Canadian Railway and Marine World

February, 1914.

National Transcontinental Railway Car Shops at Transcona.

The locomotive department buildings of the main repair shops which the National Transcontinental Ry. Commission is building at Transcona, Man., were described in Canadian Railway and Marine World for Feb., 1912, previous to which there appeared several progress articles. The locomotive buildings have since been placed in service by the Grand Trunk Pacific Ry. The development of the plans for the car department buildings was delayed for some little time on the change in Government in 1911, and in consequence, while the plans for the buildings themselves were prepared some time ago, and in most cases the buildings completed, it was only quite recently that Transcona shops for the additional service of handling all repairs on the western lines for a considerable time to come at least. The G.T.P.R. took possession of the locomotive department buildings early last year, and is handling at Transcona all the repairs on its lines now in operation.

The site of the shops is on the open prairie, and in order to avoid trouble from flooding by spring freshets, and to secure a better surfacing than that afforded by the prairie soil, the site level has been raised about 4 ft. over the entire area occupied by the buildings, by a heavy gravel fill.

The various buildings have been grouped together as closely as possible to facilitate intercommunication during the severe winter, the intervening distances being made as short as practicable, bearing in mind the advisability of future extensions. The accompanying isometric projection, fig. 1, shows that this feature has been very successfully developed, when it is remembered that the designers had in mind the future extension of the majority of the buildings upwards of 100%, without disturbing the general scheme. The total area of the combined shops will be about 17 acres.

The main buildings are arranged along a midway, which runs across the shop site from the public road to the locomotive house and freight yard adjoining the main line, and are served by a series of standard gauge and industrial tracks, the former connecting through the rear of the buildings to a ladder track at each end of the grounds and thence to the yards, and the latter with industrial tracks along the central midway. Additional intercommunication is obtained through an overhead 10 ton electric travelling crane, which runs the full length of the midway, connecting the front ends of all the main buildings. This crane is electrically operated, and the operator's cage is electrically heated by a heater of the street car type. All exposed parts of the crane are projected by hoods in the usual manner. Wherever possible, the steel runways are carried on abutments from the shop buildings, and the intervening steel columns are carried on concrete piers.

As shown in the isometric projection, the car department buildings are to the north,

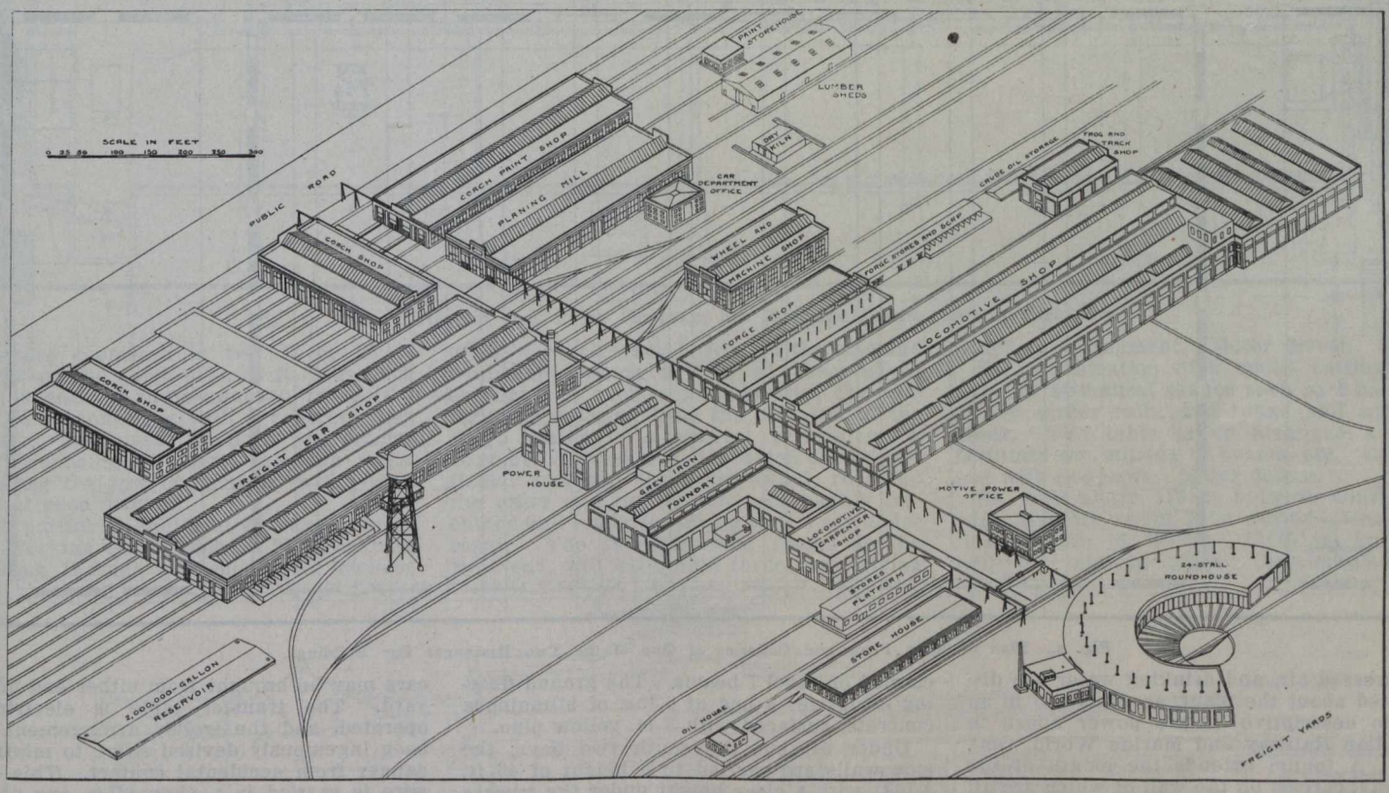


Fig. 1. Isometric Projection of Locomotive and Car Department Buildings, National Transcontinental Railway

the interior arrangement, including the machinery installation, was completely decided on prior to calling for machinery tenders. The plans as originally prepared were revised by W. J. Press, Mechanical Engineer, N. T.R., which involved considerable rearrangement and the selection and installation of machinery, was also carried out under his supervision.

The shops are located in Transcona, six miles east of Winnipeg, on the N.T.R. main line. In conjunction with the shops being built by the Commission at Quebec, a preliminary description of which appeared in Canadian Railway and Marine World for Sept., 1913, they were designed to handle the repairs on the whole 1,800 miles of line from Moncton to Winnipeg. The G.T.P.R., in the construction of its section of the transcontinental line from Winnipeg westerly, did not build any shops, and will use the

and the locomotive department to the south, the midway passing through each group of buildings. The divisional line is the through running track to the north of the power house, the latter being as centrally located as possible to reduce power and heat transmission losses to a minimum, as will be shown later in the article. The foundry and forge shop, being common to both groups, are located in a midway position, with the distinctively departmental buildings to the north and south.

The larger buildings of both groups are of steel construction, with self supporting steel frames on concrete foundations, with concrete walls carried up to the window level. The balance of the superstructure masonry is brick, carried up into a parapet wall all around the building, and capped with concrete coping. The roof drainage is carried down inside the building from re-

ceiving hoppers in the roof, and through running traps to the sewers. All the large buildings are covered with a built up roofing, composed of felt and asphalt, covered with gravel. All windows throughout the plant have ⅛ in. thick ribbed glass, and the skylights are glazed with ⅜ in. wire glass. As additional protection against heavy snow loads on the roof, the skylights are carried on steel ribs, with rolled copper sheathing to carry the glass. Copper is used throughout for all flushing gutters and ventilators.

Mercury arc lights are being used for the principal interior shop illumination, with lamps and reflectors hung high in the shops. This form of illumination is satisfactory, giving an easy, even light, with no sharp shadows. In addition, there will be plug receptacles in all the buildings, at frequent intervals, for the attachment of cable lights. Daylight illumination is especially well provided for by ample window areas, and wide skylights, giving a maximum interior light distribution. The interior of all the shops will be finished in white, enhancing the interior lighting arrangements.

High and low pressure steam, and water, tracks, one between each pair of shop tracks, and along each side, a 16 ft. gallery. In the scheme now under construction, the transfer table type of construction has been adopted, located on the west side of the midway, at the north end, with the easterly of the two shops adjoining the midway. The two shops will each be 120 by 200 ft., with an intervening 75 ft. transfer table, and 100 ft. approach tracks to the buildings, which are therefore 275 ft. apart. Each shop will have 9 working tracks, in as many bays, at 20 ft. centres, with an additional empty bay at the north end of the building.

The shops are the standard construction, of concrete lower wall, carrying a brick upper wall, spanned by steel trusses in the divisional line of each bay. Each bay is entered by double doors from both sides, through 12½ by 16½ ft. openings. Both ends of the buildings have galleries, that at the north end, 14 ft. above floor level, and extending over one bay, and that at the south end 24 ft. 8 ins. above the floor, extending over two bays. Both platforms are carried on the walls and 5 steel columns in the line of the truss above, and are composed of 4 in. reinforced concrete flooring

The east end of the north balconies carries a 12 ft. heating fan, the discharge duct from which leads down to a 5 ft. square concrete heating duct under the floor, extending across the north end of the shop, with longitudinal ducts of similar construction, leading off along each side wall, and along the central row of columns, all under the floor. In the side walls, between each of the doors, there is an outlet moulded in the concrete wall, and along the central row of columns, between each bay, there is a double discharge head. The north balcony also contains the lavatory, which is located on the west end. Both galleries are reached by stairs, centrally located in the end walls, but the south balconies in addition have a 6 by 10 ft. lift, of 2 tons capacity, situated between the two end bays, near the east side. The natural illumination of the shops is good, as in addition to the skylights, there is ample window accommodation in the doors and end walls.

Cars are brought into the shop over the transfer table, which operates the length of the shops, and extends beyond the north end to a through track along the north side of the grounds, over which the passenger

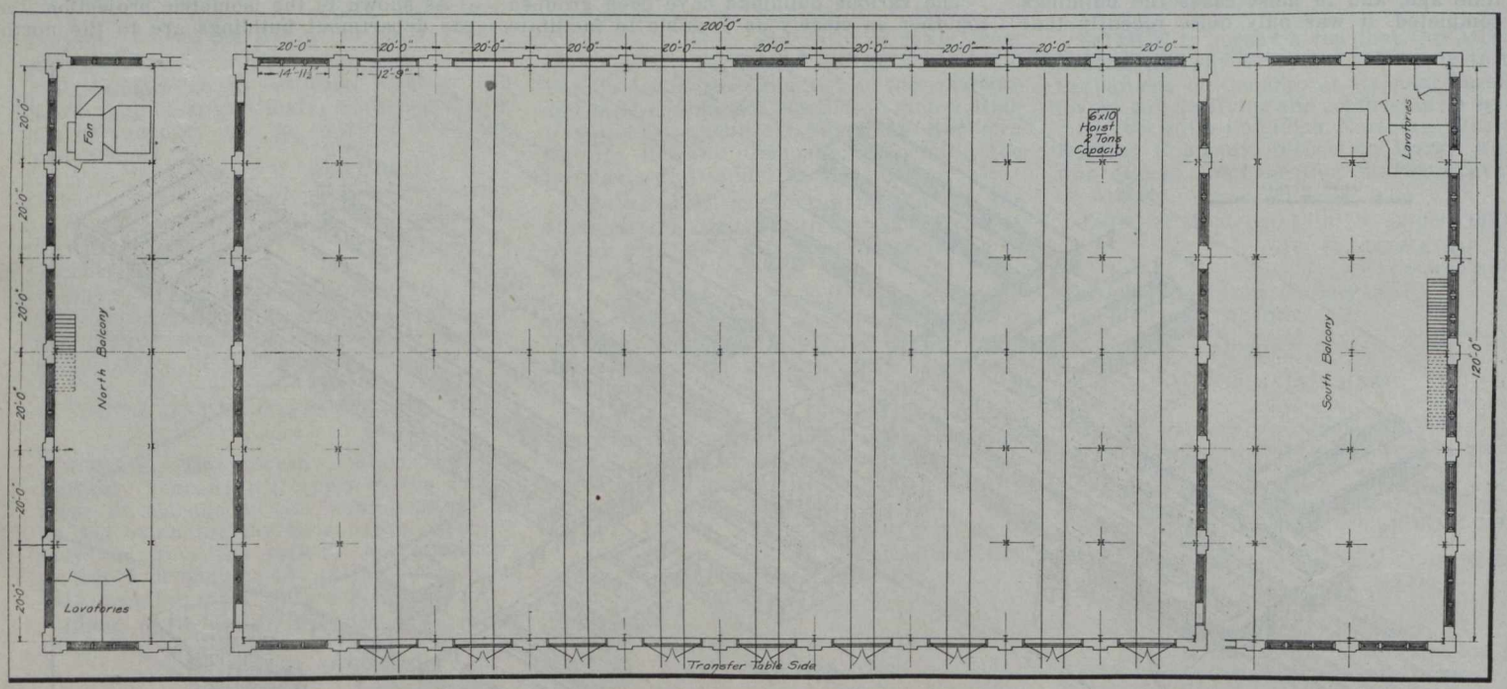


Fig. 2. Plan of Main Floor and Galleries of One of the Two Passenger Car Buildings.

compressed air, and drinking water are distributed about the plant, as explained in an article descriptive of the power house in Canadian Railway and Marine World, Oct., 1913. A tunnel extends the length of the midway, carried on the wall of which are all the mains from the power house, with connections leading from the tunnel to the various shops. On entering the buildings, the piping is carried on the trusses and steel work of the shop. Fuel oil is distributed in piping to such shops as require it. An extensive fire protective system is in use, comprising yard piping, with fire hydrants and hose houses at convenient intervals throughout the grounds. All the electric travelling cranes throughout the shops are operated on 3 phase alternating current, which is transmitted directly from the power house.

The Passenger Car Shop differs from the arrangement in the initial layout, which comprised one building, 115 by 260 ft., on the west side at the north end of the midway, and had four working tracks the length of the shop, each of which could accommodate four cars, making a capacity of 16 cars. There were also to be two service carried on steel I beams. The ground flooring comprises a bed of 6 ins. of bituminous concrete, surfaced with 3 in. yellow pine.

Under all but the south two bays, the side walls are carried to a height of 46 ft. 4 ins., with a clear height under the trusses of 24 ft. 8 ins., which gives a 10 ft. 8 in. headroom on the north end balcony. The walls in the two south end bays are carried to a height of 55 ft. 10 ins., with a height to bottom of trusses of 37 ft., which with the gallery at a level of 24 ft. 8 ins. above the floor, gives a clearance on the latter of 10 ft. The gallery at the north end is low, as there is no working track beneath, but at the south end, greater elevation is required to clear the cars below. The steel roof trusses, at 20 ft. centres, are carried on the walls, and on central columns, of which there is a row down the centre of the shop between the working tracks. These truss columns also act as the central columns of the end galleries. The central depth of the trusses is 8¼ ft., dropping to 4 ft. 5 ins. at the side walls. Down the centre of the roof is a monitor, 29 ft. wide, and 10 ft. high, surmounted by a row of 24 in. copper ventilators, one over each bay.

cars may be brought from either end of the yard. The transfer table is electrically operated, and the trolley arrangement has been ingeniously devised so as to minimize danger from accidental contact. This feed wire is carried in a channel in one of the walls, the contact shoe being so arranged that it bears upward against the feed wire, the latter carried in the top of the channel.

The Freight Car Shop is immediately to the south of the passenger car shop, abutting on the midway. It is of standard construction, concrete lower wall, surmounted by brick, and spanned by steel trusses, and is 195 by 600 ft., making it second only to the locomotive shop in size. It is divided through its length into three 65 ft. bays, by two rows of columns, supporting the roof trusses, which divide the shop crosswise into 24 ft. sections.

The side bays have a clear height from the floor to the lower chord of the roof truss of 20 ft., the truss itself having a depth of 9 ft. over the row of columns, sloping off to 5 ft. along the wall. In the central bay, there is a clearance of 30 ft., the truss having a depth at centre of 7 ft., sloping in both directions to a depth of 5 ft. over the

columns. Down the centre of each of the bays, there is a 25 ft. wide peaked roof skylight, surmounted by a row of 24 in. copper ventilators, one over each section. The central bay is spanned by a 20 ton travelling crane, which has a 5 ton auxiliary, and which operates the length of the shop. The height to base of crane rail is 22 ft., which is approximately the clearance below the crane itself. The locker rooms and lavatories are contained in 20 by 49 ft. brick annexes, one on the north and the other on the south side, centrally located. The heating

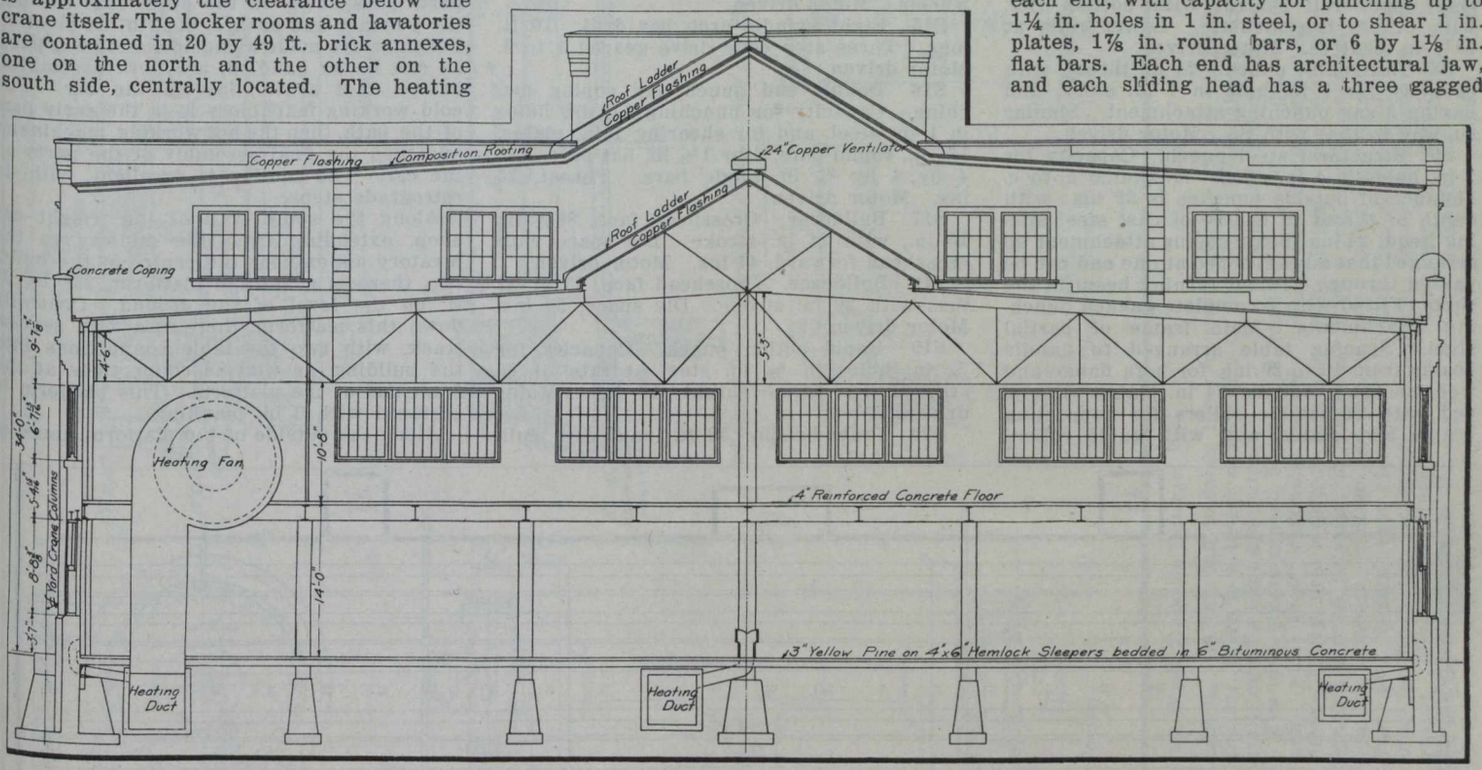


Fig. 3. Cross Section of One of the Passenger Car Buildings, looking towards High End.

plants are contained in two 22 by 25 ft. annexes on the north side, 60 ft. from each end. In each of these annexes, there is a 16 ft. fan, connecting with a concrete duct across the shop under the floor, with similar ducts branching off along the side walls, and along the row of columns, with outlet heads at each column.

The northerly and central bays contain three working tracks each, at 21 ft. centres, extending through the shop, and between these tracks in each bay, there is a 2 ft. gauge service track, with cross connections at nearly equidistant intervals along the shop length. The working track doors are 12¾ ft. wide, and the service track doors, 5 ft. The working tracks are laid on 7 by 8 in. by 8 ft. sleepers, and the service tracks, on 4 by 6 in. by 4 ft. sleepers. The flooring is of 3 in. yellow pine, on 4 by 6 in. hemlock sleepers, which, in common with the rail sleepers, are bedded in a 6 in. base of bituminous concrete.

The southerly bay is for the steel car shop layout, containing a full equipment of machinery for the handling of repairs to this rapidly increasing type of rolling stock. From the west end, there are three entrance tracks as in the other bays, the central one of which extends through the shop, the outer ones cutting off at 125 ft. through the first five sections of the shop. On each side of the through track is located the machine equipment, which it will be observed is arranged in such a manner that the material on entering from the east end of the shop, passes in a natural path along a sequence of machines, depending on the particular member being fabricated, reaching the other end of the shop completely machined and ready for fitting to the car under repair. The two stub end tracks at the west end, will each hold three cars, giving a normal steel car shop capacity of 6 cars, but it is obvious that the nearby tracks of the other two bays are quite accessible for steel car work. The tendency in modern rolling stock construction appears to be to get away from wooden construction, so that it is not too visionary to forcast the day, after the present stock of wooden equipment has been scrapped, when nothing but steel equipment will be in use. This shop has been laid out with that day in view, as while it meets all present requirements admirably, it at the same time is capable of expansion to the full size of the shop.

The shop equipment is as follows:

S1 Double angle shear, with shearing capacity up to 6 by 6 by 1 in. angles either square off or at an angle. Knives rectangular with four cutting edges. Mounted on a 6 ft. diameter turntable. Motor driven.

S2 Double end punch, 24 in. throat on each end, with capacity for punching up to 1¼ in. holes in 1 in. steel, or to shear 1 in. plates, 1⅞ in. round bars, or 6 by 1⅛ in. flat bars. Each end has architectural jaw, and each sliding head has a three gagged punching attachment. Motor driven.

S3 Combination high speed cutting off saw, for structural shapes such as I beams, T and girder rails, and round and square stock. The table is so arranged as to facilitate the mitring of beams, etc. Equipped with two saws. Motor driven.

S4 Gate shear, 120 in. between housings, with capacity up to 1 in. plates. Housing throat depth of 25 ins. 134½ in. knives, with four cutting edges. Counterbalanced

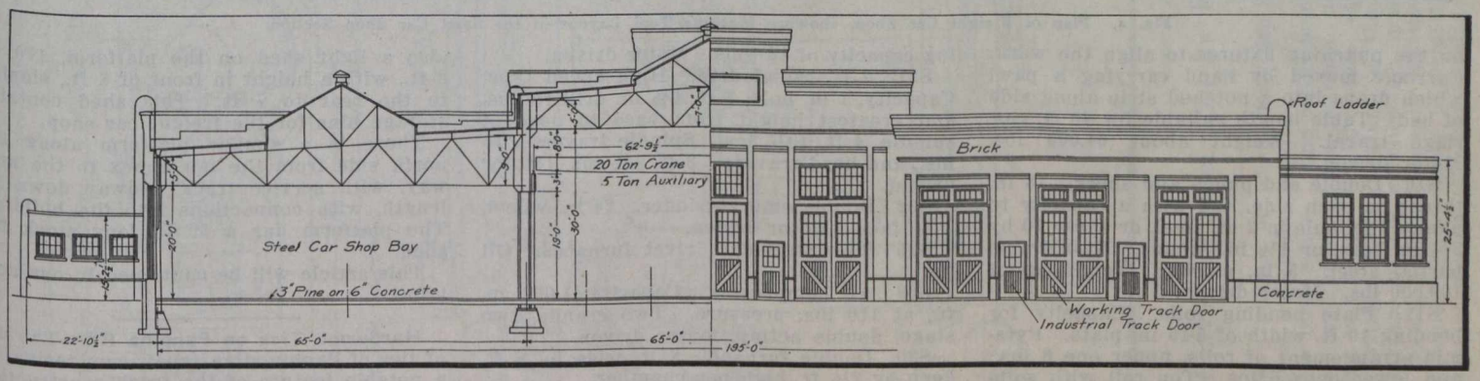


Fig. 5. Cross Section and End Elevation of Freight Car Shop.

head, controlled by automatic stop. 90 in. flywheel. Total machine weight about 136,000 lbs. Motor driven.

S5 Horizontal Punch. 36 in. throat, with capacity for ⅞ in. holes in ⅞ in. stock, with 3 gag punching attachment. Equipped with 40 ft. overhead runway, extending 20 ft. in either direction, and provided with two hand operated hoists. Motor driven.

S6 Plate planer. Capacity of ⅛ in. feed on ¾ in. plate at 40 ft. per min. 32 ft. cut at one setting, pneumatic clamps, holding up to 1 in. plate. Cuts in both directions.

Overhanging housings to permit of planing plate edges in successive settings. Motor driven.

S7 Plate straightening rolls. Capacity ⅝ in. plates. Distance between housings, 4 ft. 2 ins. Six 10 in. rolls arranged in two tiers, equal number above and below. Independent vertical and horizontal hand adjustment. One upper roll central with bottom roll, with others intermediate. Lower rolls at 10½ in. centres. Motor driven.

S8 Horizontal punch. 24 in. throat, with capacity for 1 in. hole in 1 in. stock, and having 3 gag punching attachment. Similar runway to that with S5. Motor driven.

S9 Structural steel punch. Capacity for 1 in. holes in 1 in. steel. Maximum c. to c. distance of outside punches is 38 ins., with depth of throat to centre of cast steel sliding head, 24 ins. Beam coping attachment so arranged that a beam coped at one end can be passed through without turning beam in the shop. Fitted with 8 complete gagged punching attachments. Main frame of partial steel. Spacing table arranged to handle beams from 10 to 20 ins. for both flange and web punching, and for 24 in. plates. Equipped with adjustable rollers for supporting beams and plates, and with guide rollers on the punching fixtures to align the work. Carriage moved by hand carrying a pawl which drops into a notched strip along side of bed. Table length suitable for 40 ft. carriage travel. Weight about 64,000 lbs. Motor driven.

S10 Double end punch and shear. 18 in. throat on each side, and with a capacity to punch 3 in. hole in 2 in. steel, or shear 10 by 2½ in. bars, or 4½ in. rounds. Main frame partial steel. 5 in. stroke. Weight about 100,000 lbs. Motor driven.

S11 Plate bending rolls. Capacity for bending 10 ft. width of 5-16 in. plate. Pyramid arrangement of rolls, upper one 8 ins., and lower ones 6 ins. Top roll with solid extension for balancing, and back housing hinged for removal of plates rolled to complete circles. Lower rolls 7¾ ins. c. to c. Motor driven.

S12 Horizontal bending and straightening machine. For 15 in. I beams and channels, either way. Jaw, 51½ ins. wide, 26 ins. deep, and 16½ ins. high. Weight about 30,000 lbs. Bending ram to operate continuously when in use, and fed up to the work by a heavy screw and revolving nut, with a total adjustment of 4½ ins. Main frame of steel. Motor driven.

S13. Rivetting machine. 72 in. reach, 18 in. gap, and capacity of 1 in. rivets with 80 lb. air. Equipped with four overhead electric hoists, each with capacity for 5,000 lbs., on a runway over centre line of pit. Runway is 160 ft. long, and bracketed to columns to give a clearance of 10 ft. for the hook in its highest position. 100 ft. pit.

S14 Metal cutting band saw. 36 in. wheels. Motor driven.

S15 Eight spindle arch bar drill. 10 ft. long. Three step cone drive geared 1 to 4. Motor driven.

S16 Double end punch and coping machine. Capacity for punching 1¼ in. holes in 1 in. steel, and for shearing 1 in. plates, 1⅞ in. round bars, 6 by 1⅛ in. flat bars, and 4 by 4 by ⅜ in. angle bars. Throat, 25 ins. Motor driven.

S17 Bulldozer. Crosshead face, 89½ by 16 in., with 24 in. stroke. Die space with crosshead forward, 44 ins. Motor driven.

S18 Bulldozer. Crosshead face, 63 by 12 ins., with 20 in. stroke. Die space, 38 ins. Motor driven.

S19 Rapid action punch. Capacity for ⅞ in. holes in ⅝ in. steel at rate of 65 strokes per min. Throat, 16 ins. Motor driven.

S20 Draw bench. 50 ft. long, with pulling capacity of 10 tons. Motor driven.

S21 4 ft. radial drill. High speed type. Capacity, 1 in. hole, 8 ft. 1½ in. drill radius, and greatest height from base to nose of spindle, 4 ft. 10½ ins. Spindle traverse, 15 ins., and head traverse, 3 ft. 4¼ ins. Motor driven.

S22 Double emery grinder. 24 in. wheel, 3 in. face. Motor driven.

S26 Two stationary rivet furnaces. Oil fuel.

S29 Air compressor. Capacity, 1,000 cu. ft., at 110 lbs. pressure. Two cranks, two stage, double acting, motor driven.

S30 Double furnace. 8 ft. wide by 6 ft. deep by 2½ ft. high per chamber.

S31 Double furnace. 9 ft. wide by 3 ft. high by 12 ft. deep per chamber.

In addition to the foregoing stationary equipment, there are other machines in the shop as follows:

Pipe bending machine complete.

Oxygen welding outfit, complete with tanks, 3 welding torches, 1 cutting torch, 8 welding tips, reducing valves and pressure gauges for oxygen or blaugas. Four 50 ft. lengths of hose for the torches.

Six portable rivet furnaces, complete with oil burners, oil reservoir, fan, and flexible compressed air connection. Mounted on wheels.

Triplex 3 by 8 in. hydraulic pump, with capacity of 35 gallons a minute against 1,500 lbs. pressure. Motor driven.

Thus, the parts enter the shop from the east, the sills and large plates, etc., passing along through the plate planer and beam punch, etc., to the rivetter, while the smaller parts pass down on the other side through the punches and shears, etc., to the rivetter. Forgings are made alongside, and such parts as can be so handled, are here assembled, before final assembling on the car. The cold working machinery is in the early part of the path, then the hot working machinery, and then the final assembly of the parts on the car. The routing is excellent, with no retrograde steps.

Along the south wall of the freight car shop, extending from the midway to the lavatory annex near the centre of the building, there is a storage platform, 288 by 21 ft. on the level of the ground. Centrally down this platform, there is a 2 ft. service track, with two turntable connections into the building, as well as connections at the front end of the platform. This platform is surfaced with 3 in. planking.

Along the outside of the platform, there is also a light shed on the platform, 170 by 8 ft., with a height in front of 8 ft., sloping to the rear to 7 ft. This shed contains storage bins for the freight car shop.

There is a similar platform along the north side from the fan annex to the midway, with service track midway down its length, with connections into the building. The platform has a 50 ft. long stock bin shed.

This article will be continued in our next issue.

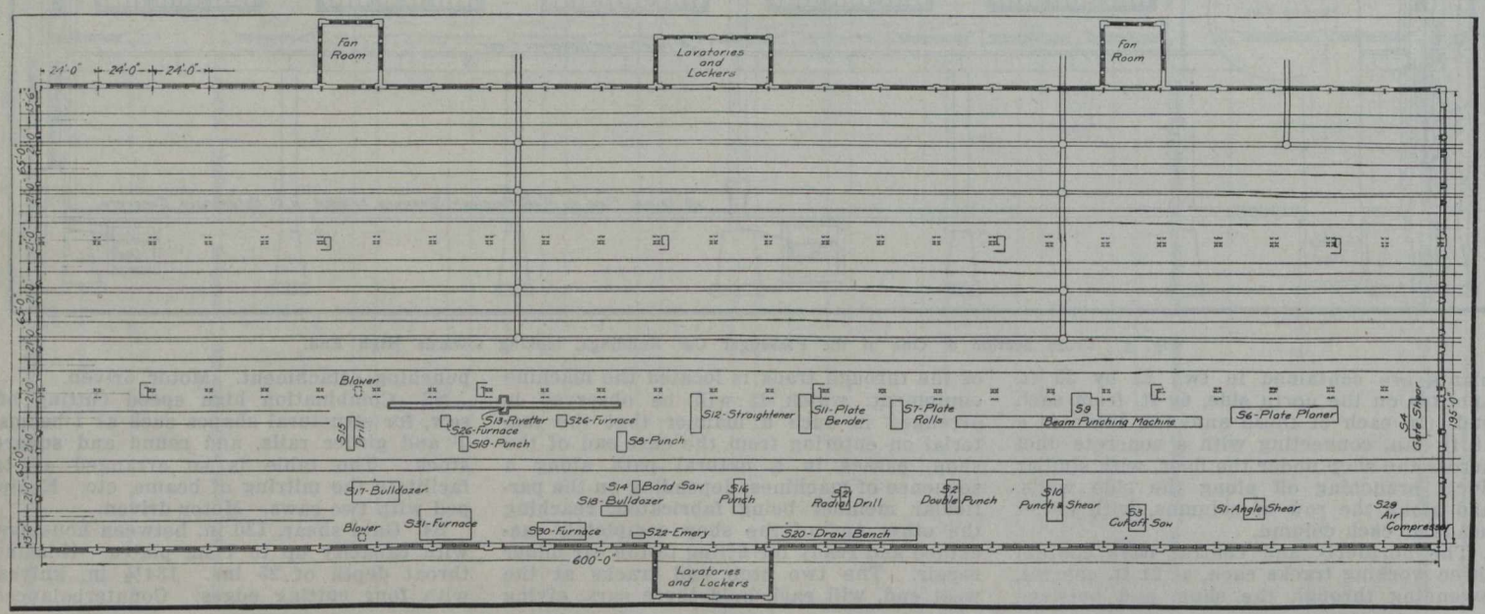
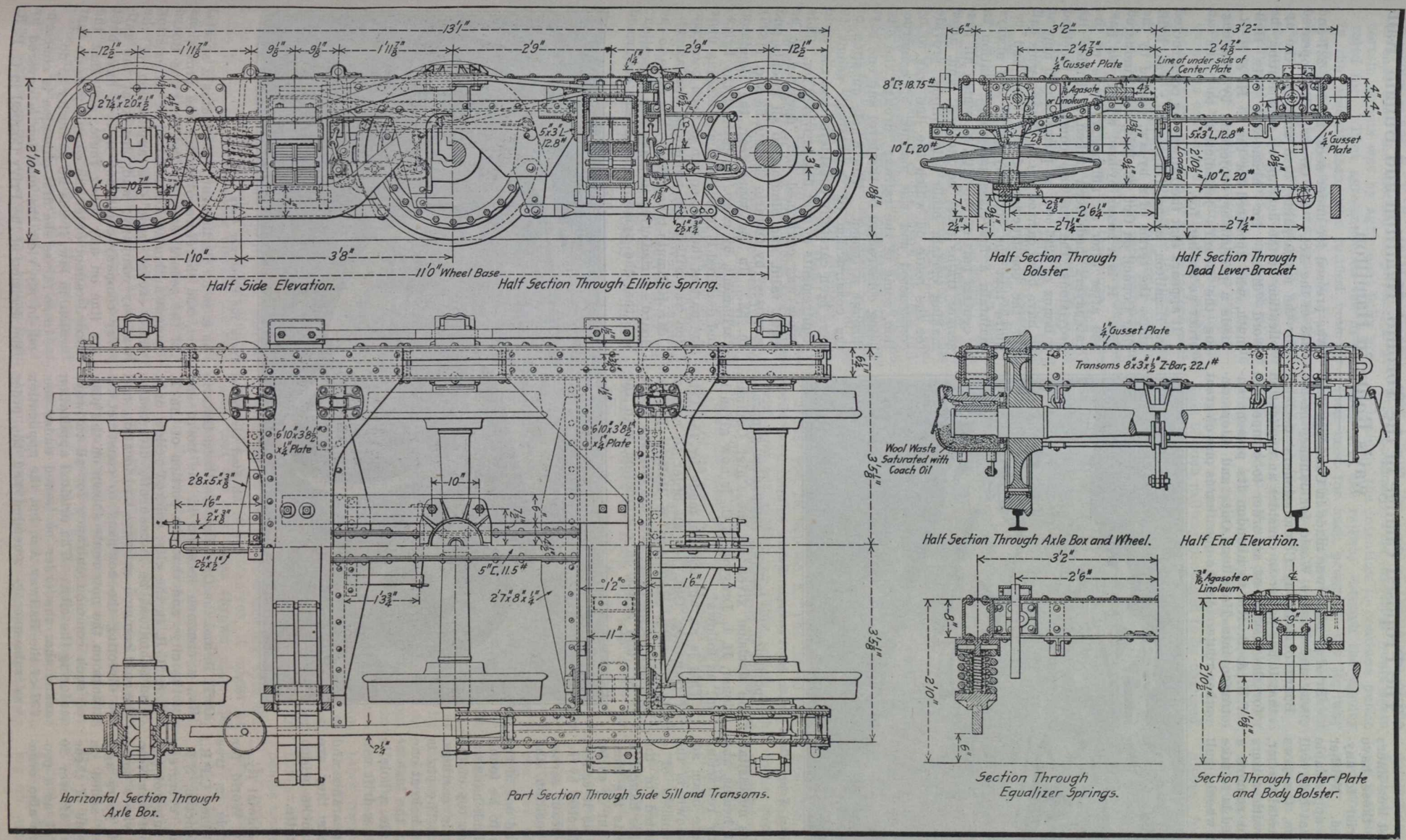


Fig. 4. Plan of Freight Car Shop, showing Machine Tool Layout in the Steel Car Shop Section.

Hardwood Ties on Panama Rd.—The use of ties of lignum-vitae (guayacum recina) is a notable feature of the track construction of the Panama Rd., and the ties have given remarkably long service, those of good quality lasting for about 30 years under the tropical conditions on this road, even though unprotected by tie plates. The best quality of this timber is no longer available, however, as it is so valuable for use in connection with machinery and manufacture that it is not to be had at suitable prices for railway ties. Owing to its durability, the renewals on this 50 mile railway ranged from 4,000 to 10,000 a year (1880-1895) or 80 to 200 per mile, with an average of 7,000 or 140 per mile.



General Arrangement of C.P.R. All Steel Six Wheel Truck for Passenger Cars.

Canadian Pacific Railway's All Steel Trucks for Passenger Cars.

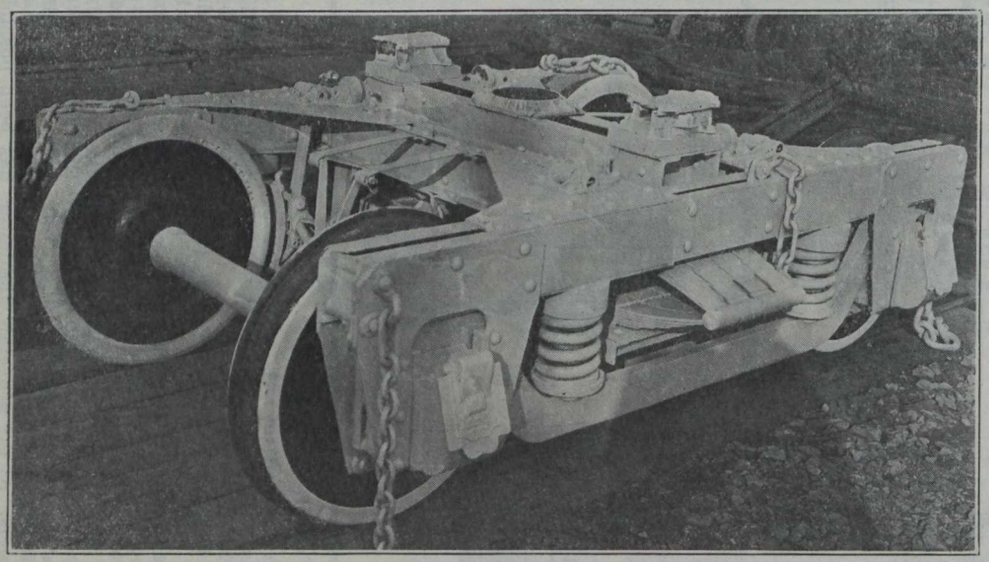
Within the past few years, a number of railways have adopted all steel trucks for service under heavy passenger train equipment. The C.P.R. has in use a type of four and six wheel steel truck that was designed by the General Master Car Builder, R. W. Burnett. The general appearance of the two trucks is clearly shown by the accompanying illustrations from photographs, and the details of the construction of the six wheel truck are illustrated by the line engraving.

One of the points about the truck that at once attracts attention is the smooth straight line external appearance, with omission of the usual end pieces. The absence of these pieces gives a better clearance for the car steps, and allows a better opportunity not only to strengthen the draft rigging, but to inspect and maintain it. On the end towards the centre of the car, there is a better opportunity to install the axle light apparatus.

