared to be a railway for the general advantage of Canada and therefore subject to the Board of Railway Commissioners as to rates. The Vancouver Board of Trade on Feb. 9 passed a resolution asking the Provincial Government to appoint a Board of Railway Commissioners to have authority over all railways within the province subject to provincial control.

Replying to a question in the House of Commons, Feb. 3, Dr. Reid, on behalf of Minister of Railways said: There are through rates on lumber from all points on the National Transcontinental east of the St. Lawrence River; also from such points west of the river to Hearst, Ont., inclusive, from which lumber is likely to be shipped to points on the G.T.R. in Quebec and Ontario. No through rates are yet arranged to points on either the C.P.R. or Canadian Northern Ry. in Quebec and Ontario.

Passengers for Australia, who are not Canadians or other British subjects, now require passports to secure their admission to Australia and it is desirable that such passengers for New Zealand also provide themselves with passports. Round trip passengers for Australia and for New Zealand as well, whether they are Canadian or other British subjects or of United States or other foreign citizenship, require passports to permit of their leaving Australia or New Zealand on the return trip and should provide themselves with such documents before setting out.

The Canadian Pacific Ry. has given notice that agents at Chicago, Ill., St. Paul, Minn., and Fort William, Ont. and east thereof, will secure reservations for the Canadian-Australian Steamship Line from W. H. Snell, General Passenger Agent, C.P.R., Montreal, instead of from C. E. Benjamin, heretofore General Passenger Agent, Trans-Pacific Service, Montreal, and now G.P.A., Canadian Pacific Ocean Services Ltd., Montreal. Agents west of Chicago, St. Paul, St. Louis, and Fort William will continue to apply to J. C. Irons, General Agent, Canadian-Australian Line, Vancouver, B. C.

The Lake Erie and Northern Ry's timetable shows an hourly service every day, starting at 7 a.m., from Galt, and at 8 a.m., from Brantford, Ont., and continuing until 8.55 p.m. from Galt, and 10 p.m. from Brantford. With the exception of the first train in the morning, all the trains from Galt start five minutes before the odd numbered hours, while the trains from Brantford start on the even numbered hours. The timetable for Sundays is the same, except that the first train from Galt is at 8.55 a.m., and from Brantford is at 10 a.m. There is a connection with the Galt, Preston and Hespeler St. Ry. on Sundays, the cars running to and from Concession St., Galt. The line, which is an electric one, was opened for traffic Feb. 7.

The G.T.R. is appealing against being assessed for local improvements in London, Ont., alleging that the asphalt pavements and cement curbs on certain streets were put in for the benefit of the London & Port Stanley Ry., and that its properties are rendered inaccessible by the L. & P. S. Ry. tracks.

## Lumber Rates from Beaudette, Minn. to Vincennes, Ind.

The Interstate Commerce Commission at Washington has given the following decision, dated Jan. 3, in the case of Bradley Timber and Railway Supply Co., vs. Canadian Northern Ry. Co.—Complainant is a corporation dealing in lumber at Duluth, Minn. By complaint, filed Nov. 26, 1914, it alleges that defendants' rate of 27c. per 100 lbs. for the transportation of a carload of lumber shipped from Beaudette, Minn., to Vincennes, Ind., Feb. 18, 1913 was unreasonable to the extent that it exceeded 26c. per 100 lbs. Reparation is asked. The shipment weighed 33,900 lbs. and charges were collected of \$91.53 at the 27c. rate assailed. Effective Apr. 1, 1913, defendants voluntarily established a rate of 26c. Previous to that date the rate from Beaudette to Chicago had been reduced by 1c. per 100 lbs.; and it is because the through rate from Beaudette to Vincennes was not reduced equally at the same time that this complaint was filed. For a number of years the rate to Vincennes had been made with some regard to the rate to Chicago. When the rate to Chicago was reduced the rate to Vincennes still was lower than the combination of the intermediate rates to and from Chicago by  $\frac{1}{2}$ c. per 100 lbs. Effective Nov. 16, 1913, the rate to Vincennes was increased to 26 $\frac{1}{2}$ c. Complainant adduced no evidence relative to the unreasonableness of the rate assailed other than the changes in the rates to Chicago and Vincennes just described. We find that the rate charged is not shown to have been unreasonable, and an order dismissing the complaint will be entered.

**National Transcontinental Ry. Transcona Shops.**—The Minister of Railways informed the House of Commons recently in reply to a question by Hon. G. P. Graham, that the portion of the National Transcontinental shops at Transcona, Man., not required at present in connection with railway operation, being about one-twentieth of the floor space, and comprising the frog shop, and the south bay of the freight car shop, had been leased to the Transcona Shell Co., the lease being in the names of G. R. Drenon, President, and W. A. Petrie, Secretary. The space is being used for the manufacture of shells, the company paying \$6,780 a year, and the insurance premium on \$113,000, together with a rental for any machinery used calculated at 20% on the value of the machinery. No machinery can be used without the General Manager's approval. The first year's rental of \$6,780 had been paid.

**New Dominion War Taxation.**—In his annual budget statement in the House of Commons, Feb. 15, the Minister of Finance announced a new tax of 25 per cent. on the profits of incorporated companies in which a capital of over \$50,000 is engaged, exceeding 7 per cent. on the paid up capital stock, computed on every accounting period after Aug. 4, 1914. Included in the businesses covered, is that of transportation, whether continuously carried on or not. Any further issues of stock, or other increases of capital, or any changes therein, having the object, or the tendency, to increase the capital stock, made after Feb. 15, 1916, are subject to the minister's decision as to whether it is fair and proper to include such, when determining the company's capital and his decision is to be final.



# Electric Railway Department

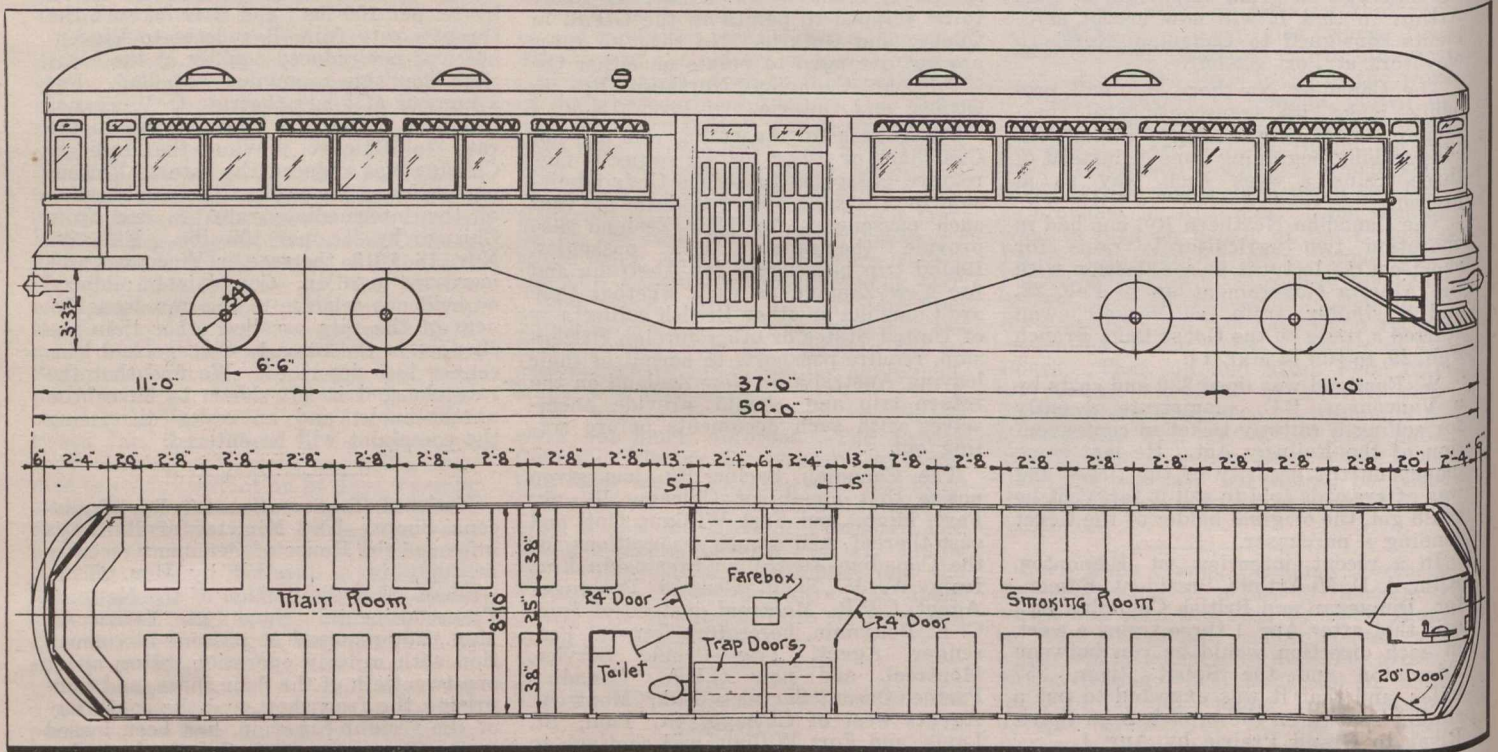
## Interurban Cars for Toronto Suburban Railway.

The most recent experiment in car body arrangement for interurban service on electric railways operating in Canada is to be found in the Toronto Suburban Ry's ten new centre entrance cars for its extension to Guelph, Ont., now approaching completion. Their principal dimensions are:—

Length over buffers .....	59 ft.
Length over ends .....	58 ft.
Width over steel sheathing .....	8 ft 10 in.
Width overall .....	9 ft.
Height from top of rail to underside of side sill at bolster .....	3 ft. 2½ in.
Height from rail to top of first step .....	1 ft. 4¼ in.
Height of step risers .....	10½ in.

the longitudinal member to the end member. The buffer beams are formed from 5 in. rolled steel channels, bent to proper contour, with flanges turned outward and projecting 6 ins. beyond the end sheathing. The tops of the buffer beams are flashed with sheet steel, which is bevelled upward forming an angle of 45 degrees. The body bolsters are of built up construction, with top and bottom cover plates 15 ins. wide, the first being 5/16 in. thick and the latter ⅝ in. The bolster diaphragm web plates are 3/16 in. thick stiffened top and bottom with 2½ ins. by 2½ ins. rolled steel angles.

body sashes are of the raising type and single storm sashes are also promised for side windows. The centre window in front vestibule is divided in two parts, the upper one made to drop and with provision for holding it at different heights. The two corner windows in each end are made to drop and are not provided with cross bars. Five automatic ventilators are provided in each compartment and one globe ventilator in lavatory. All of the side windows are fitted with pantasote curtains, mounted on 1 in. diameter concealed metal rollers and provided at the bottom with pinch handle fixtures.



Interurban Cars for Toronto Suburban Railway.

There are the usual walkover seats in the passenger and smoking compartment, an emergency exit door at motorman's end, right hand side, and the fare box is located in the centre of the car, making it possible to take full advantage of the large double door openings, which permit loading the maximum number of passengers found at any stopping point without the delay incident to undue crowding in discharging or receiving passengers. The cars are designed especially for through service and provided for single operation only.

The design of the steel framing presents a striking feature in the omission of continuous centre sills between buffers. Although this constitutes a novelty for interurban service it conforms to the most modern practice in the design of side-girder steel cars where light weight is imperative and single car operation is contemplated. The main centre longitudinal members at each end, extending from buffer beam to bolsters, consist of 5 in. rolled steel channels spaced 16 ins. apart, back to back. Rolled steel angle braces extend diagonally from the intersection of the first crossing member and

The side framing is built up from 5 ins. rolled steel channel side sills, 2 x 1½ x ¼ in. rolled steel T iron side posts, so formed in one piece as to maintain the roof contour and join both side frames. Insulation is provided by a 1 in. thick wall of cork. The side and end sheathing and letter board plates are of No. 12 B. & S. gauge rolled levelled steel with double splice plates of ⅛ in. steel. All rivets in side and end frame above side sill are 5/16 in. diameter, the under frame rivets throughout being ⅜ in. in diameter.

A turtle back roof is employed, formed by extension of steel side posts and wooden carlines spaced 9 ins. centre to centre and sheathed with ¾ pine and covered with No. 10 cotton duck laid in white lead and oil. The centre entrance steps are formed as part of the framing and are simply covered with composition treads 4 ins. wide. The interior finish of the car is of cherry and designed to have smooth flat surfaces so far as is possible. The transom and bottom panels of centre bulkheads are of steel, painted cherry color on both sides. Headlining throughout is of three ply poplar veneer. All

Thirty one walkover seats and one circular seat in two sections in the rear end are provided. Each seat is fitted with a stationary foot rest and polished bronze hand hold on the aisle end of the back. Smoking compartment has low back seats upholstered in green pantasote and the main compartment has high back seats with head roll and is upholstered in green plush. The cars are wired for lights, trolley control, heaters, headlights and air brake equipment, all of which is placed in conduit and insulated for 1500 volt d.c. operation. A foot gong 12 ins. in diameter is placed under front platform. Signal bells are placed in motorman's compartment, near fare box, with cord running along the centre of car entire length. Annunciator push buttons are furnished for each seat with connection buzzers near fare box and in motorman's compartment, a switch being provided on the buzzer circuit wiring, so that it can be cut in or out by the conductor. Continuous basket racks and polished bronze trimmings are provided throughout. Drawbars are fitted to each end of car. Steel pilot is provided at motorman's end of car, connected to body. Two



pneumatic sanders are provided per car. The trucks are of following dimensions: Wheelbase, 6½ ft.; diameter of wheels, 34 ins. (rolled steel); axles, journals, 4¼ x 8 in., M.C.B. The cars are being built by Preston Car & Coach Co.

### The Ontario Railway and Municipal Board and Toronto Railway Cars.

On Nov. 9, 1914, the Ontario Railway and Municipal Board, in announcing its conclusions on a special report obtained from the service furnished by the Toronto Ry. Co., and the requirements of the City of Toronto, required, among other things, that the company provide by June 30, 1915, 50 double truck motor cars of a design to be approved by the Board.

The chief objects which it was the aim of the parties to achieve, included the elimination of overcrowding on the cars, and of the outside running board on the summer cars. In the early part of 1915, the company equipped one of its cars with cross seats and a centre aisle, and six of its cars with half of the seats on each side, across the car and the other half arranged longitudinally, with a cross over aisle. Owing to the narrow devil strip between the tracks on the Toronto streets, the cars used are of necessity about a foot narrower than those on most of the large electric railways in Canada and the U. S. This causes considerable difficulty in planning a seat layout to introduce cross seats and to provide a sufficient width of aisle. On Apr. 30, the Board held a meeting to consider plans of cars, when it was stated that the company was proceeding to build cars according to the plans without having received the Board's sanction. It was stated that two were then built, and 18 were in course of construction. The Chairman of the Board announced that if the company built the cars without the Board's approval, it did so at its own risk, and the hearing was adjourned. On May 17, the matter again came before the Board, and plans were submitted by the city showing a composite type of car, and for the reconstruction of the existing type. The Toronto Ry. desired further time for the consideration of these plans, and the Board reserved judgment, deciding to leave it to its engineer, the City Engineer and an official of the company.

After some consultation, these officials arranged an existing type of car with cross seats on one side and a longitudinal seat on the other, the car body being set on the trucks, somewhat off centre, to obtain a little extra width without endangering passing cars. Although a car of this type, if adopted, would do away with the outside running board and the passenger capacity would be less than the existing type, the Board decided, Oct. 1, that the company must have 25 of these cars in operation by Dec. 1, subject to some slight alterations to the satisfaction of the Board's engineer. On Nov. 22, the Board in the meantime having relieved the company from the obligation of having the seats on its open summer cars so arranged that the passengers face forward, with an aisle through the centre of the car of sufficient width to allow the conductor to pass for the collection of fares, issued an interim order abolishing the running board and ordering the city and the company to confer within 30 days, as to the best type of car to be used, and if they failed to agree, the city would be given an additional 15 days to submit its plans. The

city declined to confer with the company on the subject and the Board, after further considering a report of its engineer on tests made with the experimental composite car, ordered on Jan. 25, that its order of Oct. 1, 1915, be rescinded, and that 25 of the double truck cars shall be of a type and character of construction as recommended in the report of its engineer, dated Jan. 11, 1915, and that these 25 cars shall be in operation by Mar. 1. A further order was issued Feb. 7, requiring that the balance of the 50 double truck cars, shall be built with the greatest possible interior width, having regard to the limitations imposed by the tracks and devil strip, and of a design to be approved by the Board on the recommendation of its engineer, and that they be placed in operation by May 15.

The first 25 cars have been built, and it was expected, when this was written, that they would be in operation on Mar. 1, as ordered. The second 25 are being proceeded with, and will be of the same type. The only difference between the two lots will be a few inches of extra interior width in the second lot.

The first 25 cars of the order of 50 will be practically the same as what is known as the palace car type. Numbered from 2,014 up, the only difference will be that the sections of the removable side will be permanently fastened and there will be ventilators placed in the upper parts of the windows. The seats will be longitudinal. The second 25 will be similar with the exception that they will be slightly wider cars, probably 2½ inches.