The side beams consist of two 8 in. channels, with their channels towards each other. They are rivetted together with spacing blocks between, so that they present a smooth surface on the outside. The two beams thus formed are tied together by Z bar transome, and straight gusset plates extending all the way across the truck of both the top and bottom of the channels. At the pedestals, the lower flanges of the channels are cut away to admit the equalizers, and are, at the same time, stiffened by the pedestal plates. These are made of flat plates, which are first punched approximately to shape, and then milled to the exact size. In designing the truck, it was expected that these pedestals would bend in case of a derailment, but that they could easily be bent back into shape. Experience, however, has shown that whenever a derailment has occurred, the pedestals have not been distorted, and it has been possible to carry the car body to

the shops on its own trucks,

For wearing strips, chilled cast iron liners are rivetted to the jaws, and these have shown wearing qualities superior to anything else that has been tried. Neither liner nor box has shown any appreciable wear, and the indications are that both will run indefinitely. At the bottom, the jaws are tied together by a short pedestal tie bar, held in place by a pin, fitted with cotters and without bolts or nuts. To remove a pair of wheels, all that is required is to take out two cotters for each pair of wheels, pull



C.P.R. All Steel Four Wheel Truck for Passenger Cars.

out the pins and lift the frame.

The absence of the end pieces necessitated the use of inside hung brake beams, and these are installed without any retracting springs, but with a special brake beam adjuster. This is very clearly shown in the half tone illustrations. It consists of a hanger carried by arms rivetted to the transom. Into the bottom of this hanger is screwed the carrier that supports the truss of the brake beam. No check nut or cotter is required to hold it in place, as it cannot turn, and the adjustment is effected by removing the pin from the brake beam, screwing the carrier to the proper position, and replacing it in the beam.

Bolts and nuts are avoided, and one of the arrangements for doing this is to be found in the bracket for the spring plank hangers. It will be seen that these are on top of the gusset plates. They are simple castings, with a seat for the lower pin. The pin is held in place by a wall over the hole at one end and a cotter pin put across the hole at the other end. To remove the pin, a hole is left in the wall, through which a drift can be pushed or driven.

In spite of the substantial appearance and actual strength of these trucks they are lighter than the composite trucks which they replace.—Railway Age Gazette.

Tree Snow Fences on Intercolonial Ry.—Canadian Railway and Marine World for Sept., 1913, contained an article on tree snow fences on the Western Lines C.P.R., in connection with which a Moncton, N.B., correspondent writes us that evergreen hedges have been in use on the Intercolonial Ry. for many years, especially between Newcastle and Campbellton, N.B., where some of them were set out over 20 years ago, since which others have been added on other portions of the line. Some of these hedges have grown to a height of over 20 ft., and have proved very useful, as a protection from snow and they are also ornamental.

The Proposed Change of the Toronto, Hamilton and Buffalo Railway's Route in Hamilton.

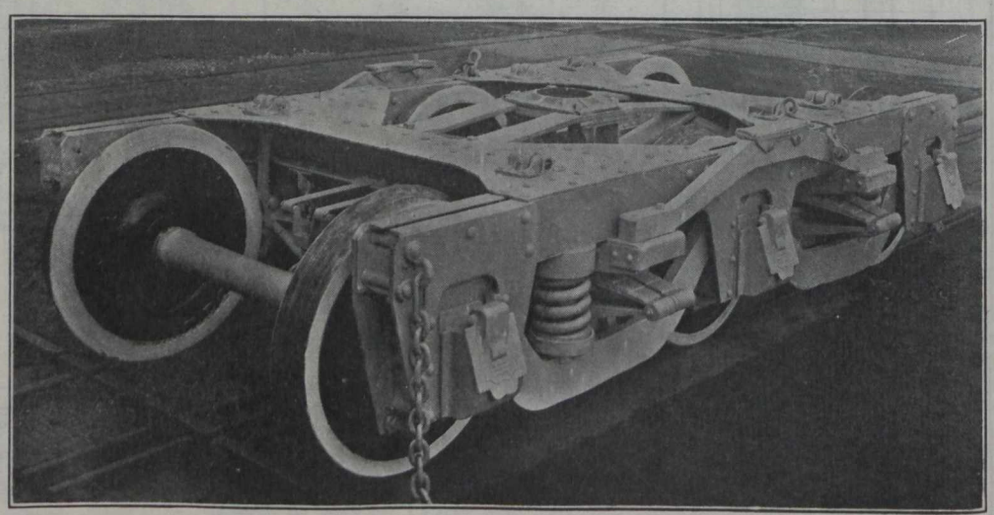
Brief mention was made in Canadian Railway and Marine World for January of the Board of Railway Commissioners' decision that it has power to consider an application for the issuing of an order to compel the T.H. & B. Ry. to abandon its present entrance into Hamilton, Ont., and adopt another route. As the question is one of great importance to railway companies generally the decision given by the Chief Commissioner, H. L. Drayton, K.C., is now given in full as follows:

This is an application made by the City of Hamilton, Ont., for an order to compel the Toronto, Hamilton & Buffalo Ry. to abandon its entrance into the city via. Hunter St., and adopt, in conjunction with the G. T. R. and the Canadian Northern Ontario Ry., a common location in the north end of the city; and that the portion of the T. H. & B. R. in the city, colored yellow on a plan submitted, be permanently diverted to the said common entrance and location, and to directing the company to construct its tracks on the new route shown on the plan as such common entrance for all railways entering the city. The original application asked that the order be issued under sec. 237 of the Railway Act, but the application was subsequently amended and the order was pressed for under secs. 26, 167, 237 and 238 of the Act. Mr. Cowan, who appeared for the municipality, also amended the application at the hearing by substituting the word "divert" for "abandon." Mr. Hellmuth, who appeared for the T. H. & B. R., made a preliminary objection by challenging the Board's jurisdiction to issue an order as applied for.

It appears that the railway as constructed in Hamilton, along Hunter St., was built under the terms of a by-law, passed by the City Council on Oct. 25, 1894, and numbered 755. It is a bonus by-law, which was passed after after an affirmative vote of the ratepayers had been taken. Under its provisions, the railway company received a bonus of $225,000, on terms which appear to have been carried out. These terms call for the construction of the line, and require that the company build and always maintain a first-class passenger station in a central part of the city, at which all passenger trains must be stopped; and, after making certain other stipulations, provide for the route on which the line was to be constructed and the manner of construction, some of the railway through the city being constructed on the level and one part through a tunnel. The whole question of the construction of the railway seems to have been carefully considered and the civic requirements of that day provided for. This bylaw was confirmed and "declared to be legal, valid, and binding, to all intents and purposes" by Ontario Statute 58 Vic. (1895) ch. 68. In the same year, the Dominion Parliament, by chap. 66, ratified the bylaw, and declared it to be valid and binding upon the parties thereto, so far as such confirmation was within the powers of Parliament.

Mr. Hellmuth takes three objections to the Board's jurisdiction to make any alteration: 1st, that the bylaw, ratified and confirmed as it is by Parliament, constitutes a special act, and therefore overrides the provisions of the general statute; 2nd, that the Board cannot authorize a relocation of an existing line, except upon the application of the railway company; and, 3rd, that the railway company could not, in law, have built its line on any other route, and that the Board cannot order the company to do that which, in law, it has no authority to do.

In so far as the first objection is concerned, in my view the question is covered by the decision of the Privy Council in C. P. R.



C.P.R. All Steel Six Wheel Truck for Passenger Cars.

vs. Toronto and G. T. R. (1911), A. C. 461. In that case, the method of protection at certain streets was by agreement fully provided for. That agreement, as the bylaw in the present case, was ratified both by Parliament and Legislature. It is true that, since the agreement was made, the scope of railway operation dealt with was enlarged, the C. P. R. having acquired an additional 26 ft. of land to the south of and enlarging its former right of way; so the special act—as the agreement had become—really did not deal with the whole of the questions considered by the Board, and consequently did not in any way interfere with the Board's jurisdiction under the provisions of the general act. The decision, however, does not proceed on any such ground, but upon the broad, general principle that the subject matters are not the same. The judgment of Lord Atkinson, who stated the reasons for their Lordships' decision in the Toronto case reads as follows: "If the subject matter of the special act and that of sec. 238 of the act of 1906, as amended, were the same, then there would undoubtedly be a conflict between the two enactments. But they are not the same. The specified works, the power to construct and use them, form the subject matter of this special act. The subject matter of sec. 238 is the control of the Board over the railway companies, and the power conferred upon it to require the companies to construct such works as it may deem necessary for the protection and convenience of the public. These are wholly different matters. The two statutes can stand together. Effect can be given to each. There is no conflict between their provisions as contemplated by sec. 3."

As in the Toronto case, the company proceeded under the special act,—built its line and supplied its station and facilities. In my view, however, the enabling special act does not in effect provide that the company's work or appliances shall never be altered or changed, no matter how surrounding circumstances and conditions may change, or however inadequate and faulty the facilities so supplied may become.

A distinction, of course, exists between this and the Toronto case, in that it cannot fairly be said that the change here is necessary in order to protect the public in the use of highway crossings over the existing railway. The railway company has already filed plans for an overhead structure along Hunter St., the effect of which would be to eliminate highway crossings now more or less dangerous; but the subject matter of the bylaw and the validating legislation not being the question of the Board's jurisdiction or the limitation of that jurisdiction, should the act, under any other section, give jurisdiction to the Board to make an order as applied for, it seems to me that the cases are parallel.

In the Toronto case, the particular subject of consideration, in so far as this question is concerned, was the fact that the special act provided specifically for a certain measure of highway protection leaving the railway on the level—the jurisdiction of the Board to nevertheless elevate the railway for the protection of those using the highway was sustained. In this case, the special act undoubtedly fixes the railway location, an object, however, as much removed from the general question of the Board's control over the railway as that of the protection of the Toronto crossings could be said to be.

I should also point out that sec. 8 of the Dominion statute validating the agreement (58-59 Vic., ch. 66), specially provides that nothing in the act contained should affect any rights or powers conferred by the Railway Act on the Railway Committee of the Privy Council. This provision would seem to indicate the intention to continue public control of the railway through the agency then used for such progress—the Railway Committee of the Privy Council—to which the Board may be said to be the statutory successor (sec. 11 of the Railway Act).

Dealing with the second objection, sec. 167 provides—"If any deviation, change, or alteration is required by the company to be made in the railway, or any portion thereof as already constructed, a plan of the portion of such railway proposed to be changed, showing the deviation, change, or alteration proposed to be made shall be submitted for the approval of the Board, and may be sanctioned by the Board."

Under sub-sec. 2, the plan of the portion of the railway proposed to be changed, if sanctioned, will be dealt with in the manner that the act provides for the original plan; and, under sub-sec. 3, the company may then make the deviation, change, or alteration, and all provisions of the act will apply to such portion of the line in the same manner as they applied to the original line.

In dealing with the approval of location plans, the Board, while bound by the general location as approved by the Minister, may, unless the Minister otherwise specifically directs, sanction a deviation of not more than one mile from any one point on the location approved by the Minister (sec. 159, sub-sec. 3 Railway Act). The approval of the Board must be obtained before construction takes place.

Under sec. 26, sub-sec. 2, "The Board may order and require any company to do forthwith any act, matter, or thing which such company is or may be required or authorized to do under this act."

Sec. 28 also provides that "the Board may, of its own motion, inquire into, hear, and determine any matter or thing which, under this act, it may inquire into, hear, and determine upon application or complaint, and with respect thereto shall have the same powers as, upon any application or complaint, are vested in it by this act."

Sub-sec. 2 further provides that the Board's powers may be exercised from time to time, or at any time as the occasion may require. Sec. 29 provides that the Board may review, rescind, change, alter, or vary any order or decision made by it, while sec. 32 (2) gives the Board like powers in regard to regulations and orders made by the Railway Committee of the Privy Council.

I have had much difficulty in arriving at a conclusion as to the proper effect to be given to sections 26 and 28. It seems to be clear that, as a result of the provisions of sec. 28, the Board, of its own motion, may determine any question it would have a jurisdiction to determine on application or complaint. This section, however, of itself does not enlarge that jurisdiction which the Board would otherwise have after an application or a complaint was made to it.

Looking at the sections dealing with the locations of lines themselves, it might be said that the duty was thrown upon the company of submitting its location plans; that location questions were matters relating to the policy and business venture of the company and were directly dependent upon financial considerations. Hitherto, the Board's jurisdiction does not seem to have been exercised in compelling the company to file location plans, or in compelling the company to construct its railway by a specified time. It seems to have been taken for granted that the company was bound by the provisions of the act as to when the work of construction should be commenced and as to when it should be finished, and that the Board's duty was to see that location plans, if filed, were proper, and work, if constructed, was sufficient and safe.

The Board's jurisdiction in dealing with a deviation is similar to that the Board exercises in dealing with the general location plan; and the fact that the Board's province as indicated by the appropriate section in each case is that of sanctioning instead of ordering is probably the reason why no application in the past seems to have been pressed for an order requiring either original railway construction or deviation in the supposed interests of any particular parties.

It must further be borne in mind that, so far as branch line construction required for industrial purposes is concerned, the Board's power is not confined to a mere sanctioning of the proposition by the railway; but the Board may order the construction of branch lines for industrial purposes under the provisions of sec. 226 of the act.

The language of the act differs in dealing with duties of the company to the public, on the one hand, and rights of the company which it may or may not exercise, on the other. For example: Signboards at highway crossings shall be erected and maintained (sec. 243); farm crossings shall be provided (sec. 252); modern and sufficient apparatus shall be provided and be used on all trains (sec. 264); on approaching highway crossings, the whistle shall be sounded and the bell shall be rung (sec. 274); and, under sec. 284, the company shall furnish adequate and suitable accommodation.

On the other hand, questions not related to the protection of the public either using the highways or the trains, and not concerned with the proper demands of traffic, but rather related to the management of the company itself, or the manner in which the statutory powers of the company may be exercised, seem to be dealt with in a different manner. For example: The company may make bylaws for "the appointment of all officers, servants, and artificers, and the prescribing of their respective duties and compensation to be made therefor" (sec. 121, ss. b). The company, again may exercise the general powers for the purposes of the undertaking contained in sec. 151 of the act, and which includes, under ss. (f), the construction and operation of the railway, and under ss. (p), the right, from time to time, to alter, repair, or discontinue it, and substitute another in its stead, as well as a general power which it may exercise to do all acts not enumerated necessary for the construction, maintenance, and operation of the railway, ss. (q). In like manner, under sec. 176, the company may take possession of the lands of other companies, subject, of course, to the Board's approval being first obtained. It is not necessary to multiply further instances for the purposes of showing an apparent distinction in the position of companies under certain sections of the Act.

In order to find a jurisdiction in this case, it seems to me that it is necessary to rely upon sections 26 (ss. 2), and sec. 28, and to treat said sections as applicable, notwithstanding any implication which might otherwise arise by reason of the different manner in which obligations, on the one side, and rights of the company, on the other, are treated. Apart from such sections, the Board's jurisdiction, in a case of a deviation, is to sanction and not to order. Under an analogous section, 261, the late Chief Commissioner held that the Board cannot open a road for traffic against the desires of the company or without its making an application for an order for such

opening (Central Saskatchewan Board of Trade v. G. T. P. R. Co., 10 C. R. C. 135; British Columbia and Alberta Municipalities v. G. T. P. R. Co., 13 C. R. C. 463).

The question seems to me, however, to have been dealt with so as to affirm the Board's jurisdiction, by the decision of the Supreme Court in the case of G. T. R. vs. Department of Agriculture of Ontario, 425 S. C. R. 557. This was a case where the Board's jurisdiction to order a railway company, whose line had been completed and in operation, to provide a station at a point where, in the Board's opinion, it was required to afford proper accommodation for traffic, was challenged. The objections to the Board's jurisdiction were similar to those now in question, and the effect, among other sections, of sections 26, 28, and 167, was considered. The Chief Justice specifically found that sec. 28, par. 1 and ss. 2, gives the Board full jurisdiction, of its own motion, to order and require any company to do anything which such company is or may be required or authorized to do under the Act, in so far as it is not inconsistent with the Act. Mr. Justice Girouard found that the Board had a jurisdiction, under sec. 28, as well as other sections which are not relied on by the parties to this issue; while Mr. Justice Anglin found that the Board, being empowered to authorize the company to erect stations at new or additional points, and being clothed by sec. 26 (2), with authority to order and require the company to do that which it may be authorized to do, has jurisdiction to order and require the erection of a station at a new and additional stopping place upon a railway already constructed. The Board here is empowered to authorize a deviation, and, following the decision of the Supreme Court, having the right to authorize it also has the jurisdiction to order the company to deviate its line.

The application in question is in effect a deviation. The city asks that the Board direct the company to eliminate the portion of its line lying between Locke St. and Baillie St., some 5,400 ft., and substitute therefor certain tracks to be laid on the G. T. R. property to the north, providing the necessary deviations to the G. T. R. property, so as to permit the use of the tracks to be laid on the G. T. R. property as part of the T. H. & B. R. line.

The main object of the application is to divert the line from Hunter St. to the G. T. R. right of way. This is within the limit of one mile from the original location. Mr. MacMurchy has filed a supplementary argument for the railway showing that certain portions of the deviation would lie outside the mile limit. This may be so, but the approaches can probably be rearranged so as to leave the whole of the deviation within the limit. A mere change of detail would apparently meet this objection without much injury to the general scheme of improvement prepared by the city.

There remains to be considered Mr. Hellmuth's third objection, namely, that the railway company could not, in law, have built its line on any other route, and that the Board cannot order the company to do that which, in law, it has no authority to do. Regarding any arrangements between the city and the company, I am of the opinion that, in the public interest and safety, the Board may, on fair and proper terms, disregard any contract, agreement, or arrangement that the city and the company may have made. If the only parties to the issue in the question were the city on the one side, and the company on the other, the position undoubtedly would be very different. The city would be bound by its bylaw; but it is quite clear that, apart from the bylaw, the company, in the first instance, could have built just where the Minister of Railways located the line, subject to the approval of the necessary details by the Railway Committee of the Privy Council at the time the railway was constructed.

If, then, the powers of the Board are not overridden by the bylaw and special act, and a jurisdiction is obtained under sections 26 and 28, I am of the view that, while the company, of its own motion and apart from that municipal consent which the present application entails, cannot abandon its present route, being bound as it is by the terms of the municipal bylaw; the Board may, nevertheless, make such an order for its deviation as it may decide that the public interest and safety demands.

No question on the merits is herein considered, one way or the other. On the one hand, it may be that the city's proposals for the diversion will prove to be reasonable and in the best interests of the public, and, perhaps, of the railway itself. On the other hand, it may be that the said proposals are entirely unreasonable, and that the application should be refused. The questions of railway operation and public convenience involved are intricate, and will take some time to determine; and a proper, final solution of the problem will require the expenditure of much time and study.

On the question of jurisdiction, the company has, of course, the right of appeal to the Supreme Court; and it has expressed its desire to exercise such right, if the Board's decision on the question should be adverse to it. If the company still desires to take the appeal, without first going into the merits, it will please so advise the Board within the next ten days, and without delay proceed to perfect its appeal.

[We are officially advised that the T. H. & B. R. Co. has entered an appeal quashing the Board's jurisdiction.]

Painting Boards at Canadian Pacific Ry. Montreal Shops.

Except for repair work, the hand brush is no longer seen in the best railway practice, the older method having been superseded by dipping, or air brush painting. Both these processes are in use in the C.P.R. Montreal car shops, where as mentioned in a description in these columns of the process of manufacture of a wooden box car, the whole of the outside of the car is painted by the use of the air brush, a special shop being reserved for the purpose. Three applications are given, with a short drying interval between.

In the new steel frame box cars which the company is now building almost exclusively, where the sheathing is secured in the car sides horizontially, it has been found advisable to first have the sheathing painted, in order that the mating strip may be protected from decay should water leak into the joint, where the horizontal crevices tend to retain whatever soaks in.

Instead of painting by hand, or using the air brush, dipping in a large tank, of ample size to hold a number of pieces, is used. The trouble with the dipping process has been that unless some special provision has been made for allowing the boards to drain back into the tank, there is a great waste of paint. The method adopted in these shops is to pass the dipped board as it comes from the tank, through between coarse brushes, projecting inwards from four sides to form a rectangle the shape of the board, these brushes squeezing the surplus paint from the planks without any additional draining.

Progress of Steam Railway Electrification.

This year will see marked steps in the development of railway electrification in Canada. As previously stated in these columns the C.P.R. has let a contract for the electrification of its Rossland Branch in British Columbia; the City of London will electrify its line between London and Port Stanley, Ont., and the Canadian Northern Ry.'s Montreal tunnel and yards, now under construction, will be electrically equipped.

In the United States the Chicago, Milwaukee and Puget Sound Ry. is electrifying 450 miles of its main line between Harlowtown, Montana, and Avery, Idaho. The Norfolk and Western Rd. is electrifying the Bluefield Vivian section, 85 miles, over which 65 thousand tons of coal are handled daily. The Pennsylvania Rd. will extend its electrified zone from New York to Elizabeth, and this is probably but a step toward electrification all the way from New York to Philadelphia.

Recently a commission appointed in Victoria, Australia, to determine the best system for suburban railways, covering about 300 miles of steam and railroad tracks, reported that the direct current system shows a material advantage over single phase alternating in first cost and also in the annual cost of operation.

Switzerland Refuses to Adopt the 24-Hr. System.

A Berne cablegram says:—The Swiss Government has refused to sanction a request from the Federal railways for the introduction of the 24 hour system of time reckoning. It did so on the ground that, although France and Italy now have this system, Germany and Austria have not, so that, instead of Switzerland having, as at present, difficulties on her French and Italian frontiers, she would have them on her German and Austrian frontiers instead. The Swiss Post and Telegraph Department was not averse to the reform, neither was the Customs Department; the cantons in general did not disapprove of it, while the clock and watchmakers supported it heartily.

J. E. Morazain, Assistant Superintendent Montreal Terminals, C.P.R., writes: "I wish you and your valuable and welcome journal, Canadian Railway and Marine World, a happy and prosperous new year."

Two motor cars (a saloon car and a composite car for the suite and attendants), each equipped with a benzol electric set, have recently been supplied to serve as a state train for the Khedive of Egypt. The system of driving adopted differs from previous forms in the fact that each of the cars is equipped with a combustion engine, dynamo and electric motors, and the train can be controlled from either of the drivers' compartments at each end.

The increasing of car loads as a means of relieving periodical car congestions has been tried by a large U.S. corporation, with the result that the average car loading was increased from 34.6 to 36.2 tons, or an increase of 1.6 ton. With this increased loading, this one corporation required 76,105 fewer cars last year than the previous year as a direct result.

A suggestion has been made in London, Eng., to the effect that the time has arrived when the services rendered by the wireless telegraph, in connection with recent marine disasters, should be fittingly recognized by granting G. Marconi some token of gratitude for his great achievements on behalf of humanity.

Canadian Railway Rolling Stock Orders in 1913.

Following are lists of passenger cars, freight cars, and locomotives, ordered during 1913, by the various railway companies, contractors and industrial companies in Canada, including such companies operating in the U. S. as are controlled by Canadian companies:

Passenger Cars

Purchaser	No.		Kind	Builder
Algoma Central and Hudson Bay	fy	1	Baggage and express	Canadian Car & Fdy Co.
Canadian Northern Ont.	fy	25	First class	Hotchkiss Blue and Co.
	fy	3	Combination	" "
	fw	1	Store	" "
	fw	3	Express	" "
Canadian Northern	fy	25	First class	Canadian Car & Fdy Co.
	fy	25	Second class	Crossen Car Co.
	fw	11	Passenger and baggage	Preston Car & Coach Co.
	fw	10	Baggage	Canadian Car & Fdy Co.
	fx	6	Sleeping	Barney & Smith Co.
Canadian Pacific	fy	3	First class	American Car & Fdy. Co.
	fy	1	Second class	" "
	fy	1	Baggage	" "
	fx	2	Buffet-parlor	Angus Shops
	a	25	Passenger and smoking	"
	ay	30	Colonist	"
	ay	12	Baggage and express	"
	fy	10	Horse express	"
Central Ontario	fw	2	Combination	Hotchkiss, Blue & Co.
Central Vermont	ax	2	Mail	American Car & Fdy Co.
Grand Trunk	bc	10	Baggage	National Steel Car Co.
	a	5	Mail	American Car & Fdy Co.
Intereolonial	bxy	3	Sleeping	Pullman Co.
	bxy	2	Dining	"
	fy	2	Mail	Canadian Car & Fdy Co.
	fy	5	Colonist	" "
	fy	4	First class and baggage	" "
	dy	8	First class	Preston Car & Coach Co.
	dw	3	Baggage	" "
Pacific Great Eastern		2	Gas-electric	Hall-Scott Co.
Quebec and Lake St. John	fw	4	First class	Hotchkiss, Blue & Co.
	fw	4	Second class	" "
	fw	4	Combination	" "
	fy	2	Sleeping	" "
Quebec Central	fw	2	Passenger and baggage	Own shops
	fx	2	Coaches	"
Superior Rolling Stock Co.	f	1	Baggage and express	Canadian Car & Fdy Co.
Timiskaming & Northern Ontario	ax	3	First class	Pullman Co.
	ax	2	Second Class	"
	ax	3	Passenger and smoking	"
	ax	3	Baggage and mail	"
	ax	2	Baggage and express	"

Freight Cars

Purchaser	No.		Kind	Capacity	Builder
Algoma Steel Corp.	a	19	Dump	100,000	Hart-Otis Car Co.
	b	19	Flat	100,000	Canadian Car & Fdy Co.
Canadian Copper Co.	a	25	Otis dump	100,000	Hart-Otis Car Co.
Canadian Northern	fm	75	Caboose	.....	Winnipeg Shops
	fm	50	Caboose	.....	Mount Vernon Car Co.
	am	75	Ore	80,000	Canadian Car & Fdy Co.
	fm	593	Box	60,000	National Steel Car Co.
	fm	1300	Box	60,000	Canadian Car & Foy Co.
	fm	500	Box	60,000	Nova Scotia Car Works
	fm	300	Ballast	60,000	Hart-Otis Car Co.
	fm	150	Stock	60,000	Crossen Car Co.
	fm	500	Flat	60,000	" "
	bm	200	Flat	80,000	National Steel Car Co.
	fm	2	Snow ploughs	.....	Canadian Car & Fdy Co.
Canadian Northern Ont.	fm	15	Refrigerator	60,000	Mount Vernon Car Co.
Canadian Pacific	am	6	Pit	150,000	Canadian Car & Fdy Co.
	bcm	1000	Box	80,000	" "
	fm	7	Flat	60,000	Angus Shops
	bcm	500	Box	80,000	"
	dgm	155	Stock	60,000	"
	dm	1	Refrigerator	80,000	"
	bm	228	Caboose	.....	"
	a	15	Tank	80,000	American Car & Fdy Co.
	f	12	Rodger ballast	60,000	Hart-Otis Car Co.
	bm	100	Flat	100,000	Bettendorf Co.
Canadian Steel Fdries.	d	4	Ballast	80,000	Canadian Car & Fdy Co.
	d	4	Hart convertible	80,000	Hart-Otis Car. Co.
Cape Breton Coal, Iron and Ry.	f	30	Hopper	60,000	Canadian Car & Fdy Co.
	f	5	Hopper	30,000	" "
	a	20	Hopper	80,000	" "
Dominion Coal Co.	f	25	Hopper	30,000	" "
Grand Trunk	bcm	2000	Box	80,000	" "
	bcm	2000	Box	80,000	Eastern Car Co.
	bcm	3000	Box	80,000	Western Steel & Fdy Co.
	an	1000	Gondola	100,000	Pressed Steel Car Co.
	bc	500	Stock	.....	National Steel Car Co.
		500	Flat	.....	Pressed Steel Car Co.
F. H. Hopkins & Co.	f	1	Flat	.....	Canadian Car & Fdy Co
Intercolonial	bcm	500	Box	60,000	Nova Scotia Car Works
	bcm	250	Box	60,000	Canadian Car & Fdy Co.
	fm	10	Caboose	.....	Moncton Shops
	fm	20	Box baggage	80,000	"
	fm	50	Box	60,000	"
		20	Caboose	.....	Nova Scotia Car Works
	bc	200	Box	80,000	" "
Kettle Valley	f	20	Flat	60,000	Central Locomotive & Car
	f	1	Rodger ballast	60,000	Hart-Otis Car Co.
J. D. McArthur Co.	d	100	Hart convertible	80,000	Hart-Otis Car Co.
	f	1	Rodger ballast	60,000	" "
Mineral Range	an	100	Rock	100,000	American Car & Fdy Co.
Minneapolis, St. Paul and S. S. Marie	bcn	550	Box	80,000	" "
	an	500	Ore	100,000	" "
Mond Nickel Co.	a	12	Otis dump	100,000	Hart-Otis Car Co.
Pacific Great Eastern	a	4	Tank	100,000	American Car & Fdy Co.
	bc	44	Box	.....	National Steel Car Co.
	b	67	Flat	.....	" "
Quebec Central	fm	150	Wood rack	60,000	Chicago Ref. Dis. Co.
St. Lawrence Bridge Co.	b	8	Flat	80,000	Canadian Car & Fdy Co.
Sydney and Louisburg	fm	25	Hopper	30,000	" "
Toronto, Hamilton and and Buffalo	f	1	Rodger ballast	60,000	Hart-Otis Car Co.
Windsor, Essex and Lake Shore Rapid	be	2	Box	80,000	Canadian Car & Fdy Co.
	b	4	Flat	80,000	" "

a Indicates all steel
b Indicates all steel underframe
c Indicates steel frame
d Indicates composite underframe
f Indicates all wood
g Indicates steel end frame
m Indicates spring draft gear
n Indicates friction draft year
w Indicates oil lighting
x Indicates electric lighting
y Indicates gas lighting
z Indicates acetylene lighting

Locomotives

Purchaser	No.	Cylinders		Total Weight	Type	Builder
Algoma Steel Corp.	1	21	x26	142,000	0–6–0	Baldwin Loco. Works.
B. C. Equip. Co.	1	10	x14	.....	.....	Canadian Loco. Co.
Canadian Copper Co.	1	20	x26	155,000	2–6–0	Montreal Loco. Works
Canadian Northern	6	.....		166,000	Elec.	Can. Gen. Elec. Co.
	15	19	x26	123,000	0–6–0	Canadian Loco Co.
	a4	23	x28	213,000	4–6–2	Montreal Loco Works
	a25	23	x26	188,000	2–8–0	Canadian Loco Co.
	a25	24	x32	220,000	2–8–0	Can. Allis-Chalmers
Canadian Northern Ont.	a15	22	x26	173,000	4–6–0	Montreal Loco. Works
	a2	19	x26	123,000	0–6–0	Canadian Loco. Co.
Canadian Pacific	a4	21	x28	198,000	4–6–0	Montreal Loco. Works
	a14	19	x24	138,700	4–6–0	Angus Shops
	a10	22½	x28	217,000	4–6–2	"
	a35	18	x26	138,000	0–6–0	"
	a10	21	x28	194,200	0–8–0	"
	a2	22½	x28	222,000	4–6–2	"
	a75	23½	x32	258,000	4–6–0	Montreal Loco. Works
	a10	23½	x32	225,000	2–8–0	"
	a3	23½	x32	225,000	2–8–0	Can. Allis-Chalmers
	a10	19	x24	147,500	4–6–0	Angus Shops
	4	.....		184,000	Elec.	Can. General Elec. Co.
Confederation Con. Co.	2	13	x18	.....	.....	Canadian Loco. Co.
Detroit River Tunnel	4	.....		240,000	Elec.	General Electric Co.
Dominion Coal Co.	1	21	x26	179,000	2–8–0	Montreal Loco. Works
Duluth, S.S. & Atlantic.	a3	21	x26	196,000	4–6–2	American Loco. Co.
	a12	21	x30	186,000	2–8–0	" "
Foley Bros., Welch & Stewart	4	17	x24	94,000	0–6–0	Davenport Loco. Co.
Grand Trunk	a50	27	x30	205,000	2–8–2	Montreal Loco Works
	a25	27	x30	272,100	2–8–2	Baldwin Loco. Works
Grant, Smith & Co.	1	17	x24	94,000	0–6–0	Davenport Loco. Co.
Intercolonial	a10	24	x32	236,000	2–8–0	Can. Allis-Chalmers
	a5	24	x32	236,000	2–8–0	Montreal Loco. Works
	a10	24	x32	236,000	2–8–0	Canadian Loco. Co.
	a4	23½	x28	230,000	4–6–2	Montreal Loco. Works
	5	21	x26	150,000	Switch	Canadian Loco. Co.
	1	.....		.....	Elec.	Westinghouse-Baldwin
	5	21	x26	.....	Switch	Canadian Loco. Co.
	6	24	x32	.....	2–8–0	" "
J. D. McArthur Co.	2	19	x26	130,000	2–6–0	Montreal Loco. Works
Minneapolis, St. Paul and S.S. Marie	a4	25	x26	263,000	4–6–2	American Loco. Co.
	a6	25	x30	225,000	2–8–0	" "
Mond Nickel Co.	1	20	x26	156,000	2–6–0	Montreal Loco. Works
Morrissey, Fernie & Michel	2	20	x24	148,000	2–8–0	Baldwin Loco. Works
Quebec & Lake St. John	a22	20	x24	154,000	4–6–0	Montreal Loco. Works
Quebec Central	a4	21	x26	155,000	4–6–0	Canadian Loco. Co.
St. Lawrence Bridge Co.	1	.....		.....	.....	Montreal Loco. Works
Sydney & Louisburg	1	21	x26	178,500	2–8–0	" "
Union Carbide Co.	1	15	x24	.....	.....	Canadian Loco. Co.
P. Welch	1	19	x28	170,000	2–8–0	Montreal Loco. Works
	4	7	x12	18,500	0–4–0	Davenport Loco Co.

a Indicates superheater

Railway Age Gazette

Telephone Train Dispatching on the Intercolonial Railway.

As announced in a recent issue of Canadian Railway and Marine World a contract was let recently for the installation of telephone train dispatching equipment on the I.R.C., between Moncton and St. John, N. B., 89.4 miles, respecting which we have received the following official information:

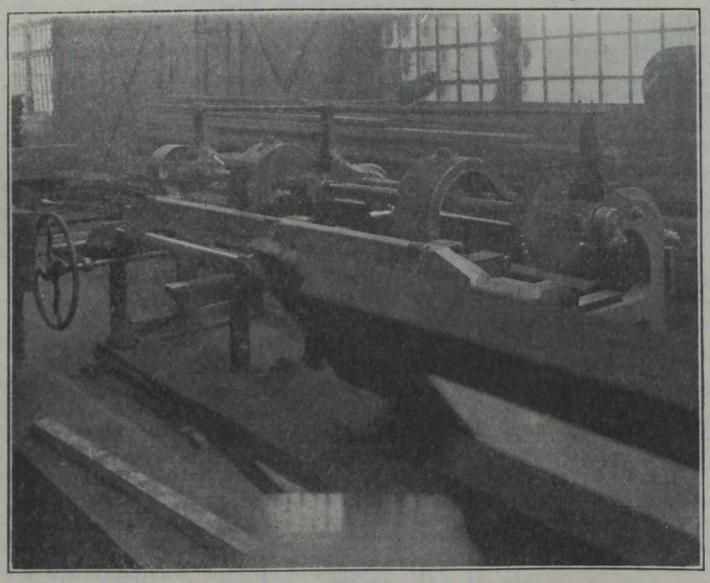
The contract includes the construction of a metallic telephone circuit of no. 9 B. & S. gauge hard drawn copper wire, weighing 210 lbs. a mile. The dispatchers will be located at the divisional point, Moncton. Gill selectors and the latest type of telephone transmitter arms will be installed in each of the offices between Moncton and St. John so that the dispatchers may communicate with any station by telephone. In addition to this, portable telephones with line poles will be furnished for each train so that in case of emergency train crews may communicate with the dispatcher from any point of the right of way. Each office will be equipped with a test panel to enable trouble to be quickly located and cleared. The equipment furnished will be of the highest grade and largely similar to what has been in use on the C.P.R. for several years. The Hall Switch and Signal Co., which has the contract, expects to have it completed at an early date.

Canadian Society of Civil Engineers, Victoria, B.C., Branch.—Following are the officers for the current year, elected at the recent annual meeting,—Chairman, F. C. Gamble; Vice Chairman, D. O. Lewis; Treasurer, A. E. Foreman; Secretary, R. W. MacIntyre; Auditors, H. A. Icke and F. A. Richardson; other members of executive, E. H. Harrison and L. W. Thoms.

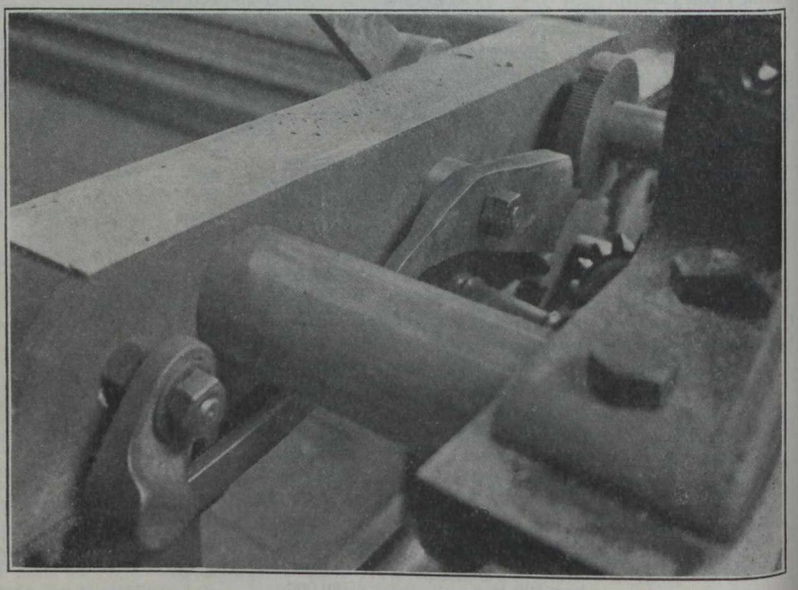
Railway Mechanical Methods and Devices.

Cattle Guard Machine in Grand Trunk Railway Car Shops.

In Canadian Railway and Marine World for Oct., 1912, a full description of the then existing practice of making cattle guards at the G.T.R. car shops, at London, Ont., was given. This practice, while better than that to be found in the majority of shops, is being superseded by a more nearly automatic system of handling the parts, made possible by the construction of a special machine by A. Leclair, millwright in the G.T.R. Montreal shops. Several years ago, he devised a machine for sundry kinds of duplicate work in the Montreal shops, and it was found that it was useful in making the parts of a cattle guard, by adopting special fixtures to it. Since then, the machine has been used entirely for these guards, and so useful has it proved, that it has been decided to equip other shops of the system with the same kind of machine, only the latest development is a considerable improvement on the last production, specialized exclusively for the cattle guard slats.



Machine for Trimming, End Bevelling and Drilling Cattle Guard Slats.



Clamping Mechanism of Cattle Guard Machine.

The machine which has been made in the Montreal shops for London, Ont., is shown in one of the accompanying illustrations, ready for shipment, but is unfortunately marred by the presence of an obstruction in the foreground which does not belong to the machine. The machine consists of a light cast iron frame construction, similar frames at each end and the centre forming the whole under structure. Carried in three bushings, one in each of the frames, there is a shaft extending the length of the machine, on which in any desired position may be secured saws or knife heads. These heads are protected by sheet iron hoods, attached to a shaft in the rear, and which may be shifted when it is necessary to get at the knife or saw.

Across the top of each of the three under frame sections, there is a carriage way, on each of which is mounted a carriage, an arrangement similar to the cross slide of a lathe carriage. These three carriages are operated in unison by the large handwheel shown in front, which connects, through a shaft and bevel gears, with a shaft under the cross carriages, spurs on this shaft meshing with racks on the under surface of the carriages.

The original machine of this type was made up for general work. This machine, being specially designed for cattle guard slats, is arranged with a special clamping jig. On the top of each of the tree cross carriages, there is a stop block, the three lined up correctly. These stop blocks hold a wooden jig member, of a section to receive one side of a cattle guard slat. There is a corresponding jig section to the rear, which is adjustable on the carriage, by cams actuated by the vertical lever on the far end of the machine, clamping the member to be machined, in place in these vise jaws.

The details of the clamping mechanism are shown in the other illustration. The lever in the background is on the end of the cam shaft. Pulling the lever over towards the operator, locks the cams in position. On the cam shaft, there is a notched wheel, engaging with which is a knife edged lever, fulcrumed on the end frame. On the near end of the frame, there is a small dog, pivotted on the frame, and which holds the end of the lever down, retaining the jaws in their clamped position. By raising this dog, and giving the clamping lever a releasing pull, the jaws are loosened, so that the slat can be taken out quickly. Then, after inserting a new piece, the lever is pulled forward, and by the dropping down of the dog on the knife lever, the slat is clamped for operating.

The cutter head carries two saws, for trimming the slat to length, and also carries a double cutter head adjoining each of the saws. The initial construction had a single cutter head, but it was found that by making the cutter head in two parts, with knife blades of each set in an opposite direction, the cut was divided, and a better balance obtained. These double headed cutters shave off the end bevel of the cattle guard in the one pass across the machine.

Back of the cutter and saw shaft, there is a secondary revolving shaft, with heads that are adjustable along its length, in which there are drill heads, operating from this shaft through bevel gears. As the cutters and saws are performing their operations, the drills, properly spaced, drill the tie rod holes, so that the slat on coming from the machine is completed.

A somewhat similar machine has been made up for machining the separating blocks, which are bevelled at both ends like the slats, and have one tie rod hole in the centre. All this is performed in the one operation. This machine is almost identically the same as the slat machine, only shorter.

The initial operation on the slats, that of bevelling the tops, is performed on the buzz planer. The slat stock is twice the depth of the completed slats. This stock is passed through the planer on the flat, with revolving knives above and below, spaced one before the other, so that as the stock passes through, channels are planed top and bottom, turning out two completed slats at the other end.

The final assembling of the slats to form the cattle guards is done in a vertical jig, fitting them on one at a time.

Crank Pin Turning Device at Quebec Central Railway Shops.