### The Winnipeg Electric Railway and Automobile Collisions.

A communication on street accidents was submitted to the Winnipeg City Council, Feb. 7, on behalf of the Winnipeg Electric Ry. as follows:—

"The report of our accident department for 1915 contains a comparison in respect to street accidents with 1914, which is of such a nature that I feel it my duty to bring it to your attention. It is as follows: Increase in automobile collisions, 38 per cent; decrease in pedestrians struck, 10 per cent.; decrease in all other vehicle collisions (includes bicycles, rigs and animals), 34. Our statistics show that automobile collisions are increasing altogether too rapidly, and our men are powerless to prevent them. This is evident when the great decrease in other classes of accidents is considered. The strictest observance of safety first principles by our men has failed to accomplish a reduction in the number of automobiles colliding with street cars. In 1915, 494 collisions with automobiles were reported by our men, an average of 41 a month: but, in Nov. and Dec. 1915, a total of 108 automobile collisions were reported, an average of 54 a month. On this basis we may expect 648 automobile collisions in 1916, if some exceptional steps are not taken by the council to control the operation of automobiles in the city. We are doing everything in our power to reduce the number of accidents occurring in connection with the street cars, and have almost entirely eliminated accidents to passengers. We feel, however, that collisions with automobiles are beyond our control under present conditions. Street cars operate along fixed rails, and cannot deviate from them. With co-operation on the part of owners and drivers of automobiles, such as we have had from owners and drivers of other vehicles, there is no reason why automo-

bile collisions should not decrease in the same ratio as other accidents. I note in the newspapers there is some agitation for an increase in the speed limit. In view of the foregoing facts, I would suggest that it would be very inadvisable to permit any increase in the speed limit within the city."

### London and Port Stanley Railway Summer Traffic Rates.

At a meeting of the London, Ont. Railway Commission, Feb. 4, a decision is reported to have been reached to purchase the incline railway at Port Stanley, and to enlarge it so as to be able to handle the increased traffic anticipated during the coming summer. It was decided that a new schedule of rates will become effective May 24, to continue until after the Western Fair. The present 30 cent return excursion fare from London to Port Stanley on Wednesday and Saturday is to be continued, as the report states, but the rate on other days is to be reduced to 40c. for adults and 20c. for children. The payment of an additional 5c. will give the holder a rate up and down the Port Stanley Incline Ry.

graph and cable companies, were resumed London and Lake Erie Ry. and Transportation Co., was present at the meeting and asked the commissioners not to reduce the rates. He pointed out that his line could not compete with the L. and P. S. Ry. The proposed rate would mean that his line would have to carry the through passengers at ½c. a mile. The present cost of operating a car is 16½c. a mile, or \$9.60 for the round trip, and the carrying capacity of the cars permits the earning of \$16 on the round trip, provided that every seat is occupied. The company's franchise provides that any rate given out of London should also apply for the benefit of travellers from Port Stanley to London.

### Ottawa Traction Company's Annual Meeting.

The Ottawa Traction Co's annual meeting was held in Ottawa Feb. 7. The report, which included the Ottawa Electric Ry. Co's operations, and which is given in full further on in this issue, showed a falling off of about 1,000,000 passengers compared with 1914, owing principally to war conditions. Commencing with August, earnings began to show an increase over the previous year, which has continued each succeeding month. The percentage of operating expenses to receipts was 61 1/5 per cent. in 1915, against 60 3/5 per cent. in 1914.

The directors for the current year are: Thos. Ahearn, President; W. Y. Soper, Vice President; Jas. D. Fraser, Secretary-Treasurer; T. Workman, E. N. Soper, T. F. Ahearn, Redmond Quain, J. F. Smellie, G. P. Murphy. The only change in the Board was the election of G. P. Murphy to fill the vacancy caused by the death of Travers Lewis, K.C.

The Saskatoon Municipal Railway officials under the recent organization are: G. D. Archibald, Superintendent; J. P. McKenzie, Assistant Superintendent, and L. V. Clare, Secretary.

The deferred cable messages, which, owing to congestion of business, were discontinued a few weeks ago, by the telegraph and cable companies, were partially resumed at the end of January.



### Calgary Municipal Railway Wage Schedule.

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

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

### Lake Erie and Northern Railway Operation.

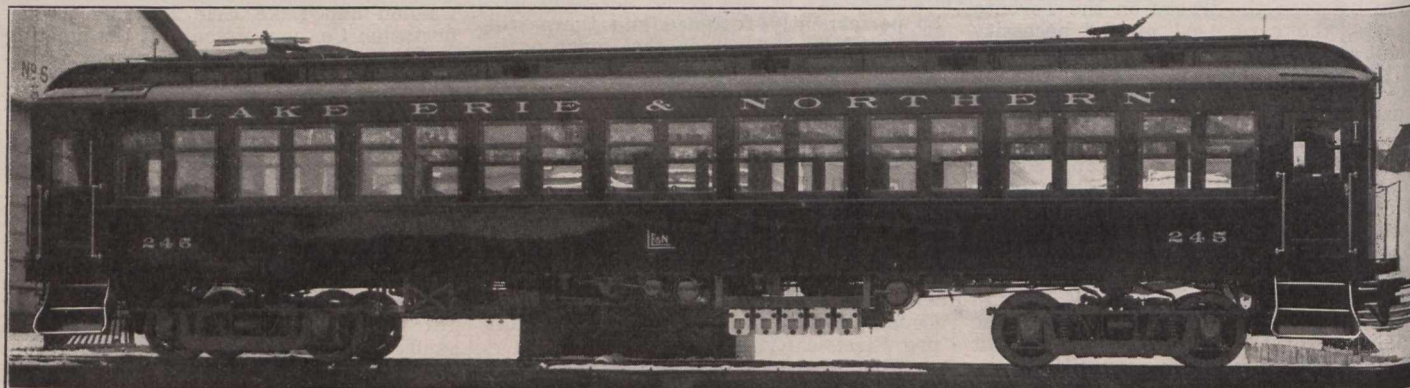
The L.E. and N. Ry. started operating the Galt-Brantford section of its new electric railway, Feb. 7, the first train leaving Galt at 7 a.m. The service at present is a two hour one, the cars leaving Galt on the odd hours and Brantford on the even hours. It said that as soon as a connection is made with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

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

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

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

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



Lake Erie & Northern Railway Car.

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

patrons as well as the street railway men." The Council approved the recommendation that the new schedule go into operation Feb. 1, the commissioners estimating that the saving effected by it would amount to \$5,256 during the year. The commissioners' report as to the wage schedule is as follows: "To employes in the service on this date and from the date other employes enter the service, under this agreement, after one year employment under emergency contract at 26c. an hour in any capacity on the system, and are qualified conductors and motormen, the wage schedule until the end of this agreement shall be, including police duty, first year 28c. an hour; after first year 30c.; after two years 33c.; after three years 35c."

When in charge of one-man cars (not including trailers or Ogden extra service), operating from outside to any point within the boundaries of Eighth Ave., Eighth St. west, Seventeenth Ave., Second St. east, 40c. an hour will be paid. Pay day for the employes shall not be later than the 6th and 21st of each month. Fifty cents will be allowed all employes for their attendance at lectures on street railway practice once a month, and also extra half time on May 24, Dominion Day, Civic holiday, and Labor Day, Good Friday and Thanksgiving Day, and extra full time Christmas Day and New Year.

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

### Edmonton Municipal Railway Matters.

The Edmonton, Alta., Property Owners' Association, has adopted a resolution recommending the City Council to appoint a board of directors to administer the whole of the public utilities owned by the city. The report recommends that five directors be appointed by the city council from a list of 15 names to be nominated by the council of the board of trade and that these directors assume office Jan. 1, 1917. Of the first directors two it is proposed shall have office for three years and three for five years, directors subsequently elected to hold office for five years. Directors to be subject to removal without cause or a vote of ratepayers, and to receive \$10 for

current financial year. After all charges are met the estimates for the street railway provide for an anticipated deficit at the end of the year of \$95,829.77. A summary of the expenditures and revenue during the year is as follows: Revenue \$546,656; expenditure, operation, maintenance and power charges, \$356,778; capital charge, \$228,846.72; depreciation, \$25,557.05; bank interest and overdraft, \$31,200. The salaries of the permanent staff last year were \$38,857.30, and the sum asked for this year by the Superintendent was \$27,402, but the commissioners reduced the estimate to \$26,931.50. Motormen's and conductors' salaries amount to \$164,198.70, against \$156,163.84 last year. Power charges last year were \$97,516.05, and the estimate of \$97,600, as submitted was passed by the commissioners. The estimated cost of maintaining rolling stock was reduced from \$26,423.67 actually expended last year to \$20,000.

**Hamilton St. Ry.**—E. P. Coleman, General Manager, Dominion Power and Transmission Co., is reported to have informed the Hamilton City Council railway committee Feb. 15, that the relaying of the tracks on Herkimer St., between Queen and Locke Sts., will be strated in the spring, but the company cannot see its way clear to lay new tracks on King and York streets.



### Toronto Railway Co's Annual Report.

Following are extracts from the directors report for the calendar year 1915:—

When one considers the effect of the abnormal traffic conditions upon the earnings of the company due to the continuance of the war, we think the company is to be congratulated upon the result of its operation throughout the year.

Gross earnings ..... \$5,694,136.43  
Operating, maintenance, etc..... 3,250,611.95

Net earnings ..... \$2,443,524.48  
Dividends ..... \$957,952.00  
Bond interest ..... 167,356.67

Payments to city—  
Percentage on earnings ..... \$868,254.46  
Pavement charges ..... 96,576.89  
General taxes ..... 99,240.87

1,064,072.22

Passenger earnings were \$5,611,296.60, a decrease of \$432,215.55 from 1914. The various charges against the earnings for operation, maintenance, etc., were \$3,250,611.95. Payments made to the city during the year were \$1,064,072.22.

The fifth drawing of currency and sterling bonds, under the terms of the mortgage deed, took place June 21. The company draws annually during the last 10 years of its franchise, 5% of the amount of bonds issued, thus reducing the outstanding bonds within the said period to 50% of the original issue, and all bonds so drawn are to be redeemed on or after Aug. 3, following the date of drawing, and from which date no interest is payable on bonds so drawn. There has been drawn to date a total of \$1,137,653.32.

Careful attention has been paid to the maintenance of the plant, rolling stock equipment and other properties. Your directors declared out of the accumulated surplus earnings, 4 quarterly dividends of 2%, which were paid on the dates set for payment.

#### PROFIT AND LOSS ACCOUNT.

Balance from 1914 ..... \$4,792,369.83  
Surplus earnings, after payment of all expenses, interest, taxes, etc... 1,192,489.54

\$5,984,859.37  
Dividends, 4 of 2 per cent. each... \$ 957,952.00  
Balance from 1914 .... \$4,792,369.83  
Surplus carried forward 234,537.54

5,026,907.37

	1915.	1914.
Gross income .....	\$5,694,136.43	\$6,127,096.77
Operating, maintenance charges, etc..	3,250,611.95	3,529,546.22
Net earnings .....	2,443,524.48	2,597,550.55
Passengers carried ..	142,061,258	152,966,153
Transfers .....	62,398,638	65,778,022
Percentage of charges, etc., to passenger earnings .....	57.9	58.4

The board of directors was re-elected for the current year, as follows:—Sir William Mackenzie, President; Frederic Nicholls, Vice President; Sir Henry M. Pellatt, Sir Rodolphe Forget, E. R. Wood, W. D. Matthews, James Gunn.

### The Shawinigan Water and Power Co's Electric Railways.

The annual meeting was held Feb. 15. The company owns the Shawinigan Terminal Ry., an electric line operating between the various industrial concerns at Shawinigan Falls, Que., and the several steam railways, and has a controlling interest in the Three Rivers Traction Co. Following is an extract from the report:—"Early in the year the Three Rivers Traction Co. control of which is

vested in your company, was formed to install and operate a street railway system in the city of Three Rivers, and obtained favorable franchises from the city. The geographical location of Three Rivers, together with the great power resources of the district of which it is the centre, makes it one of the most promising industrial communities in Canada. Your company already owns the North Shore Power Co., which supplies light and power to the city, and the acquisition of the tramway privileges rounds out the problem of supplying that community with light, power and transportation."

The directors for the current year:—are J. E. Aldred, President; Thos. McDougall, Chairman of the Board; H. Murray, J. C. Smith, Vice Presidents; Sir Herbert Holt, Montreal; Sir William Mackenzie, E. R. Wood, Toronto; D. Murphy, Ottawa; R. M. Aitken, London, Eng.; Sir M. Mitchell-Thomson, Edinburgh, Scotland.

### London Street Railway Co's Annual Report.

Following are extracts from the report for the calendar year 1915.

	1915	1914
Passenger earnings .....	\$393,299.00	\$370,915.62
Miscellaneous earnings..	5,559.00	4,979.66

Gross earnings .....	\$398,858.00	\$375,895.28
Maintenance—		
Way and structures....	\$ 35,619.41	\$ 31,732.73
Equipment .....	29,046.60	34,669.66
Power .....	38,365.25	42,291.79
Car service .....	131,308.94	123,796.29
General expenses .....	40,771.84	35,410.36

Total operating expenses	\$275,212.04	\$267,900.83
Net earnings .....	\$123,645.96	\$107,994.45
Interest on bonds .....	\$ 32,769.63	\$ 31,908.59
Interest on overdraft....	23.50	40.35

Total deductions .....	\$ 32,793.13	\$ 31,948.94
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Net Income .....	\$ 90,852.83	\$ 76,045.51
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During the year \$42,189.29 was expended in construction and equipment.

No extensions of tracks were made. A considerable amount of new paving and reconstruction of tracks was done, all of which was required on account of the city laying new pavements where none had existed before. The four new cars obtained late in 1914 were put into service early in the year. Three of the older cars were rebuilt to conform with the p-a-y-e type like the new cars, as this type has been found to be of great benefit, especially with regard to preventing accidents. Rearrangement of motors under the double truck cars, by using 2 or more modern type instead of 4 under each car, has resulted in considerable saving in repairs and in power consumption. Hydro electric power has continued to give good satisfaction during the year; delays on account of the power being off being negligible. Under the terms of our contract for power, a further slight reduction in the rate is anticipated for the year 1916. The bylaw passed by the city for one years' trial of Sunday car service, was extended without change of detail for 2 months and then for another period of one year, which will end with the operation on Sunday, April 20, 1916, unless extended as heretofore. Some public agitation arose during the summer for Sunday car service to Springbank Park, but when it was found nothing could be done without legislative action, the matter was laid over. It remains to be seen whether or not it will be taken up again. General financial conditions having become settled, after the excitement consequent upon the outbreak of the war, the British slogan "Business as usual" seemed to prevail generally and so the com-

pany's business enjoyed its usual normal growth, and at present the prospects look good for the next year.

	1915	1914
Expenses, per cent. of earnings .....	69.0	71.2
Passengers carried .....	10,801,531	10,286,448
Car earnings, per revenue passengers .....	3.68c	3.64c
Transfers .....	1,765,067	1,697,963
Total passengers .....	12,566,598	11,984,411
Car earnings, per passenger .....	3.13c	3.09c
Car mileage .....	1,946,439	1,908,175
Gross earnings, per car mile .....	20.48c	19.69c
Operating expenses, per car mile .....	14.13c	14.03c
Net earnings, per car mile .....	6.35c	5.66c
Miles of track .....	35.19	35.19
Gross earnings per mile of track .....	\$11,334.41	\$10,681.88

At the annual meeting, Feb. 2, the President, E. W. Moore, of Cleveland, Ohio, occupied the chair. The directors were re-elected, the board being as follows:—E. W. Moore, President; T. H. Smallman, London, Vice President; C. B. King, London, Manager; P. W. D. Broderick, Toronto; St. Herbert Holt, Montreal; W. M. Spencer, C. H. Ivey, London. The Secretary-Treasurer, G. C. Holding, tendered his resignation, which the directors declined to accept, and he continues.

### Berlin and Waterloo Street Railway Report.

The Berlin, Ont., Light Commissioners, who operate the B. & W. S. R. for the city, under the management of V. S. McIntyre, Superintendent, have issued their statement for the calendar year 1915, from which the following is taken:—

#### RECEIPTS.

Cash fares .....	\$17,931.70
Tickets sold .....	24,593.60
Parcels .....	253.81
Advertising .....	512.00
B. & N. St. Ry. Co. ....	1,786.92
Mail contracts .....	1,750.00
	\$48,628.03

#### EXPENDITURES.

Operating Expenses—	
Power .....	\$ 6,629.73
Supplies .....	2,095.62
Wages .....	11,817.54
Snow cleaning .....	871.91
Salaries .....	1,272.01
Tools .....	56.21
Coal account .....	41.45
Crossing expenses .....	541.92
Heating car barn .....	307.66
	23,634.05

Maintenance and Repairs—	
Building repairs .....	\$ 31.15
Car and motor repairs ..	4,039.46
Car painting .....	14.80
Storage battery repairs..	8.20
Track and line repairs....	1,315.63
	5,409.24

General Expense—	
Printing, telephones, advertising, etc. ....	\$1,549.10
Insurance .....	2,073.11
Interest .....	126.83
Legal fees .....	65.50
Office furniture .....	13.14
Office expense .....	245.99
Rent account .....	672.51
	4,746.18

Accounts receivable written off .....	260.36
Debiture interest .....	7,851.60
	\$41,901.43

Gross profit .....	\$ 6,726.60
Depreciation .....	5,497.72

Net profit .. \$ 1,228.88

It is pointed out that while the receipts showed a decrease of 5.6% from 1914, there was a saving of 9.1% in operating expense. After paying debenture interest \$7,851.60 and writing off depreciation, \$5,497.72 the net profit shown of \$1,228.88 is approximately \$800 more than that shown for 1914.