Considering the amount of machine work to be performed on the part, the work involved in putting a crank pin in shape, is considerable. As usually practised, the locomotive driving wheels are placed in a large hydraulic press, and the pin first of all pressed out. This generally requires the removal of the wheels to another point in the shop, which, in the case of a small shop, without adequate crane facilities, is a considerable task. In consequence, any device that is capable of being used directly on the crank pin when in place in the driving wheel, makes for a considerable saving in time, even if the actual time of machining by an applied device is not as short as when removed to a lathe.

In the Quebec Central Ry. shops, at Sherbrooke, Que. (G. M. Robins is Master Mechanic, and E. M. Green, General Foreman Machine Shop), such an applied device for turning crank pins is in use, and is illustrated herewith. The device depends initially on the fact that the threading for the crank pin nut is concentric and uniform with regard to the body of the crank pin. The body of the tool consists of two parts. An inner stem is threaded as a nut at one end, this end screwing on over the crank pin threading aligning the tool with the crank pin. This extending pin carries a long sleeve as shown. This sleeve carries on its inner end an offset arm, which extends over the crank pin surface, and in its extremity it has a small adjustable cutting tool. The inside guiding pin is stationary,

while the sleeve is revolved by an air motor, attached to an improvised train of gears. The gear train frame is held down by a link and turnbuckle to the floor. On the outer end of the device, there is a ratchet mechanism, for feeding the outer sleeve with its tool, over the face of the crank pin. This ratchet mechanism consists of a dog attached to the sleeve end, adjoining a cam disc, which is stationary. As the dog revolves with the sleeve, it follows the surface of the cam, dropping into an adjustable surface cut out at a certain point in its revolution, falling into a depression of a notched wheel, the latter being on a spindle connecting through a long screw with the inner stem. The outer end of this part is rigidly secured to a brace from the floor (not shown), so that as the screw is revolved slightly on each turn, the sleeve is fed forward a corresponding amount.

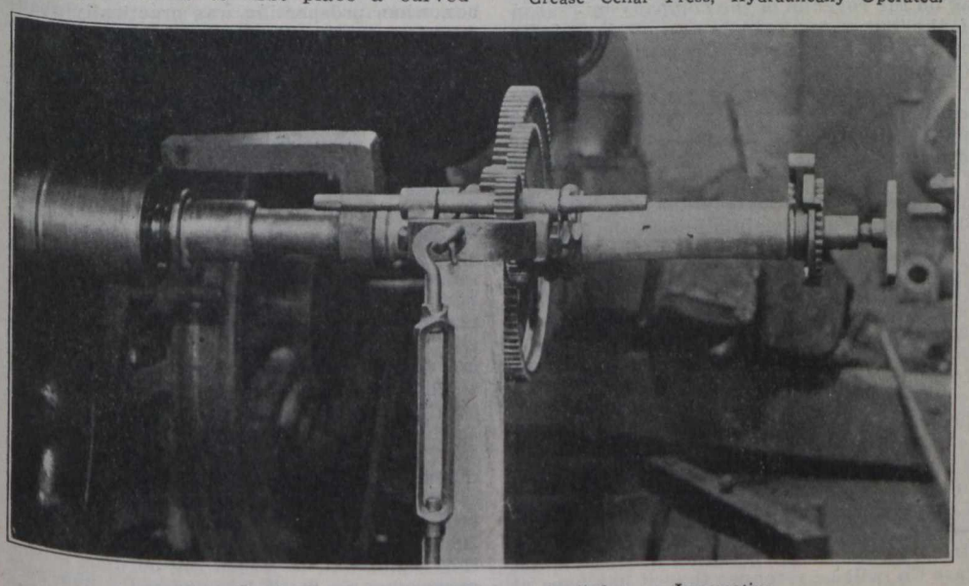
The operation of this mechanism is quite rapid, as from its simplicity, it requires but little time to assemble, and as the cut to be removed from the pin is usually very light, only enough to true it up from the oval shape into which pins tend to shape in service, the rapidity with which the cut can be taken is, considerable, resulting in a neat job, without the attendant task of removing the drivers. In fact, all that is necessary to do to handle a job is to remove the connecting and side rods, with their brasses, and the pin is prepared for machining.

Grease Cellar Press at Grand Trunk Ry. Montreal Shops.

The accompanying ilustration shows the grease press in use at the G.T.R. Montreal locomotive shops, and which is located in a small depression in the floor adjoining a window. Alongside the press is the grease barrel, and in front of the press a working table. A special cast iron mould is used, the inside dimensions of which are the exact size of the block of grease to be moulded. The lower surface of the mould is the concave one to fit over the axle.

The practice is to first place a curved sheet of thin sheet iron in the mould, next filling the mould by hand as full as it is considered desirable, then placing the mould under the press, the flat surface of which, descending under hydraulic power, forces the hard grease into all the crevices of the mould, forming a solid block. The surplus overflowing the top is trimmed off with a hand scraper, and the mould again subjected to a pressure from the ram, when the block is ready to be taken from the mould.

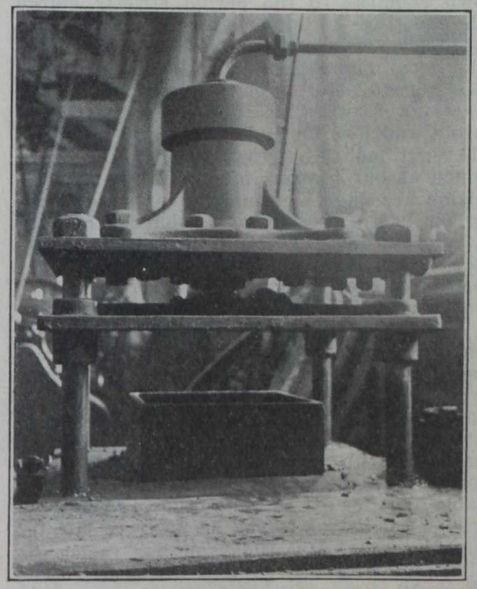
Through the under side of the mould there is a tapped hole. A hand bolt is screwed through this on the completion of the compressing, the bolt, coming in contact with the sheet metal mould liner, forces the block of grease out, when the operation is again repeated. This process is carried on in the wheel shop under J. Hunter, Foreman Wheel and Tender Shops.



Crank Pin Turning Mechanism, Applied to a Locomotive.

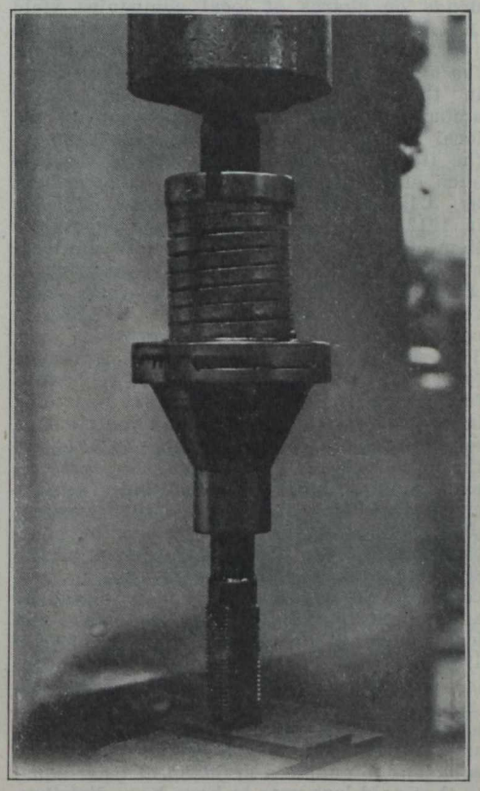
Tapping Attachment at Grand Trunk Ry. Montreal Shops.

The accompanying illustration shows a very useful tapping attachment used in the G.T.R. Montreal locomotive shops, (J. Lees, General Foreman, Machine Shop,) for tapping through blind holes in castings. It is used in a reversing drill press, and of course would be of no value in a drill that had not a reversing attachment.



Grease Cellar Press, Hydraulically Operated.

The device consists of a tap at the bottom, the upper end of which is enlarged to form a clutch face, having two shallow radial clutch jaws. Engaging this face, there is a corresponding radial clutch surface. The power transmitting faces are at an angle of about 45 degrees. The upper disc is keyed to a threaded spindle, carried in the spindle of the lathe. A projecting pin from the upper spindle of the tool, projects into the lower members, making the two parts as one. Around the upper spindle, there is a square coiled spring, the tension in which is varied by a screw collar fitting over the thread of the spindle. This spring bearing down on the upper clutch disc, keeps the two closely engaged, but in the event of a hard spot in the casting being encountered, or the tap being stalled from any cause, the upper clutch disc will rise on the 45 degree engaging faces, allowing the tap to slip. The spring may be adjusted to whatever tension is desired, bearing in mind the strength of the tap. A safety device such as this has a marked saving in the number of taps required.



Safety Tapping Attachment.

A Long Girder Span Replacing a Howe Truss was put in place on the Duluth, South Shore & Atlantic Ry., a C.P.R. subsidiary, at its crossing over Bad River, near Shilo, Wis., recently. The Howe truss span was 150 ft. long and formed part of a timber trestle 955 ft. long. The entire structure was replaced by a plate girder viaduct of 30 ft. tower spans and 64 ft. intermediate spans, with a 121 ft. deck plate girder river span. This span complete weighed 108 tons. It was riveted up on two flat cars which were run on to the deck of the old span. The span was lifted off by a derrick car at one end and a gallows frame hoist at the other end, the cars were run out, the deck of the old bridge torn away, and the new span lowered between the old trusses on to the previously erected steel bents.

Signalling on Western Lines, Canadian Pacific Ry.—We are officially advised that there are now in operation automatic station protection signals of the upper quadrant semaphore type between Fort William and Winnipeg, upper quadrant automatic signals between Stephen and Field, and between McGillivray and Crowsnest, B.C., and automatic station protection signals through the Calgary terminals.

White Pass and Yukon Railway Co.'s Annual Meeting.

The annual meeting was held in London, Eng., Dec. 16. The chairman of the company, C. C. Macrae, said:—

I shall invite your attention to the principal figures in the accounts. Interest on local securities remains as usual. Dividends on shares of local companies yield £47,756, as against £34,142 in the previous year. On the debtor side of that account the figures are substantially similar to those in the preceding year, but the larger amount received from dividends paid by the local companies and various reductions in the items of expenditure increase the balance of profit carried to the balance-sheet by £15,178—or £41,018, against £25,840 in 1912. Going to the balance sheet, the item of our holding in securities of the local companies, taken at cost price, remains at £2,374,011. The balance due from local companies stands this year at £47,294, as compared with £56,509 in the previous year. The sinking fund investment is increased from £210,819 to £239,984, and we have a further credit this year of £4,849 expended in advance for the sinking fund contribution required for the year ended June 30, 1913. On the debit side of this account the items remain constant until you get to that of sundry creditors, which stands at £5,419, against £19,109 in the preceding year, or a reduction of £13,690. The item representing the sinking fund is increased in the natural course of the accumulations to that fund by an amount of £29,165, and the profit and loss account is brought up from £35,090 in 1912 to £44,392 in 1913, in the way shown in the balance sheet. Deducting from this £18,591 reqired for the sinking fund instalments due this year, there remains a balance of £25,801, which would have been sufficient to enable a dividend at least equal to that paid last year to have been distributed, but which, for considerations which I shall explain to you when I have finished with the figures, the directors recommend to be carried forward to next year.

Turning to the report of the President of the local companies, a comparison of the figures shows that in the rail division there were carried 10,898 passengers and 51,517 tons of revenue freight, against 10,441 passengers and 20,028 tons of revenue freight in the preceding year. This large increase of about 150% in the tonnage of paying freight carried is very gratifying, and is principally due to the active development in the copper mining work done in the White Horse territory. The average load per car is also materially increased, an important matter as regards the cost of carrying. The operating expenses, which have shown substantial decreases in each of recent years, show a decrease of $42,318, as compared with the previous year, and of $109,446 as compared with the year before that. In the river division the number of passengers carried is, curiously enough, almost identical with that of the previous year, while the tonnage of revenue freight carried is increased by about 6%, or from 15,825 tons to 16,723 tons. This traffic was worked with one steamer less than in the preceding year. It is also satisfactory to note that the season during which the fleet operated was prolonged by about a week at the opening, and that the last boat (from Atlin to Caribou) ran as late as Nov. 2, which beats the record for date of running in the history of the White Pass companies. On this point I may ask you to note a statement in Mr. Dickeson's report to the effect that "two small steamers endeavored to operate later than ourselves, with the result that they were both frozen in at Indian River." Owing to the longer season there was an increase in the expenses of operating this division of $5,931, but this was offset by the increased revenue obtained from the larger business done. On the winter mail service figures I need say nothing, except that they correspond fairly closely with those of the previous year, while the operating expenses are substantially reduced. The anomaly of the situation in which your chairman regularly finds himself at these general meetings is that he has to address you at the end of each year upon a report and accounts relating to the previous year only, while at the time he knows generally what has been the result of the companies' operations in the succeeding year—namely, the year in which he is speaking. I have myself always endeavored in my speeches at these meetings to confine my own remarks to the period strictly before the meeting—although later information has ordinarily been given by the President of the local companies—but, inasmuch as in the report before you we recommend the carrying forward of the whole balance of profit and loss instead of paying a dividend thereout, as the figures justify, and, inasmuch as our reasons for coming to this decision are due to circumstances which have arisen in the present year—that is, the year after that dealt with in the report before you—I am compelled to travel outside the period of that report in order to explain to you why we have come to this conclusion.

Briefly, then, let me say that in the present year we have been faced with an organised attempt to compete for our traffic, which has left us no alternative but to fight to hold our own and prevent ourselves from being driven out of the business which we have built up at such great cost and by so many years of hard work. It was a veritable fight for existence, and not of our seeking. But it was forced on us, and, that being the case, Mr. Dickeson has faced the situation with energy and resource. The war, although costly to both sides, and telling on the revenue of the company by reason of the cut rates, which are an invariable feature of these fights has resulted in this company maintaining and, I trust I may go so far as to say, even strengthening its position. But a situation has been created which will prove of the greatest permanent advantage to the enterprise, but in which it is of the utmost importance to the future interests of this company that its cash resources should be maintained at the highest possible level. This situation is of a character that, having regard to negotiations which are now pending in the way of its development it is most inexpedient that I should, at present, further explain it, and I must ask your forbearance to excuse me from now giving details and your trust in your board that they are doing what, with the knowledge they possess, they believe to be in your best interest. All I would say is that we have reason to hope these negotiations may prove to be successful, and if they turn out as we trust they may do, I believe, and I am fortified by the opinion of Mr. Dickeson, the position of the White Pass Co. will be stronger than it has been at any time in its history, and we may look forward with reasonable grounds of assurance to a future of prosperity for the company, and to very much more satisfactory results than those we have experienced in recent years of struggle with aggressive competition and declining traffics.

The report and accounts having been adopted, E. Hanson, of Montreal, and E. F. North, of London, Eng., were re-elected directors.

O. L. Dickeson, of Vancouver, President of the local companies then said.

Last year I dealt at some length with the general conditions of the country, giving my impressions of the situation, and I will refrain, therefore, from again referring to the general conditions, except to say that the ideas expressed at that time remain unchanged, and quite briefly to touch upon interesting new developments. In the Atlin district the gold output increased as compared with the previous year, and additional investments in the improvement of properties in that district have been made throughout the summer, which should ensure further increase in the output next year. An important gold quartz property in the vicinity of Atlin has been opened up, and it holds promise of developing into a permanent paying property. The successful operation of this property would mean renewed interest in the prospecting for the development of other quartz prospects in that district. While the final figures are not available I am informed that the gold output in the Klondyke region increased this year, and a large additional undertaking for the operation of an area of placer ground has been financed and activities on a new and large scale should begin in the Klondyke region following the opening of navigation next year. In the Fairbanks district the production of placer gold decreased, roughly, from $5,000,000 in 1912 to about $4,000,000 in 1913, due to a lack of water. Considerable development and prospecting for gold quartz was carried on. The gold quartz industry in the Fairbanks district is very promising, but has not as yet reached the stage where it has created much traffic. Considerable prospecting was done on the streams tributary to the Yukon River. An entirely new and what promises to be an important discovery of gold was made at Shushanna in May, 1913. The new diggings are located in the White River mining district in Alaska, just across the boundary line from the Yukon territory, or approximately ten minutes north of latitude 62, longitude 142. From the time of discovery in May until September, when prospecting was practically abandoned owing to the lack of food supplies and to winter setting in, roughly $30,000 was taken out of the discovery claim by a few men with the hand sluicing method. It was only late in July when this discovery was made public in Dawson, and intense interest was immediately manifested, and a stampede was made from all directions, with the result that several hundred people reached the diggings, but only in time to stake claims and return for additional supplies before the severe winter weather. In view of these conditions, very little prospecting was possible in the Shushanna district this year. Those who staked claims, however, are returning with supplies and are building cabins, etc., preparatory to prospecting their claims for gold as soon as spring opens.

While this discovery is approximately 320 miles from our line in the interior it is contiguous to our property by reason of our route being the easiest and safest for travel. And in order to assist in the development of this region and to lessen the burdens of the prospector, we have inaugurated a new service, placing in operation a winter trail direct from White Horse to Shushanna for the transportation of passengers and supplies. During the summer the Shushanna district is much easier of access than in winter, as our light draft steamers operating up the White River (tributary to the Yukon) land passengers and deliver supplies at a new town called Donjek, within about 90 miles of the discovery. From this

point to Shushanna the trip is overland by trail. Our mining engineer was sent to the district to make a general report of the prospects, and, while we do not wish to predict the extent of value of the discovery, from his report and from such general information as is obtainable from all sources, it is safe to say that the region holds promise of being a rich camp, which means added traffic for the railway and boats next year. The Tantalus coal mine, 200 miles below White Horse, on the Yukon River, installed new and more modern machinery, extended development work throughout the year, and explored new veins of coal. A series of tests of the coal has been made on our locomotives, and it has been demonstrated that it is suitable for our use. This means permanent local industry on the line, and is better for us than buying coal on Vancouver Island and paying duty for delivery in Alaska. In the White Horse district development work and shipment of ore continued throughout the season, the railway having carried 36,000 tons of ore during 1913, the largest ore tonnage in any year in the history of the company. The company has reason to feel much encouraged by the results of development work so far accomplished in this district, and the development under way undoubtedly promises permanency of traffic. The successful operations in that district will also lead to renewed activity along the same lines in other districts where similar copper prospects are known to exist. The railway transported ore throughout the winter of 1912 and 1913, and demonstrated the physical possibility of so doing at all seasons, but the winter carriage of ore did not prove sufficiently profitable under the state of development then existing. It was determined, therefore, last spring to mine and ship ore throughout the summer and to discontinue the production of tonnage in winter, devoting attention to development work only preparatory to handling the ore on a larger scale. It may be considered advisable to continue development work and not resume shipping for a considerable period, with a view to determining the extent and value of the deposit so as to enable the working out of an economic solution of operating the mine. Our tourist traffic has been increased this year, and we may confidently look forward to a much greater number of tourists when the country becomes better known to the pleasure seeking public. A satisfactory feature is that the tourists are well pleased, and many of them state that they will induce others to make this wonderful trip.

I cannot speak too highly of the attitude of the present Canadian Government in lending their assistance to new projects for the development of the Yukon. This year the Government appropriated an additional sum of $50,000 for the improvement of the overland trail between White Horse and Dawson, and it is expected that additional appropriation will be made so as to place the trail in such shape as to admit of the use of automobiles for the transportation of freight and passengers, thus eliminating the present expensive methods of handling traffic on the trail and lessening the cost of transport to the public. The Government is also considering a proposition for the construction of a dam at Miles Canyon, near White Horse, the head of navigation, for the purpose of storing and controlling the flood waters, which will improve the transportation conditions at all stages of water in the river, and will ensure a longer season of open navigation. We confidently hope an appropriation for this purpose may be made in Ottawa during this winter, particularly as the amount of money required is so very small as compared with the benefit to be derived. The work could be started as soon as the money could be available.

As a result of conditions growing out of a policy spread over a period of years of handling business destined to Dawson, a very serious situation arose which threatened to divert to the St. Michael's route a large portion of the traffic which we felt should properly be routed over our line. Negotiations for the adjustment of these conditions were carried on for a considerable period without, however, any acceptable conclusion being reached, and at last it became necessary to establish an entirely new connection for the interchange of traffic at Dawson in order to preserve our interests. Two new modern boats of American register were constructed for this purpose, and were placed in operation between Dawson and Fairbanks, on the lower river. As a result of the establishment of this new connection giving a through service to Fairbanks, we received approximately $25,000 of gross revenue which we should not otherwise have received. The establishment of this service brought about a most vigorous rate war on the Yukon River. Rate wars are usually disastrous to all parties engaged, but our railway occupied the peculiar position of obtaining additional traffic at acceptable rates sufficient to offset the reductions which were made on the river to meet the cut in rates while at the same time our competitors handled at a loss all the traffic delivered by them to us as a direct result of the war. While it is our policy to work in harmonious relations with other transportation companies, we were not in this instance able to secure what we considered a fair and reasonable working arrangement. The rate war was not of our seeking, but in spite of it we find ourselves in a much stronger position than we were in before the inauguration of this new service. Further, one of the ocean lines, having a regular established service from Seattle to Skaguay as well as to St. Michaels, undertook to divert a large part of the traffic to the St. Michaels route, discriminating against their Skaguay route and our line. This made it necessary for us at once to arrange terms with a new and independent line of steamers to handle the traffic we control on the ocean; and the White Pass Co. could better afford to keep some such arrangement in effect permanently, even at a heavy annual loss in handling the traffic on the ocean, than forego its fair share of the Yukon traffic over the railway. It is not unlikely that this state of chaos in the handling of the ocean traffic may continue, and, if so, it is inevitable that we should at once take into consideration the question of the establishment of a permanent first class line to handle both freight and passenger business between Seattle, Vancouver and Skaguay. The boats operating on this run at present are sufficient to handle the traffic under ordinary conditions, and it would be unwise to establish such a service if the traffic between these points alone was the only consideration. But the White Pass, having already such a large investment to protect, the additional undertaking would be quite small having regard to the interests involved. We have been collecting data upon the question for some time for the purpose of determining the revenues to be derived and the future possibilities. The year 1915 would be an especially appropriate time for the inauguration of such a service to coincide with the Panama Pacific Exposition in San Francisco, from which we shall undoubtedly derive a large tourist traffic. If this link in the service were arranged the public would have the advantage of a first class through line from Seattle and Vancouver, via the White Pass, to Fairbanks—a distance of 2,600 miles. We should be free from all risk of discrimination against us on the ocean, and be able to pursue an unhampered policy in the steady development of business for our route.

In spite of the rate war, and indeed partly because of it, our gross business increased. The number of passengers carried in 1912 was 13,356, and in 1913, 18,038—an increase of 35%. The general freight tonnage amounted to 23,716 tons in 1912, and to 24,196 tons in 1913—an increase of 2%. Ore handled in 1912 amounted to 31,230 tons; in 1913, 36,693 tons—an increase of 17.5%. Naturally, under the conditions that have prevailed, the revenue per ton and per passenger will not show the same relative increase. But the figures that I have given show conclusively that we have more than held our own. The gross revenue of the company by the end of Dec., 1913, will be approximately $1,215,000, a considerable increase over 1911 and a slight increase over 1912, which is a most satisfactory condition, having regard to all the attendant circumstances.

The Canadian Pacific Railway's New Terminals at Vancouver.

The construction of a modern terminal for the C. P. R. at Vancouver, the general features of which were described in Canadian Railway and Marine World, embracing both railway and steamship facilities, has been under way for more than a year, and the $1,000,000 station has been advanced to such a point that the east section is to be ready for occupancy by Feb. 1. Work is being rushed to completion on the east end so that offices can be moved there from the old station, which adjoins the new building on the south, and which must be torn down before the present improvement scheme can be completed.

The new building is a steel frame structure six stories high, and has a frontage of more than a block on Cordova St.., where the architectural design provides a series of massive Corinthian columns standing out from a brick background, with stone cornices and trimming. A four track passenger platform, 1,000 ft. long, is being provided.

Besides the station proper, the terminal work under way now includes inclined viaducts from Granville and Burrard Streets to the waterfront, the extension of several docks for distances ranging up to 450 ft., and the erection of structures for offices and waiting rooms on the piers. The Granville St. viaduct, whose lower end will form part of a combined passenger station and freight shed on one of the piers, will bring down all the wharf traffic from the chief thoroughfare of the city. This viaduct will pass the western end of the new railway terminal well above track level, and will cross the site now occupied by the old station, which as above stated, is to be demolished.

The Burrard St. viaduct will also bring traffic down to the docks from the city level by an incline over the yard trackage. Steel girders for the substructure of this viaduct had been placed before Dec. 1, but completion will not be possible until the old detention sheds on the wharf have been torn down. Dominion authorities have recently received tenders on a new structure for the Immigration Department, and as soon as this can be completed the old sheds will be removed to make room for a spacious viaduct terminus.

The dock scheme now in course of development by the railway company embraces a water frontage about ¾ mile long. The capacity of the freight sheds has already been increased by erecting new buildings extending to the present line of the property leased to other shipping interests, and new machine shops, where repair work is car-

ried on for the coasting steamers and ocean liners, have been provided. In the upper floor of one of the new buildings the company has equipped a hall which is to serve as a waiting room far the longshoremen. The quarters are spacious and comfortable, shower baths being among the conveniences installed.

Book Review.

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

A CENTURY OF SAIL AND STEAM ON the Niagara River—By Barlow Cumberland. 198 pages, 9 by 6 in., with portrait and 12 illustrations; cloth boards. Musson Book Co., Toronto. $1.50 net.

Under this title Barlow Cumberland wrote an interesting and valuable volume, the final proof sheets of which he corrected a few weeks before his death, Sept. 1, 1913. Considerable attention has been given by U.S. writers to the publication of historical accounts of the development of navigation on the Great Lakes, but this is the first serious attempt to give a history of Canadian navigation. The late Charles Gildersleeve, General Manager of the Richelieu and Ontario Navigation Co., intended to contribute a general history of navigation on Lake Ontario, but he died suddenly without having accomplished it. The late Mr. Cumberland then undertook to deal with the development of navigation on the Niagara River route, with which his career as a transportation official had been closely accomplished. The result is a volume of 198 pages, in the course of which is given the entire history of navigation on the river and the routes, particularly those on Lake Ontario, converging thereon. The history is more directly that of the Niagara Navigation Co., which entered into competition for traffic on the route in 1878, with the Chicora, and succeeded not only in subduing opposition, but in building up the great traffic now carried between Toronto and points on the Niagara River. The volume deals in an interesting, gossiping manner with the route, the vessels, sail and steam, which have navigated it, and with the men responsible for them. Other routes are referred to, but it is only as the steamboats, or men from them come on to the Niagara route. Probably for the first time the history is given of the Chicora, built in 1863 as a blockade runner, and still running, though largely replated in 1904, at a cost of $37,000. The volume is illustrated with a portrait of the author, and reproductions of prints, etc., of various vessels that have been on the route.

As a result of the recent report of the conciliation board appointed to enquire into the wages, etc., of the G. T. R. telegraphers, it is announced that wage increases aggregating $200,000 a year have been agreed upon, one half of the new rates to be granted as from Jan. 1, 1914, and the remainder as from Jan. 1, 1915.

The Canadian Northern Telegraph Co. has completed its telegraph line between Ottawa and Sydenham, Ont., thus making direct connection between Ottawa and Toronto. The telegraph line between Sudbury and Port Arthur is now being erected, and it is hoped to have it complete early in the year.

The City of Toronto assesses the Canadian Pacific and Ontario and Quebec Railways $6,551,401, and the Grand Trunk Ry. $5,302,040.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our 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 the hearings took place, and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the dates assigned to them.

General order 113, Nov. 5.—Rescinding order 8392, Oct. 7, 1909, approving standard conditions and specifications for wire crossings; and adopting rules for wires crossing railways.

General order 114, Nov. 12.—Approving general form of contract between Bell Telephone Co. and any company, municipality or corporation having authority to operate telephone systems, for interchange of business, etc.

General order 115. Dec. 19.—Suspending, pending investigation by the Board, the following tariffs: G.T.R.'s C.R.C. E.2858; C.P.R.'s C.R.C. E.2716; C.N.R.'s C.R.C. E.358; M.C.R.'s C.R.C. 2162; T. H. & B. R.'s C.R.C. 945; and O. & N. Y. R.'s C.R.C. 989.

General order 116. Dec. 24.—Suspending, pending investigation by the Board, increased minimum carload weights on buckwheat, oats, bran (in bulk), dried beet pulp, oat hulls (in bulk), pea hulls (in bulk), shorts, beets (except sugar), onions, turnips, and potatoes, as filed by railways subject to Board's jurisdiction.

20920. Nov. 28.—Authorizing Canadian Northern Ry. to build spur for Laurentia Milk Co., Battleford, Sask.

20921. Nov. 29.—Extending, to Apr. 1, 1914, time within which subway be completed at Thompson Road, Bertie Tp., Ont.; and, pending completion, G.T.R. to employ day and night watchmen there.

20922. Nov. 29.—Authorizing G.T.R. to operate over interlocking plant, St. Lambert, Que., without first stopping trains.

20923. Nov. 27.—Authorizing G. T. Pacific Ry. to build highway across main line at mileage 523.6, between Secs. 27 and 28-35-14, w. 3 m., Sask.

20924. Nov. 28.—Authorizing Vancouver, Victoria and Eastern Ry.and Navigation Co. (G.N.R.) to open for traffic its double track between milepost 145.84 and 153.619, B.C.

20925. Nov. 25.—Re rating of peanut butter. This order is given in full on another page.

20926. Nov. 29.—Authorizing C. N. Ontario Ry. to build transfer tracks between its Oshawa spur and Oshawa Ry., on east side of Lot 9, Con. 11, Oshawa.

20927. Nov. 29.—Amending order 20647, Oct. 23, re deviation of Lake Erie and Northern Ry., in South Dumfries Tp., Ont.

20928. Dec. 2.—Approving clearances as shown on plan of Montreal Ice Co.'s buildings at C.P.R. siding at Como, Que.; men to be kept off sides of cars.

20929. Dec. 1.—Authorizing C.P.R. to open for traffic portion of its deviated line at bridge 39.49, North Bay Subdivision, Ont.

20930. Dec. 1.—Authorizing C.P.R. to open for traffic its Boissevain-Lauder Branch, Man., from mileage 0 to 36.4.

20931. Dec. 2.—Approving plans of automatic signals on C.P.R. Eastern Lines, from Montreal Jct. to Iberville Jct, Que.; West Toronto to Ilsington, Ont.; Markstay to Stinson, Ont.; Mattawa, Ont.; and Renfrew to Eganville, Ont.

20932. Dec. 1.—Authorizing C.P.R. to build spur for City of Regina, Sask., and to alter spur for Gus Pech Foundry and Mfg. Co., Regina, Sask.

20933. Dec. 1.—Approving location of C.P.R. stations on Virden-McAuley Branch, Man., at Two Creeks, mileage 13.5, and Harmsworth, mileage 8.7.

20934. Dec. 1.—Authorizing Magog Tp., Que., to build highway crossing over C.P.R. in Lot 4 b, R. 21.

20935. Nov. 29.—Authorizing C.P.R. to build spur for Halliday Bros., Winnipeg.

20936. Dec. 1.—Extending, for 30 days from date, time within which G.T.R. shall install bell at crossing of Mill St., Milverton, Ont.

20937. Dec. 1.—Authorizing G. T. Pacific Ry. to build spur for J. Latimer, Edmonton, Alta.

20938. Dec. 1.—Authorizing C. N. Ontario Ry. to build its ballast pit spur across 2 highways in Gloucester Tp.

20939. Dec. 2.—Amending order 10568, Feb. 26, 1910, re Michigan Central Rd. crossing of Plymouth Rd., Welland, Ont.

20940. Dec. 3.—Approving location of C.P.R. Swift Current Northwesterly Branch from Sec. 15-23-29, w. 3 m., mileage 111.17, to Sec. 12-5-3, w. 4 m., mileage 134.48, and authorizing building of same across 23 highways.

20941. Dec. 3.—Approving location of C.P.R. Bassano Easterly Branch from n. e. ¼ Sec. 13-24-1, w. 4 m., mileage 118.39, to Sec. 6-26-21, w. 3 m., mileage. 180.20, and authorizing building of same across 63 highways.

20942. Dec. 1.—Extending, to July 1, 1914, time for approval of C.P.R. tolls between points in Canada west of and including Sudbury, Ont., to and from points west of Sudbury, from and to points east thereof, and east of and including Windsor, Ont., also included in said tariff; during such period C.P.R. is allowed to charge tolls it was authorized to charge under acts 7-8 Edw. VII., chapter 61.

20943. Dec. 2.—Authorizing, until June 1, 1914, Campbellford, Lake Ontario and Western Ry. (C.P.R.) to operate trains over crossing of Oshawa Ry. at mileage 158.85, Prospect St., Oshawa, Ont.; crossing to be protected by flagman at expense of C.L.O. & W.R.

20944. Dec. 3.—Approving location of C.P.R. station at Willom, mileage 26.5, Virden-McAuley Branch, Man.

20945. Dec. 2.—Authorizing C.P.R. to build spur on land leased from Dominion Government, northeasterly of its right of way and Dog Lake, in Tp. 46, Algoma District, Ont., at mileage 58.8, Lake Superior Division.

20946, 20947. Dec. 1.—Extending, to July 1, 1914, time for approval of Great North Western Telegraph Co.'s and Canadian Northern Telegraph Co.'s tolls.

20948. Dec. 3.—Authorizing C. N. Western Ry. to build across and connect with city industrial spurs, Medicine Hat, Alta.

20949. Dec. 2.—Authorizing Canadian Northern Ry. to build spur for Scott Fruit Co., Regina, Sask.

20950, 20951. Dec. 1.—Extending, to July 1, 1914, time for approval of White Pass and Yukon Route, and G. T. Pacific Telegraph Co.'s telegraph tolls.

20952. Dec. 4.—Authorizing G. T. Pacific Ry. to build Government Road Diversion across its main line at mileage 818.6 west of Winnipeg, in North Alberta District.

20953. Dec. 5.—Authorizing C.P.R. to build siding at Melba, across highway between n.w. ¼ Sec. 18-17-3, and n.e. ¼ Sec. 13-17-4, w. 3 m., mileage 41.9 from Moose Jaw, Sask.

20954. Dec. 5.—Relieving C.P.R. from providing further protection at crossing of First Ave., Souris, Man.

20955. Nov. 24.—Ordering that crossing at Broadway St., Yorkton, Sask., be protected by watchman, appointed by C.P.R., from 8.30 a.m. to 8 p.m., except during grain shipping season, when crossing be protected night and day; wages to be paid 60% by C.P.R., and 40% by town.

20956. Dec. 5.—Extending, to May 15, 1914, time within which C.P.R. shall complete spur for Canadian Metal Shelter Co., Winnipeg, authorized by order 19325.

20957. Dec. 5.—Authorizing C.P.R. to build at grade, additional track (second track) across highways at mileage 40.8, 43.7, 50.3, 51.3, and 66.69, Swift Current Subdivision, Sask.

20958. Dec. 5.—Amending order 20502, Oct. 6, re revised location of C.P.R. double track, mileage 59.6 to 60.45, Moose Jaw Subdivision, Sask.

20959. Dec. 5.—Authorizing C.P.R. to use bridge 6.3, Teeswater Subdivision, Ont.

20960. Dec. 3.—Authorizing G.T. Pacific Branch Lines Co. to build spur for Hamilton Bros., Fort Qu'Appelle, Sask.

20961. Dec. 4.—Approving G.T.R. plan B, Nov. 25, showing location of transfer track, Port Hope, Ont.

20962. Dec. 3.—Ordering G.T.R., within 60 days, to install automatic electric bell at crossing of highway, ½ mile west of Keane station, Ont., 20% of cost to be paid out of railway grade crossing fund.

20963. Dec. 5.—Authorizing G.T. Pacific Branch Lines Co. to operate trains over crossing of Canadian Northern Ry. Maryfield Branch in n.w. ¼ Sec. 9-5-6, w. 2 m., Assiniboia District, Sask., without stopping.

20964. Dec. 4.—Ordering G.T.R., within 60 days, to install improved type of automatic bell at crossing of public road west of Ste. Justine station, Que.; 20% of cost to be paid out of railway grade crossing fund.

20965. Dec. 4.—Extending for one year from Dec. 1, order 12723, Dec. 6, 1910, which authorized C.N. Ontario Ry. to cross Hurdmans Road, Nepean Tp., and providing for protection of crossing by gates.

20966. Dec. 9.—Substituting plan 53515 of C.P.R. bridge 92.7 (Don viaduct), near Donlands, Ont., as revised to Dec. 5, for plans approved by order 20827, Nov. 14, openings to be left in bridge between piers 11 and 12 and 15 and 16, as shown on plan A.

20967. Dec. 10.—Approving proposed Supplement 2 to Canadian Freight Classification 16, submitted by G. C. Ransom, Chairman, Canadian Freight Association, to become effective by Jan. 20, 1914.

20968. Dec. 5.—Authorizing G. T. Pacific Ry. to build highway across its main line in Alberta at mileage 763.7 west of Winnipeg.

20969. Dec. 5.—Approving revised location of G. T. Pacific Ry. main line from Lot 5337 to Lot 5336, Cariboo District, B.C., and location of station in Lot 5336, at mileage 95, Yellowhead Pass west, B.C.

20970. Dec. 6.—Authorizing C.P.R. to rebuild bridge 2.0, Montreal Terminals, Eastern Division.

20971. Dec. 10.—Amending order 20775, Nov. 6, re C.P.R. spur for Frontenac Floor and Wall Tile Co., Kingston, Ont.

20972. Oct. 31.—Establishing express collection and delivery limits in Edmonton, Alta., and rescinding orders 14987, Sept. 11, 1911, and 15759, Jan. 8, 1912, in same connection.

20973. Dec. 4.—Establishing express collection and delivery limits in Levis, Que.

20974. Dec. 9.—Authorizing City of Edmonton, Alta., to operate its street railway over G. T. Pacific Ry. at 27th Street, pending installation of half interlocking plant required by order 20793; crossing to be protected by flagmen maintained by city; and cars to be stopped 100 ft. from diamond; trains to

approach crossing under control, prepared to stop if street railway cars are crossing.

20975. Dec. 9.—Extending, to Apr. 1, 1914, time within which G. T. R. shall install gates at crossing of Wallace Ave., Toronto.

20976. Dec. 9.—Authorizing Edmonton, Dunvegan and British Columbia Ry. to build bridge across Athabasca River, mileage 131, west of Edmonton, Alta.

20977. Dec. 9.—Authorizing Esquimalt and Nanaimo Ry. to build spur across Campbell St., Nanaimo, B.C., for Nanaimo Pressed Brick and Terra Cotta Co.

20978. Nov. 27.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to operate trains, until JJune 1, 1914, over crossing of Toronto Eastern Ry. at junction of Scugog and Wellington Sts., Bowmanville, Ont., mileage 149.2 from Glen Tay.

20979. Dec. 9.—Authorizing C.P.R. to build spur for Imperial Oil Co., Montreal, Que.

20980. Dec. 3.—Approving clearances shown on plan of C.P.R. siding for Imperial Oil Co., Calgary, Alta.; men to keep off sides of cars.

20981. Dec. 9.—Extending, to Apr. 1, 1914, time within which G.T.R. shall commence building subway at crossing of Thompson Rd., Bertie Tp., Ont., and ordering work to be completed within 4 months from that date; pending completion, G.T.R. to employ day and night watchmen; wages to be paid: 15% byP.M.R., 30% by M.C.R., 47½% by G.T.R., and 7½% by Bertie Tp.; and rescinding order 20921, Nov. 29.

20982. Dec. 6.—Authorizing G.T.R. to build siding for Frontenac Wall and Tile Co., Kingston Tp., Ont.

20983. Dec. 9.—Ordering Canadian Northern Ry. to dig ditch 3 ft. wide by 3 ft. deep, from west end of British America elevator, Engelfeld, Sask., to grade approaches to elevator, loading platform and team track, by Aug. 1, 1914.

20984. Dec. 10.—Amending order 20905, Nov. 25, 1913, by substituting G. T. Pacific Branch Lines Co. for G. T. Pacific Ry. where latter occurs.

20985. Dec. 9.—Authorizing C.P.R. to open for traffic its Virden-McAuley Branch from mileage 13.5 to 36.0, Man.; speed of trains limited to 20 miles an hour.

20986. Dec. 10.—Approving location of C. N. Ontario Ry. station grounds at Coniston, Neelon Tp., mileage 257 from Toronto.

20987. Dec. 10.—Approving location of C.P.R. station at Broadacres, Sask., and rescinding order 18915, Apr. 14, in same connection.

20988. Dec. 10.—Establishing express collection and delivery limits in Liskeard, Ont.

20989. Dec. 9.—Authorizing C.P.R. to build Y at Tregarva, Sask., across Railway Ave. Lane.

20990. Dec. 9.—Authorizing C.P.R. to rebuild bridge 49.8 over Salmon River, near Kingsbury, Que.

20991. Dec. 9.—Authorizing C.P.R. to build its Kootenay Central Ry. across 4 highways at grade in Lots 5033 and 4596, East Kootenay District, B.C.

20992. Dec. 10.—Authorizing City of Fort William, Ont., to build its double track street railway on Frederica St. across G. T. Pacific Ry., apportionment of cost of half interlocking plant reserved.

20993. Dec. 9.—Ordering Canadian Northern Ry. to divert road allowance in Sec. 12-19-24, Man., municipality to provide necessary right of way on payment by C.N.R. of $200.

20994. Dec. 9.—Authorizing G.T.R. to build spur across Montreal St. and Fort William Electric Ry., at West Fort William, Ont., for Canadian Car and Foundry Co.

20995. Dec. 9.—Approving plan showing details of superstructure of Campbellford, Lake Ontario and Western Ry. (C.P.R.) bridge at Simcoe St., Oshawa, Ont.

20996. Dec. 12.—Authorizing Confederation Construction Co. to build its tracks across G.T.R. for construction purposes only, temporary crossing to be protected by an interlocking plant and derails to the satisfaction of G.T.R. Engineer by applicant.

20997, 20998. Dec. 11.—Authorizing C.P.R. to open for traffic its double track from mileage 76.8 to 84.2, Moose Jaw Subdivision; and from Notman, mileage 95.1 to 99.4, Swift Current Subdivision, Sask.

20999. Dec. 11.—Authorizing C.P.R. to build spur for Merchants' Trust and Trading Co., Nanaimo, B.C.

21000. Dec. 11.—Extending, to Mar. 1, 1914, time within which C.P.R. shall rebuild culvert at bridge 53.2, near Arnprior, Ont.

21001. Dec. 9.—Ordering that, within 15 days after G. A. Farrill, Kenilworth, Ont., notifies C.P.R. that he has dug ditch to right of way fence, C.P.R. shall extend ditch on north side of crossing to right of way fence, and place at least 6 ins. of gravel on farm crossing approaches.

21002. Dec. 12.—Authorizing C.P.R. to build road diversion in Sec. 9-34-18, w. 3 m., Sask.; and build its Wilkie-Anglia Branch at grade across same at mileage 40.2.

21003. Dec. 13.—Authorizing C.P.R. to build its Snowflake Westerly Branch at grade across road allowance between Secs. 14 and 15-1-11, w.p.m., Man., at mileage 9.11.

21004. Dec. 11.—Amending order 20878, Nov. 1, re Canadian Northern Ry. passenger service west of Alsask, Sask.

21005. Dec. 9.—Amending order 17522, Sept. 18, 1912, re building of two roads across Esquimalt and Nanaimo Ry. at North Couripan, B.C.

21006. Dec. 15.—Authorizing C.P.R. to build siding for Canadian Bag Co., Montreal, and approving clearances as shown on plan; men to be kept off tops and sides of cars.

21007. Dec. 10.—Authorizing London and Lake Erie Ry. and Transportation Co. to connect with M.C.R. for interchange of traffic just northeast of St. Thomas station, Ont.; M.C.R. to put in switch and do work on its right of way, furnishing land free of cost; cost of remainder of work to be paid by L. and L. E. Ry. and T. Co.

21008. Dec. 11.—Authorizing C.P.R. to build sidings for City of Montreal at Mile End.

21009. Dec. 11.—Authorizing, until interlocking plant is installed, Campbellford, Lake Ontario and Western Ry. (C.P.R.) to operate across C. N. Ontario Ry. in Lot 27, Con. 2, Pickering Tp.; interlocking plant to be installed by June 15, 1914; and pending installation, crossing to be protected by flagmen appointed by C.N.O.R. and paid for by C.L.O. & W.R.

21010. Dec. 9.—Rescinding order 17667, Oct. 4, 1912, in so far as it relieves C.P.R. from fencing portion of its right of way on Kingston and Pembroke Ry., from mileage 29.5 to 32, east side, and mileage 29.5 to 31.5 on west side; and ordering C.P.R. to fence said portion of right of way from mileage 29.5 to 32, on east side, and mileage 29.5 to 31.5 on west side, by May 31, 1914.

21011. Dec. 15.—Declaring that charge of $34 for demurrage on shipments of coal to Canadian Coal and Commission Co., Bienfait, Sask., shipped Dec. 9 and 11, 1912, was illegal.

21012. Dec. 11.—Authorizing Canadian Northern Ry. and C.P.R., pending installation of interlocking plant, to operate over crossing in n. w. ¼ Sec. 16-52-24, w. 4 m., Alta., until June 15, 1914; crossing to be protected by flagmen appointed by C.P.R. and paid for by C.N.R.

21013. Dec. 10.—Authorizing G. T. Pacific Branch Lines Co. and C.P.R. to operate over crossing at Regina, Sask., without their first stopping trains.

21014. Dec. 11.—Approving plans showing G. T. Pacific Ry. 88½ and 75 ft. turntables.

21015. Dec. 11.—Authorizing G.T.R. to rebuild abutments of bridge 63, mileage 152.51, at Holmesville, Ont.

21016. Dec. 13.—Authorizing, pending installation of interlocking plant, C.P.R. and G.T.R. to operate over crossing in west half Lot 14, Con. 2, Trafalgar Tp., Ont., at mileage 32.56 from Toronto; trains to be stopped before crossing diamond.

21017. Dec. 12.—Authorizing G. T. Pacific Ry. to divert Government road at mileage 212, west of Yellowhead Pass, Cariboo Dist., B.C.

21018. Dec. 13.—Approving revised location of G. T. Pacific Ry. through Chig-ni-kath Indian Reserve, from mileage 125.55 to 127.08, R. 5, Coast District, B.C.

21019. Dec. 13.—Authorizing G. T. Pacific Ry. to build highway in n. e. ¼, Sec. 8-45-1, w. 6 m., North Alberta District, Alta., at mileage 1,028, west of Winnipeg, under its main line.

21020. Dec. 13.—Authorizing G.T.R. to build siding for Lyster Wood Box Turning and Enamelling Co., Nelson Tp., Que.

21021. Dec. 15.—Authorizing C.P.R. to use bridge 0.85, Timiskaming Branch, Ont.

21022. Dec. 16.—Approving location of C.P.R. shelter station on east ½ of Lot 18, Con. 4, Asphodel Tp., Ont.

21023. Dec. 10.—Approving location of C.P.R. station at Reeder, Man.

21024. Dec. 9.—Approving alterations required in Campbellford, Lake Ontario and Western Ry. (C.P.R.) to accommodate extra tracks in station grounds in Bowmanville, Ont.

21025. Dec. 12.—Approving Supplement 1 to Express Classification for Canada 3, amending sec. 2 of article T of Tariff of Rates on money, securities, etc.

21026. Dec. 15.—Approving revised location of Canadian Northern Ry. spur for Thomson, MacDougall and Co., Woodlands, Man.; authorizing building over 2 road allowances, and rescinding order 19970, Aug. 6, in same connection.

21027. Dec. 5.—Authorizing Canadian Northern Ry. to open for traffic its Radville-Moose Jaw line from mileage 83 to Moose Jaw, Sask., 3 miles.

21028. Dec. 20.—Ordering C.P.R. to extend to Ontario and Manitoba Flour Mills, Ltd., privilege of milling all rail grain at Sudbury, Ont., in transit om mileage 83 to Moose Jaw, Sask., 3 miles.

21029. Dec. 16.—Ordering C.P.R. to stop its trains 1 and 2 at Biscotasing, Ont., to accommodate local passenger and express traffic, such stops to be scheduled in time table.

21030. Dec. 15.—Authorizing Canadian Northern Ry. to open for traffic its Prince Albert-Battleford Line from Blaine Lake to Denholm, Sask., 42 miles; speed of trains limited to 15 miles an hour.

21031. Dec. 15.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to operate over crossing of Kingston and Pembroke Ry. (C.P.R.) at mileage 24.8, Glen Tay to Cobourg Line, pending installation of interlocking plant required by order 16490; trains to be stopped and flagged across.

21032. Dec. 16.—Approving revised location of C.P.R. Snowflake Westerly Branch from east to west of Sec. 14-1-11, w.p.m., mileage 8.08 to 9.10, and approving location of said branch from Sec. 14 to Sec. 15-1-11, w.p.m., mileage 9.10 to 10.12.

21033. Dec. 16.—Authorizing C.P.R. to build extension to spur for Port Haney Brick Co., Haney, B.C.

21034. Dec. 17.—Authorizing Canadian Northern Ry. to build spur for Pray and McLennan, Edmonton, Alta.

21035. Dec. 16.—Relieving Canadian Northern Ry. from speed limitation of 20 miles an hour required by order 15380, on its Moose Jaw extension from Radville to end of track, 83 miles.

21036. Dec. 15.—Authorizing City of Edmonton, Alta., to extend Spadina Ave. across G.T. Pacific Ry., G.T.P.R. to build and maintain crossing.

21037. Dec. 18.—Extending, to June 1, 1914, time within which G.T.R. shall install electric bell at crossing of public road west of Ste. Justine Station Que., required by order 20964, Dec. 4.

21038. Dec. 18.—Approving Kettle Valley Ry. location from mileage 27.23 to 50, from Hydraulic Summit westerly to Penticton, B.C.

21039. Dec. 20.—Authorizing Confederation Construction Co. to use crossing over G.T.R. with a flagman until March 1, 1914, or pending installation of interlocking plant required under order 20996.

21040. Dec. 16.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to operate trains over crossing of G.T.R., at Whitby, Ont., until June 1, 1914; crossing to be protected by watchmen.

21041. Dec. 18.—Amending order 20811, Nov. 13, re extension of C.P.R. siding for Dominion Radiator Co., Toronto.

21042. Dec. 19.—Approving clearances as shown on C.P.R. plan of siding for Canada Linseed Oil Mills, Montreal.

21043. Dec. 20.—Extending, to Aug. 1, 1914, time within which G.T.R. shall complete subway at Brock Ave., Toronto.

21044. Dec. 19.—Relieving G.T.R. from providing further protection at crossing of Brant St., Burlington Jct., Ont.

21045. Dec. 20.—Authorizing G.T.R. to operate over subway at highway leading to Cardinal, Ont.

21046. Dec. 20.—Amending order 19296, May 8, re Campbellford, Lake Ontario and Western Ry. (C.P.R.) crossing of road allowance between Lot 14, Con. 7, and Lot 15, Con. 8, Richmond Tp., Ont.

21047. Dec. 18.—Ordering G.T.R. to build, at Prairie siding, a small freight shed and platform, put present passenger shelter in proper repair, and make arrangements to keep same in proper condition.

21048. Dec. 17.—Ordering Dominion Atlantic Ry. to provide farm crossing for R. V. Ditmars, Deep Brook, N.S.

21049. Dec. 20.—Authorizing C.P.R. to build an extension to present siding for Stag Creek Lumber Co., Eastman, Que.

21050. Dec. 10.—Authorizing G.T.R. to build sidings for Imperial Wire and Cable Co., Montreal.

21051. Dec. 22.—Authorizing C. N. Ontario Ry. to build bridge across south branch of Petawawa River, mileage 121.9 west of Ottawa.

21052. Dec. 19.—Rescinding order 20908, Nov. 27, re removal of Canadian Northern spur to Exhibition Grounds, and authorizing it to remove spur along Ninth St., between Victoria Ave. and Brandon Ave., Brandon, Man.

21053. Dec. 22.—Extending, to Dec. 31, 1914, time within which C. N. Ontario Ry. shall complete transfer track with G.T.R., Port Hope, Ont.

21054. Dec. 22.—Approving plan A showing spans at C. N. Ontario Ry. bridge over Mink Creek, Pentland Tp.

21055. Dec. 22.—Extending, to Feb. 22, 1914, time within which C.P.R. shall complete spur, or switching lead, in Toronto, as authorized by order 20385, Sept. 22.

21056, 21057. Dec. 18.—Approving location of C.P.R. stations at mileage 71.36 from Glen Tay, and at St. Joachim, Ont.; and rescinding order 19291, May 14, in the latter case.

21058. Dec. 19.—Authorizing C.P.R. to build extension to spur for H. K. Wampole and Co., Perth, Ont.

21059. Dec. 20.—Authorizing C.P.R. to rebuild bridge 55 over Naiscootyong River, near Naiscoot, Ont.

21060, 21061. Dec. 22.—Authorizing C.P.R. to build at grade its passing track on main line, Broadview Subdivision, across road allowances between Secs. 25 and 26-9-23, at mileage 25.45, and between Secs. 22 and 23-9-24, at mileage 32.43.

21062. Dec. 22.—Authorizing C.P.R. to rebuild bridge 1.9, Prescott Subdivision, Ont.

21063. Dec. 22.—Authorizing G. T. Pacific Ry. to build across and divert highway at mileage 24, Rural Municipality 247, Saskatoon District, Sask.

21064. Dec. 22.—Extending, to May 31, 1914, time within which G.T.R. shall complete siding for Farquharson-Gifford Co., Stratford, Ont., authorized by order 19874.

21065. Dec. 18.—Relieving G.T.R. from providing further protection at crossing of public road 1 mile south of Brunner, Ont.

21066. Dec. 22.—Authorizing Kettle Valley Ry. to build four bridges over Trout Creek, at mileage 7, 36.8, 24.4 and 23.15, west of Penticton, B.C.

21067. Dec. 22.—Authorizing Saskatchewan Government to build highway crossing over Canadian Northern Ry. at Pinkham, Sask.

21068, 21069. Dec. 22.—Approving location of C.P.R. station in Milton, Ont., and authorizing it to take certain lands for enlarging its yard there.

21070. Dec. 22.—Authorizing C.P.R. to build extension to siding for O. Lemire, Cabane Ronde, Mascouche, Que., mileage 15.88 from St. Martin Jct.

21071. Dec. 20.—Authorizing C.P.R. to build spur with siding for Balsam Lake Quarries, Toronto, at mileage 35.07 from Port McNicoll, Ont.

21072. Dec. 22.—Relieving G.T.R. from providing further protection at crossing of public road 1 mile south of Elmvale, Ont.

21073. Dec. 22.—Authorizing C.P.R. to build spur for Kelley and Anderson, Bonfield, Ont.

21074. Dec. 22.—Relieving G.T.R. from providing further protection at crossing of first public highway east of Glencoe, Ont.

21075. Dec. 22.—Authorizing C.P.R. to build spur

for Imperial Supply Co., Calgary, Alta.

21076. Dec. 22.—Authorizing C.P.R. to build bridge 94.4 (Don Viaduct) for double tracking, Toronto Subdivision, cost of alteration required by opening between pedestals to be paid by City of Toronto.

21077. Dec. 23.—Authorizing C.P.R. to build sidings for Ontario National Brick Co., at mileage 16.02, near Cooksville, Ont.

21078. Dec. 22.—Authorizing C.P.R. to build spur for A. Morely, Lot 12, Con. 9, Tp. Huntingdon, Ont.

21079. Dec. 22.—Authorizing C.P.R. to open for traffic its Suffield-Blackie Branch from mileage 26.3 to 57.32, Alta.; speed of trains limited to 15 miles an hour.

21080. Dec. 22.—Ordering Canadian Northern Ry. to fence its right of way in S.E. ¼, Sec. 21-7-25, w. 4 m., Alta.; work to be completed by May 1, 1914.

21081. Dec. 19.—Extending, to June 30, 1914, time within which Dominion Atlantic Ry. shall equip its locomotives with ash pans that can be emptied without any employe going underneath, except in case of emergency.

21082. Dec. 15.—Extending, to July 1, 1914, time within which C.P.R. shall equip its locomotives with ash pans that can be emptied without any employe going underneath, except in case of emergency.

21083. Dec. 22.—Authorizing Algoma Eastern Ry. to use bridge at Little Current, between Goat and Manitoulin Islands, Ont.; all trains to stop at signboards and not to proceed over drawspan until signal is given by bridge operator.

21084. Dec. 22.—Authorizing Edmonton Interurban Ry. to operate cars and trains over crossing of Edmonton, Dunvegan and British Columbia Ry., in N.W. ¼ Sec. 25-53-25, w. 4 m., Alta., without stopping; speed of E. D. & B. C. Ry. trains limited to 15 miles an hour over the crossing.

21085. Dec. 23.—Authorizing Ontario Pipe Line Co. to lay gas pipe along and across bridge over G.T.R. on Bay St., Hamilton, Ont.

21086. Dec. 24.—Authorizing Canada Southern Ry. to build siding across G.T.R. siding to Canadian Steel Foundries, Crowland Tp., Ont.

21087. Dec. 24.—Adjudging that the Board has jurisdiction to entertain City of Hamilton's application for order compelling Toronto, Hamilton and Buffalo Ry. to divert its entrance into Hamilton, via Hunter St., and adopt with G.T.R. and C. N. Ontario Ry. a common location in the north end, etc.; and to order the deviation of T. H. & B. R. within one mile from its present location. This judgment is given in full on another page.

21088, 21089. Dec. 23.—Extending express collection and delivery limits in Lethbridge, Alta.; rescinding order 16043, Feb. 26, 1912; and establishing express collection and delivery limits in Vernon, B.C.

21090. Dec. 26.—Extending, to Feb. 28, 1914, time within which C.P.R. shall install bell at crossing of Main St., Shelburne, Ont.

21091. Dec. 23.—Authorizing C.P.R. to build siding for H. De Chiree, St. Felix de Valois, Que.

21092, 21093. Dec. 24.—Authorizing C.P.R. to use bridges on Runnymede Road, West Toronto, and Jane St., York Tp., Ont.

21094. Dec. 24.—Extending, to Jan. 15, 1914, time within which G.T.R. shall install interlocking plant at Paris Jct., Ont.

21095. Dec. 23.—Approving location of G. T. Pacific Ry. station at Tatlow, mileage 232.4, Prince Rupert east, B.C.

21096. Dec. 26.—Extending, to May 1, 1914, time within which C.P.R. shall complete subway at Dundas St., Woodstock, Ont.

21097. Dec. 26.—Extending, to Feb. 28, 1914, time within which C.P.R. shall install bell at crossing of Main St., Milverton, Ont.

21098. Dec. 26.—Extending, to June 30, 1914, time within which C.P.R. shall complete extension of siding for Quinlan & Robertson, Huntingdon Tp., Ont.

21099. Dec. 27.—Extending, to Apr. 15, 1914, time within which C.P.R. shall complete spurs for Moose Jaw Flour Mills, Ltd., Moose Jaw, Sask., authorized by order 20210.

21100. Dec. 26.—Approving location of C.P.R. station at Valor, Sask.

21101. Dec. 26.—Extending, to Feb. 28, 1914, time within which G.T.R. shall build sidings for Otis-Fensom Elevator Co., Hamilton, Ont., authorized by order 20433.

21102. Dec. 26.—Relieving G.T.R. from providing further protection at crossing of highway east of Walkerville, Ont.

21103. Dec. 23.—Approving location of G. T. Pacific Branch Lines Co.'s station at Coalspur, mileage 36.4, Alberta Coal Branch.

21104. Dec. 22.—Authorizing Algoma Eastern Ry. to open for traffic its main line from mileage 79.80 to 80.80, and spur to station at Little Current from mileage 80.29 to 80.65, Ont.

21105. Dec. 23.—Suspending, pending investigation by Board, tariff C.R.C. no. E.217, effective Jan. 1, 1914, increasing rates on pulpwood, in car loads, from points on Temiscouata Ry. to Riviere du Loup, Que., for local delivery.

21106. Dec. 26.—Authorizing Brandon Municipal Ry. to operate its cars over Canadian Northern Ry. on First St.; cars to be flagged by their conductors.

21107. Dec. 29.—Authorizing Canadian Northern Ry. to carry traffic between Avonlea and Gravelburg, Sask., 79 miles, until June 1, 1914; speed of trains limited to 20 miles an hour for first 26 miles and 15 miles for remainder.

21108. Dec. 27.—Approving location of Burrard Inlet Tunnel and Bridge Co.'s line in Vancouver, B.C., from station 0 to 130+03.6, on south shore of Burrard Inlet.

21109. Dec. 27.—Authorizing Canadian Northern Ry. to build across public road between Sec. 6-28-28 and Sec. 1-28-29, on its Alsask Southeasterly Line, Sask.

21110. Dec. 27.—Approving temporary diversion of G.T.R. about 1 mile east of Merritton Station, Ont., and approving plan showing superstructure of temporary bridge to carry tracks over Welland Canal.

21111. Dec. 29.—Approving location of C.P.R. station at Colborne, mileage 105.1 from Glen Tay, Ont.

21112. Dec. 27.—Authorizing Dominion Atlantic Ry. to open for traffic portion of grade revision from St. George St., Annapolis Royal, N.S., westerly to Allen's Creek, 2790.5 feet, and to use bridge across Allen's Creek.

21113. Dec. 30.—Authorizing C.P.R. to open for traffic its double track from mileage 0 to 6, Medicine Hat Subdivision, Alta.

21114. Dec. 30.—Authorizing C.P.R. to build its Bassano Easterly Branch across 7 highways in Alberta.

21115. Dec. 29.—Authorizing C.P.R. to build spur for C. H. Richards, Saskatoon, Sask.

21116. Dec. 30.—Authorizing Vancouver and Lulu Island Ry. to build branch from 3rd Ave., Vancouver, along and across 3rd Ave. and Granville St., for about 578 ft., to British Columbia Electric Ry. property, adjoining 3rd Ave. and Granville St. bridge, and through same to passenger and freight station to be built there; to be completed within 6 months from date; and approving location of station.

21117. Dec. 29.—Amending order 19256, May 13, re C.P.R. bridge 68.3 over Harrison River, Cascade Subdivision, B.C.

21118. Dec. 27.—Rescinding order 20941, Dec. 3, in so far as it approved plan showing location of C.P.R. Bassano Easterly Branch, from Sec. 22-26-23, to Sec. 19-26-22, w. 3 m., mileage 170 to 173.

21119. Dec. 29.—Approving clearances as shown on C.P.R. plan of minimum clearances of suspended signals in train sheds at Windsor St. Station, Montreal.

21120. Dec. 29.—Authorizing C.P.R. to rebuild bridge 0.7 across Wellington St., Sherbrooke, Que.

21121. Dec. 29.—Relieving Canadian Northern Ry. of restriction of 18 miles an hour on trains over its Goose Lake line, between Kindersley and Alsask, Sask.

21122. Dec. 30.—Authorizing C. N. Ontario Ry to open for traffic portions of its Toronto-Ottawa Line: to use bridges on such portions; and limiting speed of trains.

21123. Dec. 27.—Authorizing Canadian Northern Ry. to build across 3 highways in Saskatchewan.

21124. Dec. 29.—Authorizing Canadian Northern Ry. to build spur for Huff Gravel Co., Edmonton, Alta.

21125. Dec. 30.—Authorizing Canadian Northern Ry., until July 1, 1914, to carry traffic over its Oakland Branch, Man., from mileage 42 to end of track, 12 miles; speed of trains limited to 12 miles an hour.

21126. Dec. 29.—Authorizing G. T. Pacific Ry. to build its main line across Government Road at mileage 397.4, Prince Rupert easterly, B.C.

21127. Dec. 29.—Suspending, pending investigation by Board, folowing tariffs: C.P.R.'s C.R.C. W.1893, and Esquimalt and Nanaimo Ry.'s C.R.C. 256.

21128. Dec. 29.—Suspending, pending investigation by Board, Dominion Atlantic Ry.'s tariff C.R.C. 395.

21129. Dec. 29.—Authorizing C. N. Quebec Ry. to use bridge over Station Ave., Shawinigan Falls.

21130. Dec. 30.—Approving revised location of G. T. Pacific Ry. main line, Prince Rupert easterly, from mileage 273.51 to 281.5; and approving location of station at Perow, mileage 278.9, B.C.

21131. Dec. 31.—Approving G. T. Pacific Ry. Standard Freight Mileage Tariff, C.R.C. 20, between stations on main line and branches in Alberta and British Columbia, between and including Thornton, Alta., and Prince George, B.C.; including and cancelling Standard Freight Mileage Tariff C.R.C. 18, pending judgment in inquiry by Board into rates charged by railways west of Crowsnest, Canmore and Thornton.

21132. Dec. 31.—Ordering C.P.R. to build grain loading sidings, 400 ft. long, between Sec. 25-14-29 and Sec. 30-14-28, near McAuley, Man., or at highway crossing between R. 28 and 29, mileage 31.7, and to build a two-car loading platform; to be completed by Sept. 1, 1914.

21133. Dec. 31.—Approving proposed changes to Main St. subway, Winnipeg.

21134. Dec. 30.—Authorizing C.P.R. to build spur for C. V. Drazan, Medicine Hat, Alta.; to be completed within 6 months.

21135. Dec. 24.—Allowing corrections on Lachine, Jacques Cartier and Maisonneuve Ry. plan, re diversion of Harbor St., Montreal.

21136. Dec. 27.—Extending, to Mar. 31, 1914, time within which C.P.R. shall complete branch for British Columbia Brass, Ltd., New Westminster, B.C.

21137. Dec. 31.—Authorizing City of Toronto to build its electric railway across G.T.R. siding to Toronto Type Foundry Co., on Danforth Ave.; interlocking plant to be installed; cost to be paid equally by the city and G.T.R.

21138. Jan. 2.—Authorizing C.P.R. and Canadian Northern Ry. to operate over crossing near North Transcona, Man., without first stopping trains.

21139. Dec. 31.—Ordering Canadian Northern Ry. to build culverts of concrete or corrugated iron pipe, with area equal to a cross section of creek at high water, on Phibbs' farm, Obelisk, Sask.

21140. Dec. 31.—Approving location of Campbellford, Lake Ontario and Western Ry. (C.P.R.) station at mileage 18.00 from Glen Tay, Ont.

21141. Jan. 3.—Authorizing Niagara, St. Catharines and Toronto Ry. to open for traffic its line from town line between Grantham and Niagara Tps. to Niagara-on-the-Lake, mileage 7.1 to 12.1, Ont.; speed of trains limited to 15 miles an hour.

21142. Jan. 2.—Authorizing G. T. Pacific Ry. and Canadian Northern Ry. to operate over crossing in St. Boniface, Man., without stopping trains.

21143, 21144. Dec. 23, 24.—Ordering C.P.R. to install electric bells at crossing of 2 highways near Embro, Ont., mileage 7.5, and 8.4, Ingersoll and St. Marys Branch; 20% of cost to be paid out of railway grade crossing fund.

21145. Dec. 29.—Authorizing Oshawa Ry., for six months from date to operate over crossings on Ritson Road, Oshawa, Ont.

21146. Jan. 2.—Authorizing C. N. Ontario Ry. to take, for purpose of crossing certain streets in Toronto, as authorized by order 18012, portions of Lots 17 and 16, east side of Albany Ave., Toronto, property of G. Webb and Toronto and Niagara Power Co.

21147. Jan. 2.—Amending order 20875, Nov. 21. 1913, re Canadian Northern Ry. crossing of Winnipeg Electric Ry. near Helen and Pembina Sts., Winnipeg.

21148. Jan. 2.—Ordering G.T.R. to establish a rate of 8c. per 100 lbs. on imported wood pulp, in carloads, from Montreal Harbor to Windsor Mills, Que., to include terminal charges at Montreal which are included in rates of G.T.R. general tariff on imported merchandise.

21149. Jan. 2.—Authorizing Hamilton St. Ry. and Toronto, Hamilton and Buffalo Ry. to operate over crossing at intersection of Main and Trolley Sts., Hamilton, Ont., without stopping.

21150. Jan. 3.—Authorizing Algoma Central Terminals, Ltd., to build coal dock at Sault Ste. Marie, Ont., on conditions contained in order in council of Dec. 22, 1913.

21151. Jan. 2.—Authorizing C.P.R. to take certain lands in St. Athanase Parish, Iberville Co., Que., for grading highway where it crosses its line at mileage 17.7.

21152. Dec. 31.—Authorizing C.P.R. to build spurs for Union Grain Co., St. Boniface, Man.

21153. Jan. 5.—Approving plan B-14-36, Oct. 7, 1913, showing C.P.R. standard overhead farm crossing.

21154. Jan. 5.—Authorizing Canadian Northern Ry. to build across Bears Pass, mileage 210.6 from Port Arthur, Ont.

21155. Dec. 31.—Ordering C.P.R. to stop train 33 at Claremont on flag, daily, for 3 months from date.

21156. Jan. 5.—Ordering C.P.R. to erect passenger shelter at Domville, Ont., to be completed by Mar. 1.

21157. Jan. 5.—Amending order 19547, June 10, 1913, re C. N. Ontario Ry. crossing on Eganville Rd., between Pembroke and Stafford Tps., to provide that subway be 25 ft. wide, to allow for sidewalk on northeast side, grade to be 1 in 20.

21158. Jan. 5.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to close portion of road allowance within its right of way, and divert same to cross railway overhead at mileage 54.99, when crossing there, as authorized by order 19360, is completed; and rescinding orders 19296 and 21046, Dec. 20, 1913, in same connection.

21159. Jan. 5.—Authorizing Algoma Central and Hudson Bay Ry. to build spurs in Sault Ste. Marie, Ont., without prejudice to rights, if any, of the city in respect of water lot at foot of Spring St., being considered as a continuation of said highway.

21160. Jan. 3.—Approving location of C.P.R. station at Carseland, mileage 19.04 on its Gleichen-Shepard Branch, Alta.

21161. Jan. 7.—Approving location of Toronto and Niagara Power Co.'s power line from conventional line between Halton and Wentworth Cos., northerly to tower 12, in Burlington, Ont.

21162. Jan. 5.—Approving location of Alberta Central Ry. station at Loch Earn, mileage 61.14 from Red Deer, Alta.

21163. Jan. 5.—Authorizing C.P.R. to rebuild bridge 0.5 across Oxford St., London, Ont.

21164. Jan. 5.—Approving location of G. T. Pacific Ry. station at Endako, mileage 351.4, Prince Rupert East, B.C.

21165. Jan. 5.—Authorizing C.P.R. to build its Kootenay Central Ry., at grade, across highways at Shuswap Indian Reserve, mileage 94.5, and on Lot 3947 (P.G.S.), mileage 101.16, East Kootenay District, B.C.

21166. Jan. 5.—Approving location of C.P.R. station in Lot 25, Con. 1, Hinchinbrooke Tp., mileage 25 from Glen Tay, Ont.

21167. Jan. 5.—Authorizing Bell Telephone Co. to charge tolls as filed with the Board, except Standard Tariffs, C.R.C. 1 and 3.

21168. Jan. 5.—Authorizing North American Telegraph Co. to charge telephone tolls as filed with the Board, except Standard Tariffs C.R.C. 1 and 2.

21169. Jan. 7.—Dismissing application of Town of Chateauguay, Que., for order directing New York Central and Hudson River Rd. to make commutation (10 trip) tickets between Chateauguay and Montreal, good for one year.

21170. Jan. 5.—Authorizing C.P.R. to remove watchman from crossing of its Selkirk Branch by Winnipeg, Selkirk and Lake Winnipeg Ry., until traffic is resumed over same.

21171. Jan. 5.—Authorizing C.P.R. to build spur for Imperial Tobacco Co. of Canada, Calgary, Alta.

21172. Jan. 7.—Authorizing C.P.R. to build, at grade, additional main line track across 6 highways, mileage 47.9 to 51.54 from Broadview, Sask.

21173. Jan. 3.—Authorizing C.P.R. to build siding for J. Maloney, Toronto.

21174. Jan. 8.—Approving C.P.R. plan 54216 showing double tracking of bridge 33.2, Nipigon Subdivision, over Gravel River, near Hartry, Ont.

21175. Jan. 7.—Ordering G.T.R., within 60 days, to move its station at Bulstrode, Que., to location shown on blue print of Jan. 6, 1913.

21176. Jan. 8.—Authorizing C.P.R. to build across highways at mileage 7.94, 15.95 and 16.11, Broadview Subdivision.

21177. Jan. 8.—Authorizing C.P.R. to build a Y connection with its main line at mileage 5.94 from Lanoraie, across lands and streets in Joliette, Que.

21178. Jan. 8.—Amending order 21074, Dec. 22, 1913, re protection of G.T.R. crossing east of Glencoe, Ont., substituting Glencolin for Glencoe.

21179. Jan. 8.—Authorizing C.P.R. to build spur for E. Partington Pulp and Paper Co., St. John, N.B.

21180. Jan. 9.—Authorizing C.P.R. to build its Weyburn-Stirling Branch at grade across 62 highways, mileage 174.08 to 231.47, Sask.

21181. Jan. 6.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build across G.T.R. spur at mileage 119.91 and 120.02, Cobourg, Ont., and authorizing the operations of trains over same for 6 months, all trains to stop before crossing and be flagged over by one of the trainmen.

21182. Jan. 5.—Ordering Michigan Central Rd., within 60 days, to install improved type of automatic bell at crossing of first highway east of Waterford Yard, Waterford, Ont., trees on northwest corner of crossing, on each side of private road, to be cut down.

21183. Jan. 9.—Authorizing G.T.R. to build siding for Grant and Jones, Lot 25, Con. 5, Rama Tp., Ont.

21184. Jan. 9.—Authorizing G.T. Pacific Ry. to build spur for Alberta Lumber Co., Edmonton, Alta.

21185. Jan. 9.—Authorizing G.T.R. to build siding for City of Toronto, south of Stephenson Ave.

21186. Jan. 9.—Authorizing G.T.R. to rebuild bridge 56 over Black Rock, Hibbert Tp., Ont.

21187. Jan. 9.—Amending order 21007, Dec. 10, 1913, re connection of London and Lake Erie Ry. and Transportation Co.'s line with Michigan Central Rd., at St. Thomas, Ont.

21188. Jan. 10.—Authorizing Vancouver, Victoria and Eastern Ry. and Navigation Co. to build spur for Campbell River Lumber Co., near Crescent, B.C., to be completed within six months.

21189. Jan. 10.—Authorizing Canadian Northern Ry. and C.P.R. to operate trains over crossing in St. Boniface, Man., without first stopping.

21190. Jan. 12.—Authorizing Canadian Northern Ry. to open for traffic its revised line across Rainy Lake, Ont., from mileage 224.3 to 226.4.

21191. Jan. 9.—Approving location of C.P.R. Swift Current Northwesterly Line from mileage 169 to 175, and authorizing building of same across 7 highways in Alberta.

21192. Jan. 12.—Authorizing C.P.R. to open for traffic its third track from Queen St. subway to Royce Ave., Toronto.

21193. Jan. 10.—Extending to Mar. 15 time within which C.P.R. shall complete additional track to Dodge Manufacturing Co.'s siding, Toronto.

21194. Jan. 12.—Authorizing G.T.R. to build additional track across Inverness St., Caledonia, Ont.

21195. Jan. 9.—Authorizing G.T. Pacific Ry. to build bridge across Endako River, mileage 358 Prince Rupert East, B.C.

21196. Jan. 10.—Authorizing G.T.R. to rebuild bridge 48 over Black Creek, at milepost 120.21 from Black Rock, Downie Tp., Ont.

21197. Jan. 12.—Authorizing Sandwich, Windsor and Amherstburg Ry. and Canada Southern Ry. to operate over crossing of C.S.R. spur to Postum Cereal Co. of Canada, Windsor, Ont.

21198. Jan. 12.—Authorizing G.T. Pacific Ry. to build across and divert highways at mileage 461 and 357.3, Prince Rupert Easterly, B.C.

21199. Jan. 12.—Authorizing C.P.R. to build spur for J. I. Case Threshing Machine Co., Regina, Sask.

21200. Jan. 13.—Authorizing C.P.R. to open for traffic portion of double track from mileage 67.7 to 76.8, Moosejaw Subdivision, Sask.

21201. Jan. 13.—Authorizing C.P.R. to use bridges at Guy, Aqueduct and Mountain Sts., Montreal.

21202. Jan. 13.—Authorizing Canadian Northern Ry. to build across and divert public road on its Delisle Branch in n.e. ¼ Sec. 14-28-9, w. 3 m., Sask.

21203. Jan. 13.—Authorizing C. P. R. to use bridge on Decarie Ave., Montreal.

21204. Jan. 13.—Authorizing C.P.R. to build its Weyburn-Stirling Branch across 20 highways in Saskatchewan, mileage 299.145 to 316.765.

21205. Jan. 14.—Amending order 21114, Dec. 30, 1913, re crossing of highways by C.P.R. Bassano Easterly Branch in Alberta.

21206. Jan. 9.—Approving revised location of C.P.R. main line from mileage 125.14 to 126.76 (mileage 127 old line), and from mileage 129.83 to 131.65 (mileage 132.27 old line), through no. 28, Gallagher and Chapleau Tps., Ont.

21207. Jan. 9.—Authorizing G.T. Pacific Ry. to build bridge across Stoney Creek, mileage 397.1, Prince Rupert East, B.C.

21208. Jan. 14.—Authorizing G.T.R. to build siding for Plessisville Foundry Co., Plessisville, Que.,

21209. Jan. 14.—Approving proposed Supplement 1 to Canadian Northern Ry. Standard Freight Mileage Tariff for its Eastern Lines, C.R.C., no. E 212.

21210. Jan. 15.—Amending order 18570, Jan. 24, 1913, re C.P.R. crossings of highways on its Swift Current Northwesterly Branch in Saskatchewan, and rescinding order 19037, Apr. 11, 1913, in same connection.

21211. Jan. 15.—Ordering C.P.R. to remove station at Kruezburg, Man., to road allowance at east end of yard.

21212. Jan. 15.—Approving Canadian Northern Ry. revised location, mileage 210.11 to 211.05, Rainy River District, Ont.

21213. Jan. 16.—Authorizing Canada Southern Ry. and G.T.R. to use crossing, Canadian Steel Foundries' siding, Crowland Tp., Ont.; trains to stop before crossing.

21214. Jan. 12.—Relieving C.P.R. from providing further protection at crossing of highway known as Cote du Sud, mileage 11 from Place Viger Station, Montreal.

21215. Jan. 16.—Authorizing C.P.R. to open for traffic portion of its double track from Waldeck to Eaman, mileage 99.4 to 109.4, Swift Current Subdivision, Sask.

21216. Jan. 8.—Amending order 21026, Dec. 15, 1913, re Canadian Northern Ry. spur for Thomson, McDougall & Co., Woodlands, Man.

21217. Jan. 16.—Rescinding order 19400, May 29, 1913, re exemption of C.N. Quebec Ry., from fencing portion of its right of way between mileage 23.5 and 34.

21218. Jan. 16.—Authorizing C.N. Alberta Ry. to build bridge across Stony River at mileage 209.3.

21219. Jan. 15.—Authorizing G.T.R. to operate trains over Confederation Construction Co.'s siding, near Merritton, Ont.

21220. Dec. 27.—Ordering G.T.R. to build for W. J. Watson, Glencoe, Ont., a farm crossing on Lot 9, Con. 2, Mosa Tp., Ont.

21221. Jan. 16.—Authorizing G.T.R. to build extension of siding for Empire Cotton Mills, Ltd., at Welland, Ont.

21222. Jan. 16.—Authorizing C.P.R. to build at grade, roadways across its main line at Cummings, Sask.

21223. Jan. 14.—Ordering C.P.R. by June 1 to install gates at crossing of First St., Souris, Man., to be operated by day and night watchman; 20% of cost to be paid out of the railway grade crossing fund, maintenance and operation to be paid by company.

21224. Jan. 12.—Amending order 19763, July 4, 1913, re G.T.R. and T.H. & B.R. siding to Steel Co. of Canada, Hamilton, Ont.

21225. Jan. 16.—Limiting speed of G.T. Pacific Ry. trains over crossing of Amelia St., Winnipeg, to 10 miles an hour.

21226. Jan. 19.—Authorizing C.P.R. to build road diversion and build its Swift Current Northwesterly Branch at grade across highway at mileage 43.42, between Secs. 17 and 18-20-19, w.3 m., Sask.

21227. Jan. 19.—Authorizing C.P.R. to open for traffic portion of its Weyburn Westerly Branch Line from Woodrow, mileage 145.7, to Shaunavon, mileage 230.8; speed of trains over first 62 miles limited to 18 miles an hour, and over remainder to 10 miles.

21228. Jan. 19.—Authorizing C.P.R. to build spur for Brandon Holding Co., Brandon, Man.

21229. Jan. 19.—Authorizing C.P.R. to use bridge 5.7, Kipawa Subdivision, Lake Superior Division, Ont.

21230. Jan. 10.—Ordering C.P.R. to install improved type of automatic bell at second crossing east of Green Valley, Ont., by June 1, and relieving it of speed limitation against westbound traffic over said crossing.

21231. Jan. 20.—Approving location of G.T. Pacific Ry. stations at Reba, Sowden and Unaka, Ont.

21232. Jan. 19.—Authorizing C.P.R. to build spur for H. Hope & Sons, Monoghan Tp., Ont.

21233. Jan. 20.—Rescinding order 20808, Nov. 13, 1913, authorizing Canadian Northern Ry. to divert Rue La Verandrye, St. Boniface, Man.

21234. Jan. 9.—Ordering Georgian Bay and Seaboard Ry. (C.P.R.) to deepen ditch and provide uniform grade from right of way to Scugog River, Ops Tp., Ont.

21235. Jan. 14.—Ordering C.N. Quebec Ry. to install gates at crossing of Cuvillier St., Hochelaga, Que., by July 1.

21236. Jan. 20.—Approving C.P.R. plan showing clearances at siding to Canadian Rolling Mills Co., Montreal.

21237. Jan. 19.—Authorizing C.P.R. to build spur for Gray-Campbell, Ltd., Winnipeg.

21238. Jan. 21.—Extending for six months from date time within which Esquimalt and Nanaimo Ry. shall file Standard Tariff of maximum freight tolls for approval.

21239. Jan. 21.—Authorizing G.T.R. to build extension to siding for Independent Rubber Co., Grantham Tp., Ont.

21240. Jan. 5.—Amending order 20816, Nov. 12, 1913, re removal of C.P.R. and Great Northwestern Telegraph Co. wires from certain streets in Berlin, Ont.

21241. Jan. 21.—Ordering C.P.R. to install automatic bell at crossing in Port Haney, B.C.; 20% of cost to be paid out of the railway grade crossing fund.

21242. Jan. 22.—Approving Kettle Valley Ry. location between mileage 38.96 and 49, west of Penticton, B.C.

General order 117. Jan. 8.—Regulations respecting table of graduated charges by express companies. Order given in full under "Among the Express Companies" on another page.