W. C. Webb has been appointed chief clerk to Superintendent, Canadian Ex. Co., Winnipeg, vice Z. M. Middleton, transferred.



## Safety First on Ottawa Electric Railway.

In prosecuting its safety first campaign, the Ottawa Electric Ry. is paying special attention to the education of the public, and for this purpose has issued a large monthly sheet calendar, each sheet having four short sentences, arranged round the calendar, covering information as to the company's work for the reduction of accidents, or some apposite maxim for the benefit of the public as well as employees. Following are examples of the matter, some of which are constantly before one in using the calendar, carrying a reminder which will undoubtedly have a beneficial effect:—

Accidents cause widows, orphans, cripples, poverty, suffering.

Ninety per cent. of all accidents are the direct result of carelessness and could be prevented.

Accidents belong to the old age of waste and inefficiency.

Will you co-operate with us to make an accident, even the smallest, a rare occurrence in Ottawa?

Accidents occur daily in every walk of life, in the factory, the shop, the home, on the street everywhere.

When caution becomes a habit there will be few accidents.

We are working unceasingly to educate our employes to prevent accidents. How about yours?

To save any part of the huge annual loss through accidents is good business, and pays dividends to everyone. It can be done, but not without your co-operation.

Chauffeurs and drivers. Changes in temperature cause a greasy rail. When brakes are applied the wheels stop, but the car slides forwards.

The average street car weighs 30 tons. It cannot be stopped in a few feet.

Slow down approaching car track streets, and look both ways before crossing.

Our men are carefully instructed to do everything possible to prevent accidents, but sometimes they are helpless, unless you co-operate.

When you have occasion to cross behind a car, remember there may be another car or vehicle coming from the opposite direction which you cannot see.

You have no right to take chances. Your family may have to stand the consequences.

Carelessness has destroyed more human lives and property than all the wars of the world.

Don't try to jump on a moving car. Take the next one. Better to miss an appointment than break a leg.

Parents. The causes of most accidents to children are carelessness and fear. Instruct them how to avoid the perils of the streets.

Do mothers realize a parting word of caution may be the most effective means of preventing an accident?

Teach your children the safest route between home and school, and point out the dangerous places.

Don't let the youngsters play on the car tracks and busy streets. If they must play on the street, the sidewalk is the only safe place.

To take a car, with the right hand clasp the bar, and hold with the firmest grasp, Then step up with the left foot first, And you are braced to meet the worst; For, if the car should move at all, Your right foot saves you from a fall But when you wish to leave the car, Be sure the left hand grips the bar, Set first the right foot on the ground,

Then facing front you will be found, And though the car may start or stay, You can with safety wend your way.

Don't ask the conductor or motorman to open the exit door before the car stops. He is forbidden to do so.

Wait till the car stops. A moment then may save a month in the hospital.

If a car is crowded it is usually behind time, and you will find another of the same line within a block or two.

When a motorman rings his gong, he is appealing to you to help him prevent an accident.

Don't try to board or leave a moving car. Your life may pay for undue haste.

Get rid of the careless habit. Acquire the safety habit. It is better to be careful than crippled.

Chauffeurs and drivers. Obey the traffic rules of the city. Keep to the right, and when turning to the left, go around the centre of the crossing.

The law commands you not to pass a standing car. If you are in a hurry take a side street.

Don't be offended at the motorman's gong. He is thinking of your safety.

The car must stick to the rails. You have the rest of the street. Keep off the tracks whenever you can, and give the motorman a chance.

Always look both ways before crossing car tracks. You may not hear the gong in the noise and bustle of a busy street.

When on your feet in a moving car, take hold of the grab rail, strap or seat back. The motion of the car may throw you out.

Don't expect that every car will stop when it approaches a crossing. It may be going through.

If a car does not stop on your signal, don't try to board it. Look and see if there is another following close behind. If not, take the number of the car that has passed you, and report it.

When an accident happens, give your name to the conductor. If we are at fault we want to know it, in the interest of public safety. If we are not at fault you will be protecting the conductor or the motorman from unjust censure.

The most reliable information of an accident always comes from the unbiased statements of disinterested witnesses.

We are not trying to avoid the payment of just claims, but to eliminate accidents by carefully investigating those that do happen.

If ladies would carry hand bags, parcels, etc., in the right hand they would instinctively use the left hand on the grab handle, and would leave the car the safe way, facing the front.

There is no compromise with accidents. The only cure is prevention through carefulness.

Don't depend upon a car to stop. Wait until it has stopped.

Remember when leaving a car, face the front, and use the left hand for the grab handle.

Cars do not stop at every crossing. If they did, rapid transit would be impossible. Drivers and chauffeurs can help to prevent many collisions by carefulness at intersections.

We all have the same rights on the streets, but the motorman has the hardest job. He can't turn out to avoid an accident.

Habits are the hardest things in life to change. Teach the children the value of carefulness so they will instinctively act for safety.

## British Columbia Electric Railway Matters.

The Board of Railway Commissioners has approved the schedule showing train service put in effect on Vancouver, Fraser Valley and Southern Ry., which is a subsidiary of the B.C.E.R.

B.C.E.R. officers complain of the theft of large quantities of copper wire from occasionally used and unused spur lines, particularly on the Fraser Valley lines.

When the B.C.E.R. notified the public that "tango" tickets would not be used after Feb. 1, there were about 20,000 outstanding. It was reported Feb. 1, that only about \$20 worth were redeemed in cash, the balance either having been used or exchanged for the new green tickets.

The B.C.E.R., in addition to the service put in effect on its Vancouver lines on Jan. 15, put extra cars on its Georgia East, Main St. South, Nanaimo St. and Sasamat and Dunbar St. lines on Jan. 19. On Jan 30 a new Sunday schedule was first in operation in Vancouver, provision being made for the running of special cars as required.

As a result of the visit of a Board of Railway Commissioners' inspector to New Westminster, the B.C.E.R. gave notice Jan. 24, that a new and improved car service would be put in operation at once on the Burnaby Lake line. The new schedule provides for an hourly service during half the day, and a two hourly service for the remainder, with an extra car on Saturday nights, between New Westminster and Vancouver, and a special church service on Sunday.

## The Jitney Situation in Canada.

The City Solicitor of Montreal has advised the Montreal City Council that it is not yet in a position to compel the Canadian Autobus Co. to put into effect the service on the streets called for in the contract with the city. The one action to upset the franchise has been settled by the Imperial Privy Council, but the other action which has remained in suspense must be disposed of before the city can make any move in the direction of compelling the company to give any service.

There were 86 licenses to operate jitneys issued in Edmonton, Alta., during 1915, but it is estimated that not more than 50 cars were in operation at one time. With the introduction of the license fee a number went out of business. Only 4 licenses are reported to have been taken out for 1916, but the city's license inspector states that this number will be added to, and that during the summer there will be as many jitneys in operation as last year.

The jitney men are taking an active part in municipal politics in Vancouver, B.C., according to a statement reported to have been made by R. G. Gordon, Secretary of the recently formed jitney association.

It was reported at the Vancouver city hall, Feb. 14, that on Dec. 31 there were 190 jitneys for which bonds were in existence. Since that date 60 of the bonds have been cancelled.

Toronto Civic Ry. Ticket Advertising Privileges—The Toronto Works Department received tenders Feb. 29, for the privilege of advertising on a portion of the back of tickets issued on the Toronto Civic Ry. The contract will cover the issue of 25,000,000 tickets, which, it is estimated will last for two years.



## Electric Railway Projects, Construction, Betterments Etc.

**Brantford Municipal Ry.**—The Brantford City Council is asking the Dominion Parliament to authorize it to extend the Grand Valley Ry. from its present terminus in the township of Brantford to Cainsville, in the same township; to confirm the bylaw constituting the Brantford Railway Commission, and to provide that the commission's powers may at any time be vested in any commission which may hereafter be created by the council for the management and control of two or more of its public utilities.

We are officially advised that the proposed application for power to build a line to Cainsville was inserted in the bill with the idea that it might prove useful at some future time. The commission has no definite views as to where such a line would start, or its route, or whether it will be necessary to build it at all. (Sept. 1915, pg. 359).

**The Dominion Power & Transmission Co.** will resume work early in March on the construction of its east end power station in Hamilton, Ont.

**Edmonton Power Co.**—The Alliance Trust Co., Calgary, Alta., has made a tentative offer of electric power to the Edmonton City Council, on terms which, it is claimed, are lower than those set out in the franchise which it is proposed to grant to the Edmonton Power Co., a summary of which company's project was given in our February issue, page 72. The plans of the company in which the Alliance Trust Co. is interested have not been made public, but it was stated in Edmonton, Feb. 3, that it was proposed to generate power at the Viking gas fields by the use of gas engines. The cost of the plan and transmission lines is estimated at \$2,000,000.

The Edmonton City Council's power committee met on Feb. 7, when R. B. Bennett, M.P., President of the Alliance Trust Co., alleged that the bylaw was illegal, and if it was repealed his company was prepared to enter into competition with the E. P. Co., for a legal agreement. A letter was read from the E. P. Co., protesting against further delay, and threatening an action for damages if the Council does not go on with the project now that it has approved of the bylaw. At a meeting of the Edmonton City Council Feb. 8, Alderman Wilson gave notice that he would move for the repeal of the bylaw passed recently agreeing to give a franchise to the Edmonton Power Co.

**The London Street Ry.** expects to rebuild some track this year and do some paving as may be determined by the city. An order has been given for the season's supply of paving brick.

**Morrisburg & Ottawa Electric Ry.**—An Ottawa paper says that the annual meeting was held there Feb. 8 and gives the following report of it:—"There was a fairly large attendance of shareholders, about \$100,000 of stock being represented. The report said that it is hoped to start construction by May. Most of the right of way is held outright by the company and the remainder is held under option. The engineering work on the main line and the branch lines has been completed and reports were also presented setting out the estimated earnings. It was stated that while the company has three years yet under its charter to complete the road, it would be better to go

to the Ontario Railway and Municipal Board to get an extension to five years in order to improve the company's financial status when it comes to sell bonds. A motion was passed authorizing the directors to call a special meeting of shareholders to deal with delinquent subscribers who are not considered financially strong and it might perhaps be advisable to cancel their shares." The directors for the current year are J. G. Hilt, President and Managing Director; R. J. Biggar, W. C. Strader, and J. B. Boggart. R. A. Bishop is Secretary-Treasurer.

**Mount McKay & Kakabeka Falls Ry.**—The Ontario Legislature is being asked to extend the time for the completion of the company's railway in the vicinity of Fort William, Ont., and to authorize it to use any kind of motive power, including steam. The line is about five miles long, and connects with the Fort William Electric Ry.; it was opened for traffic in 1909, but has not been operated lately except for freight purposes, and is equipped for operation by electricity.

**Ontario Hydro Electric Railways.**—A press report says that the Hydro Electric Power Commission of Ontario has had a survey made for an electric railway from Toronto to Niagara Falls, that the projected Toronto-London line will be used from Toronto to Port Credit and that the Niagara line will diverge at the latter point passing through Oakville, Burlington and Hamilton. The report says that bylaws to provide the money will be submitted to the municipalities interested in a few weeks.

**Sudbury-Copper Cliff Suburban Electric Ry.**—The Ontario Legislature is being asked to confirm an agreement dated Sept. 15, 1915, authorizing the guarantee by the town of Sudbury of the company's bonds for \$75,000, upon the security of a mortgage of the company's real and personal property and franchises.

**Three Rivers Traction Co.**—The property owners of Cap la Madeleine, Que., on Jan. 29, by a majority of 49, decided to grant a franchise to the T. R. T. Co., for the operation of an electric railway in the municipality. The franchise is to run for 20 years. The municipality has hitherto refused to grant such a franchise and the company took steps to obtain legislative authority to build the line notwithstanding the refusal to grant the franchise. (Feb., pg. 73.)

**Toronto, Barrie and Orillia Ry.**—The Ontario Government was asked by the company Feb. 17, to issue the necessary proclamation to bring in force the act passed in 1915, granting an extension of time for the building of the projected railway. Under the original charter, viz., that of the Monarch Ry., and the amendments thereto, up to and including the act of 1914, the company has power to build a railway from Toronto to Barrie, with a branch to the C.P.R. near Utopia; a local line in Barrie, and a line from Barrie to Orillia, with branch lines. A franchise within the town of Barrie was obtained from the town council, and surveys were made for the line from Barrie to the C.P.R. in 1913, but nothing in the way of construction has been done. A route was also partly located by the Monarch Ry. for some distance out from Toronto, and some negotiations with the municipalities interested were carried on. The company claims that \$55,000 has

been expended upon surveys, etc. Under the act of 1915, the company's plans for the railway were to be approved as to gauge, etc., by the Hydro Electric Power Commission of Ontario, which was given authority to acquire the undertaking. This was the only one of the large electric railway undertakings which survived the opposition of the H. E. P. Commission in the Legislature last year. The total mileage of the lines projected is: Toronto to Barrie, 60 miles; Barrie to Utopia 8 miles; Barrie to Orillia 30 miles, total 90 miles. The company says it is asking for the bringing into force of the act in order to take up the building of the line from Barrie to Utopia, and is also asking the Barrie town council for a removal of the local franchise. A. Bicknell, Toronto, is solicitor for the company. (Dec. 1915, pg. 483).

**The Windsor, Essex & Lake Shore Rapid Ry.** expects to do some paving in Leamington, Ont., during this year.

### Kingston, Portsmouth and Catarqui Electric Railway Wages.

This company has advanced its conductors' and motormen's wages, the following table showing the old and new rates per day.

	Old.	New.
1st 3 months .....	\$1.50	\$1.75
2nd 3 months .....	1.55	1.85
2nd 6 months .....	1.60	1.90

Under the old schedule, after the 2nd 6 months, the pay was advanced 5c a day every 6 months till \$2 was reached. Under the new schedule the pay is to be advanced 5c a day after every year.

**Nova Scotia Tramways & Power Co.**—The Nova Scotia Public Utilities Commission, on Feb. 9, filed its decision on the application of the Nova Scotia Tramways & Power Co. for leave to issue \$6,250,000 of capital stock, \$3,250,000 of preferred stock and \$3,000,000 bonds. The Board finds that the company should be permitted to raise \$5,550,000 by the issue of \$3,000,000 of 5% thirty year bonds at 90; \$2,500,000 in preferred stock at 75, and \$2,500,000 in common stock at 40.

**Toronto Suburban Ry. Toronto Franchise.**—The Mayor and the City Solicitor of Toronto waited on the Attorney General of Ontario, Feb. 4, to discuss the proposal to cancel the Toronto Suburban Ry. franchise granted by West Toronto, now a part of the city. They explained the position of the city and the company, and asked that the city be granted power to give a service in West Toronto. The Attorney General asked that a memorandum be submitted for his consideration.

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

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

**Canadian and United States Railways** are said to have spent over \$10,000,000 in newspaper advertising in 1915.



## Accident Case Decided in Ottawa Electric Ry. Co.'s Favor.

The Supreme Court of Canada gave judgment Feb. 10., in the case of Mrs. J. P. Hayes, vs. the Ottawa Electric Ry. Co. On Aug. 18, 1913, J. P. Hayes came into collision with an Ottawa Electric Ry. car on Somerset St., near the corner of Bronson Ave., sustaining injuries from which he died the following morning. His widow and children brought an action against the company, claiming \$5,000 damages, and in the action, which was tried before Sir William Mulock, with a jury, on Jan. 11 and 12, 1915, recovered a verdict against the company for \$3,500.

The judgment at the trial was appealed by the company to the Appellate Division of the Supreme Court of Ontario, which gave judgment on May 11, 1915, affirming the trial judgment. The company then appealed to the Supreme Court of Canada, which on Feb. 10 gave a unanimous judgment in favor of the company, allowing the appeal and dismissing the action with costs.

The case is one of considerable public interest, involving the liability of a street railway company for an accident such as this, where the evidence disclosed that Hayes did not take proper precautions in crossing the street. The jury found that the company's motorman was negligent, and that Hayes' contributory negligence did not continue up to the moment of the accident. The Supreme Court holds that in this particular case there was no evidence to support the finding of the jury of the company's negligence. It appears from the reasons which are thus far available that the facts are that the motorman first saw Hayes as he stepped off the curb; that, because he then apprehended that an accident might happen, he immediately rang the gong to warn Hayes; that at 30 ft.—or about one second later—he realized that Hayes was not going to stop, and became seriously apprehensive, and at once applied the brakes as vigorously as he could, still "gonging," and also shouting at Hayes, who continued to walk on with his head down, apparently oblivious of danger.

The Supreme Court holds that the motorman did all in his power, and exercised his best judgment from the moment he was 30 or 35 ft. from the point of contact. The court further states that there is nothing in the facts of the case to warrant a finding of fault or negligence on the motorman's part and that, if he made any mistake at all, it was at most an error of judgment in a sudden emergency, but even that was not established. The judges are careful to point out that no doubt a motorman driving a street car must always be alert; but having regard to the practical necessities of street car operation, the court is not prepared to hold that it was open to the jury to find under the circumstances of this case, that in failing to apply his brakes instantaneously upon Hayes stepping off the curb, and before the motorman had seen or had any reason to think that the sharp clanging of the gong would be ineffective, the motorman was guilty of any negligence.

The Ontario Railway and Municipal Board sat in Windsor, Feb. 21, to hear complaints against the Sandwich, Windsor & Amherstburg Ry's car equipments, etc. The question of air brakes and lavatories on the interurban cars were discussed and the whole matter was held over for consideration.

## Mainly About Electric Railway People.

R. Barber has been appointed Treasurer, International Transit Co., Sault Ste. Marie, Ont., vice J. Hawson.

F. T. Leversuch, Traffic Manager, London and Port Stanley, having resigned,

W. F. Graves, Chief Engineer, Montreal Tramways Co., who was operated on in a New York hospital Jan. 5, left for Atlantic City Jan. 29 to convalesce.

A. E. Ames, Toronto, has been elected Chairman of the Board of Directors of the Duluth-Superior Traction Co., Duluth, Minn., a new office created by bylaw following the death of C. G. Goodrich, who had been President.

E. A. Evans, M.Can.Soc.C.E., formerly General Manager, Quebec Ry. Light and Power Co., Quebec, has been re-elected Grand Master of the Grand Lodge of Quebec, A.F. and A.M., for the current year.

Col. H. H. McLean, K.C., M.P., President, St. John Ry. Co., has been appointed in charge of the military district of New Brunswick, which has now been separated from Nova Scotia for military administration purposes. His son, Hugh McLean, has been admitted to the English bar recently and has been given a commission in the British Cavalry Reserve.

Geo. W. Lang, who has been appointed Claim Agent, Ottawa Electric Ry., Ottawa, Ont., was born there June 13, 1872 and entered that company's service in June 1892, since when he has been, to July 1896, conductor; July 1896 to Oct. 1908, Inspector; 1908 to 1909, Assistant Superintendent. He left the company's service in 1909, and until his present appointment, was engaged in private business in Calgary, Alta.

Wilford Phillips, Manager, Winnipeg Electric Ry., has been granted six months leave of absence, owing to ill health, and is now at Los Angeles, California. During his absence Harry Hartwell is acting Manager. The latter is a member of the American Society of Civil Engineers and the American Society of Mechanical Engineers and for the past four years has been Assistant to Vice President, Pearson Engineering Corporation, New York, N.Y.

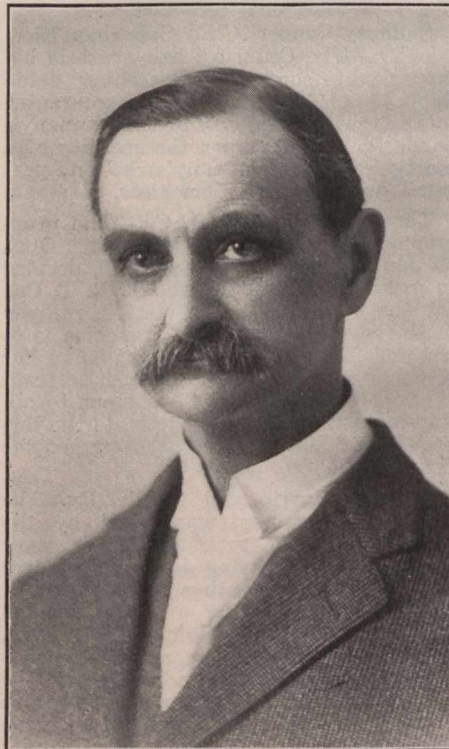
Capt. F. D. Burpee, Superintendent, Ottawa Electric Railway, will, it is said, be appointed Major of the 207th Battalion which is being organized for overseas service. During his absence, G. W. Lang, who was appointed recently as the company's Claims Agent, will act as Superintendent. Mr. Lang was in the company's service for a number of years and was Assistant Superintendent under J. E. Hutcheson. He removed to Calgary, Alta., where he was in the real estate business. A few days after volunteering for active military service he lost a leg in an automobile accident.

The Toronto Railway's advertising privileges on its cars have been leased to the Toronto Car Advertising Co. Inc., which was incorporated in New York State in 1915, the President being Henry Weinburg, 527 Fifth Avenue, New York, who is also President of the Car Advertising Co. and of the Keystone News Co. The Toronto Car Advertising Co. has been licensed to do business in Ontario and has an office at 304 C.P.R. Building, Toronto, M. Bloch being Manager. The Car Advertising Co., New York, handles the advertising in the Philadelphia Rapid Transit Co's cars at Philadelphia, Pa.

The London and Port Stanley Ry., which is operated by the London Railway Commission, London, Ont. is in the market for trailers cars and 90 tons of 80 lb. rails.



F. D. Burpee,  
Superintendent, Ottawa Electric Railway.



P. A. Macdonald,  
Public Utilities Commissioner for Manitoba.

J. E. Richards, heretofore Auditor and Treasurer, has been appointed Treasurer and Traffic Manager. Office, London, Ont.

W. H. Munro, Local Manager, Peterborough Radial Ry., Peterborough, Ont., who went overseas last summer with the Canadian Army Service Corps, mechanical transport branch, as a lieutenant, has been promoted to a captaincy.



**Opposition to Extension of Railway Charters in the Niagara Peninsula.**

Among the bills before the Dominion Parliament's Railway Committee are two, viz., the Niagara, St. Catharines & Toronto Ry., and the Toronto, Niagara & Western Ry., in regard to which considerable opposition has developed on the part of the City of Toronto, and the Hydro Electric Power Commission of Ontario. The first named company obtained power in 1899 to build an extension of the old St. Catharines & Niagara Central Ry. to the Niagara River near Fort Erie, and an extension to Toronto, via Hamilton, and in 1913, was granted an extension of time for building this and certain branch lines in the Niagara Peninsula. The second company was originally incorporated as the Toronto & Hamilton Ry., to build an electric railway from Toronto to Hamilton, the projected route being along the right of way of the Niagara Power Co's line. The title of this company was subsequently changed to the Toronto, Niagara & Western Ry., and in 1903 it was enacted among other things that nothing in the act should give it power to construct its line along Burlington Beach, without the consent of Nelson Tp. respecting the part in the County of Halton, and the Burlington Beach Commission respecting the part in the County of Wentworth. In 1904 it was given power to extend its line from Hamilton to Niagara Falls, and in 1906 it was given power to extend its line from Hamilton to Windsor. These several acts were continued by amending acts, the last being in 1914, the prohibition as to building along Burlington Beach being continued, and three sections being added respecting the company's rights in the City of Toronto. Sec. 5 of the act of 1914 prohibits the receiving or discharging of passengers between the terminals in the city and the west boundary of the city, unless under the terms of a bylaw duly passed; sec. 6 prohibits the picking up or discharging of local passengers between the terminals and the western boundary of the city, but does not prevent the discharging of passengers from outside points at any place within the city limits; and sec. 7 deals with the rights of the City of Toronto as to construction within the city. Both these lines are being promoted by the same interests, the Canadian Northern Ry. Co.

The first bill came up a second time before the Railway Committee Feb. 22, when it was arranged to take it up again Mar. 2, in conjunction with that of the Toronto, Niagara & Western Ry. It is said that in addition to the City of Toronto, and the Hydro Electric Power Commission of Ontario, various municipalities interested in the Ontario Hydro Electric Railway Association of Ontario will appear in opposition to the bills.

**Electric Railway Notes.**

The London Street Ry. expects to rebuild some old cars in the near future. The Sudbury-Copper Cliff Suburban Electric Ry. has bought two double truck cars from the Third Ave. Ry., New York. The Sherbrooke Railway Light and Power Co. is in the market for two new one man, near side cars. The Hamilton St. Ry has put in operation at the request of the city council a cross town service on Sanford and Birch Avenues, from King St. to the base line, to relieve the congestion of traffic in the factory district. The Edmonton Power Co. is applying

to the Alberta Legislature for the confirmation of a bylaw passed by the City of Edmonton, authorizing the execution of an agreement for a franchise to supply electric power in the city.

Commissioner Freeman is working out a new schedule for the Lethbridge, Alta., Municipal Ry., under which it is calculated that cars will travel a much less distance to give the same of service, and that they will be much more evenly distributed over the line.

The British Columbia Electric Ry., in return for aid given by soldiers in training in Victoria in keeping the tracks clear during the recent snow storms, is reported to have granted permission for all soldiers to travel free on the Victoria lines for a month.

The question of the cost of taking up and relaying the street railway tracks under the 13th St. subway, which has been in dispute between the Lethbridge, Alta., City Council, and the C.P.R., is being taken by the C.P.R., to the Board of Railway Commissioners for settlement. The amount involved is \$405.

The City Council of Windsor, and the councils of the towns of Walkerville, Sandwich, Ford City and Ojibway, are applying to the Ontario Legislature to constitute, with the assent of the electors of the several places, a joint public utilities

commission, to have all the powers under the Public Utilities Act in each of the municipalities. The reason given for the application is that the five municipalities are adjoining and front upon the Detroit River, and it would be more economical and more practical that the utilities and powers in which each of the municipalities have a common interest should be exercised by a joint commission having authority in each of the municipalities rather than by the existing separate authorities.

Judgment was delivered in the Quebec Superior Court, Montreal, Feb. 7, by Justice MacLennan, in the action brought against Mayor Martin, Controller Cote and ex-Controller Hebert, for contempt of court in passing a resolution granting a franchise to the Montreal Tramways Co., June 20, 1914, in face of an injunction restraining them from doing so. The judge held that there had been "a deliberate, wilful and discreditable breach of the injunction" on the part of Mayor Martin and ex-Controller Hebert, and fined them each \$1,000 and costs. The case against Controller Cote, who voted for the franchise, was held over for further consideration. Controller McDonald protested against the passing of the resolution. An appeal will, it is said, be made against the decision.

**Electric Railway Finance, Meetings, Etc.**

**Brantford Municipal Ry.**—The bylaw selling the Paris-Galt section of the Grand Valley Ry., to the Lake Erie and Northern Ry., on terms and conditions mentioned in Canadian Railway and Marine World for February, page 76, was finally approved by the Brantford, Ont., City Council, Jan. 28, by 10 votes to 3.

**British Columbia Electric Ry., and allied companies:**—

	Dec. 1915	Dec. 1914	July 1 to Dec. 31, 1915	July 1 to Dec. 31, 1914
Gross	\$603,667	\$674,063	\$3,240,146	\$3,998,899
Expenses	478,129	512,663	2,885,302	3,074,568
Net earnings	125,538	161,400	354,844	924,331

**Cape Breton Electric Co.:**—

	Dec. 1915	Dec. 1914	July 1 to Dec. 31, 1915	July 1 to Dec. 31, 1914
Gross	\$36,267.87	\$29,794.13	\$201,616.55	\$182,571.87
Expenses	19,625.69	18,777.62	108,316.46	110,115.80
Net	16,642.18	11,016.51	93,300.09	72,456.07

**Dominion Power & Transmission Co.**—The statement presented at the annual meeting in Hamilton, Ont., Feb. 21, showed gross earnings for the year of \$2,353,956, and operating expenses \$1,352,001. After providing for bond interest, maintenance, renewal, and dividends and transferring \$500,000 from the profit and loss account of \$1,139,259 to the reserve fund, the net profits were \$639,259. The directors were re-elected. It was announced that 83 employees have enlisted.

**Hamilton St. Ry.**—Gross earnings for three months ended Dec. 31, 1915, \$158,730.28, against \$135,287.58 for same period 1914. Percentage paid to city, \$12,698.42 for quarter ended Dec. 31, 1915, against \$10,823.01 for same period 1914. Total percentage paid to the city in 1915, \$53,095.37, against \$54,712.08 in 1914.

**Lethbridge Municipal Ry.**—Returns for 1915 as submitted to the Lethbridge, Alta., City Commissioners, show that there was a surplus of \$3,677.64 over operating expenses for the year. The total gross earnings reported were \$41,740.51; operating expenses, \$38,062.87. The actual deficit on the railway to Dec. 31, is \$34,708.96. The commissioners have estimated the revenue for the cur-

rent year at \$45,070, and the expenditure at \$39,550.40. The amount estimated to be raised from the general taxes against the estimated deficit is given as \$31,590.40.

**London St. Ry.:**—

	Jan. 1916	Jan. 1915
Gross	\$32,462.68	\$30,616.10
Expenses	21,641.53	21,518.62
Net	10,821.15	9,097.48

**Moncton Tramways, Electricity & Gas Co.**—The annual meeting called to be held in Moncton, N.B., Feb. 9, was adjourned to Mar. 9, there not being a quorum present.

The Eastern Trust Co., as trustee under the company's trust mortgage deed of Jan. 16, 1912, received tenders, Jan. 31, for the sale of sufficient bonds at prices not in excess of 5% above par, to exhaust the sum of \$13,000 at the credit of the sinking fund. The trust deed provides for the drawing of bonds to be redeemed in the event of bondholders not offering to sell.

**Toronto Ry.**—The receipts, and percentages paid to the city for 1916, compared with those for 1915, are as follows: January, 1916—Receipts, \$473,784.15; city percentage, \$68,846.83. January, 1915—Receipts, \$471,226.33; city percentage, \$70,486.33.

**Winnipeg Electric Ry.:**—

	Dec. 1915	Dec. 1914	Jan. 1 to Dec. 31, 1915	Jan. 1 to Dec. 31, 1914
Gross	\$377,121	\$368,400	\$3,499,741	\$4,101,302
Expenses	210,427	230,719	2,246,519	2,416,209
Net	166,694	137,681	1,253,222	1,685,093

**Winnipeg Electric Ry.**—At the adjourned annual meeting Feb. 24 it was announced that the financial statements would be issued in a few days thereafter. The directors were re-elected and J. D. McArthur, contractor, Winnipeg, was elected to fill the vacancy caused by Sir Wm. Van Horne's death. The following is the board for the current year:—Sir Wm. Mackenzie, President; A. M. Nanton, Vice President; F. Morton Morse, Secretary-Treasurer; Sir Donald Mann, D. B. Hanna, G. V. Hastings, Hugh Sutherland, J. D. McArthur, R. J. Mackenzie.



# Marine Department

## St. Lawrence Ship Channel Improvements.

During 1915, 15 dredges and attending plant were kept at work day and night, deepening and improving the ship channel, from Montreal to Island of Orleans, removing a total of 8,462,957 cub. yds. of material, varying from soft clay to hard shale rock. Considerable work was done widening the channel through Montreal harbor, in St. Mary's current and Longueuil shoal, where it is proposed to widen the channel from 700 to 800 ft. Good progress in deepening the channel to 35 ft. at extreme low water was made, between Three Rivers and Montreal, 8 miles having been accomplished. There remains very little of the channel through lake St. Peter that is not deepened to 35 ft. The Cap Charles channel, Cap-a-la-Roche district, was completed to 30 ft. at extreme low water, and widened from 300 to 450 ft. and to 650 ft. at the curve. A new range of lights was constructed to mark the new centre line. The channel was buoyed to give the increased width and opened to navigation. The Grondines channel was also completed to 30 ft. deep and 450 ft. wide. A new range of lights was built to mark the new centre line. This channel was also buoyed out to give the increased width. The widening of Cap-a-la-Roche curve is almost completed, but there remains considerable deepening and cleaning up to be done yet. There is a large area of rock which has been broken by the rock cutter, in readiness for work during the current year.

The new channel for light draught vessels and tows, through the islands opposite Sorel, to Lake St. Peter was completed to 15 ft. deep at low water and a minimum width of 400 ft., and will be opened for navigation in the spring. New lighthouses have been built to mark the different courses. This will oblige all tows, etc., to keep out of the ship channel. There is now a distance of over 50 miles, between Lake St. Peter and Montreal, where the tows and light draught vessels can keep out of the ship channel. This will avoid the delays and annoyance caused to ocean steamers by these vessels.

Dredging operations in the north channel below Quebec were carried on vigorously, and good progress was made, two dredges being kept at work during the whole season. They removed 2,197,568 cu. yds., there still remains 6,928,805 cu. yds. to be dredged. This channel is to be 1,000 ft. wide and is being deepened to 35 ft. at extreme low tide. Where there was only 7 ft. at low tide, there is now a depth of about 26 ft.