General order 118. Jan. 15.—Ordering railway companies to accept freight consigned "to order" for delivery at flag stations and determining regulations for delivery at such flag stations. This order is given in full on another page.

Canadian Pacific Railway Appropriations for Western Lines.

George Bury, Vice President, C.P.R., Winnipeg, visited Montreal early in January to confer with Sir Thomas Shaughnessy as to the appropriations for construction on the Western Lines during this year. On Jan. 8, the following official statement was given out for publication:—

"Discussions involving expenditures in the west by the C.P.R. have been carried on in Montreal during the past few days between Sir Thomas Shaughnessy and George Bury, with the result that appropriations have been passed. The position this year is somewhat different from that of former years. 1913 was a year when large and comprehensive schemes for extensions, betterments, and double tracking the system were pushed. These schemes cannot be completed in a day or two, and must be carried to a certain point before further extensions are undertaken, so that the expenditures estimated for in the western appropriations of 1914 are almost entirely confined for the present to the completion of track laying, etc., on grading already built, on branch lines, extensions, and double tracking, the latter of which will eventually connect Winnipeg with Vancouver, and to the building of Rogers Pass tunnel, which will be pushed with vigor. So far as grading is concerned, no less than 600 miles are now ready for the rails, and there is extensive terminal work at Winnipeg, Calgary and Vancouver, the completion of which has been provided for. The consideration of the expenditures on any new railway construction or other works will come up again later in the year, when further data have been secured, and there will then be another conference with the President.

"Mr. Bury, when interviewed, said that under the direction of Sir Thomas Shaughnessy, C.P.R. expenditures had always been directed in accordance with the actual exigencies of traffic and with the building up of the western country, and it was owing to this comprehensive policy that the C.P.R. in 1913 was able to move such a large grain traffic so expeditiously at a time when the great strain of moving the harvest came. The facilities provided in rolling stock were such that car requirements in other directions were able to be met promptly, and other traffic moved currently as well as the grain."

Upon his arrival at Winnipeg, Jan. 12, Mr. Bury added the following to the foregoing statement: "There are 600 miles of branch line extensions, practically ready for steel, as follows: Empress to Bassano, 140 miles; Kootenay Central, from Golden to Fort Steele, 70 miles; Monitor to Kerrobert, 75 miles; Alberta Central, west of Red Deer, 35 miles; Weyburn-Lethbridge line, west of Shaunavon, 90 miles; Gimli north, 26 miles; Suffield west, 30 miles; Coronation northwest, 45 miles. The mileage mentioned in connection with the above branch lines will all be completed this year and ready for operation. There is plenty of work to be done in double tracking, as there are 145 miles graded and ready for steel. There are 70 miles between Winnipeg and Calgary, and 75 miles on the British Columbia division.

Railway Rolling Stock Notes.

The Fessette Lumber Co. has ordered 10 logging cars from Canadian Car and Foundry Co.

The Dominion Coal Co. has ordered 25 wood hopper cars, 30,000 lbs. capacity, from Canadian Car and Foundry Co.

The Intercolonial Ry. has ordered 200 box cars, 80,000 lbs. capacity, from the Canadian Car and Foundry Co.

The Intercolonial Ry. has ordered 200 steel frame box cars, 80,000 lbs. capacity, from Canadian Car and Foundry Co.

The Grand Trunk Pacific Ry. has received 3 colonist cars, nos. 3040 to 3042, from the Canadian Car and Foundry Co.

The Eastern Car Co., up to Jan. 16, has delivered 1,281 steel underframe box cars, out of an order for 2,000, to the Grand Trunk Ry.

The Cape Breton Coal, Iron and Ry. Co. has ordered 20 steel hopper cars, 80,000 lbs. capacity, and 5 wood hopper cars, 30,000 lbs. capacity, from Canadian Car and Foundry Co.

The C.P.R., between Dec. 1 and 31, ordered 151 steel frame box cars, 35 stock cars and 4 vans, from its Angus Shops, and 15 tank cars from American Car and Foundry Co.

The Alberta Metropolitan Ry., which is building a short line to connect Calgary Jct. with the Calgary Municipal Ry., at Calgary, Alta., has not yet, we are officially advised, placed any orders for rolling stock.

The Confederation Construction Co., which has a contract on the Welland Ship Canal construction, has ordered another 4 wheel saddle tank locomotive from Canadian Locomotive Co., in addition to the one mentioned in our last issue.

The Canadian Northern Ry. has ordered 7 steel underframe first class cars, 5 steel underframe second class cars, and 40 all wood colonist cars, from Canadian Car and Foundry Co., and 15 colonist cars and 5 baggage cars, from Crossen Car Co.

The Board of Railway Commissioners has extended to June 30, the time within which the C.P.R. and the Dominion Atlantic Ry. shall equip their locomotives with ash pans that can be emptied without employes having to go underneath, except in cases of emergency.

The Canadian Northern Ry., between Dec. 13 and Jan. 13, received the following additions to rolling stock:—7 cabooses from its Winnipeg shops; 100 box cars from Canadian Car and Foundry Co.; 125 box cars from National Steel Car Co., and 100 flat cars, from Mount Vernon Car Manufacturing Co.

The Canadian Northern has ordered the following rolling stock,—7 steel underframe first class cars, 5 steel underframe second class cars and 40 all wood colonist cars, from Canadian Car and Foundry Co.; 15 all wood colonist cars and 5 baggage cars, from Crossen Car Co., and 8 baggage cars from Preston Car and Coach Co.

The Intercolonial Ry. has received the following additions to rolling stock:—11 box baggage cars, from its Moncton shops; 2 postal cars and 45 box bars, 60,000 lbs. capacity, from the Canadian Car and Foundry Co.; 4 Pacific locomotives, from the Montreal Locomotive Works; and 5 consolidation locomotives, from the Canadian Locomotive Co.

Sir William Mackenzie, President, Canadian Northern Ry., is reported to have stated recently that the company will make an immediate expenditure of about $10,000,000 for additional rolling stock for the line between Toronto and Port Arthur. The orders to be placed will cover locomotives, passenger cars, dining cars, sleeping cars and box cars.

The Canadian Northern will probably place considerable orders for locomotives and cars for both passenger and freight service, in the near future. The orders for the passenger equipment especially are likely to be large, in view of the intended opening for traffic of the line between Ottawa and Toronto, and also of the main line north of Lake Superior.

The G.T.R. has recently received, to Jan. 12, the following additions to rolling stock:—772 box cars from Canadian Car and Foundry Co.; 517 box cars, from Eastern Car Co.; 12 mikado locomotives, 63 in. wheel, from Montreal Locomotive Works; 1,596 box cars, from Western Steel Car and Foundry Co., and 523 gondola cars from Pressed Steel Car Co.

The G.T. Pacific Ry. rolling stock for which contracts were made for delivery during 1913, details of which have been given monthly in Canadian Railway and Marine World, included, 10 second class cars and 5 colonist cars, from Canadian Car and Foundry Co.; 15 sleeping cars, 6 parlor-cafe cars, 6 dining cars, 5 tourist cars, 10 colonist cars and 10 first class cars, from Pullman Co.; 15 express cars and 14 mail and express cars, from Osgood Bradley Car Co.

The C.P.R., between Dec. 1 and 31, received the following additions to rolling stock:—109 steel frame box cars, 9 single track snow ploughs, 1 single track flanger, 5 double track flangers, 3 wedge ploughs, 2 class U3 locomotives, and 1 class D4 locomotive, from its Angus Shops; 3 single track snow ploughs and 9 double track snow ploughs, from Canadian Car and Foundry Co.; 4 class D10 locomotives, from Canadian Locomotive Co.; 3 class N3 locomotives from Canadian Allis-Chalmers, Ltd.; and 15 tank cars from American Car and Foundry Co.

The two motor cars which the Pacific Great Eastern Ry. has placed in service on its line in the neighborhood of North Vancouver, are similar in type to those in use on the Southern Pacific Rd. in California. They are divided into four compartments, and are of the usual railway style. The engine is six cylinder and of about 150 h.p., developing a speed of 50 miles an hour. They are finished in mahogany, with floors of maple. Separate compartments are provided for smokers, and baggage, the seats are upholstered in rattan, and the cars are heated by steam.

The G.T.R. has ordered the following additions to rolling stock:—40 steel underframe first class cars, and 15 steel underframe suburban cars, from Canadian Car and Foundry Co.; 5 all steel postal cars, from Pressed Steel Car Co.; 4 steel underframe dining cars and 5 steel underframe parlor cars, from Pullman Co.; 10 steel underframe first class cars and 5 steel underframe combination second class and baggage cars, from American Car and Foundry Co.; 17 steel underframe first class cars, 10 steel underframe baggage cars and 5 steel underframe express cars, from Osgood Bradley Car Co.; 200 steel flat cars, 100,000 lbs. capacity, and 300 steel flat cars, 80,000 lbs. capacity, from Western Steel Car and Foundry Co.

In locomotive construction, the noticeable developments in 1913 were the increased use of superheaters and the tendency to regard the simple, superheated locomotive as the best all round machine for future use. Great interest was aroused by the production in Europe of the first Diesel engine locomotive, a powerful engine, built for express service, containing a driving engine coupled to the driving axles, and an auxiliary engine working independently of these. The trials are being carried out, and it is said that the locomotive has fulfilled all expectations as to its hauling ability. It is too early, however, to make any definite statement as to the permanent usefulness of this type. With the increasing size of the locomotive has come a corresponding demand for mechanical stoking, the work of feeding the fuel to the huge modern boilers being more than one man can accomplish. Several types are being tried and in some cases good results have been secured. Undoubtedly, mechanical stoking has come to stay.

J. D. McArthur and Co., contractors, Dominion Government railway to Hudson Bay, have ordered four mogul locomotives from Canadian Locomotive Co., and not six, as reported in our last issue. Following are the chief details:—

Weight in working order	112,800 lbs.
Weight, total	129,500 lbs.
Wheel base, rigid	12 ft. 6 ins.
Wheel base, total	20 ft. 6½ ins.
Wheel base, engine and tender	49 ft. 3¾ ins.
Heating surface, firebox	133 sq. ft.
Heating surface, tubes	1,301 sq. ft.
Heating surface, total	1,434 sq. ft.
Driving wheels, diar.	50 ins.
Driving wheels, centres	Cast iron
Driving journals, diar. and length	8½ by 12 ins.
Cylinders, diar. and stroke	19 by 26 ins.
Boiler, type	Extended wagon top
Boiler, pressure	180 lbs.
Tubes, no. and diar.	240—2 ins.
Tubes, length	10 ft. 5¼ ins.
Brakes	Westinghouse
Weight of tender, loaded	115,400 lbs.
Capacity, water	5,000 imp. galls.
Capacity, coal	9 tons
Tank	U shape
Truck, type	4 wheeled, arch bar
Wheels, diar.	33 ins.
Wheel, type	Cast iron
Journals	5 by 9 ins.
Brake beams	Steel

The G.T.R., during a portion of 1912, and in 1913, contracted for the following rolling stock, for delivery during 1913. All of the equipment mentioned has been dealt with in Canadian Railway and Marine World, from month to month, and practically the whole of it was delivered during the past year. From Montreal Locomotive Works, 41 superheater Pacific locomotives and 50 mikado locomotives; from Canadian Locomotive Co., 15 switching locomotives; from American Locomotive Co., 25 mikado locomotives; from Baldwin Locomotive Works, 50 mikado locomotives; from Canadian Car and Foundry Co., 2,000 forty ton box cars; from Eastern Car Co., 2,000 forty ton box cars; from Pressed Steel Car Co., 2,000 thirty ton box cars and 1,000 fifty ton gondola cars; from Western Steel Car and Foundry Co., 3,000 forty ton box cars. During 1913, the following rolling stock was ordered, for delivery during 1914, all of which has also been previously mentioned. From Canadian Car and Foundry Co., 40 first class cars and 15 suburban cars; from National Steel Car Co., 10 baggage cars, and 500 stock cars; from American Car and Foundry Co., 5 postal cars, 10 first class cars and 5 second class and baggage cars; from Pressed Steel Car Co., 5 postal cars; from Pullman Co., 4 dining cars and 5 parlor cars; from Osgood Bradley Car Co., 17 first class cars, 10 baggage cars and 5 express cars; from Western Steel Car and Foundry Co., 200 fifty ton flat cars and 300 forty ton flat cars.

False Bills of Lading.—The Quebec Legislature has under consideration a bill to amend the Railway Act, by providing for the imposition of a penalty not exceeding $1,000 on shippers making false bills of lading in order to secure lower rates for merchandise.

Railway Development.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta and Great Waterways Ry.— A start was made with the construction of the A. and G.W. Ry., under the new conditions, Jan. 3, when J. L. Coles, M.L.A., turned the first shovelful of earth for the building of the short piece of line which is to connect the Edmonton, Dunvegan and British Columbia Ry. with the right of way secured and partially graded by the old A. & G.W. Co. This junction point is at Carbondale, about two miles north of Sturgeon River, and 12 miles out of Edmonton, on the E.D. and B.C. Ry. A large gang is being set to work clearing up the right of way, and doing other work preparatory to the starting of grading in the spring. W. R. Smith is Chief Engineer of this line, as well as of the E.D. and B.C. Ry., and construction will be done by J. D. McArthur. (Jan., pg. 21.)

The Alberta Metropolitan Ry. is owned by the interests which own the Dominion Co-operative N.T. and Realty Co., Calgary, the officers and directors of which are:—President and Manager, W. J. C. Madden, Calgary, Alta.; Vice President, W. H. Clipperton, Toronto; Secretary-Treasurer, E. P. Maden, Calgary. The A.M. Ry. has power to build lines in and around Calgary, and is engaged in building a line from Calgary Jct. to a junction with the Calgary Municipal Ry. It is reported that at Dec. 31, 1913, about four miles of grading had been completed, and that it was expected to have the line in operation by July. The controlling company is engaged in the real estate business, and operates general stores on the land it is opening up for settlement. (Jan., pg. 21.)

Algoma Eastern Ry.—A regular train service has been put on the extension to Little Current, Manitoulin Island, Ont., the Board of Railway Commissioners having authorized operation over the bridge between Goat Island and Manitoulin Island, and on the spur to Little Current. (Oct., 1913, pg. 475.)

Bruce Peninsula Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to build a railway, to be operated by steam, electricity or other motive power, from Wiarton, northerly to Tobermory, Bruce County, Ont., with branch lines. Power is also asked to operate steamboats and car ferries. E. C. Spearman, Owen Sound, Ont., solicitor for the applicants.

Burrard Inlet Tunnel and Bridge Co.—The directors decided, Dec. 30, to invite tenders for the building of a bridge across the Second Narrows of Burrard Inlet, Vancouver, B.C., on plans prepared by Sir John Barry, London, Eng., at an estimated cost of $2,225,000. Tenders will be received up to April 1. The company is formed of representatives of the cities of Vancouver and North Vancouver, and the municipal districts of North and West Vancouver, which have subscribed $750,000 towards the erection of the bridge. The Dominion Government has promised $350,000, and the British Columbia Legislature has voted $400,000. The company is now asking the British Columbia Legislature to guarantee a bond issue of $750,000.

The structure will be of steel with wide spans 45 ft. above high water level, and will be supported on six piers founded on rock. The draw span will measure 581½ ft. in length from centre to centre, and will revolve on a platform supported by four wrought steel cylinders, braced together and filled with concrete. The fixed spans will be 232 ft. long. It will cross the Narrows at an angle of 75 degrees to the average direction of the flood and the currents, which at that point are very powerful. A channel with an average minimum depth of 35 ft. will be provided at the draw span. The floor will be 64 ft. 5½ ins. wide, on which will be laid a single track railway, a double track for street railway traffic, and an 8 ft. sidewalk. The approaches will be on easy gradients.

The Board of Railway Commissioners has approved location plan of the connecting line from Vancouver from station 0 to station 130-03.6, on the south shore of Burrard Inlet. (Jan., pg. 21.)

Calgary and Fernie Ry.—The Dominion Parliament is being asked to extend the time for the construction of this projected railway in Alberta and British Columbia; to change the head office from Fernie to Calgary, Alta.; to increase the bonding powers to $60,000 a mile; and to authorize the company to enter into agreements with the High River and Hudson Bay Ry., the High River, Saskatchewan and Hudson Bay Ry., the Canadian Western Ry., the Canadian Northern Ry., the Grand Trunk Pacific Ry., or the Hudson Bay Ry. Hough, Campbell and Ferguson, Winnipeg, solicitors for company. (July, 1913, pg. 331.)

Calgary and Knee Hill Ry.—Local press reports state that engineers are locating a line from Acme along the Knee Hill Creek, Alta., to reach some coalfields in which it is stated the C.P.R. is interested. It is further stated that an endeavor will be made to secure a subsidy for the line under the terms of the act granting aid towards the construction of light railways, passed last session of the Alberta Legislature. (Aug., 1909, pg. 573.)

Cape Breton Ry.—See Inverness and Richmond Ry.

Delaware and Hudson Co.—We are officially advised that the company does not contemplate building any additions or extensions of its lines in Canada—the Quebec, Montreal and Southern Ry., and the Napierville Jct. Ry.—in the near future. (Oct., 1913, pg. 475.)

Dominion Atlantic Ry.—The Board of Railway Commissioners has authorized the opening for traffic of a portion of the grade revision from St. George St., Annapolis Royal, N.S., westerly to Allan's Creek, 2,792½ ft. (Jan., pg. 21.)

Edmonton, Dunvegan and British Columbia Ry.—Track has been laid to mileage 131 from Edmonton, of which 106 miles were laid during 1913. A construction train service is being operated to Mirror Landing, Athabasca Lake, Alta. W. R. Smith, Edmonton, Alta., is Chief Engineer. (Jan., pg. 21.)

Erie and Ontario Ry.—The Dominion Parliament is being asked to incorporate a company with this title to build a railway, to be operated by steam, electricity, or any other motive power, from Port Maitland, on Lake Erie, to Smithville, in Lincoln county, Ont., and from Port Maitland to Port Colborne, Welland county, Ont., with branch lines. Power is also asked to operate vessels in connection with the railway. W. T. Henderson, Brantford, Ont., solicitor for applicants.

Glengarry and Stormont Ry.—The ratepayers of Cornwall, Ont., have approved of a bylaw granting a bonus of $5,000 to aid in building a railway from the C.P.R. at St. Polycarpe, Que., to Sidney and Sixth Streets, Cornwall, Ont., to be paid on the completion of the line.

C. L. Hervey, who is the principal promoter of the line, is also engaged in promoting a line from Cornwall to Hawkesbury, where a junction would be effected with the projected Calumet and Northern Ry., for the construction of which a separate charter may be procured.

High River, Alta., to Hudson Bay.—Press reports state that engineers are making surveys in the High River Valley district, through the Okotoks and Black Diamond oil fields. The engineers are said to be working at present east and west of the High Wood Falls at the foot of the Rocky Mountains, west of High River. There are two charters covering the construction of a railway in this district—the High River and Hudson Bay Ry., and the High River, Saskatchewan and Hudson Bay Ry. (See under these headings, April, 1913, pg. 169, and Feb., 1912, pg. 67.)

Intercolonial Ry.—A contract is reported to have been let to the Union Construction Co., North Sydney, N.S., for building a diversion of the line from North Sydney to Leitche's Creek, 4.3 miles. The cost is estimated at $67,571.

Considerable extensions are being made to the yards at Amherst, N.S. It is said that the locomotive house is to be moved further to the west, so as to provide additional yard room. (Jan., pg. 18.)

Inverness Ry. & Coal Co.—Press reports fom Sydney, N.S., Jan. 7, state that negotiations are in progress for connecting this line either with the Cape Breton Ry., now in operation from Point Tupper to St. Peters, N.S., or with an extension of the same from St. Peters to Sydney. The report also adds that the Cape Breton Ry. is to be acquired by Mackenzie, Mann & Co. interests, which own the I. R. and Coal Co., prior to the extensions being made.

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

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

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

Michigan Central Rd.—The opening of the new station at Detroit, Mich., scheduled for Jan. 4, had to be advanced on account of a fire, Dec. 26, 1913, which destroyed the old station. The new terminal was therefore put into service on the evening of Dec. 26. It is located at Fifteenth St., 1½ miles west of the old station at Third Street, and is a combined station and office building 17 stories high, faced with limestone, brick and terra cotta. It is of the through type, with 11 tracks protected by a Bush trainshed. Three subways pass under the tracks and platforms, two of which have connections by stairway or elevator with each platform. The new terminal is part of the Detroit River tunnel improvement, and was built by the Detroit River Tunnel Co., a subsidiary of the M.C.R. The entire project involved extensive rearrangement of track facilities. (July, 1913, pg. 575.)

Newfoundland Ry. and Train Ferry Syndicate, Ltd., has been registered in England, as a private company with £1,000 capital,

and with no power to increase it, to acquire the benefits of a concession or agreement contained in two letters from the Colonial Secretary to the Newfoundland Government, authorizing the construction, equipment and operation of a railway from Southwest Arm, Green Bay, to Humber Mouth, Bay of Islands, and to adopt an agreement with H. C. Thompson. The permanent directors are, Scott Lings, H. C. Thomson and T. L. Gilmour, and the registered office is at 13 Austin Friars, London, E. C.

Norfolk and Elgin Ry.—The Dominion Parliament is being asked to incorporate a company with this title to build a railway to be operated by steam, electricity, or any other motive power, from Simcoe, via Bayham, to Port Burwell, Ont., with branches. Power is also asked to operate car ferries to U.S. ports. Price, Garvey & Co., Toronto solicitors for applicants.

North Ry.—The surveys for this projected line between Montreal and the National Transcontinental Ry., at Belle River, Que., are reported to have been completed between Calumet and Belle River, 170 miles. It is also reported that construction will be started in the spring. The route adopted will, it is said, give as favorable gradients as the National Transcontinental Ry. has. Application is being made to the Dominion Government for a renewal of the subsidies for the construction of the entire line from Montreal to Hudson Bay. (Oct., 1913, pg., 475.)

Northern Territorial Ry.—Application is being made to the Dominion Parliament for an extension of time for the building of the line from Fort Churchill, Hudson Bay, westerly to Port Essington, B. C., authorized to be built by chap. 125 of the statutes of 1912. (Dec., 1912, pg. 605.)

Pacific Great Eastern Ry.—We are officially advised that track has been laid on the section between Vancouver and Newport, B.C., about 42 miles, from North Vancouver to Dundarave, 4.5 miles, and on the section between Newport and Clinton, 168.5 miles from Newport to Cheakamus, 13.5 miles. Construction is being carried on upon the untracked mileage on these two sections by P. Welch, the contractor. Surveys are being proceeded with on the remaining section of the line from Clinton to a junction with the Grand Trunk Pacific Ry. at Fort George, B.C., 261 miles.

A train service was put in operation between North Vancouver and Dundarave, Jan. 1. Considerable progress has been made with grading between Dundarave and Caulfields, to which place the company is under agreement to have a train service in operation by July 1.

The Squamish Indian Reserve of 1,098 acres, at Newport, has been formally transferred to the company. The purchase price was $175,000. It will be used for terminal purposes. (Jan., pg. 22.)

Prince Edward Island Ry.—We are officially advised that surveys are in progress for a branch from mileage 40.8 to Carter's Point, near Cape Traverse, P.E.I., three miles. This will be the permanent line to the car ferry terminal now under construction. (Jan., pg. 22.)

Quebec Central Ry.—We are officially advised that surveys are being made for an extension of the line now terminating at St. Camille, Bellechasse county, Que., to English Lake, Montmagny county, 20 miles. (Dec., 1913, pg. 575.)

Queen Charlotte Islands.—Portland, Ore., press reports state that plans have been prepared in that city by men interested in the development of some oil bearing lands on Queen Charlotte Islands, B.C., for the building of a six mile railway from Rennell Sound, on the northwest of Graham Island, northerly. (See Queen Charlotte Island Ry., pg. 353; Graham Island Ry., pg. 351, and Island Valley Ry., pg. 351, all Feb., 1910.)

Reid Newfoundland Ry.—At the close of 1913, the company had laid 74 miles of track on the new branch lines under construction, as follows—Trepassey Branch, between Biscay Bay and Trepassey, 5.00 miles; Carbonear Branch, between Carbonear and Bay de Verde, 53.00 miles; Fortune Bay Branch, between Goobies and Black River, 15.00 miles; Heart's Content extension into Heart's Content, 1.00 mile. The Trepassey Branch is now completed, with the exception of the finishing up process, as also is the Carbonear Branch; some grading has been done at Black River on the Fortune Bay Branch, and the Heart's Content Branch has been completed. Some miles of grading have been done on the Bonne Bay Branch. (July, 1913, pg. 332.)

St. John and Quebec Ry.—During 1913, track was laid on 92 miles of the line known as the St. John Valley Ry., but covered by the general charter of the St. J. and Q. Ry. Track is laid from Gagetown to 18 miles north of Fredericton, N.B., 47 miles. Between this point and 21 miles south of Woodstock, 23 miles, grading is well advanced, the contract being carried out by the Hubbard Construction Co., Fredericton. From 21 miles south of Woodstock, to 24 miles north of that town, 45 miles, track has been laid, and 1.5 miles of grading is being completed to Centerville, by Kennedy and McDonald, Woodstock, N.B. Surveys for the line from Gagetown to St. John, 50 miles, and from Centerville to Andover, 26 miles, are not finally completed. The total length of the line from St. John to Andover will be 192.5 miles.

The Maine Legislature has incorporated the Quebec Extension Ry. Co., to build a line from Caribou, near Presque Isle, Me., to the International boundary near Megantic Que. A. R. Gould, President, St. John and Quebec Ry., is the principal promoter of the line, and he is reported to have stated that it is projected as part of the St. J. and Q. Ry. It is said that the line will ultimately be operated by electricity, obtained from water powers to be developed at various points on the route. (Dec., 1913, pg. 575.)

Timiskaming and Northern Ontario Ry.—A revision of the line from mileage 250 to Cochrane, Ont., 2.8 miles is, we are advised, being made, the contract having been let to Macdougall and McCluskey, Cochrane, Ont. W. B. Clement, North Bay, Ont., is Chief Engineer.

A two stall locomotive house is under construction at Elk Lake, the terminus of the Elk Lake Branch. (Dec., 1913, pg. 575.)

Toronto, Hamilton and Buffalo Ry.—The railway situation at Hamilton, Ont., is at present in an interesting situation, brought about by the proposed entry of the Canadian Northern Ry., and the suggested abolition of level crossings on the T. H. and B. Ry. The latter company wishes to elevate the existing line, and the C.N.R. has surveyed a route entering the city limits near the G.T.R., south of that line, but crossing it east of the Stuart St. station, and paralleling the old Northern and Northwestern Ry. from Gage Ave. to the city boundary. The city is desirous of having all the railways passing through the city restricted to one right of way, and the Board of Railway Commissioners has recently decided that it has power to change the location of any line, when it is in the public interest to do so. The plan suggested by the city is that the C.N.R. from Toronto should connect with the G.T.R. near Desjardins Canal, at which point the T. H. and B. R. has also a connection, and that the G.T.R. right of way from that point, which is 120 ft. wide, should be followed to the Hamilton Jockey Club's grounds, where the lines would diverge, the C.N.R. keeping to the north, and the T. H. and B. R. bending southerly, each to tie into its route outside the city, the T. H. and B. R. joining its present line east of Bartonville. The city also suggests that the companies provide a union station at the corner of James and Stuart Streets, about two blocks east of the present G.T.R. station. (Jan., pg. 22.)

Western Canada Power Co.—We are officially advised that the company has completed an extension of its line from Stave Falls to Stave Falls dam, near Vancouver, B.C., 0.5 mile. This is a construction line only. The company holds charters to build electric railways, under the title of the Burrard, Westminster Boundary Ry. and Navigation Co.

Western Central Ry.—The Dominion Parliament is being asked to extend the time for the building of this projected railway. Mowat, Langton and Maclennan, Toronto, solicitors for applicants.

Winnipeg, Man.—The Commissioners for the Greater Winnipeg Water District have let a contract to O'Brien, Fowler and McDougall Bros. for the supply of 400,000 ties for the construction railway to be built from Winnipeg to Shoal Lake, Man., in connection with the new water supply proposals.

We are officially advised by the Commissioners that the location of the railway and pipe line have not yet been completed The preliminary surveys show that there will be about 35 miles of prairie work with a minimum of grading; the remaining 50 miles will be through a sparsely wooded country, with some muskeg but very little rock. It is merely a construction line, and as it will probably not be operated after the completion of the pipe line, the grading will be very light, and there will be very little curvature. It is expected to use 65 lb. rails. It is expected to let a contract for the line in March, but it has not yet been decided whether the Commissioners will build and operate the line, or whether the entire work in connection with the water supply will be let as one job. (Dec., 1913, pg. 575.)

Dominion Government Railway to Hudson Bay.

We are officially advised that track was laid to Dec. 31, 1913, from Pas, Man., for 86 miles. The line is under construction from this point to Port Nelson, on Hudson Bay, 337 miles.

J. D. McArthur, Winnipeg, the general contractor, was in Ottawa, Jan. 9, and is reported to have stated that grading and rock work will be carried on all winter, and that ties and steel are being taken in for the tracklaying during the summer. Over 1,000 men are in the camps.

A report was issued by the Naval Service Department at Ottawa, Jan. 12, respecting Hudson Bay. According to this report navigation is possible to and from James Bay, from July 15 to Nov. 15. Winter conditions generally prevail to the end of June, and navigation is sufficiently safe by the middle of July. The report also deals with conditions in James Bay, which is reported to be navigable from August to the end of November. There is a suitable location for a harbor at Comfort Point, at the east end of Ministikiwatin, on Rupert's Bay. It is a point in this bay which has been suggested as a terminal for grain carriers, crossing from Port Nelson, and transferring the grain to a railway running to Montreal or other points. It is in connection with this project that the North Ry. is being surveyed. (Dec., 1913, pg. 582.)

Steam Railway Track Laid in 1913.

Following the annual custom of many years, circulars were sent in December by Canadian Railway and Marine World to all steam railways in Canada, asking information as to new track built in 1913. Particulars of the replies received were published in our January issue, but by a typographical error the total of new single track was given as 3,344.50 miles instead of 3,144.50 miles as the detailed figures showed. A number of revised figures and additions have since been received, which brings the total mileage laid up to 3,213.67 miles, against 2,179.09 laid in 1912.

Following are the revised details:

	Miles.	Miles.
Algoma Central Ry.—		
Oba to Hearst, Ont.		49.00
Algoma Eastern Ry.—		
Mileage 79 to Little Current, Ont.		6.57
Canadian Northern Ontario Ry.—		
Between Montreal and Hawkesbury	10.00	
Between Ottawa and Capreol	120.00	
Between Ruel and Port Arthur	406.00	
Between Sydenham and Ottawa	54.00	
		590.00
Canadian Northern Ry.—		
Manitoba—		
Winnipeg	3.34	
Deerfield spur	12.50	
Greenway extension	15.33	
Grosse Isle extension	22.80	
Oakland extension	11.69	
Saskatchewan—		
Goose Lake branch	25.78	
Jackfish line	17.10	
Macrorie east	8.59	
Macrorie west	31.57	
Moose Jaw line	1.85	
Prince Albert-Battleford	51.95	
Swift Current line	55.85	
Alberta—		
Main line	148.31	
Vegreville-Calgary	13.20	
Strathcona-Camrose	0.17	
Brazeau line	42.60	
Peace River line	30.65	
Strathcona-Calgary	1.28	
		494.56
Canadian Northern Pacific Ry.—		
Yellowhead westerly	6.07	
Cisco to Hope	62.00	
Portions between steel bridges, Cisco to Kamloops	9.00	
Cottonwood to Kamloops	123.00	
New Westminster to Steveston	12.00	
		212.07
Canadian Pacific Ry.—		
Interprovincial and James Bay Ry., Lumsden's Mills to Opemican, Que.	10.00	
Campbellford, Lake Ontario and Western Ry., Glen Tay to Agincourt, Ont.	182.60	
Manitoba—		
Snowflake west	10.00	
Virden-McAulay line	23.00	
Boissevain-Lauder line	35.00	
Saskatchewan—		
Estevan north west	47.00	
Kerrobert north east	22.00	
Swift Current-Bassano	60.80	
Weyburn-Stirling line	162.00	
Alberta—		
Suffield south west	32.30	
Gleichen-Shepard	25.00	
*Alberta Central	40.00	
Lacombe branch extension	8.00	
British Columbia—		
Kootenay Central extension	19.70	
Whitewater to Kaslo	16.00	
		693.40
Dominion Government Ry.—		
To Hudson Bay Pass and mileage 86, Man.		86.00
Esquimalt and Nanaimo Ry.—		
McBride Jct. to Big Qualicum	15.80	
Osborne Bay Jct. to Crofton	3.20	
		19.00
Edmonton, Dunvegan and B.C. Ry.—		
Mileage 23 to Mirror Landing, Alta.		106.00
Fredericton and Grand Lake Coal and Ry. Co.—		
Mileage 11 to 24, N.B.	13.00	
Marysville Jct. to Marysville	2.84	
		15.84
Grand Trunk Pacific Ry.—		
Regina-Boundary line, m. 92 to 155.	63.00	
Regina-Moose Jaw branch	92.00	
Prince Albert branch, m. 67 to 90	23.00	
Biggar-Calgary branch, m. 36.6 to 104.6	68.00	
Battleford to Rossman, Sask.	35.00	
Irricana to Calgary	33.00	
Balsam to Mount Park	31.00	
Main line, Beamont, B.C., easterly	120.00	
Main line, Tete Jaune Cache west	165.00	
		630.00
Intercolonial Ry.—		
Georges River to Sydney Mines		9.80
***Kettle Valley Lines—**		
On several sections		75.00
National Transcontinental Ry.—		
In Province of Quebec	88.26	
In Province of Manitoba	2.22	
		90.48
***Pacific Great Eastern Ry.—**		
North Vancouver to Dundarave	4.50	
Newport to Cheakamus, B.C.	13.50	
		18.00
Quebec Central Ry.—		
St. Sabine to St. Camille		5.00
St. John and Quebec Ry.—		
Gagetown to Fredericton, N.B.	29.00	
Fredericton northerly	18.00	
Mileage 21 south of Woodstock to Woodstock, N.B.	21.00	
Woodstock northerly	24.00	
		92.00
Sydney and Louisburg Ry.—		
Morien Jct. to Morien, N.S.	2.00	
Waterford Lake to Colliery 17	1.00	
		3.00
Timiskaming and Northern Ontario Ry.—		
Montreal River to Elk Lake, Ont.	6.00	
Iroquois Jct. to Iroquois Falls	6.40	
		12.40
Vancouver, Victoria and Eastern Ry.—		
Kilgard to Sumas Landing		5 05
Western Canada Power Co.—		
Extension to dam at Stave Falls, B.C.		0.50
Total		3,213.67

Of this mileage 2,710.51 miles were laid in connection with three systems, the following being the comparison of the mileages laid by the same systems in 1912:—

	1913. Miles.	1912. Miles.
Canadian Northern Ontario	590.00	195.00
Canadian Northern Pacific	212.07	41.75
Canadian Northern Ry.	494.56	303.63
	1,296.63	540.38
Canadian Pacific Ry.	693.40	353.79
National Transcontinental Ry.	90.48	361.15
G.T. Pacific Ry.	630.00	608.75
	720.48	969.90
Total of the three systems	2,710.51	1,864.07

The reduced mileage of track laid on the National Transcontinental Ry. is owing to the fact that tracklaying on the entire line from Moncton to Winnipeg, 1,804 miles, is now completed.

Divided by provinces the track laid in 1912 and 1913 compares as follows:—

	1913. Miles.	1912. Miles.
Prince Edward Island	—	9.90
Nova Scotia	12.80	9.69
New Brunswick	107.84	26.61
Quebec	103.26	125.25
Ontario	840.57	592.02
Manitoba	221.88	14.62
Saskatchewan	765.49	501.94
Alberta	511.51	554.72
British Columbia	650.32	331.34
Total	3,213.67	2,179.09

The following single track was laid in Newfoundland by the Reid Newfoundland Co.:—

	Miles.
Carbonear to Bay-de-Verde	53
Goobies to Black River	15
Biscay Bay to Trepassey	5
Into Heart's Content	1
	74

In addition to the above new lines the C.P.R. laid second track as follows:

	Miles.	Miles
*Quebec—Farnham section	3.00	
Ontario—Islington to Guelph Jct.	29.00	
Manitoba—Bergen north east	20.00	
Manitoba—Kemnay-Virden	35.00	
Saskatchewan—Whitewood-Grenfell	8.00	
Saskatchewan—Indian Head-Regina	21.60	
Saskatchewan—Regina-Pasqua	12.00	
Saskatchewan—Caron-Java	66.70	
British Columbia—Ruby Creek to Hammond	59.00	
		254.30

toria and Eastern Ry. 7.12 miles from Ardley to Still Creek, B.C., making a total of 267 miles of second track laid during 1913.

On the Minneapolis, St. Paul and Sault Ste. Marie Ry., a C.P.R. subsidiary line in the United States, 97.35 miles of track was laid as follows:—

	Miles.
Ambrose, N.D., to Whitetail, Mont.	85.78
Ironhub, Iron Mountain, Minn.	8.21
Range Jct. to Riverton, Minn.	3.36
Total	97.35

The Detroit and Huron Ry., a subsidiary of the G.T.R. in the United States, laid 14.50 miles of track, from near Cass City, to Bad Axe, Mich., 14.25 miles, and from West Bay City to Bay City Terminal, Mich., 1.25 miles.

Passenger Rate Meetings at Buffalo.

The annual meetings of the International Water Lines Passenger Association, the Niagara Frontier Summer Rate Committee, and the Great Lakes and St. Lawrence River Rate Committee were held at Buffalo, N.Y., in January. The rate representatives met on Jan. 20 and 21, and prepared the rates for submission to the general meetings of the three associations.

At the International Water Lines Passenger Association meeting, Jan. 21, a gavel, made from mahogany from the Northern Navigation Co.'s s.s. Noronic and bound with silver, was presented to the retiring chairman, G. C. Wells, Assistant to Passenger Traffic Manager, C.P.R. The following officers were elected for the current year:—President, O. H. Taylor, P.T.M., Eastern Steamship Corporation, New York; Vice President, W. P. Hinton, G.P.A., Grand Trunk Pacific Ry., Winnipeg; Secretary, M. R. Nelson, C.C.P.D., Northern Steamship Co., New York.

At the Niagara Frontier Summer Rate Committee's meeting, Jan. 22, F. T. Grant, G.P.A., Rutland Rd., Rutland, Vt., was elected Chairman for the current year. The retiring chairman, W. S. Cookson, A.G.P.A., Grand Trunk Ry., Montreal, was presented with a gavel, the wooden portion of which was made from a piece of quartered oak taken from the Chateau Laurier, the G.T.R. hotel at Ottawa. The silver used for its ornamentation was secured from Cobalt, Ont. Imbedded in the head of the gavel is a section of U rail taken from what is probably the last piece of rail in existence which was laid on the G.T.R. in 1854. This rail was of a remarkably good quality of iron and was made by the Ebbw Vale Co. in Wales. The joints were known as chair joints, as there were no fish plates in use at that time. The rail was laid for 1,000 miles between 1854 and 1857, and the quality was so good that the rails wore away very evenly, some lasting for 18 years. The line at that time was known as the Atlantic and St. Lawrence Rd. The case in which the gavel was placed was made from wood taken from the G.T.R. central station at Ottawa.

The Great Lakes and St. Lawrence River Rate Committee met Jan. 22, and elected W. F. Herman, G.P.A., Cleveland and Buffalo Transit Co., Cleveland, Ohio, as Chairman for the current year.

The next meetings of all three associations will be held in Toronto in January, 1915.

Western Canada Railway Club.—At the monthly meeting, Jan. 12, D. R. Dover, Local Freight Agent, G.T. Pacific Ry., read a paper on "new credit system."

The C. P. R. is reported to have ordered 100,000 tons of steel rails from Algoma Steel Corporation, and 25,000 tons from Dominion Iron and Steel Co.

Birthdays of Transportation Men in February.

Many happy returns of the day to:—

S. A. Baker, Canadian Freight and Passenger Agent, Chicago Great Western Rd., Toronto, born at Morrisburg, Ont., Feb. 1, 1877.

B. H. Bennett, General Agent, Chicago and North Western Ry., Toronto, born at Cobourg, Ont., Feb. 6, 1858.

F. L. C. Bond, Division Engineer, Eastern Lines, G.T.R., Montreal, born there Feb. 21, 1877.

C. H. Booth, Local Freight Agent, Midland Ry. of Manitoba, Winnipeg, born at Banff, Scotland, Feb. 16, 1882.

T. Britt, General Fuel Agent, C.P.R., Montreal, born there Feb. 3, 1871.

G. E. Bunting, General Western Freight Agent, Allan Line Steamships, and Manager, Allan and Co., Chicago, Ill., born at Toronto, Feb. 8, 1873.

H. R. Charlton. General Advertising Agent, G.T.R. and G.T.P.R., Montreal, born at St. Johns, Que., Feb. 9, 1866.

R. Colclough, Superintendent, Intercolonial Ry., Levis, Que., born at Bic, Que., Feb. 24, 1871.

F. W. Cooper, A.M. Can. Soc. C.E., Division Engineer, C.P.R., Montreal, born at London, Ont., Feb. 16, 1880.

R. Crawford, Northwest Agent, Northern Navigation Co., Winnipeg, Man., born at Kingston, Ont., Feb. 21, 1870.

R. W. Drew, Division Freight Agent, Kootenay and Boundary Divisions, C.P.R., Nelson, B.C., born at Kingston, Ont., Feb. 17, 1874.

E. A. Evans, M. Can. Soc. C.E., ex-General Manager and Chief Engineer, Quebec Ry., Light and Power Co., Quebec, born at Kensington, London, England, Feb. 26, 1855.

L. O. Genest, General Storekeeper, Western Lines, C.P.R., Winnipeg, born at St. Henri, Levis County, Que., Feb. 16, 1856.

J. H. Guess, General Purchasing Agent, Grand Trunk Ry., Montreal, born at Raleigh, N.C., Feb. 5, 1878.

J. C. Holden, A.M. Can. Soc. C.E., Division Engineer, C.P.R., Winnipeg, born at St. John, N.B., Feb., 1876.

T. C. Hudson, Master Mechanic, C.N.Q.R. and Q. & L. St. J. Ry., Joliette, Que., born at Brockville, Ont., Feb. 20, 1873.

H. Hulatt, Commercial and Traffic Superintendent, G.T. Pacific Ry. Telegraphs, Winnipeg, born in London, Eng., Feb. 15, 1883.

C. Gardiner Johnson, Lloyds' Agent for British Columbia, Vancouver, B.C., born at Dunblane, Scotland, Feb. 8, 1857.

R. S. Logan, Vice President, G.T.R., Montreal, born at St. Louis, Mo., Feb. 13, 1864.

John McCraw, Superintendent, Southern Division, Central Vermont Ry., New London, Conn., born at Craigvale, Ont., Feb. 6, 1868.

G. L. McCrea, Local Freight Agent, C.P.R., Vancouver, B.C., born at Springtown, Ont., Feb. 9, 1876.

D. McDonald, District Passenger Agent, Canadian Government Railways, Montreal, born at Ste. Hyacinthe, Que., Feb. 28, 1862.

T. McNabb, ex-Master Mechanic, Alberta Ry. and Irrigation Co., now of Turin, Alta., born in Scotland, Feb. 16, 1849.

J. K. McNeillie, Superintendent, District 2, Eastern Division, C.P.R., Montreal, born at Toronto, Feb. 23, 1874.

D. C. Macdonald, Division Freight Agent, C.P.R., Regina, Sask., born at Elmsdale, N.S., Feb. 9, 1874.

D. MacPherson, M. Can. Soc. C.E., Assistant to Chairman, National Transcontinental Ry. Commission, Ottawa, born at Bath, Ont., Feb. 2, 1858.

C. S. Maharg, Superintendent, District 3, Manitoba Division, C.P.R., Brandon, born in Dufferin County, Ont., Feb. 4, 1867.

V. J. Melsted, Engineer of Water Service, Western Lines, C.P.R., Winnipeg, born at Gardar, N.D., Feb. 20, 1887.

G. A. Montgomery, General Superintendent, Algoma Central and Hudson Bay Ry., and Algoma Eastern Ry., Sault Ste. Marie, Ont., born at Bradford, Ont., Feb. 11, 1871.

A. Z. Mullins, Commercial Agent, G.T.R., Grand Rapids, Mich., born at Appin, Ont., Feb. 14, 1862.

M. G. Murphy, District Passenger Agent, C.P.R., Toronto, born at Halifax, N.S., Feb. 26, 1878.

G. J. O'Dowd, City Freight Agent, C.P.R., Quebec, born at Montreal, Feb. 4, 1874.

J. E. Proctor, District Passenger Agent, C.P.R., Regina, Sask., born at Sarnia, Ont., Feb. 17, 1878.

J. E. Robitaille, Comptroller, Roberval-Saguenay Ry., Chicoutimi, Que., born at Quebec, Feb. 17, 1870.

A. E. Rosevear, General Freight Agent, G.T. Pacific Ry. and G.T. Pacific Coast Steamship Co., Winnipeg, born at Montreal, Feb. 20, 1863.

H. H. Schaefer, Division Freight Agent, Intercolonial Ry., Moncton, N.B., born at Cologne, Germany, Feb. 10, 1848.

J. G. Scott, ex-General Manager, Quebec and Lake St. John Ry., Quebec, born there Feb. 13, 1847.

J. J. Scully, General Superintendent, Lake Superior Division, C.P.R., North Bay, Ont., born at Montreal, Feb. 3, 1872.

G. Spencer, Assistant Chief Operating Officer, Board of Railway Commissioners, Winnipeg, born in London, Eng., Feb. 21, 1865.

H. E. Suckling, Treasurer, C.P.R., Montreal, born at Gibraltar, Feb. 27, 1851.

Hugh Sutherland, Executive Agent, Canadian Northern Ry., Winnipeg, Man., born at New London, P.E.I., Feb. 22, 1845.

Sir Wm. C. VanHorne, K.C.M.G., Director, C.P.R., and President, Cuba Co., Montreal, born in Will County, Ill., Feb. 3, 1843.

F. L. Wanklyn, M. Can. Soc. C.E., General Executive Assistant, C.P.R., Montreal, born at Buenos Ayres, Feb. 25, 1860.

John L. Weller, M. Can. Soc. C.E., Superintending Engineer, Welland Ship Canal, St. Catharines, Ont., born at Cobourg, Ont., Feb. 13, 1862.

Canadian Government Railways Earnings Expenses.

The following figures, showing the receipts and expenditures of Canadian Government Railways for the fiscal year 1912-13, have been published unofficially. The figures for the Intercolonial Ry. are:—

Revenue.	
Passenger traffic	$3,215,821
Freight traffic	7,911,817
Mails and express	470,866
Miscellaneous	385,976
Total	$11,984,482
Working Expenses.	
Maintenance of way and structures	$2,058,458
Maintenance of equipment	3,041,672
Traffic expenses	230,481
Transportation expenses	6,378,894
General expenses	270,476
Total	$11,979,982
Net earnings	$4,500

The figures for the Prince Edward Island Ry. are:—

Revenue.	
Passengers	$180,347
Freight	171,348
Mails and express	26,446
Miscellaneous	11,331
Total	$389,472
Working Expenses.	
Maintenance of way and structure	$135,434
Maintenance of equipment	86,656
Traffic expenses	1,113
Transportation expenses	251,186
General expenses	15,581
Deficit	$100,498
Total	$489,970

National Transcontinental Railway Construction.

Construction operations on the N.T.R. have been suspended until the spring. Track has been laid over the entire line from Moncton to Winnipeg, but there is still a great deal of finishing up to be done before through traffic will be opened up. On some parts of the line the track is being carried across streams by temporary wooden bridges. These, however, are to be replaced by steel structures. It is expected that the ballasting and other work will be completed by the end of this year.

Construction work is being proceeded with on the car ferry slips at Levis. The car ferry, for use between these points, was launched from the Cammell, Laird & Co.'s yards, Birkenhead, Eng., Jan. 10. (Jan., pg., 24.)

Grand Trunk Pacific Railway Construction.

Press reports from Fort George, B.C., Jan. 14, stated that the steel laying gang working from the east had reached that point, 1,279 miles from Winnipeg. The present end of steel coming easterly from Prince Rupert, is at mileage 324, which leaves about 175 miles of steel to be laid before tracklaying will be completed through between Winnipeg and Prince Rupert. It is expected that the two ends of track will be joined early in May. A train service is being operated to mileage 1233 west of Winnipeg, and it is expected to start a service to Fort George in the spring. Easterly from Prince Rupert, trains are running to mileage 325.

Grand Trunk Pacific Branch Lines.—The question of the entry of the company's branch line from Lake Superior Jct. to Fort William, Ont., into Port Arthur, is under discussion. The latest route suggested was through the grounds of the Port Arthur Agricultural Association, but this was vetoed by the Chief Engineer of the Board of Railway Commissioners.

The Saskatchewan Legislature has passed the following acts affecting the company's lines in the province:—Approving the agreement between the G. T. Pacific Saskatchewan Ry. and the town of Weyburn, respecting the construction of a branch of the Regina-International Boundary line into the town. Authorizing the guarantee by the province of the securities of the company in respect of the construction of various lines in the province, as approved by the Lieut.-Governor-in-Council. Confirming an agreement between the G.T.P.B.L. Co. and the City of Regina, respecting terminals; authorizing the granting of aid towards the construction of terminals in Saskatoon, Regina, and Moose Jaw, for the G.T.P.B.L. Co. and the G.T.P. Sask. Ry., and authorizing the guaranteeing of the securities of the G.T.P. Sask. Ry. in respect of the building of certain lines, as approved by the Lieut.-Governor-in-Council.

We are officially advised the following branch lines are under construction:—Harte to Brandon, Man., 25 miles; Talmage, on the Regina-Boundary branch, to Weyburn, Sask., 15 miles, and from Gerrond to Prince Albert, Sask., 22 miles. There are, we are advised, a large number of branch lines contemplated in Saskatchewan and Alberta, many of which have been fully surveyed. The construction programme for this year has not yet been arranged. (Jan., pg. 24.)

The Intercolonial Ry. Dining Car Department, of which L. B. Archibald is Superintendent, has taken over the charge of the diningroom service at Moncton, N.B.

Canadian Northern Railway Construction, Betterments, Etc.

Mount Royal Tunnel and Terminal Co.—Supplemental letters patent were granted to the Canadian Northern Montreal Tunnel and Terminal Co., Jan. 10, changing the name of the company to the Mount Royal Tunnel and Terminal Co.

The Quebec Court of Appeal, Jan. 11, decided that the owners of property under which the tunnel is being constructed may bring actions for damages to property other than those which are taken cognizance of by the arbitrators dealing with the question of price. The original action was brought by the owner of a property at the corner of Bellingham and Maplewood Avenues, the sum claimed being $9,000. The company claimed that the whole amount of the damage should be estimated by the arbitrators. This exception was dismissed in the lower court, and the judgment is now upheld on appeal.

The Board of Railway Commissioners has reserved judgment on the application of the company to expropriate the whole of the Rainville property, including a small strip not included in the original application. The company subsequently took only an easement for the tunnel, but the owner claimed damages to the property. The company said the property might be useful for station purposes in the future.

Canadian Northern Ontario Ry.—A through fast freight service was inaugurated between Toronto, Ottawa, Montreal and Quebec, Jan. 8, over the Toronto-Ottawa line, the last section of which was recently completed; thence over the old Great Northern Ry. and the old Chateauguay and Northern Ry. into Montreal, and over the old Great Northern Ry. to Quebec. A regular train service is operated from Toronto to Sydenham, Ont., and a limited service from Sydenham into Ottawa.

A bylaw will shortly be submitted to the ratepayers of St. Catharines, Ont., providing for a bonus of $100,000 to aid in building the company's Toronto-Niagara line through that city. The agreement provides for the completion of the line from Hamilton to St. Catharines within three years, and its completion from Toronto to Niagara in five years.

Montreal-Ottawa-Port Arthur Line.—Track laying has been completed easterly from Capreol to North Bay, Ont., and construction trains are being operated over it. Track has also been laid to between 50 and 60 miles east of North Bay. Out of Ottawa, track is laid nearly to Pembroke.

The last spike on the section of this line terminating in Port Arthur, Ont., was driven near Little White Otter River, 254 miles east of Port Arthur, Jan. 1, by Sir William Mackenzie, who, accompanied by an official party, left Toronto by a special train and travelled over the line via Parry Sound to Capreol, which is the point at which the Montreal-Ottawa-Port Arthur line connects with the line from Toronto; thence to Ruel, where present permanent operation ceases, and then over the newly completed line to the point where the track laying was completed on New Year's morning. The journey was then resumed and the special ran on to Port Arthur, which was reached at midnight. The party was entertained at dinner immediately afterwards, and speeches were delivered by the Mayor of Port Arthur, Sir William Mackenzie, President; Sir Donald Mann, Vice President; D. B. Hanna, Third Vice President, and others.

The building of this section of the line was entrusted to Foley, Welch and Stewart and the Northern Construction Co., in 1911, under the terms of a special agreement with the Dominion Government. Actual construction work started early in 1912. The line has a gradient of 0.4%, with an almost perfect alignment, the final location being made over a period of four years by H. K. Wicksteed, Chief Engineer of Surveys.

Work has been suspended on the line for the winter, but it is expected that ballasting gangs will be put on in the spring in order to get the line in running condition by the fall. One lift of ballast has already been put on. Station buildings have been completed to mileage 183 out of Port Arthur.

Canadian Northern Ry.—The Board of Railway Commissioners has authorized the opening for traffic of the revised line across Rainy Lake, Ont., mileage 224.3 to 226.4.

The Lieut.-Governor of Manitoba, in his speech at the opening of the Provincial Legislature, referring to the building of the railway to Hudson Bay by the Dominion Government said:—"It is the fixed policy of my Government to extend the Oak Point line northward to intersect the same in such time as will guarantee our ability to take advantage, when the main line of the railway is ready for operation, of this through route to the markets of the world for the products of the farms of Manitoba. My Government believe that the opening of such a through route will prove of great benefit to the agriculturists of this Province." This line is being built by the C.N.R. and is in operation from Winnipeg to Gypsumville, 162 miles.

The Board of Railway Commissioners has authorized the opening for traffic of the extension of the Oakland Branch from mileaged 24, for a further distance of 12 miles.

The C.N.R. is carrying on its construction work in Manitoba, Saskatchewan and Alberta, not only under its own charter, but also under the charters of the Canadian Northern Saskatchewan Ry., the Canadian Northern Western Ry., and the Canadian Northern Alberta Ry. The construction work done under the charters of these companies for 1913 is as follows:—

Grading was done on 23 lines and track laying on 19 lines. The main line out of Edmonton is being built under the Canadian Northern Alberta Ry. charter, and on this 34.28 miles of grading were done, and 143.36 miles of track laid to the provincial boundary. A 5 mile spur, known as Huffs spur, was also laid.

The work done on the various branch lines, arranged according to provinces, is as follows:—

	Grading. Miles.	Track laid. Miles.
C.N. Ry.	107.37	271.72
C.N. Sask. Ry.	4.00	—
C.N. Western Ry.	87.54	74.53
C.N. Alberta Ry.	34.28	148.31
Total	233.19	494.56
	Miles graded.	Miles track laid.
Manitoba—		
Winnipeg cut off	3.98	3.34
Winnipeg & Northern Ry.	7.45	—
Deerfield (Oak Point line)	12.50	12.50
Greenway extension	2.94	15.33
Oakland extension	—	11.69
Grosse Isle extension	14.28	22.80
	41.15	65.66
Saskatchewan—		
Bienfait to Estevan	8.20	—
Canora northerly	1.90	—
Goose Lake branch	—	25.78
Jackfish line	—	17.10
Macrorie east	2.26	8.59
Macrorie west	34.83	31.57
Moose Jaw line	0.30	1.85
Prince Albert-Battleford line	1.15	51.95
Swift Current line	7.10	55.85
Vonda, northerly	8.20	—
Wroxton, westerly	4.00	—
	67.94	192.69
Alberta—		
Vegreville-Calgary line	0.23	13.20
Calgary, southerly	1.60	—
Strathcona-Camrose	0.45	0.17
Brazeau line	26.77	42.60
Camrose south east	53.45	—
Peace River line	6.50	30.65
Strathcona-Calgary line	0.30	1.28
Red Deer spur	0.52	—
Main line	34.28	148.31
	124.10	236.21
Total for three provinces	213.19	494.56

The three measures with respect to the guaranteeing of the company's bond issues by the Province of Saskatchewan mentioned in our last issue, have received final assent. The question of the construction programme for the year, under these acts, is now under consideration by the government.

Canadian Northern Pacific Ry.—The C.N. Ry. construction department at Winnipeg is supervising the Canadian Northern Pacific Ry. construction from the Alberta-British Columbia boundary to the Albreda Summit.

During 1913 grading was completed for 67.8 miles westerly from the provincial boundary, and 6.07 miles of track laid.

The remainder of the line in British Columbia is being built under the Vancouver construction department, T. H. White being Chief Engineer. Track was laid from Sumas to Hope, 41.75 miles, in 1912, and during 1913 an additional 206 miles of track was laid. Of this 12 miles was on the branch from New Westminster to Steveston, leaving 194 miles of track laid on the main line. Track has been laid from Hope to Cisco, 62 miles, and nine miles between the steel bridges under construction between Cisco and Kamloops; for 123 miles from Kamloops to Cottonwood. The distance from Cisco to Kamloops is 103 miles, and from Cottonwood to Yellowhead Pass is 134 miles. The company has under survey a line from Kamloops to Kelowna and Shuswap Falls, 141 miles, and a line from Westminster bridge to Lulu Island bridge, five miles.

Considerable progress is being made with the construction of the terminals at Port Mann. It is expected that the locomotive house will be completed early in February.

Sir Donald Mann, Vice President, arrived in Vancouver, Jan. 5, when he is reported to have said that the company's line would enter Vancouver by a tunnel three miles long, the exact location of which had not been settled. (Jan., pg. 29.)

Dominion Railway Subsidy Agreements.

The Dominion Government has entered into agreements under the act granting aid in the construction of railways, for the following lines:—

Canadian Pacific Ry., Jan. 8, for railway bridge over the Saskatchewan River, at Outlook, Sask. This bridge has been built and opened for traffic It was fully described and illustrated in Canadian Railway and Marine World, June, 1913.

Kettle Valley Ry., Dec. 16, 1913, for a line from Merritt to Penticton wharf, B.C., 145 miles, and for a line from a point on the line between Merritt and Penticton wharf, about 25 miles south of Merritt, to a point on the Fraser River, near Hope station, B.C., 55 miles.

Kootenay Central Ry., Dec. 15, 1913, for a line from Golden, via Windermere and Fort Steele, B.C., to a point on the British Columbia Southern Ry., at or near Jukeson, 175 miles.

Locomotive Design.—The present tendency is to use larger cylinders, maintaining former steam pressures. The first step in this direction was to use larger cylinders with decreased steam pressure, but it has since been found advisable to maintain the pressure as before.

Canadian Pacific Railway Construction, Betterments, Etc.

Interprovincial and James Bay Ry.—The first 10 miles of this extension of the C. P. R. line, running from Mattawa, Ont., to Timiskaming, and Kipawa, Que., which branches off at Lumsden's Mills, and extends to Opemican, has been completed. The next point to which the line will be built, is said to be Ville Marie, but nothing has been decided as to when it will be put under contract.

Eastern Division.—The second track work has been completed to St. Johns, Que., the second section between Farnham and St. Johns, 12.7 miles, having been finished during 1913.

The company has under construction in Montreal, the Forsyth St. branch, 4.4 miles.

The Glen passenger car yard has been remodelled by building a ladder track across the body tracks, near the centre of the yard. This divides the yard into two independent sections, making possible the handling of trains in and out of the yard more expeditiously, and obviating the use of a Y, the trains being turned by going around the loop, which has been made possible by the use of the ladder. It is rumored that the car shops are to be rebuilt, to relieve the congestion at this point. A wheel lathe is to be installed shortly, so that wheels removed from cars in the shop drop pit may be turned there, instead of having to ship them to the Angus shops as at present.

Ontario Division.—All along the Campbellford, Lake Ontario and Western Ry., which extends from Glen Tay to Agincourt, Ont., 182.6 miles, gangs of men are engaged in putting the finishing touches to the work. The passenger and freight stations, and the other buildings are nearly all completed. It is expected that the line will be put in operation early in the spring. In preparation for the opening of the line, a second track has been laid from Agincourt to Leaside Jct., 12.7 miles. From Leaside Jct. into Toronto, a second track has been in operation for some time.

The Board of Railway Commissioners has authorized the opening for traffic of a third branch from the north side of the Queen St. subway at North Parkdale station, to Royce Ave., Toronto.

Although no official intimation has been received to that effect, it is said that a further distance of about 30 miles of second track will be laid on the Toronto-Windsor line this year. The present second track extends to Guelph Jct., and Galt is said to be the end of the next section to be put under contract.

We are officially advised that nothing has been decided with respect to the proposed cutoff between the London and the Muskoka subdivisions. One proposal is to build a line from Guelph to Bolton Jct., on the Toronto-Sudbury line. Surveys have been completed.

Lake Superior Division.—The second track work on this division west of Romford, the point where the line from Toronto joins the transcontinental line, to Port Arthur, which has been under construction for about three years, will be continued during this year. The work is being carried on in short stretches at different points on the line, and includes reduction of gradients and diversions.

Manitoba Division.—It is not expected that the Kildonan cutoff will be put in operation until the spring. The line is finished with the exception of some little work at the bridge across the Red River.

The work in progress at Winnipeg station is reported to have progressed faster than was anticipated. The outside work on the hotel part of the buildings has been completed, and all the piles have been driven for the alterations at the Main St. subway. The plans for the proposed changes in this subway were finally approved by the Board of Railway Commissioners Dec. 31.

The construction programme for this year provides for the building of an extension of the branch now terminating at Gimli, northerly for 26 miles. Some grading has already been done on it.

Saskatchewan Division.—The construction programme for this year includes the building of a line from Kerrobert, Sask., for 75 miles, to Monitor, or a few miles west of the Saskatchewan-Alberta boundary. This will give a line through to Lacombe, on the Calgary and Edmonton Ry.

The Board of Railway Commissioners has approved of location plans for the line from Swift Current, northwesterly from mileage 169 to 175.

Alberta Division.—The construction programme for this year includes the following, probably completing certain lines which have been under construction for two or three years. From Empress, on the Lacombe-Kerrobert line, to Bassano, 79 miles; from Coronation, on the above line, northwesterly, 45 miles; from Empress to Bassano, 140 miles; from Suffield West for 30 miles, and for 90 miles west from Shaunavon, on the Weyburn-Lethbridge line.

The Board of Railway Commissioners has authorized the opening for traffic of the Suffield-Blackie branch, mileage 26.5 to 57.2.

Alberta Central Ry.—Application is being made to the Dominion Parliament to ratify an agreement with the Canadian Northern Western Ry., respecting the Rocky Mountain House joint section.

The construction programme for this year provides for the building of about 35 miles of track, west from Red Deer, in continuance of the 30 miles laid up to Dec. 31, 1913.

Kootenay Central Ry. is in operation from Golden to Spillimacheen, B.C., 40 miles, and it is expected that a train service will be put on a further 20 miles during the summer. Steel has been laid from Colvalli, northerly for 39 miles, but this section has not yet been put in operation.

The construction programme for this year provides for the building of about 70 miles, which will complete the line, the construction of which has been in progress for three years.

Rogers Pass Tunnel.—The driving of the pioneer tunnel at Rogers Pass, B. C., from which crosscuts will be made to the main double track tunnel, so as to drive it from different headings, is reported to have been made about 600 ft., from the eastern end. A good deal of the approach work at the western end of the tunnel site has been done, and it is expected to start the pioneer tunnel at an early date. The machinery for boring the main tunnel is being delivered and got in place. The contract for the tunnel is in the hands of Foley, Welch and Stewart, and we are advised, in respect of the press dispatches from Denver, Colo., stating that a contract had been let to J. A. McIlwee & Son, of that city, for the tunnel, that there had been some negotiations with that firm for the boring of the pioneer tunnel, but that no contract had been placed.

Vancouver Terminals.—Work on the new terminals at Vancouver is reported to be making satisfactory progress. It is expected that the eastern wing of the new station building will be ready for occupation Mar 1. When the new station is completed the present one will be torn down, and on its site will be built the Granville St. viaduct. This will extend from the present end of Granville St. to the water front, and will connect with the passenger and freight sheds on pier D. The wharf accommodation is being rearranged on the most approved lines. (Jan., pg. 26.)

Railway Route Maps Approved.

The Dominion Minister of Railways has approved the following route maps:—

Canadian Pacific Ry., Jan. 9, from Guelph Jct. to Cedar Mills, Ont., about 35 miles.

From Caron to junction with its Bassano easterly line, Alta., 152.24 miles.

Kettle Valley Ry., Dec. 12, 1913, revised location from Hydraulic Summit to Penticton, B.C., 58.2 miles.

Pacific and Hudson Bay Ry., Jan. 9, from Bella Coola to Hutnarko River, B.C., 60 miles.

Great Northern Railway Lines in Canada.

Projected lines in Alberta.—Engineers connected with the G.N.R., or some of its associated companies, are reported to be engaged in locating a route for a line from Sweet Grass, Mont., through Taber, and the surrounding coal mining district of Alberta.

G.N.R. interests are reported to have purchased 25 acres of land in the vicinity of Calgary, Alta., and press reports state that it is for terminal purposes.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—Plans are being prepared for the reconstruction of the car ferry slip at New Westminster, B.C., from which the car ferries operate to Sidney, Vancouver Island. The new slip, it is stated, will be 400 ft. long, three tracks wide, with an overhead bridge to raise and lower the apron according to the state of the tide. A new car ferry will be put on as soon as the slip is built. (Jan., pg. 28.)

Increased Width of Right of Way Through Bush Lands.—A. E. Doucet, District Engineer, National Transcontinental Ry., Quebec, who is a member of the Canadian Society of Civil Engineers Committee on Conservation, wrote this recently:—"As a railway man, and familiar with the operation of railways through timber country, I am more than ever convinced that our generally accepted width of 100 ft. for right of way is very much too limited. I know that this point has already been brought up before the committee, but it seems to me that in future the right of way through bush lands should certainly not be less than 200 ft., and a law should be passed to this effect for all future construction work."

Railway Lands Patented.—Letters patent were issued in connection with Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, during Nov., 1913, as follows:—

	Acres.
Calgary and Edmonton Ry.	1,275.60
Canadian Northern Ry.	194.844
Canadian Northern Alberta Ry.	11.60
Canadian Pacific Ry.	145.025
Grand Trunk Pacific Branch Lines Co.	13.72
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.	5,825.06
Total	7,465.249

The Elimination of Grade Crossings in New England is at a standstill as the result of the financial condition of the railways. The Boston and Maine Rd., which has hitherto co-operated cheerfully with the states and the towns affected in the work of grade crossing abolition, this year announces its opposition to all such improvements on the ground that it has not the money to spend, and in the present state of the financial market it is impossible to obtain the money.

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 the 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 Editor - - - JOHN KEIR
Associate Editor - - - DONALD F. KEIR
Mechanical Editor - FREDERICK H. MOODY, B.A.Sc.

BUSINESS REPRESENTATIVES.
W. H. HEWITT, - - 70 Bond Street, Toronto
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A. FENTON WALKER, 143 Liberty Street, New York, N.Y.
J. MEREDITH MCKIM, 3 Regent St., London, S.W., 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 anywhere, $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.

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ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of publication.

TORONTO, CANADA, FEBRUARY, 1914.

PRINCIPAL CONTENTS.

Canadian Society of Civil Engineers Committee Report on Track.

At the Society's recent annual meeting in Montreal, H. R. Safford, Chief Engineer, G.T.R., chairman of the committee on tracks, presented the following report:—

Dear Sir,—Owing to a tremendous pressure of business, we were not able to hold a meeting until Dec. 1, 1913. This meeting was attended by A. C. MacKenzie and myself. (F. P. Gutelius, the other member, was not present.)

The subject assigned to the committee is a very large and comprehensive one, and the work to be carried on should be in accordance with a well defined programme, and, in order to conform to the wishes of the council as to procedure, it seems to us that the council should give a general outline of the subjects which should be first attacked. This is the procedure generally followed in associations of this nature, and is the one which we think will obtain the best results from the committee.

The committee is so small that we do not think we can carry on effective research work in a satisfactory manner, because in the work associated with track matters it is quite desirable that results obtained by the committee should be after a very general study by the committee, which should be representative not only as to individual railways but locality. We are, therefore, impressed that there should be an increase in the membership of this committee to at least 8 or 10, and a committee of this size can accomplish much more effective work.

We, therefore, recommend for consideration by the council the following action:—That the council shall instruct as to the general subjects it would desire given first attention, and we might suggest that two be selected from the following list: Recommended specifications for tie plates, for angle bars, for various classes of tie treatment, for bolts, spikes, etc. Recommended practice as to size of ties, as to character of timber, as to proper tie spacing. Economics of track labor, embracing the following: Proper methods of conducting track work, of measuring efficiency, of equating track values, of educating section foremen, and numerous other subjects could be suggested. That the committee membership be increased to 10.

We believe in the creation of this committee the membership should not be entirely confined to railway engineers, as there will be some features involved where it would be desirable to have the benefit of the views of men connected with steel manufacture, treatment of ties and other subjects which are associated with materials going into track use.

Interchange of Passenger Traffic at Toronto.—R. L. Fairbairn, General Passenger Agent, Canadian Northern Ry. lines east of Port Arthur, has issued the following notice:—"Arrangements have been completed for the interchanging of passenger traffic at Toronto between Canadian Northern Eastern Lines and the G.T.R. and C.P.R., applicable for all classes of traffic to and from all points. One coupon only will be required from Toronto to any destination on any of our allied lines—coupon to read 'Canadian Northern Ontario Railway.' Division requirements will be given later."

Chuting of Concrete.—Observations show that with wooden chutes of planed boards, 2 ft. wide, and from 8 to 10 ins. deep, the preferable slope is 4 ins. per ft. Slopes of 2 ins. per ft. require a man to keep the chutes clear, and of 6 ins. per ft., cause the ingredients to separate, and require the use of baffles to retard the motion.

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those for 1912-13, from July 1, 1913:—

	Gross Earnings	Expenses	Net Earnings	Increase
July	$1,928,800	$1,414,500	$514,300	$19,700
Aug.	1,824,800	1,416,200	408,600	37,800
Sept.	1,994,900	1,470,000	524,900	101,400
Oct.	2,687,100	1,683,000	1,004,100	298,800
Nov.	2,673,300	1,708,500	964,800	87,000
Dec.	2,256,000	1,632,000	624,000	43,000
	$13,364,900	$9,324,200	$4,040,700	$587,700
Incr.	$ 1,125,000	$ 537,300	$ 587,700	.....

Average mileage under operation during 1913, 4,480, against 4,297 in the previous year. Mileage operated during Dec., 1913, 4,458.

Canadian Pacific Railway, Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those for 1912-13, from July 1, 1913:—

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	$11,993,062.27	$7 876,269 09	$4,116,793.18	x$331 383.72
Aug.	11,434,459.88	7,473,320.64	3,961,139.24	x756,786.42
Sept.	12,157,082.17	7,741,503.48	4,415,578.69	165,274.84
Oct.	14,480,216.73	8,877,358.94	5,602,857.79	541,970.60
Nov.	13,407,015.31	8,518,769.25	4,888,246.06	630,107.02
	$63,471,836.36	$40,487,221.40	$22,984,614.96	$249,182.32
Incr.	$ 2,164,923.71	$ 1,915,741 39	$ 249,182.32	.....

x Decrease.

Approximate gross earnings for Dec., $11,695,000, against $12,108,000 for Dec., 1912. During Dec., 1913, the mileage under operation was increased to 11,827.

Grand Trunk Railway Earnings, Etc.

The following figures show the earnings and expenses of the G.T.R., C.A.R., G.T. Western Ry. and D.G.H. & M.R. for Nov., 1913, as compared with those for Nov., 1912:—

Grand Trunk Railway.

	1913.	1912.
Earnings	$3,523,400	$3,534,500
Expenses	2,813,000	2,820,800
Net earnings	$710,400	$713,700

Canada Atlantic Railway.

	1913.	1912.
Earnings	$200,900	$223,500
Expenses	215,300	211,400
Net earnings	$14,400*	$12,100

Grand Trunk Western Railway.

	1913.	1912.
Earnings	$577,200	$621,000
Expenses	502,500	523,800
Net earnings	$74,700	$97,200

Detroit, Grand Haven and Milwaukee Ry.

	1913.	1912.
Earnings	$241,900	$243,400
Expenses	210,200	197,600
Net earnings	$31,700	$45,800

*Deficit.

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from July 1 to Dec. 31:

	1913	1912	Increase	Decrease
G.T.R.	$23,137,502	$22,408,122	$729,380	.....
C.A.R.	1,2°6,634	1,271,732	.....	$85,098
G.T.W.R.	2,718,177	2,745,761	.....	27,584
D.G.H. & M.R.	1,347.427	1.329,057	18,°70	.....
Totals	$29,439.740	$28,754,672	$685.068	.....

Grand Trunk Pacific Railway Earnings.

The approximate earnings of the Prairie Section and Lake Superior Branch, 1,104 miles, for Nov., were $1,004,915; for Dec., $555,526. Aggregate from July 1 to Dec. 31, 1913, $4,293,115.

Steel Rail Orders.—A press dispatch from Sydney, Jan. 6, said that the Dominion Iron and Steel Co. was finishing a large order for rails for the Canadian Northern Ry., after which the rail mill would be shut down 10 days for repairs; that an order had been received from the Australian Government for 5,000 tons of rails, which was expected to be followed by further orders from the same source; that after the Australian order is finished a big order for the C.P.R. will be rolled, and later a 12,000 ton order of 60 lb. rails for the west.

Mainly About Transportation People.

R. B. ANGUS, director, C.P.R., left Montreal, early in January, for a trip round the world.

LADY MANN left Toronto, Jan. 13, for England, en route to the south of France, to spend the winter with her son.

J. W. NORCROSS, Managing Director, Canada Steamship Lines, Ltd., Montreal, sailed from New York, Jan. 1, for Great Britain.

L. C. GILMAN, Assistant to the President, Great Northern Ry., has been made President of the Spokane, Portland & Seattle Ry. and affiliated lines, succeeding J. H. Young.

JOHN SEBASTIAN, 3rd Vice President in charge of passenger traffic of the Chicago, Rock Island and Pacific Ry., with office at Chicago, retired Jan. 1 on account of ill health.

W. D. SCOTT, heretofore General Superintendent, Great Northern Ry., at Seattle, Wash., has been appointed General Superintendent Spokane, Portland and Seattle Ry.

C. S. MUSSON, Travelling Freight Agent, New York, Chicago and St. Louis Rd., Chicago, Ill., who died there recently, was born in Toronto, Dec. 23, 1844, and had been in that company's service since 1888.

F. A. DELANO, M. Am. Soc. C.E., former President and one of the receivers of the Wabash Rd., has been elected President, Chicago, Indianapolis & Louisville Ry., succeeding Fairfax Harrison, resigned.

GEORGE BURY, Vice President, C.P.R., Winnipeg, contributed an article on the primary producer and his future to the Toronto Globe's recent annual financial supplement.

DAVID SEATH, formerly Secretary, Montreal Harbor Commissioners, who has been ill with pneumonia for some time, was reported recently to be out of danger, and convalescing slowly.

W. S. PAINTER, formerly Architect C.P.R., who, with Mrs. Painter, has been staying some time in Montreal, has been visiting friends in Philadelphia, Pa., before returning to Vancouver, B.C.

HUNTER BLAIR, of the Canadian Northern Ry. service, who died in Toronto in December, was not, we are informed, a brother in law of R. M. Horne Payne, the C.N.R. director in England, as stated in our January issue.

LEWIS STOCKETT, General Superintendent, Coal Mining Branch, Natural Resources Department, C.P.R., Calgary, Alta., was re-elected President, Western Coal Operators Association, at the annual meeting in Fernie, B.C., Jan. 9.

C. A. MACDONALD, Comptroller, Northern Navigation Co., was presented with an address and a number of silver articles by the citizens of Collingwood, Ont., Jan. 16, on his removal to Sarnia, where the Northern Navigation Co.'s chief office is now located.

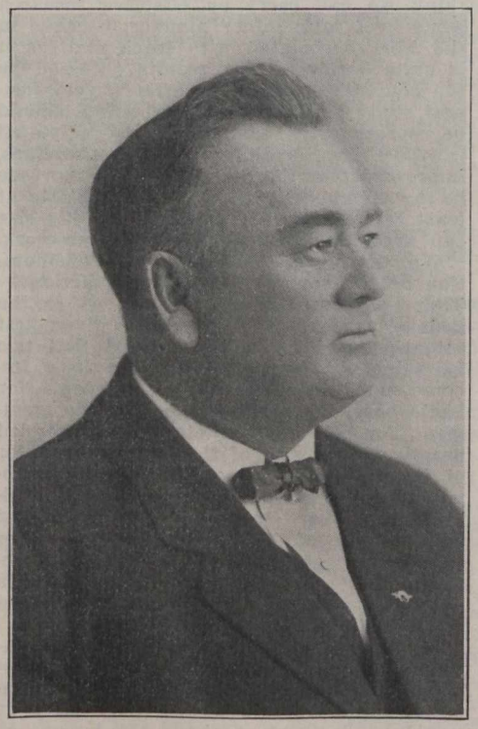
A. J. MITCHELL, Comptroller, Mackenzie, Mann and Co., Ltd., and Assistant to Vice President, Canadian Northern Ry., Toronto, and M. H. MacLEOD, General Manager and Chief Engineer, Canadian Northern Ry., Winnipeg, left Toronto Jan. 2 for a three weeks holiday in Florida.

EDMUND M. SHERWOOD, who has been appointed Manager, Salisbury and Albert Ry., Hillsboro, N.B., was born at Salisbury, N.B., Oct. 1, 1887, and entered railway service Nov., 1902, since when he has been, to Nov. 1, 1913, station master at Hillsboro, N.B., and latterly also assisted the Manager.

J. P. QUILTY, who has been appointed Superintendent of Station Service, Boston and Maine Rd., Boston, Mass., was born in New Brunswick, where he commenced his railway service with the Intercolonial Ry. He has been in Boston and Maine Rd. service for 27 years.

M. LILLIS, formerly Roadmaster on various sections of the C.P.R., between Brandon, Man., and Swift Current, Sask., who died at Broadview, Sask., Jan. 5, had been in C.P.R. service since its inception. The funeral was attended by a number of the chief officials of the company in the west.

CAPT. J. J. RILEY, for a number of years Superintendent of Pilots, Montreal, died there Jan. 8. The funeral, which was conducted at the Mount Royal Crematorium, Jan. 10, was attended by the Dominion Wreck Commissioner, under whom Capt. Riley had acted frequently as nautical assessor, and a number of Marine Department, and Harbor Commission officials.



John L. Hodgson,
Master Car Builder, Grand Trunk Pacific Railway.

A. J. NIXON, Chief Operating Officer, Board of Railway Commissioners for Canada, died suddenly at Ottawa, Jan. 12. He was born at Waterloo, Que., in 1875, and entered G.T.R. service in 1889, serving in various capacities, as operator, dispatcher and Chief Dispatcher, until 1907, when he was appointed Assistant Superintendent at London, Ont. He was appointed Chief Operating Officer, Board of Railway Commissioners, in 1909

W. C. CASEY, whose appointment as General Agent, Passenger Department, Atlantic Steamship Lines, Winnipeg, was announced in our last issue, was born at Moncton, N.B., Dec. 12, 1882, and entered transportation service, Aug., 1901, since when he has been, to Apr., 1902, ticket clerk, Intercolonial Ry., Moncton, N.B.; Apr., 1902, to Apr., 1903, ticket clerk, C.P.R., Halifax, N.S.; Apr., 1903, to Apr., 1910, Travelling Passenger Agent, C.P.R., St. John, N. B.; Apr., 1910, to Dec., 1913, chief clerk to General Passenger Agent, Atlantic Steamship Lines, C.P.R., Montreal.

E. F. L. STURDEE, whose appointment as Assistant District Passenger Agent, C. P.R., Toronto, was announced in our last issue, was born at St. John, N.B., Mar. 29, 1876, and entered C.P.R. service Dec. 1893, since when he has been, to July, 1894, office boy, Moncton, N.B.; July, 1894, to Aug., 1897, clerk and stenographer, Assistant General Passenger Agent's office, St. John, N.B.; Aug., 1897, to June, 1902, stenographer, rate and excursion clerk, Ontario Division, Assistant General Passenger Agent's office, Toronto; June, 1902, to Dec., 1910, excursion clerk, General Passenger Department, Eastern Lines, Montreal; Dec., 1910, to Dec. 1, 1913, chief clerk to General Passenger Agent, Eastern Lines, Montreal.

C. H. BOOTH, who has resigned the position of Local Freight Agent, Midland Ry. of Manitoba, Winnipeg, was born at Banff, Scotland, Feb. 16, 1882, and entered railway service July, 1900, since when he has been, to June, 1902, general clerk, C.P.R., Winnipeg; June, 1902, to Aug., 1904, billing clerk, Canadian Northern Ry., Winnipeg; Aug., 1904, to Apr., 1906, chief billing clerk, same road; Apr., 1906, to June, 1907, inward rate clerk, same road; June, 1907, to May, 1908, chief rate clerk, same road; May, 1908, to Oct., 1909, accountant, same road; Oct., 1909, to May 15, 1912, Assistant Local Freight Agent, same road, Winnipeg, on which latter date he was appointed to the position he has just resigned to enter private business.

JULES E. MORAZAIN, whose appointment as Assistant Superintendent, Montreal Terminals, C.P.R., was announced in our last issue, was born at Wheatland, Que., July 31, 1875, and entered C.P.R. service May 3, 1890, since when he has been, to May 24, 1890, clerk, Drummondville, Que.; Aug. 1, 1890, to Jan. 8, 1891, operator, Foster, Que.; Jan. 9 to Aug. 12, 1891, operator, Richfort, Vt.; Aug. 12, 1891, to Aug. 15, 1892, undertook a commercial course; Aug. 15 to Sept. 26, 1892, operator, C.P.R., Sutton, Que.; Sept. 26, 1892, to Feb. 8, 1894, operator, Highlands, Que.; Feb. 9 to July, 1894, operator, Richfort, Vt.; July to Oct., 1894, relieving operator at various points; Oct., 1894, to May 27, 1895, operator, Highlands, Que.; May 27, 1895, to Sept. 24, 1901, agent, Highlands, Que.; Sept. 24, 1901, to Nov. 3, 1908, agent, Mile End, Que.; Nov. 3, 1908, to Jan. 31, 1913, General Agent, Operating Department, Quebec, Que.; Feb. 1 to Dec. 6, 1913, Assistant Superintendent, District 3, Eastern Division, Quebec, Que.