With the new dredge now building by Canadian Vickers, Ltd., Montreal, greater progress will be made. The completion of this dredge has been unavoidably delayed owing to conditions arising out of the war.

A commencement has been made on the construction of the compensation dams, as recommended by the commission appointed to investigate upon the water levels of the St. Lawrence river at and below Montreal. In order to lessen the cost, it was decided to utilize the dredging material taken from the ship channel and deposit it on the site of the proposed dam. A considerable amount was dumped at Repentigny (between Ile

a Bague and Ile Bellegarde), chenal Corbeaux (between Ile de Grace and Stone island), chenal des Barques (between Ile aux Barques and Ile du Moine), Pointe du Lac, at foot of Lake St. Peter. It is proposed to continue depositing at these points in the spring while the water is high, in order to be able to utilize as much of the dredged material as possible.

## The Batiscan-Bengore Head Collision Judgment Reviewed.

The Minister of Marine has reviewed the sentence passed on Capt. Green of the s.s. Batiscan, in connection with the collision with the s.s. Bengore Head in the St. Lawrence River, Aug. 1, 1915. The sentence given by the Dominion Wreck Commissioner, and concurred in by one of the assessors, the other dissenting, was suspension of his master's certificate for two years, with the issue of a first mate's certificate for the second half of the suspension term. As mentioned in Canadian Railway and Marine World for Feb., this matter was taken up by the Mercantile Marine Association in England, of which the captain is a member, and the British Board of Trade was approached with a view to having the sentence changed, but without effect. It was then taken up with the Dominion Minister of Marine, and representations were made, pointing out "the severity of the punishment and its disproportion with sentences inflicted by other tribunals of like character, and suggesting that although the evidence before the court was conflicting, the penalty would be amply met by the issuing of a first mate's certificate to the master, and the suspension being reduced to one year." The Minister of Marine has confirmed the suspension of the master's certificate for the full two years, and has decided that a first mate's certificate be granted for the whole period of the suspension.

## St. Lawrence River Navigation.

Mention has been made in Canadian Railway and Marine World, at intervals, of the undoubted bias which certain Liverpool interests evidence against the navigation of the St. Lawrence River. It is therefore somewhat pleasant to note report of the Liverpool Underwriters Association for 1915, from which the following is extracted:—"This subject has occupied the attention of the committee on frequent occasions during many years, and has been referred to repeatedly in these reports. It is gratifying to the committee to be able to state in this report that on the opening of navigation in May new regulations framed by the Dominion Government were brought into operation. Under these regulations separate channels were assigned for large and small vessels, so as to minimize the risk of collision, and a uniform system of lighting these channels by gas buoys and gas beacons was set up, those on the starboard hand going up stream being occulting red lights and those on the port hand occulting white lights. In addition to these improvements the pilotage system was placed on a more satisfactory footing, and instead of being controlled by a corporation, as heretofore, it is now in charge of the Minister of Marine and Fisheries."

## Canada's Shipping Under Present War Conditions and its Future.

The condition of Canada's shipping under the existing circumstances, and the question as to what steps should be taken by the Government for its future development formed the chief topic of a discussion in the House of Commons, Feb. 10. A. K. Maclean, M.P. for Halifax questioned the Government as to whether it had, during the past year considered the idea of supplying some tonnage in Canada, or of encouraging it by advancing money for the construction of vessels. He pointed out that Canadian trade was likely to suffer in the future owing to the present lack of tonnage, and stated that France had undertaken to advance money to persons willing to buy ships or to have them built.

The Minister of Marine said that the subject had received the Government's serious consideration, but there were certain difficulties in the way. For the present, the Admiralty has assigned 53 vessels to the Atlantic trade, and these are taking away, from St. John and Halifax, Canadian goods, as fast, as the railway companies can get them to these ports, so that there is little disturbance of Canadian trade at present. In regard to the suggestion that people should be encouraged to increase tonnage, he said that the people did not appear disposed to put their money very largely into ships, the expense of building and the cost of raw materials being so high. Of course, on the other hand freights are exceedingly high, but there is great uncertainty as to how long such a condition will continue.

Hon. W. Pugsley contended that the Government should immediately take steps to encourage shipbuilding, irrespective of whether the war lasted one year or ten years, and members of other maritime constituencies stated that shipbuilding could not be carried on successfully in the Dominion so long as the present tariff obtained, because so long as British shipbuilders can build vessels from 35 to 50% below what they can be built for in Canada, there is little prospect of vessels being built to any extent on this side. Vessels built in Great Britain enter Canada without paying any duty, but Canadian shipbuilders have to pay high duty on a number of articles used in building vessels, adding, it is stated, \$10 a ton to the cost of building. It was pointed out that when certain machinery is built in Canada and exported, the manufacturer can obtain a rebate of 99% of the amount paid for duty on articles used in the manufacture of that machinery, and it was suggested that vessels built in Canada and exported, should be allowed the same rebate. Shippers should also be able to go into outside markets, purchase vessels and register them in Canada free of all duty, irrespective of where the vessel was built.

Shipbuilders throughout Canada have for several years been agitating for Government assistance in the building up of the shipbuilding trade, and have suggested subsidies for the home built article and high tariffs for the imported one, but no decision has been reached upon which any policy could be formulated, and the discussion above noted was purely academic.



**Dry Dock Project at Vancouver, B.C.**

The North Vancouver city council, at a meeting at the end of January, passed a resolution accepting the amended offer of the Amalgamated Dry Dock & Engineering Co. for the construction of a dry dock and shipbuilding plant at an estimated cost of \$5,458,418.37, and issuing instructions for the preparation of a by-law providing for a fixed assessment at a nominal rate for 35 years, and for the guaranteeing of bonds, as to principal only, to the extent of \$750,000, for submission to the ratepayers. In regard to a Dominion Government subsidy under the act granting aid for the construction of dry docks, it is said that application has been made to the Government for the subsidy, and while no subsidy agreement has been entered into, the Government has expressed its willingness to grant the aid provided the company can finance the undertaking. The dimensions of the proposed dock are as follows,—length from caisson stop to head wall 1,150 ft., width of entrance 110 ft., depth over sill at extreme high water spring tides 41 ft., depth over sill at low water spring tides 24.25 ft., the dock to be divided into two parts 650 and 500 ft., respectively. The subsidy provided by the Government would be at the rate of 4 per cent. for 35 years on an agreed capital expenditure. It is stated that arrangements for the financing of the project have been completed in New York.

**Great Lakes Vessels in Ocean or Coasting Trade.**

The Canadian Lake Protective Association has compiled the following particulars respecting lake steamships enrolled in the Association. On Aug. 4, 1915, the following vessels were down as engaged in Trans Atlantic or European trade or coasting south of the Gulf of St. Lawrence and in the West Indies:—Newona, Tagona, Kenora, Midland Queen, Glenelagh, Dundee, Dunelm, Donnacona, Strathcona, Winona, Neepawah, C. A. Jaques, Turret Court, Scottish Hero, Neebing, Port Colborne, Dwyer, Glenfoyle, Glenmavis, Fairmount, Glenmount, Stormount, Westmount, Northmount, Kaminstiquia. The Midland Queen, Dunelm, Donnacona and Fairmount were lost at sea.

On Aug. 4, 1915, the following vessels were trading between Montreal and Sydney, N.S.—Acadian, Canadian, D. A. Gordon, A. E. McKinstry, Renvoyle, Fordonian, Empress of Fort William, Empress of Midland, Rosedale, Meaford, Kinmount, Rosemount, Ungava, Turret Crown.

On Sept. 23, 1915, a list compiled showed slightly less than half of the above vessels returned to the lakes for the movement of the new crop with some few others to come in. In December, immediately after the close of navigation, a list compiled showed these vessels at sea:—Acadian, D. A. Gordon, A. E. McKinstry, Canadian, Empress of Midland, Stormount, Glenmount, Kinmount, Northmount, Rosemount, C. A. Jaques, Dundee, Glenellagh, Scottish Hero, Empress of Fort William, Kenora, Neepawah, Renvoyle, Strathcona, Tagona, Winona, Newona, Neebing, Kaminstiquia, G. R. Crowe, Glenfoyle, Glenmavis, Calgary, Port Colborne, Port Dalhousie, Dwyer, Algonquin. The Northmount was lost at sea in December and the G. R. Crowe and the Algonquin while still on the lakes have been sold for ocean trade.

**Navigation by Masters with Coasting Certificates.**

A bill was introduced in the House of Commons, Feb. 7, to amend the Canada Shipping Act, by repealing sec 3, ch. 65, of 1908, and to substitute the following:

(f) Coasting voyage means a voyage between any port or place on the eastern coast of Canada and any other port or place on such coast, or in Newfoundland, Labrador, St. Pierre or Miquelon, or any port or place on the eastern coast of the United States of America, Mexico, Central America or in the West Indies, or on the eastern coast of South America, not further south than 40 deg. south latitude; and also means a voyage between any port or place on the western coast of Canada and any other port or place on such coast, or on the western coast of the territory of Alaska, or of the United States of America, the western coast of Mexico, Central America or South America, not further south than 40 deg. south latitude."

A bill making similar provisions was introduced in 1914, and was referred to the Committee on Marine and Fisheries, where it rested.

On a discussion re masters' and mates' examinations, in the House of Commons, Feb. 10, this matter was mentioned, and the Minister of Marine said that he had suggested that in addition to a deep sea certificate, and a coasting certificate, there might be another certificate, which might be called a limited foreign certificate, enabling captains to go, not only on coasting voyages, but to greater distances than at present, and when the bill comes up, the Government will be in a position to give a matured opinion on the subject. It is stated that owing to the limitations of a coasting certificate many Canadian vessels have withdrawn from the register, and there is a tendency to register in the U. S. rather than in Canada.

**Steamship Service between Great Britain and Sweden**—A press dispatch stated to have been received from Stockholm, Sweden, via London, in commenting on a proposed steamship service between Great Britain, Sweden and Russia, says,—“It is learned that steam ferries carry merchandise trucks between Gothenburg, Sweden, and Birmingham, Eng., without trans-shipment.” It would be interesting to know if these vessels are of what is known as the alligator type.

**Government Aid to Shipbuilders in Great Britain**—A Glasgow, Scotland press report states that the British Government has decided to grant facilities and financial assistance to shipbuilders, to complete about 500,000 tons of mercantile shipping which is nearing the launching and fitting out stages, and thus relieve the markets from the excessive freight rates.

**The Blantyre Transportation and Coal Co., Ltd.** has been incorporated under the Dominion Companies Act, with \$50,000 authorized capital and office at Montreal, to carry on a general lumber and coal business, and in connection therewith to own and operate steam and other vessels, and to carry passengers and merchandise.

**The Long Sault Development Co's** project to dam the St. Lawrence River at the Long Sault Rapids, is expected to come before the United States Supreme Court during March. The charter, which was granted by New York State, has been declared to be unconstitutional, and the company has filed an application for the reopening of its case.

**Dominion Government Steamships and Icebreakers.**

During a discussion in the House of Commons, Feb. 10, on a vote for \$1,180,000 for maintenance and repairs to Government steamships and icebreakers, the Minister of Marine stated that there are 27 vessels in the ocean and river service, viz.—Aberdeen, Aranmore, Bellechasse, Brant, Champlain, Dollard, Druid, Estevan, Frontenac, Grenville, Lady Grey, Lady Laurier, Lambton, Lansdowne, Maggie May, Montcalm, Montmagny, Newington, Prince Edward Island, Rouville, Scout, Shamrock, Simcoe, St nley and Vercheres, and the new icebreaker now under construction at Montreal. The s.s. Montmagny was sunk in collision in the St. Lawrence about two years ago, and the Department has entered into a contract to raise the vessel and place her in dock at Levis, on the no cure no pay principle, for \$27,000. It is expected that the vessel will be successfully raised, repaired and ready for operation by the summer, and \$55,000 has been included in the estimate for such repair. The s.s. Prince Edward Island, which is really under the Department of Railways and Canals, as a car ferry, is being operated across Northumberland Strait in place of the s.s. Minto, sold to the Russian Government, and is giving satisfactory service. Four icebreakers are in service, the Lady Grey and Montcalm in the St. Lawrence, and the Prince Edward Island and Stanley in the Northumberland Strait between New Brunswick and Prince Edward Island.

**British Columbia Merchant Marine Limited.**

Reference was made in our last issue to arrangements which were being made for the organization of a company with the name of the British Columbia Merchant Marine, Ltd., to meet the requirements of the province as regards vessel accommodation, and develop shipbuilding. The Manufacturers' Association of British Columbia, an organization comprising all forms of industry in the province, announces that it is acting as godfather to the project, and is proceeding to inaugurate the movement for the formation of the company, to make the enterprise a provincial organization, to prepare draft incorporation papers as a basis on which the association can go to the public, to eliminate all question of watered stock, promotion expenses or commission, to ask the public to subscribe to a general scheme with the understanding that subscribers themselves elect a provisional board of directors who shall decide the company's policy in all respects, including the building and type of ships, trade routes and general handling of the routine of the business, to give the services of the association and its officers free to the new organization until it is handed over to the provisional directors, and after a thorough canvas of the province, to call a meeting of subscribers to elect a provisional directorate and thereupon to hand over to it the whole affairs of the incorporation for decision in regard to approaching the Government for assistance or otherwise.

From present indications it is the company's intention to build wooden vessels at first, and they will probably be equipped with Diesel oil engines. When the steel market is more favorable, steel vessels will probably be built.



### Mainly About Marine People.

**J. W. Norcross**, Vice President and Managing Director, Canada Steamship Lines, Ltd., returned to Montreal, Feb. 2, after a business trip to England.

**W. J. McCormack**, heretofore Superintendent, Northern Navigation Co., Sarnia, Ont., has been appointed Superintendent, Algoma Central Steamship Line, Sault Ste. Marie, Ont., vice S. V. McLeod, resigned.

**Capt. Alfred Ellis**, formerly in the Canada Atlantic and Plant Line Steamship Co.'s service, died at Halifax, N.S., Feb. 5. He had been with the company for 25 years, and, at various times, had been in command of the steamships A. W. Perry, Evangeline and Halifax. He retired from active service in 1915, shortly after the loss of the company's s.s. A. W. Perry, on June 8.

**Commander Engineer John Carmichael**, R.N.R., who was awarded the D.S.O. recently for bravery and devotion to duty in mine sweeping and mine laying operations, is serving on the auxiliary cruiser Princess Marguerite, one of the vessels built recently in Scotland for the C.P.R. Pacific Coast Service, and which, with the s.s. Princess Irene, was taken over by the Admiralty early in the war. He was formerly chief engineer on the C.P.R. s.s. Charmer.

**Alex Lewis**, Secretary, Toronto Harbor Commission, who has been granted leave of absence and is at present a captain in the Queens Own Rifles, Toronto, will, it is said, be second in command of the Bantam Battalion which is to be organized in Toronto. **M. R. McCallum**, Assistant Secretary of the Commission, who has been acting as Secretary since Mr. Lewis was granted leave of absence, is also going to the front as Assistant Adjutant in the same battalion.

**Hugh Strain Carmichael**, whose appointment as Passenger and Freight Manager, Canadian Pacific Ocean Services, Ltd., London, England, was announced in our last issue, was born at Glasgow, Scotland, Mar. 7, 1874, and entered transportation service in Mar. 1889, since when he has been, to Apr. 7, 1891, in Passenger Department, State Line, Glasgow; Apr. 7, 1891, to Dec. 12, 1895, in Passenger Department, Allan Line, Glasgow; Dec. 13, 1895, to May 18, 1903, in Freight and Passenger Department, C.P.R., Glasgow; May 19, 1903, to June 30, 1905, in Passenger Department, C.P.R., Liverpool; July 1, 1905, to Apr. 14, 1907, Passenger Agent, C.P.R., Liverpool; Apr. 14, 1907, to Dec. 31, 1915, General Passenger Agent for Great Britain and Europe, C.P.R., London, Eng.

**W. E. Burke**, who has been elected President, Dominion Marine Association, for the current year, was born at Belleville, Ont., Sept. 23, 1881, and entered transportation service May 1, 1905, since when he has been, to Dec. 1, 1905, purser on s.s. Picton, Richelieu & Ontario Navigation Co., Montreal, and Toronto; Dec. 1, 1905, to Dec. 31, 1906, Soliciting Freight Agent, R. & O. N. Co., Toronto; Dec. 31, 1906, to Dec. 31, 1907, Travelling Freight Agent, same company, Toronto; Dec. 31, 1907, to Apr. 19, 1909, Travelling Freight Agent, Mutual Steamship Co., Toronto; Apr. 10, 1909, to Apr. 1, 1910, General Freight Agent, Merchants' Mutual Line, Toronto; Apr. 1, 1910, to Jan. 1, 1914, Traffic Manager, Merchants' Mutual Line, Toronto; since Jan. 1, 1914, Assistant Manager, Canada Steamship Lines, Ltd., Montreal and Toronto.

### Shipping Federation of Canada.

The annual meeting was held at Montreal, Feb. 9, when the report showed that 810 vessels arrived at Montreal during 1915, against 916 in 1914. A large



W. E. Burke.

Assistant Manager, Canada Steamship Lines, Ltd., and President, Dominion Marine Association.