HON. GEORGE A. COX, who died at Toronto, Jan. 16, was born at Colborne, Ont., May 7, 1840, and commenced business life as an operator in Montreal Telegraph Co.'s service, there. He was placed in charge of the company's office at Peterboro, Ont., in May, 1858, and remained in that town for 30 years. During this period he became interested in insurance business under the Canada Life Assurance Co., later becoming President, and founding several other insurance companies. He was one of the original organizers and directors of the Grand Trunk Pacific Ry., and a director of the Toronto Ry., and its subsidiary companies, was President for 17 years of the Canadian Bank of Commerce, a director of the Canadian General Electric Co., and of many other financial and industrial organizations. One of the most interesting episodes in his life was his connection with the management and reorganization of the Midland Ry. The main line was projected to run from Port Hope to Midland, taking in Peterboro. The enterprise was premature, and it was soon in financial difficulties too formidable to be overcome. In the absence of capital to complete the road the latter passed under the control of the British bondholders. The only way of escape

from financial ruin was to write off part of the debt, increase the capital sufficiently to enable the proprietors to complete the system, and transfer the management to Canada. Fortunately the creditors agreed to this solution, and he was chosen President in 1878. The line was continued to Midland, and a link was built to connect Peterboro and Lindsay. After the reorganization was a success the system was taken over by the G.T.R. and consolidated with other local lines into its present Midland Division.

BARON STRATHCONA AND MOUNT ROYAL (Donald A. Smith), High Commissioner for Canada, London, Eng., who died there, Jan. 20, was born at Archieston, Morayshire, Scotland, Aug., 1820, and was educated locally with the intention of following the legal profession. He, however, entered the Hudson's Bay Co.'s service in 1838, and spent 13 years on the Labrador coast, being afterwards transferred to the Northwest Territories, where he occupied various positions, towards the latter part of his service becoming, chief factor, Resident Governor, and Chief Commissioner for the company in Canada. He became involved in the Red River Rebellion in 1869, and received the thanks of the Governor General in Council for the ability he evidenced in that connection. On the organization of the Province of Manitoba, he was elected to the Legislature for Winnipeg and St. John, was later appointed on the Legislative Council for the Northwest Territories, and subsequently was also elected to the Dominion House of Commons for Selkirk. In 1874 he resigned his seat in the Legislature, retaining his seat in the Dominion Parliament until 1880, when he was defeated. He re-entered politics in 1887, representing Montreal West, until Apr., 1896, when he retired from political life in Canada on his appointment as High Commissioner for Canada in London, Eng., which position he held to the time of his death. He was associated with the Canadian Pacific Ry. from its commencement, but for political reasons his name was not included with those to whom the original charter was granted, and was a director and member of the executive committee since the early days of the company's history. In the early days of the railway, he, in conjunction with Lord Mount Stephen, risked practically the whole of his fortune on the construction of the road, and his work in this connection was eulogized, Jan., 1897, by Sir Charles Tupper, a former Prime Minister of Canada, in the words, "the C.P.R. would have no existence to-day, notwithstanding all the Government did to support that undertaking, had it not been for the indomitable pluck, energy and determination, both financially and in every other respect, of Sir Donald Smith." He drove the last spike in the C.P.R., Nov. 7, 1885. He was created a K.C.M.G. in 1886, a G.C.M.G. in 1896, was raised to the peerage as Baron Strathcona and Mount Royal of Glencoe (Scotland) and Montreal (Canada) in 1897, and created a G.C.V.O. in 1908. As an additional honor the peerage was granted with a special remainder to his daughter and her heirs. He has also been honored with university degrees and honorary positions, too numerous to mention, as are also his positions in connection with financial, industrial and educational institutions, and his benefactions of all kinds. Apart from his official connections with Canada, he constantly kept in close touch with the Dominion, and was a frequent visitor, having been in Ottawa and Montreal quite recently.

A Correction.

By an unfortunate mistake the first lines of each of the two paragraphs giving biographical data of J. G. Sutherland, Car Service Agent, Alberta Division, C.P.R., Calgary, and of the late James Charlton, in our last issue, were transposed. The items should have read as under:—

JAMES CHARLTON, Chairman, Transcontinental Passenger Association, who died at Chicago, Ill., recently, after a short illness, was born at Bothal, Northumberland, Eng., May 15, 1832, and commenced railway service there, Apr., 1847, since when he has been, to Mar., 1857, junior clerk, chief clerk, and cashier, Newcastle and Carlisle Ry., Newcastle upon Tyne, Eng.; Apr. 29, 1857, to 1870, assistant to chief clerk, Audit Department, in charge of statistics and freight accounts, and chief clerk, auditor and General Passenger Agent, Great Western Ry. of Canada, now part of the G.T.R. Since March, 1870, his service has been in the U.S., retiring from active railway work, Jan. 1, 1900, when he held the position of General Passenger and Ticket Agent, Chicago and Alton Rd.

J. G. SUTHERLAND, whose appointment as Car Service Agent, Alberta Division, C.P.R., Calgary, was announced in our last issue, was born at Aulac, N.B., Nov. 24, 1882, and entered railway service June, 1898, since when he has been, to Apr., 1901, operator and assistant agent, Intercolonial Ry. at various points; Apr., 1901, to June, 1902, operator, Pacific Division, and relieving agent, C.P.R., at various points; June, 1902, to May, 1906, dispatcher, C.P.R., Revelstoke, B.C.; May, 1906, to Feb., 1907, dispatcher, C.P.R., Calgary, Alta.; Feb., 1907, to Apr., 1911, dispatcher and acting Chief Dispatcher, C.P.R., Cranbrook, B.C., and McLeon, Alta.; Apr. to Nov., 1911, dispatcher and acting Chief Dispatcher, C.P.R., Calgary, Alta.; Nov., 1911, to Nov., 1913, Chief Dispatcher, C.P.R., Medicine Hat, Alta.

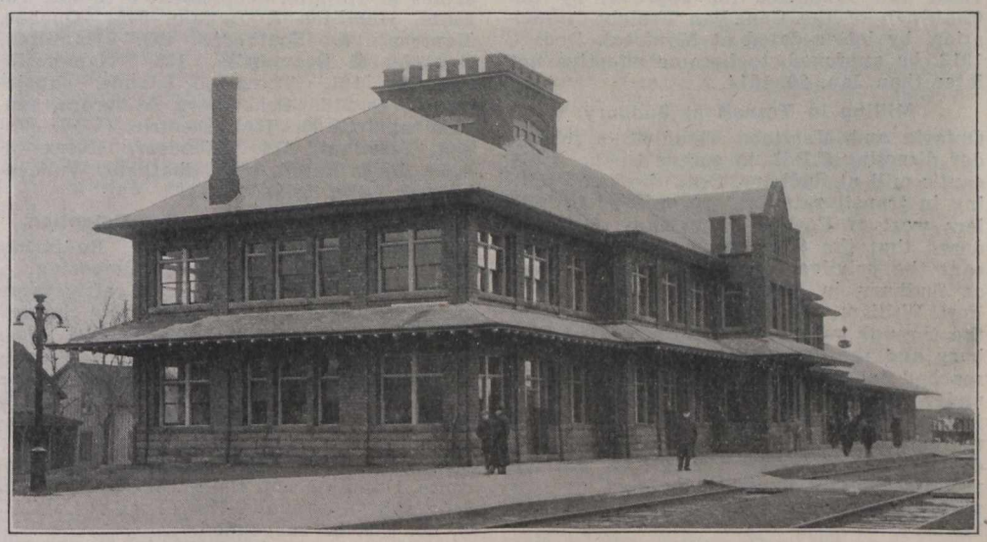
The C.P.R. medical system on the Pacific Division is, according to a Vancouver, B.C., report, being reorganized. F. W. Peters, General Superintendent, was in Nelson, B. C., Jan. 14, discussing the proposed standardization of the medical service with representatives of the men. The proposed system provides for a uniform fee and a uniform service among all the employes on the division, instead of the present monthly fee of from 75 cents to $1.50, for which different services are given.

W. Holmes, stated to be chief clerk in the Mechanical Department, G. T. Pacific Ry., at Edmonton, Alta., was arrested, Jan 16, on a charge of theft of passes, and D. H. Pierce, of the Hub Employment Agency, Edmonton, Alta., was also arrested on the same day for illegally selling G.T.P.R. passes.

The Grand Trunk Railway's New Station at Stratford, Ont.

The new station which the G.T.R. has built at Stratford, Ont., was formally opened to the public, Dec. 17. It replaces the one which was built in 1867, and which for years has been inadequate for the needs of the traffic. A new station at Stratford was among the things promised on the occasion of the first visit of Sir Charles Rivers-Wilson and the late C. M. Hays, as President and General Manager respectively, to the city. This long promised station is now an accomplished fact.

The new building, of which an illustration is given on this page, has a frontage on Shakespeare St. of 151½ ft., and is 60 ft. wide at its widest part—the centre. At this point is the main entrance, which is sheltered by a canopy 18 ft. 10 ins. by 16 ft. 8½ ins. Inside the main door is a loggio, 15¼ ft. by 16 ft. 9½ ins., which leads to the general waiting room, 30 ft. 1¼ in. from front to rear, by 80 ft. In the centre, opposite the main entrance, is the ticket office, 15½ ft. by 16 ft., which extends 7½ ft. out on to the platform. To the right of the loggio are the men's smoking room and lavatories, and on the left the women's waiting room and lavatories. The lunch room, with kitchen and store, 40 ft. by 32 ft., is to the right, with its main entrance from the waiting room, while to the left is the parcel and baggage office and baggage room, 38 by 32 ft. The second story is devoted entirely to offices. The western end is given over to the private and general offices of the Superintendent; next comes the Trainmaster's office, and on the south side are the despatchers' offices. Following along are the offices of the Divisional Freight Agent, the General Yardmaster, the Supervisor of Bridges and Buildings, and the Resident Engineer. East of the station building, and connected with it by an umbrella roof of 75 ft., is the express building, 32 ft. by 57 ft. The central tower is 60 ft. high, and the two additional stories in it are fitted as file rooms.



Grand Trunk Railway Station at Stratford, Ont.

The building is constructed of Saginaw vitrified brick on a concrete foundation, with a slate roof. The internal fittings of the public parts of the station are tile floors, oak panelled ceilings, with walls finished in burlap. A new brick platform has been laid.

Cast Iron Wheel Records.—H. H. Vaughan, Assistant to Vice President, C.P.R., read a paper on this subject before the Canadian Railway Club, Jan. 13.

Traffic Orders by the Board of Railway Commissioners.

The dates given for orders are those on which the hearings took place, and not those on which the orders were issued:—

Supplement 2 to Canadian Freight Classification 16.

20967. Dec. 10. Re application of Canadian Freight Association, on behalf of railway companies, under sec. 321 of the Railway Act, for an order approving of proposed Supplement 2 to Canadian Freight Classification 16, containing certain increased, reduced and additional ratings on file with the Board. Notice of the proposed increased ratings having been given in The Canada Gazette, and the Board having invited consideration thereof by the Canadian Manufacturers' Association, the Montreal Chamber of Commerce, the Ontario Grocers' Guild, and the Boards of Trade of St. John, Quebec, Montreal, Ottawa, Toronto, Hamilton, Brantford, London, Winnipeg, Brandon, Regina, Saskatoon, Calgary, Edmonton, Vancouver and Victoria. Upon the consideration of what has been filed, and upon the recommendation of the Chief Traffic Officer of the Board—it is ordered that the said proposed supplement, as finally revised and submitted for approval by the Chairman of the Canadian Freight Association, by letter dated at Montreal, Dec. 6, 1913, be approved, to become effective not later than Jan. 20, 1914.

Milling in Transit at Sudbury.

Ontario and Manitoba Flour Mills for order directing C.P.R. to extend to the applicant's mill at Sudbury, Ont., the same milling in transit rates as are enjoyed by millers west of Fort William, Ont. It is ordered that the C.P.R. extend to the applicant the privilege of milling all rail grain at Sudbury in transit from Port Arthur, Fort William, and points west thereof, at the through rate to all points east of Sudbury and the Detroit and St. Clair Rivers reached by millers west of Fort William under milling in transit arrangements, subject to the regulations and restrictions thereof; and subject, also, to the same additional toll of 1c. for 100 lbs. for the terminal service at Sudbury, the said arrangement to come into force not later than Jan. 12, 1914.

Pulpwood Tariff, Temiscouata Railway.

21105. Dec. 23. Re Temiscouata Railway tariff, C.R.C. no. E. 217, effective Jan. 1, 1914, increasing rates on pulpwood, in carloads, from points on its line to Riviere du Loup for local delivery. Upon the application of Eastern Townships Lumber Co., complaining against the said increases. It is ordered that, for the present and pending the investigation by the Board, the said tariff be suspended.

Commutation Tickets for Chateauguay.

Jan. 7.—Re application of the Town of Chateauguay, Que., for an order directing the New York Central and Hudson River between Chateauguay and Montreal, good for one year. It is ordered that the application be refused. No one represented the town at the hearing.

G.T. Pacific Ry. Freight Mileage Tariff.

21131. Re application of Grand Trunk Pacific Ry. under sec. 327 of the Railway Act, for approval of its Standard Freight Mileage Tariff, C.R.C. 20, to apply between stations on its main line and branches in Alberta and British Columbia, between, and including, Thornton, Alta., and Prince George, B.C., including and cancelling the company's tariff, C.R.C. 18, applying between and including Thornton and mileage 1189, B.C., provisionally approved by order 18837, Aug. 5, 1913. It is ordered that the tariff, C.R.C. 20, be temporarily approved, pending judgment in the inquiry by the Board into the rates charged generally by the railway companies west of Crow's Nest, Canmore and Thornton.

Minimum Car Load Rates.

General order 110. Dec. 24. Re tariffs filed by railway companies subject to the Board's jurisdiction, increasing the minimum carload weights on buckwheat, oats, bran (in bulk), dried beet pulp, oat hulls (in bulk), pea hulls (in bulk), shorts, beets (except sugar), onions, turnips, and potatoes. It is ordered that, for the present and pending investigation by the Board, the said increased minimum carload weights be suspended. The schedules which are suspended are the following C.R.C. numbers:—Grand Trunk—E. 2857, E. 2859, supplement 14 to E. 2566, supplement 4 to E. 2708. Canadian Pacific—E. 2715. Michigan Central—Supplements 3 and 4 to 2022, supplement 1 to 1998, supplement 3 to 1721, 2159. Canadian Northern—Supplement 5 to E. 144, supplement 7 to E. 145, supplement 6 to E. 176, supplement 1 to E. 210, supplement 4 to E. 232. Ottawa & New York—986, supplement 1 to 215, supplement 1 to 417, supplement 3 to 755. Wabash, 758. Pere Marquette, 1696. Niagara, St. Catharines & Toronto, supplement 3 to 601. Toronto, Hamilton & Buffalo, 943. Quebec, Montreal & Southern, 493. Hamilton, Grimsby & Beamsville, 138. Napierville Junction, 121. Thousand Islands, supplement 5 to 218. Schomberg & Aurora, supplement 6 to 80. Hull Electric, F. 17. Essex Terminal, 214. Windsor, Essex & Lake Shore Rapid, 131. Chatham, Wallaceberg & Lake Erie, 312.

Charge for Refrigerator Car Detention.

General Order 115. Dec. 19. Re tariffs filed by railway companies imposing a charge for the detention of refrigerator cars over and above the car service charges prescribed by order no. 906, Jan. 25, 1906. It is ordered that, for the present and pending investigation by the Board, the following tariffs, viz.:—G.T.R. Co.'s C.R.C. no. E. 2858; C.P.R. Co.'s C.R.C. no. E. 2716; Canadian Northern Ry.'s C.R.C. no. E. 358; Michigan Central Rd.'s C.R.C. no. 2162; Toronto, Hamilton and Buffalo Ry.'s C.R.C. no. 945; and Ottawa and New York Ry.'s C.R.C. no. 989, be suspended.

21127. Dec. 29. Re tariffs filed by Canadian Pacific and Esquimalt and Nanaimo Railway Companies, imposing a charge for the detention of refrigerator cars over and above the car service charges prescribed by order 906, Jan. 25, 1906. It is ordered that, for the present and pending investigation by the Board, the following tariffs, namely:—C.P.R. Co.'s C.R.C. no. W. 1893, and Esquimalt and Nanaimo Ry. Co.'s C. R.C. no. 256, be suspended.

21128. Dec. 27. The tariff, C.R.C. 395, filed by Dominion Atlantic Ry., imposing a charge for the detention of refrigerator cars over and above the car service charges prescribed by order 906, Jan. 25, 1906: it is ordered that, for the present and pending investigation by the Board, the said tariff be suspended.

Minimum Carload Rates.

General order 116. Dec. 24. Re the tariffs filed by Railway Companies increasing the minimum carload weights on buckwheat, oats, bran (in bulk), dried beet pulp, oat hulls (in bulk), pea hulls (in bulk), shorts, beets (except sugar), onions, turnips, and potatoes. It is ordered that, for the present and pending investigation by the Board, the said increased minimum carload weights published in the C.R.C. schedules hereinafter mentioned be suspended, viz:—Grand Trunk, E. 2857, E. 2859, supplement 14 to E. 2566, supplement 4 to E. 2708; Canadian Pacific, E. 2715; Michigan Central, supplements 3 and 4 to 2022, supplement 1 to 1998, supplement 3 to 1721, 2159; Canadian Northern, supplement 5 to E. 144, supplement 7 to E. 145, supplement 6 to E. 176, supplement 1 to E. 210; supplement 4 to E. 232; Ottawa and New York, 986, supplement 1 to 215, supplement 1 to 417, supplement 3 to 755; Wabash, 758; Pere Marquette, 1696; Niagara, St. Catharines and Toronto, supplement 3 to 601; Toronto, Hamilton and Buffalo, 943; Quebec, Montreal and Southern, 493; Hamilton, Grimsby and Beamsville, 138; Napierville Junction, 121; Thousand Islands, supplement 5 to 218; Schomberg and Aurora, supplement 6 to 80; Hull Electric, F. 17; Essex Terminal, 214; Windsor, Essex and Lake Shore Rapid, 131; Chatham, Wallaceburg and Lake Erie, 312.

Railway Finance, Meetings, Etc.

Canadian Northern Ry.—A lease of rolling stock from the Imperial Rolling Stock Co. to the C.N.R., dated Dec. 1, 1913, and numbered series H.I., 1913, has been deposited with the Secretary of State at Ottawa.

A copy of a second supplementary mortgage dated Nov. 27, 1913, made by the C.N.R. to the British Empire Trust Co., and the National Trust Co. as trustees, has been filed with the Secretary of State at Ottawa. This mortgage is supplemental to one dated June 10, 1909.

Cape Breton Ry.—Sir William Mackenzie, President, Canadian Northern Ry., has denied the press reports sent out from Sydney, N.S., Jan. 7, to the effect that C.N.R. interests had acquired the Cape Breton Ry., which extends from Point Tupper to St. Peters, N.S.

Grand Trunk Pacific Ry.—It was reported in London, Eng., recently, that 65% of the recent issue of £2,500,000 5% notes had been taken up by the public, and were being dealt with on the market at a small premium.

Grand Trunk Ry.—A copy of an original counterpart no. 6 of an agreement of conditional sale between Blair & Co., the G.T.R. and the Equitable Trust Co., of New York, as trustees, series C., Nov. 1, 1913, has been deposited with the Secretary of State at Ottawa.

Ha Ha Bay Ry.—See Roberval and Saguenay Ry.

Roberval and Saguenay Ry.—From Jan. 1, the Ha Ha Bay Ry. ceased to exist, its charter and property having been acquired by the Roberval and Saguenay Ry., and its line merged into the larger project. J. E. A. Dubuc, is President. (Jan., pg. 22.)

Quebec and Saguenay Ry.—Press reports state that this uncompleted line will shortly be transferred to the Canadian Northern Ry. Sir Rodolphe Forget, the President, recently stated that an official memorandum would shortly be issued in regard to the negotiations for the sale of the line, but did not say anything as to what company was making the purchase, or as to the terms. Sir Wm. Mackenzie, President, C.N.R., was equally reticent.

Temiscouata Ry.—Net earnings for November, $3,277. Aggregate for five months ended Nov. 30, $18,372.

White Pass and Yukon Route.—Gross earnings from Jan. 1 to Dec. 7, $1,089,104, against $1,115,033 for same period 1912.

The Canadian Northern Ry. is considering the adoption of telephone train dispatching on its Toronto-Sudbury-Port Arthur line.

Transportation Appointments Throughout Canada.

The information under this head, which is almost entirely gathered 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.

Board of Railway Commissioners.—Unconfirmed press reports state that the position of Chief Operating Officer, rendered vacant by the death of A. J. Nixon, has been offered to W. H. FARRELL, Terminal Superintendent, G.T.R., Toronto.

Canada Steamship Lines, Ltd.—See details of organization in Marine Department in this issue.

Canadian Northern Ry.—F. A. SHAW, heretofore District Freight Agent, Montreal, has been appointed Division Freight Agent, Lines East of Port Arthur and West of Ottawa, vice F. A. Young, resigned to engage in private business. Office, 68 King St. East, Toronto.

Canadian Pacific Ry.—A. WILLIAMS, heretofore Assistant Superintendent, District 1, Lake Superior Division, Sudbury, Ont., has been appointed Superintendent, District 2, Atlantic Division, vice V. A. Harshaw, transferred. Office, Woodstock, N.B.

V. A. HARSHAW, heretofore Superintendent, District 2, Atlantic Division, Woodstock, N.B., has been appointed Superintendent, District 1, Atlantic Division, vice W. A. Cowan, assigned to other duties. Office, Brownville Jct., Me.

C. SENAY, heretofore agent at Mile End and St. Henry, Que., has been appointed General Agent, Quebec, Que., the position formerly held by J. E. Morazain, before being appointed Assistant Superintendent, there. We are officially advised that no appointment will be made for the present to the position of Assistant Superintendent at Quebec, which was held by J. E. Morazain prior to his appointment as Assistant Superintendent, Montreal Terminals, as announced in our last issue.

T. M. BARRETT, heretofore Assistant Purchasing Agent, Calgary, Alta., has been appointed Chief Commissary Agent, vice A. S. Maynard, resigned to enter private business. Office, Montreal.

A. O. SECORD, heretofore Travelling Freight Agent, Toronto, has been appointed District Freight Agent, Ottawa, Ont., vice H. A. Plow transferred.

L. G. ROGERS, heretofore Chief Dispatcher, Farnham, Que., has been appointed Assistant Superintendent, District 1, Ontario Division, vice W. Tansley, transferred. Office, Havelock.

W. COULTER, until recently Superintendent, District 3, Ontario Division, Toronto, has been appointed Assistant Superintendent, District 1, Ontario Division. Office, Trenton.

L. MULKERN, heretofore District Freight Agent, London, Ont., has been appointed District Freight Agent, Toronto, vice J. H. Griffin, resigned.

W. TANSLEY, heretofore Assistant Superintendent, District 1, Ontario Division, Havelock, has been appointed Assistant Superintendent, District 3, Ontario Division, vice F. G. Martyn, retired. Office, West Toronto.

H. A. PLOW, heretofore District Freight Agent, Ottawa, Ont., has been appointed District Freight Agent, London, Ont., vice L. Mulkern, transferred.

H. B. STEVENS, heretofore Chief Dispatcher, Sudbury, Ont., has been appointed Assistant Superintendent, District 1, Lake Superior Division, vice A. Williams, promoted. Office, Sudbury, Ont.

A. C. McLEOD has been appointed Assistant Trainmaster, District 1, Lake Superior Division, Sudbury, Ont.

E. P. BARKER, heretofore dispatcher, has been appointed Chief Dispatcher, District 1, Lake Superior Division, vice H. B. Stevens, promoted. Office, Sudbury, Ont.

D. C. MACDONALD, heretofore Division Freight Agent, Regina, Sask., has been appointed Assistant General Claims Agent, Western Lines, in charge of loss and damage freight claims. Office, Winnipeg.

T. F. MADDEN, heretofore of the company's New York office, has been appointed Travelling Passenger Agent, Steamships Department, Winnipeg.

D. BELL, heretofore clerk, Stores Department, Sutherland, Sask., has been appointed Storekeeper, Broadview, Sask., vice G. O. Jackson, transferred.

G. SANDSTROM, heretofore Roadmaster, Colonsay and Bulyea Subdivisions, Regina, Sask., has been appointed Roadmaster, Regina and Weyburn Subdivisions, vice L. Rimstead, deceased. Office, Regina, Sask.

L. B. COPELAND, heretofore Roadmaster, Regina Subdivision, Sask., has been appointed Roadmaster, Colonsay and Bulyea Subdivisions, vice G. Sandstrom, transferred. Office, Regina, Sask.

J. V. McNAB, heretofore Resident Engineer, Saskatoon, Sask., has been appointed Resident Engineer, Moose Jaw, Sask., vice R. C. Smith.

G. A. DELACHEROIS, heretofore transitman, District 4, Saskatchewan Division, has been appointed Resident Engineer, Districts 3 and 4, Saskatchewan Division, vice J. V. McNab, transferred. Office, Saskatoon.

G. O. JACKSON, heretofore Storekeeper, Broadview, Sask., has been appointed Storekeeper, Swift Current, Sask., vice V. B. Beardmore, resigned.

W. J. WOOD, heretofore foreman of lower floor, stores department, Ogden, Alta., has been appointed Storekeeper at Medicine Hat, Alta., vice A. Clark, transferred to Ogden as foreman of lower floor, stores department.

A. CLARK, heretofore Storekeeper, Medicine Hat, Alta., has been appointed foreman of lower floor, stores department, Ogden, Alta., vice W. J. Wood, transferred to Medicine Hat as Storekeeper.

H. FERGUSON has been appointed Assistant Purchasing Agent, Calgary, Alta., vice T. M. Barrett, promoted.

T. RIORDAN, heretofore Roadmaster, Red Deer Subdivision, Calgary, Alta., has been appointed Roadmaster, Calgary Terminals, vice J. N. Wiley.

D. H. FORD, heretofore Roadmaster, Laggan Subdivision, Calgary, Alta., has been appointed Roadmaster, Red Deer Subdivision, Calgary, Alta., vice T. Riordan, transferred.

A. LARSON, heretofore at Nelson, B.C., has been appointed Roadmaster Laggan Subdivision, Calgary, Alta., vice D. H. Ford, transferred.

H. B. WALKEM, M. Can. Soc. C.E., heretofore Assistant Division Engineer, British Columbia Division, Vancouver, is reported to have been appointed Engineer in Charge of Kootenay and Boundary Districts. Office, Nelson, B.C.

C. J. SIMMS, heretofore Assistant Division Engineer, Saskatchewan Division, Moose Jaw, is reported to have been appointed Assistant Division Engineer, British Columbia Division, vice H. B. Walkem. Office, Vancouver.

A. C. DOUGLAS has been appointed Purchasing Agent, Vancouver, B.C., vice A. J. Dana, retired.

A. G. VEITH has been appointed General Representative for Austria, with full charge and control of all matters in respect to the company's business in Austria, reporting to the European Manager, London, Eng. Office, Vienna.

ARVID JACOBSEN has been appointed General Agent in Norway, with office at Karl Johangst 1, Christiania.

Grand Trunk Ry.—JOHN MORRIS, heretofore acting Road Foreman of Locomotives, London, Ont., has been appointed Road Foreman of Locomotives, there, vice R. H. Fish, recently appointed Trainmaster.

New York Central Lines.—H. L. INGERSOLL, heretofore Assistant to Vice President, N.Y.C. & H.R.R., and L.S. & M.S.R., has been appointed Assistant to the President, New York Central Lines, New York. N.Y.

Midland Ry. of Manitoba.—A. CAMPBELL, chief clerk, Freight Department, Winnipeg, is reported to have been appointed Freight Agent there, vice C. H. Booth.

Northern Navigation Co.—See Canada Steamship Lines Organization in Marine Department of this issue.

Reid Newfoundland Co.—A. D. BROWN, heretofore Superintendent of Dry Dock, has been appointed Consulting Engineer. Office, St. John's, Nfld.

Salisbury and Albert Ry.—E. M. SHERWOOD, heretofore Assistant to the Manager, and station master, has been appointed Manager, vice A. Sherwood, resigned. Office, Hillsboro, N.B.

Toronto, Hamilton and Buffalo Ry.—H. T. MALCOLMSON, heretofore Car Accountant, has been appointed Superintendent of Car Service. Office, Hamilton, Ont.

Wabash Rd.—F. A. Delano has resigned as Receiver, leaving E. B. Pryor and W. K. Bixby as sole Receivers.

The Baffin's Bay Trading Co., Ltd., which has been incorporated under the Dominion Companies Act, with an authorized capital of $100,000 and head office at Toronto, has as its three directors A. W. Scott, of New York, President; W. W. Evans, Vice President, and W. L. Pinkney, Secretary. The two latter are in the Canadian Northern Railway's Legal Department. Mr. Scott has been carrying on explorations for minerals in the Baffin's Bay district for the past two years, and also trading with the Esquimaux. The company will take over his interests and will also probably go into fishing operations. It has two schooners among its equipment.

Safety First on the G.T.R.—At the first meeting of the Safety Committee in Montreal, Jan. 12, it was reported that 24 division, shop and terminal safety committees have been organized with a membership of about 600. During December, these committees corrected about 500 unsafe physical conditions, and cautioned employes in about 500 cases. A number of important recommendations of local committees were dealt with. Since the inauguration of the Safety First movement on the system, it was reported that injuries to employes had been reduced 11.5%, and fatal accidents to employes about 50%, as compared with the same period of 1912.

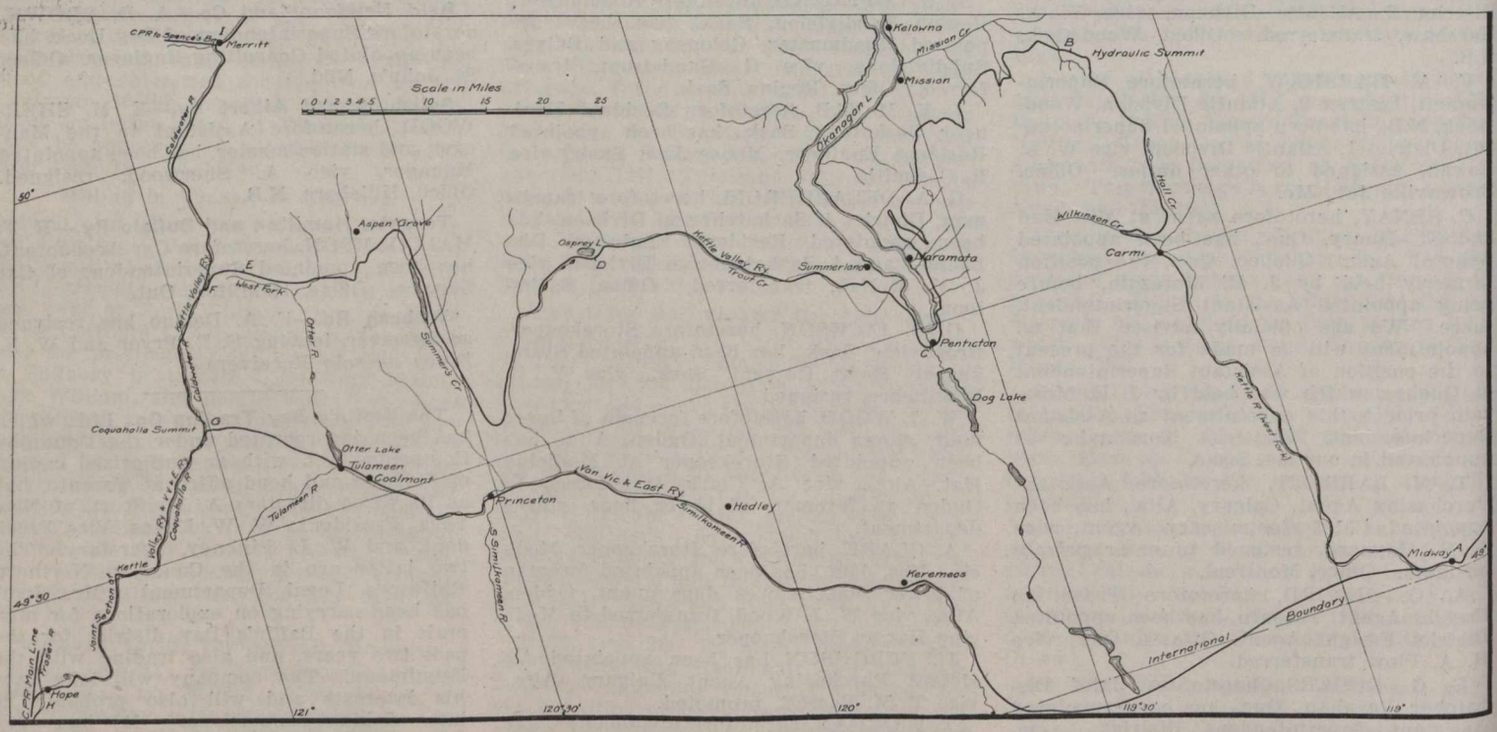
Proposed New Incline Railway in Hamilton.—The City Engineer submitted to the Hamilton, Ont., City Council, Dec. 29, an estimate for the building and equipment of a new incline railway to the top of Hamilton Mountain at Sherman St. The total cost is put at $247,200, of which $130,000 is for cars and machinery, and $25,000 for a 50 ft. steel span to carry the tracks of the Toronto, Hamilton and Buffalo Ry. across the route.

Kettle Valley Railway Construction, Etc.

The Kettle River Valley Ry. was incorporated by the Dominion Parliament in 1901, to build a railway from the International Boundary Line near Cascade City, B.C., along the valley of the Kettle River to Carson City, with a branch from near Grand Forks for 50 miles up the Kettle River Valley, and another by way of Greenwood to the International Boundary near Midway, B.C. The British Columbia Legislature also granted similar powers, and a charter was obtained in the State of Washington, for the building of a line from Cascade City to Republic, and from Republic by way of the San Port River Valley to Spokane. Under these charters the company built and put in operation in 1902 a line from Grand Forks, B.C., to the International Boundary, 3.91 miles, and from the International Boundary to Republic, Wash., about 15 miles. The building of the lines, both in Canada and in the United States, was not carried on without overcoming a good many difficulties, particularly in connection with the Great Northern Ry., which about the same time undertook active construction of the Vancouver, Victoria and Eastern Ry. Both lines were, however, built in the section along the boundary from Grand Forks westerly, the V.V. and E. Ry. running across the boundary at different points. The difficulty as to the projected extension southerly from Republic was ultimately settled by the withdrawal of the G.N.R., but the line is as yet only a projected one. In the vicinity of Midway, B.C., another difficulty was encountered in connection with C.P.R. proposals for a line through the same country, and by the commencement of active construction by the Midway and Vernon Ry. After having completed several miles of grading this company ceased work and abandoned its undertaking, and after lengthened negotiations an agreement was reached with the C.P.R., by which future construction was to be done by the K.R.V. Ry., the name of which had been changed to the Kettle Valley Ry., to conform with the title under which the lines were operated—the Kettle Valley Lines.

Some extensions were subsequently built in Canada, and in 1910 the company had in operation about 40 miles of line in Canada and the United States. In that year an arrangement was made under which the B. C. Government granted subsidies for building the following lines:—From Grand Forks for 30 miles along the valley of the North Fork of the Kettle River; from Midway to Penticton, and from Penticton to Merritt, effecting a junction there with the Nicola, Kamloops and Similkameen Ry., a branch of the C.P.R. Work was started on these lines almost immediately, the act providing that the work done by the Midway and Vernon Ry. should be taken over. The cost of this work between Midway and Rock Creek was ascertained by a commission, and the amount was paid to the creditors of the old company by the Government, out of the sum provided by the subsidy. In 1912 an extension of the line was granted for construction, and an agreement was entered into for further construction, viz.: for a line from 25 miles south of Merritt, along the Coldwater River Valley to the Fraser River to Hope, 50 miles, under a guarantee of bonds, and for the building of a bridge, for which $200,000 was provided, across the Fraser River, so as to enable a connection to be made with the C.P.R. In regard to this 50 miles of line a controversy arose with the V.V. and E. Ry., as to the route to be adopted, and after many surveys had been made and much negotiating, it was arranged that a joint line should be built by the K.V.R., for 39.2 miles, the cost to be equally divided between the two companies, the section to be operated jointly. The agreement provides that no subsidy shall be paid in respect of the line from Midway to Penticton; that the subsidy for the line from Penticton to Merritt shall be $5,000 a mile, payable in cash or in 3% inscribed stock of the Province at the option of the Government, the mileage guaranteed is not to exceed 150 miles; the subsidy on the line from the Coldwater River to Hope is at the rate of $10,000 a mile, not to exceed 50 miles. The actual mileage of the located line from Penticton to Merritt is 134 miles, and from the Coldwater River to Hope, is 52.3 miles. The lines mentioned in the 1910 agreement are to be completed in 1914, and the Coquihalla line in 1915.

The line as located from Midway to Merritt is 267.8 miles long, and the Coquihalla line from near Merritt to Hope, is 52.3 miles, making a total mileage of 320.1 being constructed under the two agreements. With the exception of the section D. W. E., Osprey Lake to Otter Creek Summit, 65.5 miles, the entire line is under contract, and construction is well advanced. The accompanying plan shows the route being followed from Midway to Merritt, and along the Coldwater River Valley to Hope, with the connecting lines. The V.V. and E. Ry. runs west through Princeton, and is now in operation as far as Coalmount. It is under construction through Tulameen to the point where section G. H. starts, this being the joint section. At Hope the V.V. and E. will connect with its own line now in operation easterly from Vancouver and Port Guichon through New Westminster. We are officially advised that the state of construction at Dec. 31, 1913, showed 254.66 miles under contract, on which 213 miles of grading had been completed, 163.1 miles of track had been laid, and 104.5 miles of ballasting completed. The following statement shows in detail the work done on the several sections, with the names of the contractors:—



Kettle Valley Railway Map, Showing Construction.

Section A to B.—Midway to Hydraulic Summit, 75.6 miles. Grading and bridging completed, track all laid, 67 miles of ballasting completed from Midway. Contractors for grading and bridging, L. M. Rice and Co.

Section B to C.—Hydraulic Summit to Penticton, 58.2 miles. Grading 95% done; bridging 12% done; track laid for eight miles from Hydraulic Summit; no ballasting. Contractors for grading and bridging, Grant Smith and Co.

Section C to D—Penticton to Osprey Lake, 39 miles. Grading, bridging and track laying completed, ballasting done for 10 miles from Penticton west. Contractors for grading and bridging, L. M. Rice and Co.

Section D to E.—Osprey Lake to Otter Creek Summit, 65.5 miles. Contract not yet let.

Section E to I.—Otter Creek Summit to Merritt, 29.5 miles. Grading, bridging, track laying and ballasting completed. Contractors for all work, McDowell, Gzowski and Co.

Section F. to G.—Coquihalla line, 12.8 miles. Grading and bridging completed, track laid 11 miles, ballasting done eight miles, from F. Contractors for grading and bridging, Twohy Bros.

Section G. to H.—Coquihalla line second contract, 39.5 miles. Grading 8% completed. No other work done. Contractors for grading and bridges, McArthur Bros.

A. McCulloch, Penticton, B.C., is Chief Engineer.

The Dominion Parliament is being asked to ratify the agreement with the Vancouver, Victoria and Eastern Ry., respecting the Coquihalla joint section; to extend the time for the building of the lines authorized by pars. a., b. and c. of sec. 2, chap. 110 of the statutes of 1912, and to authorize the building of an additional branch from near Otter Summit to Aspen Grove mineral district, 30 miles.

The company is making application to the Dominion Parliament for an extension of time for the building of its several lines, for the ratification of the agreement with the Vancouver, Victoria and Eastern Ry. re the construction of the Coquihalla-Hope line, and for the building of some additional lines. (Jan., pg. 21.)

Railway Companies May Refuse Shipments "to Order" at Flag Stations.

D'Arcy Scott, Assistant- Chief- Commissioner, Board of Railway Commissioners, gave the following judgment in Ottawa, Jan. 8.

W. G. McMahon, of Winnipeg, has brought to the Board's attention the practice of railway companies of refusing to take shipments, either c. l., or l. c. l. to flag stations, when consigned "to order." As a railway company has no agent at a flag station to guard the property pending proof of ownership by the production and surrender of the endorsed bill of lading, it is quite justified in refusing to accept shipments to flag stations when consigned "to order." This question was set down for the sittings at Ottawa on Oct. 23, 1913, for discussion with the railway companies; the Canadian Pacific, Grand Trunk, Canadian Northern, and Michigan Central, the Canadian Freight Association being notified. After hearing what was submitted by the C.N.R. and the G.T.P.R.—the other parties notified not appearing—the matter was reserved.

It would be convenient in many cases, to both shippers and consignees, if some arrangement could be made to provide for shipments consigned "to order" being sent to flag stations. They cannot be sent direct to flag stations; but such shipments might be consigned to the nearest regular station short of the flag station and the consignee notified, his address being given in the shipping order by the shipper for this purpose. He could then send the endorsed bill of lading and the freight charges, if any, to the company's agent, or produce them in person, and the goods could then be sent on from the regular station to the flag station. For the re-consignment from the agency station to the flag station, in the case of l. c. l. shipments, it would be fair to permit the railway company to collect the local rate. It must be remembered that the railway company would have to perform a special service, and it should be paid a fair amount for it. The goods upon reaching the regular station, in the case of l. c. l., would have to be unloaded into the freight house and left there until the consignee sent, or called with, the endorsed bill of lading. The goods would have to be then re-loaded and again unloaded at the flag station. I think in such cases, the local rate from the billing point on to the flag station would be fair remuneration to the railway company.