H. S. Carmichael.

Passenger and Freight Manager, Canadian Pacific Ocean Services, Limited.

number of the vessels usually trading with Canada were requisitioned by the Admiralty for war purposes, and a number of tramps were engaged for the extra export business. Nine vessels enrolled

with the Federation were lost owing to German submarines. In most of the exports, large increases were shown, but considerable decreases took place in the quantities of grain and flour shipped. (It ought to be mentioned here, that, owing to shortage of tonnage, and other causes, large quantities of Canadian wheat and flour were shipped to Europe from U. S. ports. EDITOR.)

The President, A. A. Allan, paid tribute to the co-operation of the shipping companies and their employes, in connection with war shipments, including the transportation of troops, and also stated that the thanks of the Federation were due to the Minister and Deputy Minister of Marine, for the attention given to all matters brought to their attention, and also to the Militia Department.

The officers for the current year are:—President, A. A. Allan; Treasurer, J. R. Binning; Assistant Treasurer, E. W. Foulds; Executive Committee A.A.Allan; W. R. Eakin, J. R. Binning, R. W. Reford, D. W. Campbell, Jno. Torrance and A. MacKenzie; sub-committees, bill of lading, W. I. Gear, John Torrance, J. R. Binning and D. A. Watt; harbor equipment, A. A. Allan, W. I. Gear and John Torrance; Manager and Secretary, Thos. Robb.

### Atlantic and Pacific Ocean Marine.

Furness Withy and Co. have purchased the steamship Kilbridge, Kilchattan and Kilkerran, from Connel Bros. Ltd., Glasgow, Scotland. The first named was built in 1901 and the two latter in 1906.

The C.P.R. s.s. Princess Ena, of the British Columbia Coast Service, is now running between Vancouver and Vladivostok, with war supplies. She was operated on the Alaskan run with freight cargoes for some time, but has been laid up at Victoria for about 18 months.

The C.P.R., s.s. Metagama, which had been for some time, under requisition by the Admiralty, and released, was scheduled to sail in her regular service, from St. John, N. B., Feb. 5. Her sailings have however been cancelled for the present, as she has again been requisitioned by the Admiralty.

The Union Steamship Co. of New Zealand's s.s. Leirim has been completed at Middlesbrough, Eng., and has undergone her open sea trials, which were reported as satisfactory. She is of the three deck type with bridge and fore-castle, and has a deadweight capacity of 13,000 tons. Her dimensions are, length 491 ft. 7 ins., breadth 60 ft., depth 39 ft. 4 ins.

The crew of the s.s. Beothic returned to St. John's, Nfld., Feb. 1, from Archangel, Russia, where they had taken the vessel for use as an icebreaker by the Russian Government. She sailed from Sydney, N.S., Nov. 23, 1915, via Belle Isle Strait and the coast of Greenland, and reached the White Sea, Dec. 9. On account of ice conditions there, delivery of the vessel was made at Vega, instead of Archangel, and the crew returned via Petrograd, Newcastle-upon-Tyne, Eng. and St. John, N. B.

The s.s. Paliki, stated to be owned by F. E. Hall and Co., Montreal, and now lying at Liverpool, England, is reported sold there for £28,500. She was formerly owned by the Algoma Central Steamship Line, a subsidiary of the Algoma Central and Hudson Bay Ry., and has been under charter for Atlantic service for some time. She was built at Sunderland, Eng.



in 1889, and is of steel construction and equipped with triple expansion engines with cylinders 19, 30 and 48 ins. diar., by 36 ins. stroke, supplied with steam by a Scotch boiler 15½ by 10½ ft. at 180 lbs. Her dimensions are, length 240 ft., breadth 36 ft., depth 17 ft., tonnage, 1,578 gross, 993 register.

Canada Steamship Lines s.s. Dunelm, which sailed from Sydney, N. S. in Oct. 1915, for Manchester, Eng., and after reporting from Cape Race, Oct. 17, has not since been heard from, has now been officially declared as missing. She was built at Sunderland, Eng. in 1907, for R. O. & A. B. Mackay, Hamilton, Ont., and was later absorbed, with other vessels of that company, into Inland Lines Ltd., and eventually into Canada Steamship Lines Ltd. She was of steel construction with steel tank top, steel boiler house, four water tight bulkheads, hatches spaced 24 ft. centres, complete electric plant, and was also equipped with triple expansion engines with cylinders 19½, 33 and 54 ins. diar., by 36 ins. stroke, supplied with steam by 2 Scotch boilers under forced draught, 12½ by 11½ ft., 180 lbs. Her dimensions were, length 250 ft., breadth 43 ft. 1 in., depth 26½ ft.; tonnage, 2,318 gross, 1,480 register. Along with other vessels under the same ownership, she was chartered for Atlantic Ocean service about a year ago, and has since been running to and from English ports.

### Maritime Provinces and Newfoundland.

A press report states that W. F. Coaker, St. John's Nfld., intends to erect a shipbuilding plant at Catalina, on the north shore of the colony.

The Marine Department fog alarm station and oil store at Cape Spencer, Bay of Fundy, was burnt out, Feb. 5, the damage being estimated at \$6,000.

The Miramichi Navigation Co's board of directors as elected at the recent annual meeting at Chatham, N. B., is as follows: Hon J. P. Burchill, President; J. D. Creaghen, Vice President; John McDonald, W. B. Snowball, J. D. B. F. McKenzie, Robt. Murray and R. A. Snowball.

It is announced that it was decided at a recent meeting of directors of the Nova Scotia Steel and Coal Co., to take up in a practical way the building of steel vessels at New Glasgow, or Ternton, N.S., and that the company will experiment on the matter by building a vessel for its own use.

The Nova Scotia schooner H. R. Silver, bound from St. John's Nfld. to Brazil with fish, was abandoned at sea recently, and the crew saved by the s.s. Carthaginian, and landed early in Feb. at Halifax. The vessel has been reported as a floating derelict and a menace to navigation.

The Minister of Marine and Fisheries announced in the House of Commons, Feb. 9, that regulations have been issued requiring French trawlers, after coaling at Canadian ports, and obtaining clearance, to give an undertaking not to fish within 12 miles of land, and the Dominion Government is exercising the necessary supervision to prevent breaches of such undertaking.

The Victoria Steamship Co's s.s. Victoria was burned to the water's edge, Feb. 4, while in winter quarters at St. John, N. B. There was no watchman on board, and the origin of the fire is un-

known. The loss is stated to be covered by insurance. She was built at St. John in 1897, and was equipped with machinery from the old U. S. s.s. St. Lawrence, which was taken to St. John during the civil war. For the past 18 years she has provided a service between St. John and Fredericton, but has not been financially successful. Arrangements were in progress for a change of ownership, the control having passed from St. John to Fredericton hands, with a view, it is said of selling to a U. S. syndicate. Her dimensions were, length 191.2 ft., breadth 30 ft., depth 7.9 ft.; tonnage, 1,002 gross, 631 register.

### Ontario and the Great Lakes.

The Chatham, Ont., Board of Trade is arranging to send a deputation to the Dominion Government to urge that the Thames River be dredged as far as Chatham, so that lake vessels will be able to navigate to that point.

A press report states that Canada Steamship Lines s.s. Rochester will take the place of the Northern Navigation Co's s.s. Majestic recently destroyed by fire, during next summer. The Northern Navigation Co. is a subsidiary of Canada Steamship Lines Ltd.

A. B. Mackay, formerly of R. O. & A. B. Mackay, Hamilton, who has recently been engaged in buying and selling steamships, has issued a writ against the Reid Wrecking Co., Sarnia, for the recovery of \$12,000 said to be due on an agreement of sale in connection with a vessel.

The s.s. L. C. Waldo, formerly owned by the Roby Transportation Co., Detroit, Mich., and wrecked during the storm on the Great Lakes in Nov. 1913, and abandoned as a total loss, has, after being salvaged and overhauled, been re-registered at Toronto, under the name of Riverton. She is owned by the Mathews Steamship Co., Toronto.

The Niagara, St. Catharines and Toronto Navigation Co's s.s. Garden City has had her engines overhauled during the winter. There is no confirmation of the press report that the company is negotiating for the sale of the Garden City, and for the purchase of the s.s. Rapids King from Canada Steamship Lines Ltd.

The U. S. Survey reports the levels of the Great Lakes in feet above tidewater for Jan., as follows: Superior 602.59; Michigan and Huron 579.22; Erie 571.68; Ontario 245.05. Compared with the average January levels for the past ten years, Superior was 0.62 ft. above; Michigan and Huron 0.76 ft. below; Erie 0.09 ft. below and Ontario 0.51 ft. below.

The Public Works Department has completed the dredging of a channel 22 ft. deep from the north point of Low Island, Lake Huron, west of Little Current, to deep water west of Picnic Island. The cut between the two islands is 200 ft. wide, and is to be increased to 300 ft. The channel will be marked by buoys by the reopening of navigation.

A press report from Michigan states that the U. S. Government will spend between \$100,000 and \$200,000 during the current year, on bettering the waterways, erecting lights and improving conditions generally for mariners, in the neighborhood of Keeweenaw Point. At Five Mile Point, about five miles southeast of Eagle River, a lighthouse is to be built, costing about \$75,000.

The International Joint Waterways

Commission held meetings at International Falls, Minn., at the end of Jan., to hear evidence regarding the levels of Rainy Lake and Rainy River, which, it is alleged have been lowered by the development of water power at International Falls by the Minnesota and Ontario Power Co. Evidence was also taken with the view of maintaining a regular level in the Lake of the Woods.

The Great Lakes Transportation Co., of which Jas. Playfair, of Midland, Ont., is President, is reported to have purchased the s.s. A. E. Stewart from the Stewart Transportation Co., Detroit Mich., for \$225,000. She was built at West Bay City, Mich. in 1902, of steel on the channel system with steel tank top, three watertight and two non-watertight bulkheads, steel boiler house, steam pump wells and complete electric light plant. She was built under special survey and is equipped with triple expansion engines with cylinders 20, 33 and 45 in. diar. by 42 in. stroke, 1,100 i.h.p. at 85 r.p.m., and is supplied with steam by 2 Scotch boilers, 14 by 12 ft. at 170 lbs. Her dimensions are, length 356 ft., breadth 50 ft., depth 28 ft.; tonnage, 3,943 gross, 2,049 register.

### British Columbia and Pacific Coast.

The Grand Trunk Pacific Coast Steamship Co's s.s. Prince Rupert has resumed service between Vancouver, Prince Rupert and Anxox after overhauling, replacing the s.s. Prince George, which is now being overhauled.

The Dominion Government lighthouse and buoy tending steamship Quadra, which broke one of her propeller blades recently, has been repaired at Esquimalt, and has returned to the Gulf of Georgia, where an acetylene beacon buoy is being established on the Drew Harbor spit in the Sutil channel.

The West Vancouver Ferry Co. has instructed its Secretary to offer to sell its assets to the municipality for the amount of its outstanding liabilities. It is stated that a majority of the rate-payers favor the proposal, and it is likely that a bylaw will be submitted at an early date, to authorize the purchase.

A press report from Vancouver states that the C.P.R. will put on an increased steamship service between Victoria and the north during the coming summer, owing to the heavy advance bookings for the season. The s.s. Princess Charlotte will it is said be utilized during June, which is the heaviest traffic month on this route.

At a meeting of the Port Moody, B.C., City Council, Feb. 8, a proposal, said to emanate from a group of prominent shipping interests, was discussed. It was announced that an option had been obtained on certain land with a large water frontage on Burrard Inlet, and provided certain concessions could be secured, it was the intention to locate a large shipbuilding plant there.

The St. Michael's Trading Co., Wrangel, Alaska, will operate a bi-weekly launch service between Wrangel and Telegraph Creek, during next summer. The vessels will be driven by gasoline power, and will have accommodation for about 12 passengers and five tons of freight. The service will be from the opening of navigation about the end of May, to the close of navigation early in October. The trip occupies about three days.

The Alaska Steamship Co's s.s. Mari-



posa, which was wrecked in the Lama Passage, Oct. 8, 1915, is being overhauled and repaired at Esquimalt. She was floated on Nov. 23, by the British Columbia Salvage Co., and repairs to the hull were made at Seattle, the balance of the work being undertaken by Yarrows Ltd. It is stated that the repairs will cost about \$250,000, and that when completed, the vessel will re-enter the Alaska trade.

The Grand Trunk Pacific Coast Steamship Co. announces that it will extend its service to Alaska next summer. It is stated that the service will probably be started by one of the company's smaller vessels, but during the tourist season, the steamships Prince George and Prince Rupert will be run through from Seattle, Victoria, Vancouver to Prince Rupert, Ketchikan, Wrangel, Juneau and Skagway. A tri-weekly service will be run between Seattle and Prince Rupert and a weekly service between Prince Rupert and Skagway.

**British Control of Shipping.**—An Imperial order in council has been issued providing for a more stringent control of shipping. After Mar. 1, no British vessel exceeding 500 tons, except it is engaged in the coasting trade, will be allowed to proceed on any voyage, unless a license to do so has been granted by the Board of Trade. Another order in council provides for a restriction of imports, so that a number of vessels may be released for war purposes. Almost the whole of the steamships engaged in Canadian trade are registered in Great Britain, but as these have been, more or less, engaged in war trade since the commencement of the war, it is not anticipated that they can suffer any further restriction.

**The Wire Drag** has revolutionized hydrographic surveying, says the annual report of the United States Coast and Geodetic Survey. It has long been realized that soundings with the leadline, no matter how carefully and closely spaced, were not infallible, and that submerged rocks and ledges were often missed, as has been demonstrated by numerous wrecks and frequent damage due to striking unknown rocks in surveyed waters; but with the development of wire drag hydrography, these submerged dangers have been discovered and charted.

**The Huntsville, Lake of Bays and Lake Simcoe Navigation Co's** annual meeting was held at Huntsville, Ont., Feb. 11, when the annual report was adopted. The balance remaining in hand for 1915 was carried to the credit of profit and loss, no dividend being declared. The directors were re-elected as follows:—C. O. Shaw, Huntsville, President; H. Foster Caffee, Brockville, Ont., Vice President; W. J. Moore, Huntsville, General Manager and Secretary; J. W. McKee, Huntsville, Treasurer.

**Harbor Expenditure at Port Nelson.**—Replying to questions in the House of Commons on Feb. 8, the Minister of Railways and Canals stated that expenditures on dredging, lighting and other improvements at Port Nelson, Hudson Bay, so far as his department was concerned, were, to Jan. 1, 1916, \$5,018,711.74, and estimated amount required to complete the work, \$5,000,000.

**Montreal Transportation Co. Ltd.**—The board of directors elected for the current year at the recent annual meeting, is as follows:—B. McLennan, President; Farquhar Robertson, Vice President; L. L. Henderson, Managing Director; H. A. Calvin, A. Kingman, G. L. Ogilvie and A. G. Thomson. The Secretary is W. Crawford.

### Montreal Harbor Commissioners Propose Railway Electrification.

An important feature of the Montreal Harbor Board's annual report is the section dealing with the electrification of the existing harbor railways, and the necessary future extension of the same. The report says:—"The increase in the railway traffic of the port and the mileage of trackage in operation makes it important to proceed with the utmost dispatch in establishing facilities which will not only retain Canadian trade, but which, by their superiority over those provided at competitive ports, will attract additional business. With this object in view the commissioners have, during the past year, devoted much time and thought to a study of a scheme for the complete electrification of the harbor railway terminals, visiting and inspecting in the meantime the electric freight terminals of the New York Central, Pennsylvania, and New York, New Haven & Hartford Railroads at New York, Oak Point, New Rochelle, etc., where the application of electricity had proved successful in the movement of freight at the various terminals. It was also ascertained that, in addition to the primary object of overcoming the smoke nuisance, the application of electricity had proved that it had, among many other, the following advantages over steam for railroad traction:—Economy in operation and maintenance; flexibility of control; availability for immediate service; fewer units required for equal service; elimination of corrosion of steel and galvanized iron by acid gases; fire danger reduced; and standby losses much lowered. As a result of this investigation, an expert electrical engineer has, for some time

past, been engaged in studying on the ground the railway conditions of the port, and preparing a report as to designs, types and estimates, upon receipt of which it is proposed, should the report confirm the conclusions arrived at by the commissioners, to proceed at once with the work of completely electrifying the Montreal harbor terminals, upon the consummation of which Montreal will have the distinction of being the first port in the world possessing a complete system of electrified freight terminals."

The report also deals with the question of the extension of the harbor works in order to cope with the growing necessities of the port. One part of the plans under consideration includes the erection of a bridge from the Mackay Pier to St. Helens Island and thence to the south shore of the St. Lawrence. This bridge, it is suggested, will be 90 ft. wide, providing for 2 footpaths, street railway tracks and railway tracks, the latter being electrified in the same manner as it is proposed the rest of the harbor tracks will be, and these railways will be connected up with the lines now in operation on the south shore. The proposed extension of the Bickerdike and Mackay Piers will permit the building of a railway which will give direct communication with the main shore wharves of the harbor and the two piers, instead of the traffic having to go almost up to the G.T.R. yards and the Victoria Bridge before getting to the piers.

The traffic returns show an increase of more than 15 per cent.; the total cars handled being 157,480 against 114,449 in 1914. The commissioners' railway department was organized in 1907, in which year 70,856 cars were handled. The disbursements on capital account during 1915 so far as the railway is concerned were \$145,065.93.

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

Week ending Feb. 11, 1916.	Wheat. bushels.	Oats. bushels.	Barley. bushels.	Flax. bushels.	Totals. bushels.
Fort William—					
C.P.R. ....	3,651,794	819,775	321,802	.....	4,793,371
Consolidated Elevator Co. ....	1,157,957	322,881	43,616	80,203	1,604,657
Empire Elevator Co. ....	1,544,450	475,469	110,426	171,912	2,302,257
Ogilvie Flour Mills Co. ....	940,673	198,099	58,138	.....	1,196,910
Western Terminal Elevator Co. ....	1,369,355	327,464	42,151	117,224	1,856,194
G.T. Pacific ....	3,443,331	2,055,338	126,670	114,316	5,739,655
Grain Growers' Grain Co. ....	1,518,983	617,718	173,937	.....	2,310,638
Fort William Elevator Co. ....	996,502	400,404	42,796	31,463	1,471,165
Eastern Terminal Elevator Co. ....	761,726	182,734	48,675	.....	993,135
Port Arthur—					
Port Arthur Elevator Co. ....	4,551,343	2,028,023	343,624	94,525	7,017,515
D. Horn & Co. ....	157,137	103,057	13,913	138,878	412,985
Dominion Government Elevator ....	2,125,853	876,649	105,754	76,349	3,184,605
Grain afloat ....	1,973,657	973,311	.....	.....	2,946,968
Total Terminal Elevators ....	24,192,761	9,380,922	1,431,502	824,870	35,830,055
Calgary Dom. Govt. Elev. ....	12,192	94,199	5,339	.....	111,730
Saskatoon Dom. Govt. Elev. ....	1,439,404	235,453	16,095	30,587	1,721,539
Moose Jaw Dom. Govt. Elev. ....	644,069	93,236	5,354	9,658	752,317
Total Interior Terminal Elevators..	2,095,665	422,888	26,788	40,245	2,585,586
Depot Harbor ....	147,645	.....	.....	.....	147,645
Midland—					
Aberdeen Elevator Co. ....	355,152	.....	.....	.....	355,152
Midland Elevator Co. ....	63,804	151,860	.....	.....	215,664
Tiffin, G.T.P. ....	810,165	678,494	189	.....	1,488,848
Port McNicoll ....	1,938,968	98,847	22,703	.....	2,060,518
Collingwood ....	.....	.....	.....	.....	.....
Goderich Elevator & Transit Co. ....	671,953	115,218	.....	.....	787,171
Kingston—					
Montreal Transportation Co. ....	.....	.....	.....	.....	.....
Commercial Elevator Co. ....	8,624	41,590	.....	.....	50,214
Port Colborne ....	610,751	738,301	.....	8,920	1,357,972
Prescott ....	.....	.....	.....	.....	.....
Montreal—					
Harbor Commissioners No. 1 ....	471,410	.....	.....	.....	471,410
Harbor Commissioners No. 2 ....	535,839	1,001,995	112,079	.....	1,649,913
Montreal Warehousing Co. ....	32,387	1,101,086	1,391	.....	1,134,864
Quebec Harbor Commissioners ....	57,804	26,066	3,404	.....	87,274
West St. John, N.B. ....	963,788	133,633	183,712	.....	1,281,133
Halifax, N.S. ....	.....	.....	.....	.....	.....
Total Public Elevators ....	6,668,290	4,087,090	323,478	8,920	11,087,778
Total Quantity in Store ....	32,956,716	13,890,900	1,781,768	874,035	49,503,419



# Canadian Lake Protective Association's Annual Meeting.

At the annual meeting in Toronto Feb. 3, the ex-officio Chairman, W. E. Burke, of the Canada Steamship Lines, President of the Dominion Marine Association, presided. The report, which is given in full below, was unanimously adopted. The following were elected as the executive committee: W. J. Bassett, Bassett Steamship Co.; R. Duguid, Canada Steamship Lines; G. E. Fair, Farrar Transportation Co.; Robt. Fraser, Montreal Transportation Co.; Gilbert Johnston, Canada Steamship Lines; A. E. Mathews, J. T. Mathews, Mathews Steamship Co.; W. L. Reed, Canadian Northwest Steamship Co.; J. Waller, Keystone Transportation Co.; A. A. Wright, St. Lawrence & Chicago Steam Navigation Co. The President of the Dominion Marine Association is ex officio Chairman of the Canadian Lake Protective Association.

Following is the annual report signed by A. E. Mathews, Chairman of the committee, and Francis King, Counsel for the Association.

In this brief summary of the Association's work during 1915, inasmuch as the chief purpose of the organization is to secure safe navigation and so cut down the losses due to preventable casualties, first place is given to the statement that once more the records show that no vessel enrolled has been lost within the waters over which the Association exercises any supervision. The committee is also pleased to note that the accidents which have occurred, with the exception of a few glaring cases of which special mention will be made, have been for the most part either unavoidable, excusable or of comparatively little moment. It is regrettable that the exceptions referred to mar the record, but even here one finds cause for congratulation in that the serious cases are so few in number and that in the analysis substantial fault is found to be attributable to so few of the master mariners with whom your committee has had to deal. Several lake vessels have been lost in foreign waters during the past season, but it must be noted here that these losses are purely incidental to existing war conditions, and have no bearing upon the records covered by this report, which, as will be again stated in a later paragraph, relate only to casualties occurring within the limits covered by a master's certificate for inland waters.

Weather conditions have on the whole been favorable, except during the late autumn, when heavy gales prevailed. But water has been low and a number of accidents are attributable to this cause. In the St. Lawrence this may have been particularly noticeable and draft permitted has in some cases been restricted to less than the customary canal limit.

An appendix sets out the casualties of the year under the usual headings. Strandings and groundings have again been grouped together according to the method adopted by the committee of 1914, and together they number 28, an increase of 10 over 1914. Under this heading are to be found all the serious casualties reported for the year, excepting one of grave moment which appears in the list of collisions, and one or two fairly serious but not so culpable in connection with locking in the canals. Of these 28 groundings or strandings, one at the opening of navigation in the Kaministikwia River was stated to be due to ice formed on the steamer's bottom during the winter, one was on a submerged obstruction close to a harbor dock, one was

a rubbing contact in the Rapide Plat of the St. Lawrence, one was a similar contact with the Maxwell Shoal in the St. Lawrence marked on the charts as having been removed, several of a similar nature and on account of low water conditions occurred in other narrow channels, five of comparatively slight importance were in the canals or canal approaches, one was a deliberate beaching of the ship at the difficult upper entrance to the Morrisburg Canal for the purpose of avoiding collision with an upbound tug and tow, and one was a deliberate beaching in a gale to avoid foundering when the ship sprang a leak which could not be controlled.

In addition to the above the list of groundings contained one or two cases of varying importance due to fog. The records are faulty in two cases in which the masters, having been summarily dealt with by owners, failed to report to the Association. The default of the master and the owner's action in each case has been noted in the records and may be considered later as occasion arises. A peculiar case that received special consideration and resulted in much correspondence and finally in a vote of censure was a stranding on Blake Point Shoal, Lake Superior, due to Blake Point gas buoy being mistaken for Passage Island Light which was not yet burning at the date of the accident. A stranding on Drummond Island eight miles east of Detour on a course from the Ducks is still under consideration. The remaining cases of special importance were strandings on Niagara Shoal in Lake Ontario, on Gull Island Shoal below Clayton in the St. Lawrence River, on the Olympia Shoal between Kingston and Knapp's Point in the St. Lawrence, and on a shoal adjoining Red Island off the mouth of the Saguenay River. All these four cases were considered quite inexcusable and votes of censure have been recorded against master or pilot. Wreck investigations have been held by the Dominion Wreck Commissioner in two of these cases and his judgments contain severe condemnation of the pilots. In one of the four cases an investigation asked for has only been delayed by the absence of the master, who left the lakes on one of the boats which went into the ocean trade.

The list of collisions, numbering 15 as against 23 in 1914, includes five cases of but slight importance which occurred in making landings at or moving near docks, seven involving comparatively light damage in one or other of the canals when with one unimportant exception steamers enrolled in this Association come in contact with dredges, scows, buoys or other vessels of outside classes, and two more of equally slight importance, one with an anchored schooner improperly lighted and one with a motor launch, in the rivers. In no one of these 14 cases referred to did your committee impute blame to the master, and in accordance with the settled rule in the one case involving two vessels enrolled in the Association consideration was deferred pending negotiation between the owners. The 15th case, however, was no light matter and on the contrary its serious character is a blot on what would have been an exceptionally clean collision record. On July 12, in a dead calm, about six miles off Presqu'île in Lake Huron, the Wahcondah rammed and sank the whaleback Choctaw while going full speed in a dense fog. There seem to have been no redeeming features

in the manoeuvres to avoid the impending collision or in the subsequent efforts to rescue the crew of the Choctaw, all of whom were nevertheless fortunately able to take to their boats and were ultimately picked up by the Wahcondah. The master of the Wahcondah was censured and brought before the Wreck Commissioner, with the result that his certificate was suspended for the remainder of the season.

There are 10 cases of canal damage reported, due to striking walls or gates. In one only were gates broken by a vessel enrolled in the Association. The case well exemplified the risk run through the failure of the canal authorities to equip the gates with safety devices. On May 3 the Rosemount, snubbing in ordinary course and in the usual manner in a lock of the Lachine Canal, touched the headgates by reason of the steel snubbing cable slipping in the steamer's compressor. Forced but a few inches out of mitre, the headgates fell back under the head of water above, and the Rosemount was swept out of the lock, serious damage being only averted by prompt action of the master, who brought the ship up on her anchors. The committee passed this case without censure, but in one other in which the steamer's engines, ordered astern, were put ahead, an engineer was censured. Fortunately in this case no serious damage resulted. The other eight cases were passed, after due consideration of each, making allowances in every case for the peculiar difficulties attendant upon canal navigation and especially for those due to the cross currents developed by waste weirs and power sluices. In none of the 13 cases also reported relating to contact with docks, bridges, and harbors and channel banks was the damage serious and in each of these cases the committee believed the circumstances such that no fault could be attributed to the navigator.

To review, after giving careful consideration to each case as it arose, the committee passed them all except the one collision above particularly mentioned, one striking of lock gates, and eight of the strandings or groundings. Nine votes of censure were recorded, three upon masters engaged as such, four upon masters engaged on lake vessels as pilots or sailing masters, one upon a mate, and one upon an engineer, while in three cases, through the Wreck Commissioner's Court, penalties were also imposed by way of suspension of certificates; in one case that of a master engaged as such, in one case that of a mate, in one case that of a master engaged as sailing master on a lake vessel. One serious stranding is still under consideration.

It devolved upon your committee to deal also with some six or seven reports relating to 1914 casualties which had either been held over during that year pending investigation of circumstances, or were filed after the close of the season too late for consideration and final action. These were in due course considered and all were passed with the exception of one case in which a vote of censure was recorded against the master on account of the absence of a certificated officer from the bridge when the ship grounded while making a bend in the St. Mary's River.

These casualty reports constantly raise questions as to the need of improvement or alteration of conditions with relation to currents, depths, obstructions or aids



to navigation and they form a fruitful source of information and suggestion with regard to all the travelled routes. The committee has endeavored to make good use of suggestions received in this way and has brought to the attention of the authorities whatever information or recommendations it seemed proper to present from time to time. In four cases where obstructions were reported arrangements were made for sweeping of channels and the necessary removal of boulders or other deposits. In certain other cases buoys were found to be improperly placed and their rearrangement with the addition of necessary extra spars was brought about. The plea of a master that no information is available at the Canadian ports at the head of the lakes as to the dates of lighting or discontinuing aids to navigation maintained by the United States led to correspondence with a view to having definite information in this respect furnished to The Lake Shippers Clearance Association at Fort William. Steps have also been taken in the hope of having Harbor Beach, Lake Huron, improved so as to permit its use as a harbor of refuge by vessels of any draft.

The canal casualties in particular have led to renewed efforts to improve conditions. The records by no means indicate the real extent of the damages received in canalling, and it would appear that masters continue to refrain from filing reports regarding their slighter accidents and the less embarrassing difficulties they encounter, but the reports filed indicate clearly enough the urgent need of various improvement for which this Association has repeatedly asked. The installation of comparatively simple and inexpensive devices would go far to lessen or prevent the difficulties complained of, and your committee has on several occasions during the season filed recommendations accordingly at Ottawa.

An urgent petition has been presented asking for attention to previous requests for the adoption of means to prevent lock gates from giving way under water pressure when forced slightly out of mitre. Very recently the matter has been followed up by letters to the superintendents of the various canals asking for a free expression of opinion and advice regarding the practicability of the proposal and as to the best method to adopt. The committee suggest that the answers received and the information already referred to in correspondence be made use of by a deputation in personal interview with the Minister and officials of the Department of Railways and Canals at Ottawa. The committee has also renewed the request for protection of lock entrances by clusters of spring spiles, floating booms or other devices, and as the recommendation has apparently received no attention it should also be discussed with the authorities at the proposed interview. Casualties arising from cross currents and low water in the canals have in some special instances revived complaints and correspondence during the past season, but apparently these questions must be dealt with chiefly in connection with the general discussion of power development, as to which a better and more definite understanding with the Dominion Government is being urged by the Dominion Marine Association.

Perhaps the most startling instances of the inadequacy of the protection given vessels in the canals is found in the system or lack of system in lighting lock gates at night. By a custom now practically universal, bridges when closed to navigation show a red light to approach-

ing vessels. One would expect a light of the same color to be exhibited to an approaching vessel on every pair of lock gates when they are closed against the ship. But while the red light is found in use on some of the canals it is found exhibited on the closed gate visible upstream and downstream at the same time with the apparent intention that a vessel approaching from either direction may distinguish which pair of gates, upper or lower, is closed, but with the result that an approaching pilot is not always able to distinguish readily which pair of gates carries the light. Again in other canals a white light is used and not always in the same position, and in some the light is merely carried out of the lock house on to the canal bank. The lack of uniformity in method is serious and the opportunity for trouble to arise through error or neglect of operators is all too apparent. The matter was called prominently to the attention of the committee by an accident in one of the canals this season which led to some dispute as to the proper character and location of the signal light, and the committee after investigation recommended to the Department the simple expedient of placing a red light, screened on three sides, on the top of the outer end of one of each pair of gates, to be visible only upstream on a pair of closed head gates, and only downstream on a pair of closed footgates, and invisible up or downstream when the gates are open. The absence of a red light would then indicate to an approaching vessel that the lock is open, while the presence of a red light must prove it closed. It is important that this recommendation should be pressed further upon the attention of the authorities.

The one serious collision which involved a vessel of this Association during the season, occurring as it did in mid-lake, causing the total loss of the other ship and almost entailing serious loss of life, revived discussion of the double courses in Lake Huron and led your committee finally to recommend to all masters of boats enrolled in the Association the adoption of the exact courses recommended to masters of ships enrolled in the sister association of the United States. In this connection the committee also took up the question of double courses for Lake Superior, suggesting that for that lake the courses in fog be laid east and west of Caribou Island. The Great Lakes Protective Association, to which the suggestion was submitted because of the entrance of U. S. tonnage into this trade at certain seasons of the year, recommended that the proposed courses be used in all weathers. The committee determined to consult masters on the subject before coming to any conclusion. Of the answers received, only one agreed in the proposal. The great majority objected strongly, alleging a variety of reasons, chief among which were the invisibility of Caribou Light to the eastward, and the suggestion that the inconvenience and loss of time would have no real compensating advantages. Under the circumstances your committee has not pressed the suggestion and at its last meeting determined to drop the proposal.

The stranding of the Glenmount on Gull Island Shoal below Clayton, N.Y., and the subsequent wreck investigation in which the pilot was severely censured, proved the inadequacy of the means adopted in 1914 to bring the pilots of the Upper St. Lawrence under the jurisdiction of the Wreck Commissioner. The regulation adopted during 1914 by this Association required that no one should

be engaged as a pilot for these waters unless he held a certificate as master which would be subject to suspension or cancellation by the Commissioner. But in the Glenmount case the Commissioner, while not sparing the pilot in his comments upon the navigation of the ship, nevertheless held that he could not impose a penalty on a man who was not "an officer of the vessel." The matter was later discussed by the Counsel for the Association with the Deputy Minister of Marine and by the Deputy Minister with the Department of Justice, and in the end with the consent of the Department, the committee recommended that these pilots must not only comply with the previous requirements as to holding master's certificates but must also be signed on the ship's articles as mate and pilot.

The officers of three vessels enrolled in the Association were under examination in the Wreck Commissioner's court this season. In the Glenmount case above mentioned the master was absolved and the pilot found in fault. The latter's certificate was not dealt with for the reason mentioned in the preceding paragraph. In the case of the Haddington, which grounded at Red Island off the mouth of the Saguenay, the regular officers of the ship were also absolved but the sailing master engaged for the lower St. Lawrence and Gulf was censured and his certificate suspended for six months. The third case was the Wahcondah-Choctaw collision and, as stated elsewhere, severe censure was passed upon master and mate of the Wahcondah and their certificates were suspended for twelve and six months respectively.

The insurance rate for 1915 risks was substantially reduced and policies contained some new concessions. It is understood that the standard rates paid on steel hulls covering to the foot of Lake Erie for a period of one year with a navigating season from April 15 at midnight to Nov. 30 at midnight was 3¼ per cent. The usual extra ½ per cent. for the season was charged for navigation not east of Kingston, with a further ½ per cent. for navigation not east of Montreal, while an additional ½ per cent. was charged for navigation as far as Cape Breton. A new and welcome provision in the policies this year extended the sailing season up to December 12 at midnight on payment of an additional 1 per cent., and permitted a boat to make a one-way trip after Nov. 30 at the following fractional charges:—Sailing up to midnight Dec. 5, ½ per cent.; sailing up to midnight Dec. 8, ¾ per cent.; sailing up to midnight Dec. 12, 1 per cent., or to make a one way trip on one lake after Dec. 12 at ¼ per cent. additional. The policies also gave the new privilege of navigating from April 1 to 15 in the ensuing season of 1916 at pro rata of the season rate.

Recently the committee has again had under consideration the form of the policy and has taken action by way of protest against the deductible average clause, recommending to underwriters that the clause serves no good purpose and that its omission from the policy would be in the best interest of all parties. The committee also recommended to underwriters that the layup rebate clause should be amended to provide for additional proportionate rebate for any number of days in excess of the 15 day period covered by the clause. Brokers have been advised of these recommendations and asked to assist.

On account of the withdrawal of a great number of boats from ordinary trade routes by the exigencies of the war,



quite a number of vessels enrolled in this Association left the lakes during 1915 to engage in trade on the ocean, some of them going under charter along the Atlantic coast and as far in some cases as the coast of South America, while others crossed the ocean and in some cases engaged more or less permanently in European trade. A considerable number of these vessels returned to the Great Lakes for the fall trade, not only because of the ordinary inducements in that trade, but also because the Minister of Trade and Commerce raised the question of the possibility of shortage of Canadian tonnage on the lakes and consequent suspension of the coasting laws. A considerable number remain at sea and five unfortunately have been totally lost, one of them having been torpedoed, one not reported, two foundered, and one stranded in the West Indies. Questions arose naturally as to the extent of the jurisdiction this Association should exercise under these circumstances, and underwriters having also made enquiry on the subject, the committee decided at a meeting in Toronto on Aug. 11 that the Association should deal only with casualties occurring within the limits covered by certificates issued to masters for inland waters. No doubt all members of the Association will concur in this at the annual general meeting.

The bulletins issued in 1915 have been sent to all masters of enrolled steamers, to all members of the Association, and to the various underwriters and brokers interested. Circular letters have been issued to members as occasion arose, and a mass of correspondence has been conducted regarding the special questions raised by the casualty reports and in connection with the various other matters referred to in the foregoing paragraphs. No general meetings have been held since the annual meeting as the matters dealt with have been all within the powers of the committee. Members of the Association have nevertheless been kept advised of special action taken at any time, and have corresponded fully on subjects of special or general interest. If all would make full use of the privileges of membership and co-operate with the officers by suggestion and advice as to the conduct of the Association's work, it would be of great advantage to the undertaking.

Special benefits will come from strict compliance with the rule as to filing reports and all members are asked to see that their masters are supplied with forms and use them on all occasions. This is a matter peculiarly within the power of the management of ships, and co-operation in this respect is essential. Owners receiving reports should also see that they are promptly filed with the Association and should themselves send in notice where for any reason the master is known to have failed or to be likely to fail in complying with the rule.

**ANALYSIS OF ACCIDENTS REPORTED, 1915.**

Groundings . . . . .	28
Collisions . . . . .	15
Striking locks or gates . . . . .	10
Striking bridges, docks, piers and harbor and channel banks . . . . .	13
Accidents to machinery or other gear through stress of weather or otherwise . . . . .	9
Damage by ice . . . . .	1
Watchman killed . . . . .	1
<b>Total . . . . .</b>	<b>77</b>

**Groundings.**

St. Lawrence canals . . . . .	4
St. Lawrence River . . . . .	9
Lake Ontario . . . . .	3
Welland Canal . . . . .	2
St. Clair River . . . . .	2
Lake Huron . . . . .	1
Georgian Bay . . . . .	1
North Channel . . . . .	1
Straits of Mackinac . . . . .	1

St. Mary's River . . . . .	1
Lake Superior . . . . .	2
Kaministikwia River . . . . .	1
<b>Total . . . . .</b>	<b>28</b>
<b>Collisions.</b>	
Harbors . . . . .	4
St. Lawrence canals . . . . .	6
Welland Canal . . . . .	2
Detroit River . . . . .	1
Lake Huron . . . . .	1
St. Mary's River . . . . .	1
<b>Total . . . . .</b>	<b>15</b>
<b>Striking Locks or Gates.</b>	
Lachine Canal . . . . .	1
Cornwall Canal . . . . .	4
Morrisburg Canal . . . . .	1
Welland Canal . . . . .	4
<b>Total . . . . .</b>	<b>10</b>
<b>Striking Bridges, Docks, Piers and Harbor and Channel Banks.</b>	
Bridges . . . . .	2
Docks and piers . . . . .	8
Banks . . . . .	3
<b>Total . . . . .</b>	<b>13</b>
<b>Accidents to Machinery or Other Gear Through Stress of Weather or Otherwise.</b>	
(All in open water in one or other of the Lakes) . . . . .	9
<b>Ice Damage.</b>	
Lake Superior . . . . .	1
<b>Watchman Killed.</b>	
St. Lawrence River . . . . .	1

Correspondence was read regarding alterations asked for in the 1916 marine insurance policy with respect to the deductible average and layup rebate clauses and the matter was referred to the executive committee for the current year.

**Dominion Marine Association's Annual Meeting.**

The annual meeting was held in Toronto Feb. 3, the President, A. E. Mathews, of the Mathews Steamship Co., in the chair. The executive committee presented a comprehensive report over the signatures of the President and of the Counsel, F. King, showing that the tonnage enrolled continues to increase, the steam tonnage being now over 210,000 net registered tons against about 200,000 tons in 1914, although naturally enough the barge or sailing tonnage shows some slight decrease, the figures being just over 32,000 as against 33,500 in 1914. The report dealt in full detail with the past year's work, including the following subjects: Legislation; Canada Shipping Act; bill to place carriers by water under Board of Railway Commissioners; Seamen's Bill, United States; grain cargoes, discrepancies in weights and the bill of lading; amendment of the Grain Act; trimming of cargoes; elevator hours; coasting laws; sessions of the Grain Commission; rules of the road, piloting on the Upper St. Lawrence; U. S. customs report of entry into Lake Michigan; masters for British registered ships in the coasting trade; competition of unregistered and unlicensed small craft, including motor boats; screening of bituminous coal in bond; power development; the canals, New Welland Canal, Lake Ontario entrance, Morrisburg Canal upper entrance, lighting of the Cardinal Canal, military regulations for canal protection, bulletin boards, general improvements; harbor and channel improvements, Kaministikwia River, channel at Algoma Central dock, Little Current, Goderich Harbor, Port Colborne Harbor, Port Dalhousie, Port Weller, Trenton Harbor, Kingston Harbor, St. Lawrence River, Lachine cut; aids to navigation; new school of navigation; lake vessels in ocean trade, general business, membership and tonnage. The report was unanimously adopted.

It was decided that the executive com-

mittee seek a continuance of the method of adjustment of grain cargo outturns in force during 1915.

The question of trimming arrangements at Fort William, including that of installing mechanical devices, was referred to the executive committee with a request for prompt action. The President announced the withdrawal of the trimming charges at Port Colborne.

The question of procuring authority to sign river pilots on ships' articles in advance of their boarding the vessels, and if possible for a number of ships and for considerable periods, was referred to the Canadian Lake Protective Association with request for action and with the suggestion that the Association's counsel discuss the matter with the Marine Department and endeavor to procure a favorable ruling upon some practical method.

The competition of unlicensed motor boats and other small craft was discussed and it was decided to request the speedy enactment of the provisions of the bill to amend the Canada Shipping Act, which would to some extent provide the desired remedy.

The decided opinions of the Association previously expressed at various times, are to be again presented to the Dominion Government, in the general terms that no water should be diverted from the St. Lawrence River for power purposes unless in accordance with some comprehensive scheme for the development of the whole river worked out by commission or otherwise, and that the interests of navigation be consistently treated as paramount.

The executive committee was asked to seek an interview with the Minister of Marine and to urge upon him the installation of safety devices on lock gates, spring spiles or guiding booms at lock entrances and properly adjusted automatically operated signal lights on lock gates, as recommended in the report.

A resolution from the Kingston Board of Trade, calling attention to the need of immediate preparation of Kingston harbor, to accommodate vessels which will pass through the Welland Ship Canal, and asking the Association to assist in bringing the matter before the Government, was approved and the executive committee was asked to petition for surveys, plans and proposals and for such further action as the Government may feel able to take.

The President reported upon the new 14 ft. Canadian channel through the Thousand Islands and presented plans of the same. It was decided to congratulate the authorities upon the completion of the undertaking. Later in the day the Canadian Lake Protective Association agreed to endeavor to bring about the use of this channel and to co-operate in testing it and proving its practicability.

Four members of the executive committee retired by effluxion of time, namely, L. Henderson, Montreal Transportation Co.; G. E. Fair, Farrar Transportation Co.; H. H. Gildersleeve, Northern Navigation Co., and H. W. Richardson, Great Lakes Transportation Co. Messrs. Henderson & Fair were re-elected, and James Playfair, Great Lakes Transportation Co., and J. F. M. Stewart, Lake Commerce, Ltd., and Point Anne Quarries, Ltd., were elected to succeed Messrs. Gildersleeve and Richardson. The other members of the committee are as follows: Term expiring in 1917—H. W. Cowan, Canada Steamship Lines; C. B. Harris, Canadian Lake & Ocean Navigation Co.; W. J. McCormack, Algoma Central Steamship Co. (who was elected to succeed S. V. McLeod, who is on active



military service); A. A. Wright, St. Lawrence & Chicago Steam Navigation Co. Term expiring in 1917—A. E. Mathews, Mathews Steamship Co.; W. L. Reed, Canadian Northwest Steamship Co.; D. Murphy, Ottawa Transportation Co.; W. E. Burke, Canada Steamship Lines.

The executive committee elected the following officers: President, W. E. Burke, Canada Steamship Lines; First Vice President, G. E. Fair, Farrar Transportation Co.; Second Vice President, A. E. Mathews, Mathews Steamship Co.

The following were elected as a committee on aids to navigation. A. A. Wright, St. Lawrence & Chicago Steam Navigation Co.; Robt. Fraser, Montreal Transportation Co.; Gilbert Johnson, R. Duguid, Canada Steamship Lines; James Playfair, Great Lakes Transportation Co.; J. F. Sowards, Kingston, Ont.; A. E. Mathews, Mathews Steamship Co.

### Among the Express Companies.

J. H. Whitehouse has been appointed agent, Dominion Ex. Co., Cranbrook, B.C., vice C. Potter, transferred to the messenger service.

E. J. Wearing, who has been acting General Agent, Canadian Ex. Co., Liverpool, Eng., since the death of W. Cuthbertson, has been appointed General Agent.

The Canadian Northern Ex. Co. has placed its service in effect over the Canadian Northern Ry. from Luxton to Estevan, Canora to Sturgis Jct., Elrose Jct. to Dumblane, Elrose to Eston and Laird to Carlton, Sask.

The Assistant Adjutant and Quarter Master General of the Canadian Training Division at Shorncliffe, England, has written the Canadian Ex. Co., in complimentary terms regarding the handling of parcels for the troops at that point.

The Canadian Northern Ex. Co. has opened offices at Bolger, Caramat, Devlin and Mowat, Ont.; Amaranth, Man.; Bienfait, Dumblane, Estevan, Eston and Plato, Sask.; Carrot Creek, Alta., and Ashcroft, Langley, Lytton and Matsqui, B.C.

The Toronto City Council is asking that the matter of the extension of express collection and delivery limits for the city, which has been before the Board of Railway Commissioners for some time, be taken up, and the Board requested to expedite a judgment.

The Dominion Ex. Co. has opened offices at Dragon, Que.; Nicholson, Ont.; Storthoaks, Man., and Portreeve, Sask.; and has closed its offices at Penfield and Jardine Brook, N.B.; Burnside, Oberon and Stockton, Man.; Yeomans, Sask., and Edgewood and Westholme, B.C.

The British Government has dropped the case against E. Wienacht, formerly Manager, Adams Ex. Co., London, Eng., for trading with the enemy. The charge was that he had transferred about 5,000 marks from London to the company's agent at Hamburg, Germany. For the defence it was claimed that the transaction was completed at Rotterdam, Holland, and that the intention in transferring the money was to utilize it in Holland, as it was worthless in England.

The Canadian Ex. Co.'s receipts and expenditures for Sept., 1915, compared with those for Sept., 1914, are as follows:

	1915	1914
Mileage covered .....	10,238	9,676
Charges for transportation....	\$374,451	\$296,134
Express privileges, Dr. ....	197,200	150,184
Operation other than transportation ..	4,881	5,187
Total operating revenue .....	182,132	151,137
Operating expenses .....	144,075	132,607
Net operating revenue .....	38,056	18,529
Express taxes .....	4,200	4,000
Operating income .....	33,776	14,529

The American Ex. Co. has readjusted its divisions in New England states and Quebec, as follows,—all offices in Maine hitherto in the Massachusetts division, now constitute the Maine division; all offices in New Hampshire hitherto in the Massachusetts division, now form the Vermont, New Hampshire and Quebec division; all offices in Massachusetts and Connecticut, hitherto in the Vermont, New Hampshire and Quebec division, now form the Massachusetts division; and American Ex. Co. and National Ex. Co. offices in Greater Boston form the Boston division.

### Telegraph, Telephone and Cable Matters.

The Great North Western Telegraph Co. has opened offices at Bas les Eboulements, Capucins, Daquam, English Lake and Les Eboulemants wharf, Que.; Amaranth and Fisher Branch, Man., and Plato, Sask., and has closed its office at Parry, Sask.

Belvidere Brooks, Vice President Western Union Telegraph Co., died suddenly at New York, Feb. 10. He was born at Wheelock, Tex., July 6, 1859, and entered Western Union service in 1879 as an operator.

The Montreal Telegraph Co.'s report for the past year gives the total assets as \$2,311,683. Cash, accounts, receivable and securities make up \$159,859 of this amount. The lines are operated under lease by the Great North Western Telegraph Co. The excess in value of property operated by the G. N. W. T. Co. over shareholders' capital is given at \$151,895.85.

The Anglo-American Telegraph Co. has paid a balance dividend of 1½ per cent. on the ordinary consolidated stock, for 1915, making a total dividend of 3¾ per cent.; a balance dividend of 1½ per cent. on the preferred stock, making a total of 6 per cent. for the year, and a first and final dividend of 1½ per cent. on the deferred stock. In addition, a bonus of 1s. 9d. per cent. on the undivided ordinary stock and 3s. 6d. per cent. on the deferred stock, was declared payable Feb. 1 to shareholders of record at Dec. 31, 1915.

Various reports from different sources state that seven of the telegraphic cables connecting America with Great Britain have been cut recently, and that this has caused some delay in the transmission of messages, by overloading other cables. This report has been denied by several of the companies interested, and they also state that any delay which may have occurred has been caused by general congestion of business, which caused the temporary suspension of deferred messages at lower rates, which latter have now been resumed.

Questions asked in the House of Commons, Feb. 10, relating to the suspension of deferred cablegrams with Great Britain, elicited the information that the Western Union Telegraph Co.'s rates for soldiers cabling from Europe were not interfered with, and the suspension of deferred rates and week end messages from Canada had been cancelled. The Commercial Cable Co. accepts no deferred or week end cables to or from Canada, but soldiers messages are not interfered with. The Marconi Wireless Telegraph Co. suspended all deferred and week end rates, the special rate for soldiers still being in operation. The Anglo-American Telegraph Co. is not accepting deferred cables for dispatch from Europe, but is receiving such matter from Canada. The Board of Railway Commissioners announced that the C.P.R. had announced its inability to accept deferred cables, and this resulted in the business being turned over to the Great North Western Telegraph Co. and the Marconi Wireless Telegraph Co., and these latter companies were unable to handle it. For this reason they temporarily suspended the acceptance of these cables, but since Feb. 1, the G.N.W.T. Co. has accepted them. The Board of Railway Commissioners has no authority over cable or wireless telegraph companies operating across the oceans.

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