In the case of carloads, the unloading and re-loading mentioned in the case of l. c. l. would, of course, not have to be done. The car would be put on the siding and left there, and the consignee notified. Then, when he had done what was necessary to release the car, it would be picked up by a way freight and left at the flag station. It seems to me that for this service, the rate should be the through rate to the flag station, plus a $3 additional charge for the extra terminal service and for rebilling. This is the general charge which the Board approved of for a somewhat similar service by order 6901, April 16, 1909, and it seems to me it would be fair remuneration to the railway companies for the additional service they would have to render in the present case. A detention allowance of 48 hours from the time of the dispatch of the notice of the arrival of the car by the agent to the consignee, should be sufficient for the surrender of the endorsed bill of lading at the agency station, after which the carrier will be entitled to charge and collect the authorized demurrage toll for each adtional 24 hours (or part thereof) of detention, over and above the $3 terminal service charge.

The following general order 118 was issued Jan. 15:—

1. That railway companies accept freight consigned "to order," for delivery at flag stations, provided that the shipper consign the freight to the regular station of the delivering carrier on the direct route, nearest to, but short of, the flag station where delivery is desired; That said shipper show on his shipping order the full address of the person to be notified of the arrival of the freight at the regular station, and the name of the flag station at which delivery is desired.

That the said addressee be given 48 hours, exclusive of legal holidays, from the time of the dispatch to him of the arrival notice, within which to give the agent in whose care the goods are held the endorsed bill of lading and directions for re-shipment to the flag station, lawful demurrage or warehouse storage, as the case may be, to be chargeable after the lapse of the said time allowance for any further delay in furnishing the bill of lading and directions.

That the additional charge for the further carriage from the said regular station to the flag station be the lawful local rate between the said stations in the case of less than carloads, and $3 a car and the balance (if any) of the through rate from the original point of shipment, in the case of carloads.

Railway Construction in Progress.

It is estimated that during 1913 the various Canadian railways had under construction in one stage or another about 6,500 miles of new lines. Of this, about 2,000 miles was reported to have been placed in operation by June 30, the end of the statistical year, and since that date a considerable further mileage, probably another 500 miles, has been handed over to the operating department. This leaves about 4,000 miles of line actually under contract and in process of construction from the grading stage to the line on which track has been laid and the finisning up processes in progress. It has been estimated that at the end of the last construction season, the Canadian Northern Ry. had in hand over 1,500 miles of lines, the C.P.R. about 1,000 miles, the Grand Trunk Pacific Ry. about 1,000 miles, and the Dominion Government line to Hudson Bay, about 500 miles, making a total of about 4,000 miles of new lines actually in process of construction.

In addition to the work in hand, the C.N.R. and the G. T. Pacific Ry. have in contemplation the construction of a considerable mileage of new lines in the West. Just where these lines will be, and what mileage will be put under contract during this year, has not yet been decided. This matter rests largely with the Governments of Saskatchewan and Alberta, as these two companies are under contract to build large mileages in both provinces under Government guarantee. If it were possible to finance all the construction asked for in these provinces at present, well on to 5,000 miles of new lines would be at once put under contract. The C.P.R. expenditures for the current year are almost entirely confined, so far as the western provinces are concerned, to the completion of track laying on the mileages of grading completed, and upon further stretches of second track work. Any new work to be started this year will be decided upon later. On the eastern lines the same policy is being pursued, the only construction at present contemplated being a further stretch of second track work west of Guelph Jct., and further stretches of second track between Sudbury and Port Arthur. The actual mileages of this work have not yet been settled.

Outside these three lines, the future new construction programmes are not arranged. The opening of the next construction season will see put in hand the Alberta and Great Waterways Ry., 350 miles, for which the J. D. McArthur Co. has the contract; and the remaining section of the Pacific Great Eastern Ry. in B.C., for which Foley, Welch and Stewart hold the charter in conjunction with G. T. P. Ry. interests. There is also the final contract to be let on the Kettle Valley Line, about 50 miles.

In Eastern Canada, the most important work under construction is the Canadian Northern Ontario Ry. line from Montreal to Port Arthur. Tracklaying has been completed between Port Arthur and Ruel, and the section of the line from Ruel to Capreol has been in operation for some time. Track has been laid altogether on 155 miles from Ottawa towards Capreol, and on practically all the Montreal-Hawkesbury-Ottawa section. The total length of this line, for which the Dominion Parliament voted a guarantee of bonds and other assistance, is 1,050 miles, of which the only portion on which track has not been laid is the 150 mile section between the present track end northwesterly from Ottawa and Capreol.

The C.P.R. has under construction considerable work between Romford Jct. and Port Arthur, Ont., in the way of diversions, lengthened sidings, etc., with a view of completing a second track.

Outside these works and the finishing up of the National Transcontinental Railway, there is, so far as we are advised, but little new construction in sight. Including the Nelson-Derby Jct. diversion, and the St. Romuald-Chaudiere second track on the Intercolonial, and a three mile revision on the Temiskaming and Northern Ontario Ry., there are less than 100 miles of new line under contract ; about a similar mileage under survey, and about 700 miles of new lines projected. There are, in addition, several lines which have completed surveys for considerable mileages, such as the Canada Gulf and Terminal Ry., the Quebec and Saguenay Ry., the Joliette and Manuan Colonization Ry., and the Central Ry. of Canada, and which have done some construction, but which at present are marking time.

Cedar Crib and Trestle Construction on the Ruskin-Stave Falls Line in B.C.

An example of the extent to which rough timber can sometimes be used in the construction of railway spurs of temporary lines is given in the recently completed extension of the Ruskin-Stave Falls line in British Columbia. About 230,000 ft. b. m. of hewed and rough timber were used in crib and trestle work on this extension, which is 3,300 ft. long and cost about $20,000. It was built for hauling cement and other materials to the top of the present intake dam of the Western Canada Power Co., where extensive alterations are contemplated.

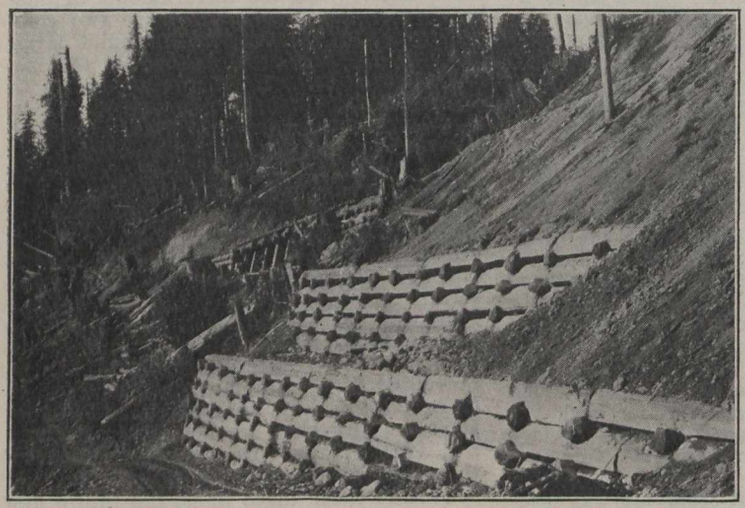
The line follows along a very steep side-hill in loose, sliding earth and required a large amount of retaining wall construction. The heavy timber growth was, therefore, utilized to good advantage, and cribs and trestles were built from cedar timber cut on the right-of-way or adjacent thereto. The cribs were built up as grading progressed, and in some of the longer and steeper slopes it was found convenient to terrace them in one or more sections. Several trestles were required at ravine crossings; and in order to give greater stability to these structures, timber crib foundations were built wherever the footings came on sloping ground. The road is of standard gauge and was built on a uniform grade of 5%, compensated, with a maximum curvature of 15 deg.

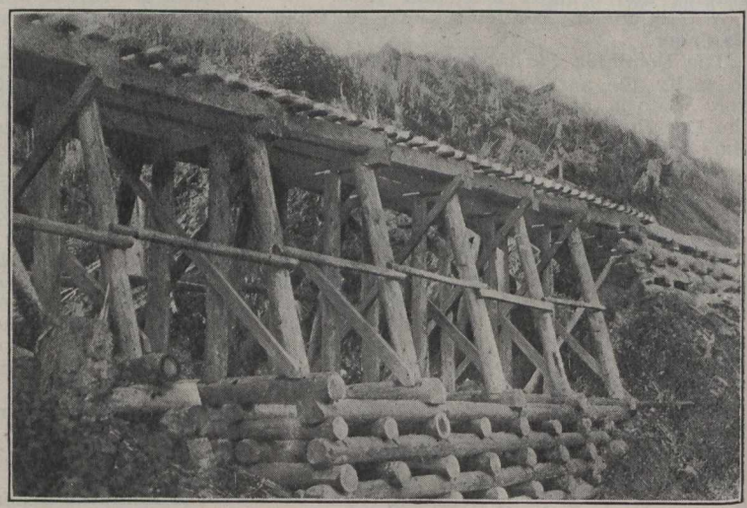
A typical trestle on crib foundation is shown in one of the accompanying illustrations. The timber in this trestle totals 59,000 ft. b. m. Including engineering supervision, the structure cost $975.75. The amount of timber used in this trestle, if bought from the mill as dimension lumber at the regular rate of $20 per 1,000 ft. b. m. would have come to $1,180, while a probable additional cost of $650 for erecting would have brought the total up to about twice the amount actually expended on the structure.

The timber crib shown in the other illustration contains 41,000 ft. b. m., and cost in place $970, or about $24 per 1,000 ft. b. m. This cost is considered somewhat higher than the average on the work, due to the very soft earth encountered at this point. In making a fill near the lower end of the line a rough timber trestle 600 ft. long with an average height of 28 ft. and a maximum height of 32 ft., was built at a cost of $2 a foot, including ties and 56 lb. rails. This structure was only used until the fill was graded for permanent roadbed, and its heaviest loading was a 12-ton dinkey engine with three 6-ton (loaded) dump cars.

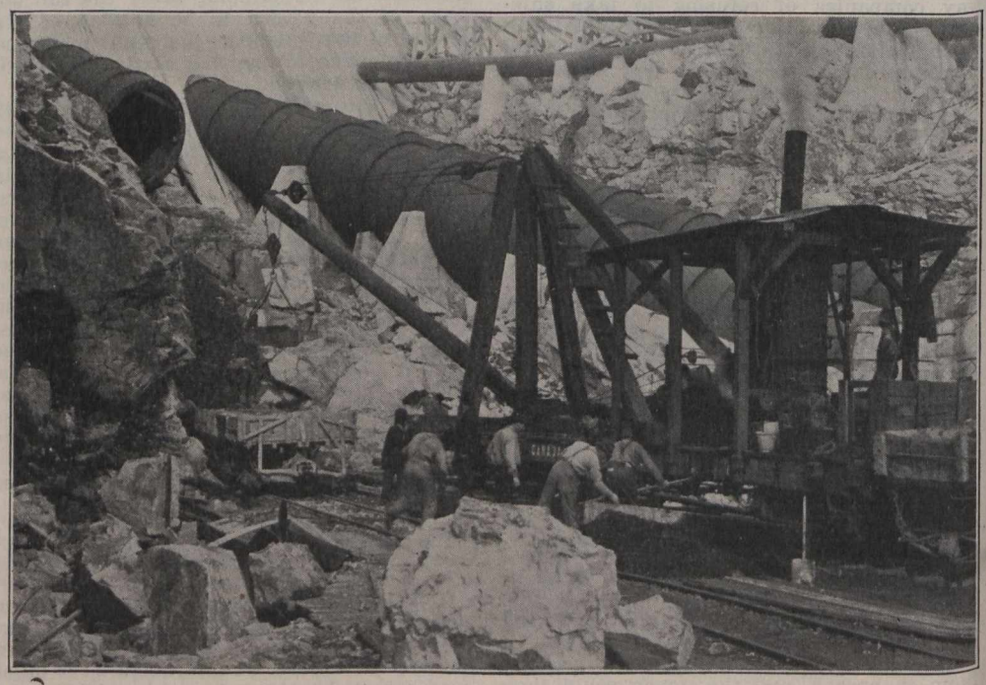
The extension of the Ruskin-Stave Falls line is being made by day labor by the Western Canada Power Co. under the direction of R. F. Hayward, Chief Engineer, and the personal supervision of J. F. Cahan, Construction Engineer.—Engineering Record.

Canadian Railway and Marine World is indebted to Mr. Cahan for the photographs from which the two illustrations above referred to were made. We are also indebted to him for the photograph showing a derrick which he had rigged up, put on a flat car and used for excavation of the penstocks and foundation of the additions to the power house. The derrick, of about 12 tons capacity, has, Mr. Cahan says, proved cheap and efficient and of the utmost service, both on excavation and for handling stop logs, structural steel, etc.





Cedar Crib and Trestle Construction on Ruskin-Stave Falls Line in British Columbia.



Derrick on Flat Car, Ruskin-Stave Falls Line.

Michigan Central Rd. Assessment.—The difference between the Windsor, Ont., City Council and the Michigan Central Rd., respecting the assessment of the Detroit River Tunnel within the city limits, has been settled. The agreement provides for a fixed assessment of $1,000,000 for 15 years, and the company's lands in the city are to be assessed at $450,000 for a similar period.

C. P. R. Physical Assets.—The daily press has recently given publicity to a statement that the C.P.R. has had a valuation made of its physical assets, and in that connection a number of figures were given which are more or less inaccurate, and certainly misleading. The item may be described as the invention of an irresponsible writer, who has, presumably, abstracted figures from the company's annual report without due knowledge of their proper significance. No valuation as reported has been made.

Compound vs. Simple Locomotives.—Comparative tests on two 4 cylinder Pacific locomotives on the Paris, Lyons and Mediterranean Ry. (France), one of which was a simple and the other a compound, working under exactly similar conditions, are reported to have shown that the compound will haul a 16% greater load, reach a higher speed and accelerate more rapidly. The saving in coal and water was respectively 20% and 13%. The tests extended over 4 years.

After the finding of the Board of Railway Commissioners, in the matter of Western railway freight rates, has been issued, the enquiry into telegraph rates will be taken in hand, when the various telegraph companies will be requested to present replies to the Government counsels' factum in the matter.

Electric Railway Department

British Columbia Electric Railway Co.'s Annual Report.

Following are extracts from the report for the year ended June 30, 1913, presented at the annual meeting in London, Eng., Dec. 19:—

The year covered by the report was one of difficulty and disappointment, mainly owing to the continued rise in the cost of operation and in the cost of all descriptions of supplies. Increased working expenses absorbed practically the whole of the large increase in gross earnings, in spite of continuous effort on the part of the management to economize. One of the causes of the increase in expenses was the protracted and stubborn strike in the coal industry which existed throughout the year, resulting in a considerable rise in the cost of coal, and necessitating the purchasing of supplies in the United States and in Australia. The expensive working conditions still continue and are affecting the current year's earnings. Moreover, the gross receipts of the railway have fallen off owing to the depression which is prevalent in British Columbia. The directors have undiminished faith in the future of British Columbia, and consequently of the company, and meanwhile have confidence that, by a small increase recently made in fares and by rigid economy, they will be able to maintain the present dividend basis.

For the 12 months to June 30, 1913, the gross receipts show an increase of $1,035,869, or over 17%, and the net earnings, including income from investments and subsidiary companies, and after charging renewals, show an increase of $77,552, or 4%, over the preceding year, but the surplus over the amount required to pay interest and dividends has failed from £67,670 to £28,242. The money actually expended up to June 30, 1913, amounted to $45,168,312, and the amount paid out in interest and dividends for the year amounted to $1,888,139, equal to 4.18% on the entire investment. The following charges have been made against the revenue account of the year, viz.:—

Provision for renewals maintenance (from which £40,102 16s. 8d. has been deducted for adjustments and expenditure on renewals during year)		£140,653 13 3	
Amount added to capital amortization		2,360 17 7	
		£143,014 10 10	
Net profit for year, after making above deductions		£381,424 12 2	
Add balance brought forward from last year		7,731 19 7	
		£389,156 11 9	
Interest on debentures and debenture stock to June 30, 1913	£125,182 3 2		
Dividends already paid—			
On 5% cumulative perpetual preference stock for year to June 30, 1913	60,000 0 0		
On preferred ordinary stock for year to June 30, 1913	72,000 0 0		
On deferred ordinary stock for six months to Dec. 31, 1912	48,000 0 0		
		305,182 3 2	
Leaving available for further distribution and reserve		83,974 8 7	
From this the directors have recommended the payment of a dividend on the deferred ordinary stock at the rate of 8% per annum for the six months ended June 30, 1913, making 8% for the year	£48,000 0 0		
To transfer to reserve fund	26,455 9 3		
		74,455 9 3	
To carry forward to next account		£9,518 19 4	

There has been added to the reserve fund £67,544 10s. 9d., representing the premiums by which the price paid into the treasury exceeded the par value of £1,320,000 new share capital issued during the year, less expenses thereon, and after deducting the expenses and discount on an issue of £750,000 4¼% debenture stock issued in Jan., 1913. After the transfer now recommended by the directors as above, the reserve fund will amount to £553,000.

The growth of the company's enterprise is indicated by the following figures:—Miles of single track in operation—1909, 97.74; 1913, 357.82. Total cars of all classes—1909, 248; 1913, 873. The number of passengers carried during the year was 71,973,822, an increase for the year of 9,819,656.

In the monthly statements of earnings issued since July 1, 1913, the actual profits of the subsidiary companies have been included in the total income. Owing to the practical completion of the hydro electric installation at Lake Buntzen, it is now possible to ascertain with accuracy the cost of power. In the past the price charged to the railway for power by the Vancouver Power Co. had to be fixed somewhat arbitrarily, owing to the continually varying amount of the capital invested in the hydro electric installation. The railway has benefited at the expense of the power company, as the price charged was too low. This accounts to a large extent for the apparently unsatisfactory yield obtained by the company in the past from its investment in its subsidiaries.

In June last two of the directors, Messrs. Brown and Harvey, visited British Columbia, and during a stay of nearly three months thoroughly investigated existing conditions and future prospects. They report very quiet conditions of trade in the province, and a noticeable reaction from the progressive prosperity, which has been so marked a feature of the past ten years. They believe that the existing depression is almost entirely due to the prevailing stringent monetary conditions and that it will be dispelled by the return of confidence in Canadian undertakings and in the stableness of the market for Canadian securities, resulting from the continuous adoption of careful methods of finance.

The dam and other works at Lake Coquitlam, which have been under construction for three years, were completed in July last. The satisfactory construction of these works reflects the highest credit on G. R. G. Conway, the Chief Engineer, and on his assistants, and the directors are glad to take this opportunity of publicly acknowledging their valuable services. The completion of this dam marks an important epoch in the company's history, providing an available reserve of over 57,000,000 k.w.h. of electrical energy. With the power secured from the Western Canada Power Co., the company is now placed in an exceedingly strong position in this respect. The new power house at Lake Buntzen has been completed, and the first of the three additional units to be installed therein is now in operation. The erection of the second and third units is being considerably delayed, owing to the difficulty of obtaining deliveries from the manufacturers, but it is anticipated that these units will be in operation during the early part of 1914. A satisfactory contract has been entered into with the Western Canada Power Co., under which the company agrees to purchase a gradually increasing amount of power during the next 20 years. The extension of the Jordan River hydro electric power installation has been proceeded with during the year. To secure the necessary water storage for supply to the additional units a permanent reinforced concrete dam has been completed. By the completion of this dam the total maximum available water storage is increased to 927,900,000 cu. ft., equivalent to a reserve of approximately 14,500,000 k.w.h. of electrical energy. The electric plant at Jordan River has at present a capacity of 12,000 h.p. A third unit is in course of installation, bringing up the capacity to a total of 25,000 h.p. which is required to meet the demand in the City of Victoria and the surrounding districts. During the year the installation of the auxiliary steam plant, which at the date of the last report was under construction at Brentwood Bay, 12 miles from Victoria, has been completed and has a present capacity of 6,000 h.p. The plant has been designed on the most modern lines, and is held in reserve to meet the possible emergency of a breakdown in the company's other power plants on Vancouver Island.

In June last the new Saanich suburban line was formally opened for traffic. The line, approximately 23 miles long, runs as nearly as may be through the centre of the Saanich Peninsula, and opens a very fertile tract of country hitherto without satisfactory connection with the City of Victoria.

The directors again have pleasure in expressing their appreciation of the loyal and satisfactory services rendered by the management and staff in British Columbia.

The following capital account expenditures were made during the year:—

Rolling stock	$1,068,984.16
Permanant and double tracking and sundry improvements	556,479.97
Track extensions	781,235.89
Lighting extensions	350,128.42
Power extensions	146,008.58
Steam plant	72,614.06
Lands and buildings	1,097,312.32
Electrical machinery	308,944.71
Extending light and power system	330,711.18
North Vancouver—rolling stock, meters, transformers, and initial installations	30,864.98
Sundries	144,990.54
Transmission lines and railway feeders	134,139.00
	$5,022,413.91

Montreal Tramways Company's Service.

The M.T. Co., it is reported, has now about 200 more cars in service than it had at the same time last year. J. E. Hutcheson, General Manager, is reported to have stated that additional cars are being received at the rate of six a week. Special attention is being paid to the matter of overcrowding of the cars, and it is claimed that this will be considerably minimized by the substitution of new cars for a number of the older ones at present in service. The new cars have accommodation for 44 passengers, against 28 in the older ones.

All the cars are being repainted, green having been adopted as the standard color for city cars, and yellow for the suburban ones. On the new cars, signs will indicate both the destination and route, but it is stated that it is not likely that this method will be adopted on the other cars at present.

Prepayment Trailer Cars for Hull Electric Company.

Four prepayment trailer cars have been ordered by the Hull Electric Co. for service on its interurban line between Ottawa, Ont., and Hull and Aylmer, Que., to be delivered in March, to meet the spring and summer traffic. They will be of the single end type, somewhat similar to the trailer recently ordered by the Montreal Tramways Co. for the heavy service on its St. Catherines St. line. The general dimensions are as follows:—

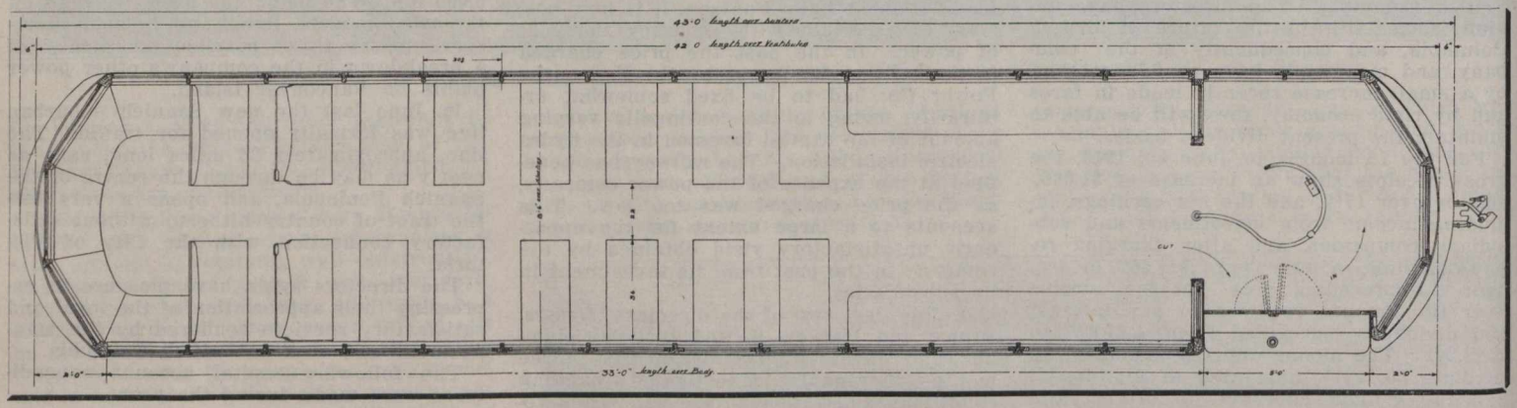
Length over bulkheads	42 ft.
Length over bumpers	43 ft.
Length over body	33 ft.
Width of body over sheeting	8 ft. 6 ins.
Width of body inside	7 ft. 8 ins.
Height of body from bottom of side sills	8 ft. 9 ins.
Side posts, centre to centre	30¼ ins.
Length front vestibule	7 ft.
Length rear vestibule	2 ft.
Width of aisle	22 ins.
Length of seats	36 ins.
Seating capacity	54

The underframe will be of a composite wood and steel construction, with the sill running in one piece through the car from bumper to bumper. The cross stills will be of oak mortised and tenoned into the longitudinal sills, the whole being tied together transversely with ⅝ in. steel tie rods, with a thread and nut on each end. The centre of the frame will be supported by two needle beams, suspended on two 1⅛ in. steel truss rods. The flooring will be of hard pine, laid in a double thickness, with heavy builders' tarred paper between. The bumpers will be of 6 in. heavy steel channels, rigidly secured to the ends of the main sills with angle plates. The bolsters will be of the standard half diamond type.

The upper body construction will be of the standard interurban car type, with monitor roof and lifting sashes in the sides. The interior finish will be in natural color cherry, excepting the ceilings, which will be of agasote board, painted. The seats will be of a standard type, covered with rattan, and non reversible. The window curtains will be of pantasote material, with all steel rollers. All interior fittings, such as grab handles, door locks, sash lifts, etc., will be in solid bronze, of a modern design, and polished. The entrance and exit doors will be equipped with automatic folding doors, controlled by the conductor from his position.

The cars will be equipped with trailer trucks, which have been ordered in the United States. Westinghouse schedule s.m.e. air brakes, Westinghouse combination car and air couplers, hand brakes, Consolidated Car Heating Co.'s electric heaters, interior electric light fixtures, standard M.C.B. tail lamps, steps, and brass railings for the prepayment arrangement.

The cars, which are being manufactured by the Ottawa Car Mfg. Co., will be of practically the same design and general dimensions as the motor cars by which they will be hauled, so that together they will form a neat working unit.



Prepayment Trailer Car for Hull Electric Co.

The Ontario West Shore Railway Muddle.

The Ontario Railway and Municipal Board has continued its enquiry into the methods employed in the promotion and construction, and subsequent abandonment of the Ontario West Shore Ry., a portion of which was built between Goderich and Kincardine. Canadian Railway and Marine World has already published details of what has been done in regard to construction, the bond guarantees of certain local municipalities, and the report of the Engineer of the Ontario Railway and Municipal Board on the present state of the road. The municipalities and the amounts of bonds guaranteed, are as follows,—Goderich, $150,000; Kincardine, $50,000; Ashfield Tp., $125,000; Huron Tp., $75,000. The total amount of bonds issued is $600,000, the guaranteed portion of the issue realizing $385,000. This was deposited with a trust company and paid out upon certificates of the engineer in charge of construction. The construction showed 16 miles of rails laid and 6 miles graded, as far as Amberley, and rails lying on the road from Amberley to about 4 miles short of Kincardine. The Board's Engineer, H. W. Middlemist, after careful examination of the work, reported that work to the value of about $260,000 at the outside had been done, and that the road in its present condition is absolutely useless. The unguaranteed bonds, amounting to $200,000, are it is stated, held by a bank against an advance of $60,000 to the promoter.

J. W. Moyes, the promoter of the railway company, and also of the Huron Construction Co., which had the building contract, blamed the Ontario Government hydro electric power scheme for the collapse of the railway project, as it had been the company's intention to develop the water power of the Maitland River, for the purpose of running the railway, and for the local supply of light and power. He stated that the Government scheme cut off this possibility, and without the extra revenue thus anticipated, the railway could not pay. He also stated that he ceased to be President of the railway company in June, 1913, and at that time handed all the papers and minute books to the company's Solicitor, S. C. Smoke, (since deceased). At a former sitting of the Board, the engineer in charge of construction had stated that the cheques for $385,000 for work done, were signed on Mr. Moyes' instructions.

D. M. McIntyre, Chairman of the Board, commented very strongly on Mr. Moyes' failure to furnish information as to how $385,000 had been spent on the partial construction of the road, and demanded an explanation of the matter. This, Mr. Moyes stated he would supply, but that certain books and papers, which he claimed to have handed to the company's Solicitor, were missing.

A development of this point took place a few days later, when a search warrant was applied for on behalf of J. W. Moyes, to search certain premises, when a trunk and a parcel, said to contain the missing papers, were recovered from the house named in the warrant, but no reason as to why they were being held, how they came into the person's possession, or what they were, has been given. The trunk and parcel were subsequently produced before the Board. At the resumed hearing a doctor's certificate was handed in, stating that Mr. Moyes was for the time, mentally and physically unfit to attend, or to prepare the statement of the expenditure, as promised. The Chairman again pointed out the seriousness of the matter, and how necessary it was that Mr. Moyes should clear his position. After some discussion it was decided that the trunk and parcel, above mentioned, would be opened in private, and all papers therein relating to private affairs taken out and handed to Mr. Moyes, and all papers pertaining to the Ontario West Shore Ry. would be retained by the Board, and dealt with later. At the Board's sitting, Jan. 21, it was announced that $180,000 of the unguaranteed bonds were deposited with a bank, July 23, 1908, and of these $165,000 were delivered by the bank to J. W. Moyes, Nov. 10, 1913, the balance remaining in the bank. The balance of the $200,000 of unguaranteed bonds are held by a trust company as security for an account, and instructions have been given that they are not to be disposed of pending the result of the present enquiry. An accountant is being engaged to examine the books of the railway and construction companies.

Toronto Civic Car Lines Results.

Following are the number of passengers carried and the receipts of the Toronto Civic Car Lines in 1913:—

	Passengers.	Receipts
St. Clair Ave., opened Aug. 25.	1,150,426	$19,672.[illegible]
Danforth Ave., opened Oct. ...	517,024	8,841.11
Gerrard St., operating all year.	1,697,268	29,023.28
Total	3,364,718	$57,536.68

Omnibusses in Winnipeg.—A draft bylaw embodying an agreement made between the City Council and the Winnipeg Motor Transit or Bus Co., has been prepared, and is under consideration. It provides for a five year franchise, with a possible extension for another five years, the council to have the right to take over the service at the end of the five year period.

The Street Railway Situation in Toronto.

Although the question of the proposed purchase of the Toronto Ry., with its allied company, the Toronto Electric Light Co., was not before the ratepayers at the municipal elections on Jan. 1, the voting was doubtless considerably affected thereby. The Mayor, H. C. Hocken, who was chiefly responsible for bringing the matter to the fore, and who conducted, on behalf of the city, the negotiations with the President of the company regarding the proposed purchase, was re-elected. Under ordinary circumstances Mr. Hocken would either have secured his second term by acclamation, or by a very large majority, but as a result of strong opposition to the proposed purchase his majority was only 4,577 out of a total of 43,095 votes polled. Alderman McBrien, who entered the field only a few days before the nominations, as a straight anti purchase candidate, polled 16,641 votes and Alderman Burgess, who also opposed the purchase, got 3,725 votes, the other 1,511 going to a Socialist candidate. Of the four members of the Board of Control elected, two announced themselves in favor of and two against, the purchase, while of the aldermen, a majority were in favor of the purchase during their candidature. In view of the popular vote, however, some of them may have changed their minds.

It is probable that at the next session of the Ontario Legislature, application will be made by the city, for authority to appoint a commission to be placed in charge of the civic transportation problems. The idea is to appoint to the commission, three well known local men, without salary, for a term of four years, but at the commencement, one would be appointed for two years, one for three years and one for four years. No member of the city council, nor any civic official would be eligible for appointment, and on the expiry of the term for which any member was appointed, he would be eligible for reappointment.

W. P. Gundy, President of the Toronto Board of Trade, in his address to the members, Jan. 19, stated that he was opposed to the proposed purchase on the terms proposed, and gave details of what might be termed an alternative scheme, which he believed would clear up the whole matter and avoid numerous complications which he feared would result if the present proposals were carried out. He said:—

"I believe that in order to obtain a complete clearing up of the whole situation, and a proper solution of the transportation difficulties, the Province of Ontario and the City of Toronto should unite on terms to be agreed upon between them in purchasing the stock of the Toronto Ry. Co. (if at a satisfactory price, and not otherwise) and thus secure control not only of the Toronto and York Radial Ry., consisting of the Metropolitan line, from North Toronto to Lake Simcoe; the Scarboro line, east from Woodbine along Kingston road; and the Mimico line, from Sunnyside to Port Credit. The Toronto Ry. Co. does not own the Toronto Suburban Ry., which holds the franchise in Ward 7, and operates lines of railway along Davenport Road, also from West Toronto to Lambton and from West Toronto to Weston. This Toronto Suburban Ry. is, however, owned by the Mackenzie interests, and it would be essential to include this line also. Under such a plan as I have outlined the Ontario Hydro Electric Commission, representing the Ontario Government, would retain for its own use the Electrical Development Co. and the transmission lines of the Toronto and Niagara Power Co., including the right of way between Toronto and Niagara Falls, and the radial railways, and hand over to the City of Toronto all the property within the city. This, I believe, would be a complete clearing up of the whole situation in the City and Province, as it would avoid giving running rights for radial lines over the city streets to Sir William Mackenzie, which is one of the serious objections to the plan now before the people."

Reference to Canadian Railway and Marine World for May, 1913, pg. 238, will give the list of the companies which would be involved in such a scheme, with their capital stock, bond issues and interlocking connection with each other, with the exception of the Toronto Suburban Ry. Co., which although controlled by the Mackenzie interests, is a separate organization.

The draft agreement which the City Council instructed the Corporation Counsel to draw up recently, embodying the terms of the proposed purchase, which were the outcome of the recent negotiations, is reported to have been prepared and to be ready for submission to the city council.

The President of the Board of Trade, in his remarks quoted above, stated that the acquirement of the whole series of companies, would, among other things, "avoid giving running rights for radial lines over city streets, which is one of the serious objections to the plan now before the people." The original draft agreement, on which the negotiations between the Mayor and Sir William Mackenzie were based, provided, on this point, for the taking over by the city of such of the radial lines as were within the present city limits, the double tracking of such lines by the city, and the granting of running rights to the radial companies concerned, over such lines, the city to lay a third rail, if it desired to operate over these lines in connection with the city lines. If, therefore, the final draft agreement follows on the lines of the original one, there is no question of the radial lines operating over city streets other than at present. In fact they could not do so if it was so desired, unless the whole city system were rebuilt to standard gauge. Such a clause however, if included in the final agreement, would bind the city to retain the present radial lines within the city limits, at standard gauge, and also any other portions of the radial lines as may be included in the city by any future extension of boundaries. Thus, city cars could only operate over the acquired radial lines by the addition of a third rail or some other device calculated to overcome the difference of gauge.

The Toronto Rapid Transit Association, the formation of which was announced in our last issue, having for its alleged main object, the completion of a complete provincial system of rural and interurban railways, etc., has closed its office in Toronto, and, apparently, ceased to exist.

An Alleged Fake Accident Case in London.

In Canadian Railway and Marine World for January, reference was made to an action by Charles Nickles against the London St. Ry. and the G.T.R., for damages for injuries alleged to have been sustained in a collision between a street car and a freight train at the interswitching crossing on Dundas St. East, London, July 24, 1913. For the defence, it was claimed that Nickles was not in the collision at all, but had been driving in the country with another person, and on returning, was held up by the freight train, at the crossing, and when the collision occurred he jumped from the buggy and disappeared in the dark, and was later found on the other side of the crossing and near the damaged street car.

The case came on at the Assizes in London, Ont., Jan. 16. After hearing a number of witnesses for the defence, including Nickles' companion in the buggy, all of which was corroborative, and altogether opposed to the story as told by the plaintiff, who called no witnesses, the Chief Justice dismissed the case with costs, remarking that while there were several features of the case which were hard to explain, the uncorroborated evidence of the plaintiff could not be accepted against the preponderance of evidence adduced by the defence.

Personal Paragraphs.

H. WARNER, Chief Engineer, Edmonton Interurban Ry., Edmonton, Alta., has resigned.

J. H. McGHIE, K.C., of Toronto, has been appointed Solicitor to the Ontario Railway and Municipal Board. This is a new position, and has been rendered necessary by the increase of legal work in the preparation of cases and papers.

J. F. H. WYSE, who for some time acted as engineer for the Ontario Railways and Municipal Board in matters affecting electric railways, has been appointed organizer and engineer of the Ontario Safety League, with office in Toronto.

A press report from Brantford, Ont., Jan. 18, stated that F. NICHOLLS, President, Canadian General Electric Co., Toronto, will be appointed receiver of the Grand Valley Ry., for three years, after which the city will be given the option of taking over the road. No confirmation of this can be obtained, but in any case, it is probably intended to refer to the Brantford St. Ry. only, which is a part of the G.V.R., and not to the entire system.

H. DOUGHTY, Superintendent, Regina Municipal Ry., gave an address before the Engineering Society, Regina, Sask., recently, on the welfare of employes. In this connection he mentioned the recreation room provided by the city for the railway employes, and recommended the adoption of the merit system, and the rule that no man should be discharged without a thorough investigation of the charges against him. As an instance of employes' efficiency he mentioned that although car mileage of 691,281 had been made, the city had only paid $84 in damages.

A. B. CORYELL, whose appointment as Superintendent Electricity and Tramways, Moncton Tramways, Electricity and Gas Co., Moncton, N.B., was announced in our last issue, was born at Lansing, Mich., Feb. 13, 1865, and entered transportation service in 1901, prior to which he had several important positions with light and power companies in the U.S. From 1901 to 1902 he was General Superintendent and Purchasing Agent, Meridian Ry. Light and Power Co., Meridian, Mo.; 1902 to 1903, Superintendent, Master Mechanic and Purchasing Agent, Belt Ry., Shrevesport, La.; 1903 to 1904, Assistant Superintendent and Electrical Engineer, Albany Electric Light and Water Plant, Albany, Ga.; 1904 to 1909, General Manager, Purchasing Agent and Chief Engineer, Huntsville Ry. Light and Power Co., Huntsville, Ala.; 1909 to 1911, General Manager, Chief Engineer and Purchasing Agent, Dayton Construction Co., Greenville, Tex.; 1911 to 1913, General Superintendent, Chief Engineer and Purchasing Agent, Southeastern Construction Co., Waycross, Ga. During the time he spent in Greenville and Waycross he built street railways there, putting both in operation, and managing them for some months. He also built portions of the street railway systems in Huntsville and Meridian.

Electric Railway Track Laid in Canada in 1913.

Canadian Railway and Marine World for January contained particulars of new track laid on electric railways in Canada in 1913 amounting to 164.115 miles, compiled from information supplied by railway companies, in response to the annual circular sent from this office, a few of the figures being estimated where returns had not been sent in. Since then replies have been received from several of the lines which had not previously reported, so that revised figures are given below, showing that 204.19 miles of new line were laid, against 106.56 miles in 1912.

	Miles.	Miles.
Berlin and Waterloo St. Ry.—		
Extensions		1.50
Brandon Municipal Ry.—		
Various extensions		2.00
British Columbia Electric Ry.—		
Vancouver and suburbs	9.66	
Victoria city and Saanich Peninsula interurban line	26.41	
		36.07
Calgary Municipal Ry.—		
Various extensions		10.50
Edmonton Interurban Ry.—		
Edmonton to St. Albert		5.00
Edmonton Radial Ry.—		
Various lines		21.115
Halifax Electric Tramways Co.—		
Various extensions		2.11
Hull Electric Ry.—		
Rivermead to Connaught Park		0.75
International Transit Co.—		
Extension		0.50
Montreal and Southern Counties Ry.—		
St. Lambert to M. & S.C. Jct.	4.00	
M. & S.C. Jct. to Marieville	18.00	
		22.00
Montreal Tramways Co.—		
Various extensions		3.84
Niagara, St. Catharines and Toronto Ry.—		
St. Catharines to Niagara on the Lake		12.20
Moose Jaw Electric Ry.—		
Saskatchewan St. to Parkdale Boulevard	1.50	
Codeau and 6th Ave. to Kingsway Park	0.50	
		2.00
Niagara, Welland and Lake Erie Ry.—		
In Welland, Ont.		0.85
Ottawa Electric Ry.—		
Extensions		5.50
Port Arthur and Fort William Elec. Ry.—		
Extensions, several		5.00
Quebec Ry., Light and Power Co.—		
St. Malo Ward	0.25	
Limoilou Ward	1.59	
		1.84
Regina Municipal Ry.—		
Extensions of City System		14.50
St. John Ry.—		
Extensions in St. John, N.B.		1.50
Saskatoon Municipal Ry.—		
Saskatoon to Sutherland		3.50
Toronto Civic Car Lines—		
Danforth Ave. Line	4.09	
Coxwell Ave.	0.57	
		4.66
Toronto Eastern Ry.—		
Whitby to Oshawa	4.00	
Oshawa to Bowmanville	8.80	
		12.80
Toronto Ry.—		
Extensions of various lines		2.21
Toronto Suburban Ry.—		
Weston to Woodbridge		9.00
Winnipeg Electric Ry.—		
St. Boniface to St. Vital	2.00	
Through Fort Garry	5.37	
Various city extensions	6.61	
		13.98
Winnipeg, Selkirk and Lake Winnipeg Ry.—		
Middlechurch to Stony Mountain		9.77
Total		202.19

The London St. Ry. laid 0.70 miles of second track; the Saskatoon Municipal Ry. laid about five miles of second track on existing lines, and the Galt, Preston and Hespeler Ry. laid some sidings. The Toronto Suburban Ry. has about 25 miles of its extension from Lambton to Guelph graded and ready for tracklaying, and the Toronto Eastern Ry. has another six miles about ready for tracklaying.

The Electric Railway Journal, New York, in its issue of Jan. 3, only credits Canada with 147.86 miles of new track laid in 1913, which is manifestly considerably under the mark.

Projected Hydro Electric Railway Lines in Ontario.

Specifications are being drawn up by the Ontario Hydro Electric Power Commission's engineer for the electrification of the London and Port Stanley Ry., under instructions from the London and Port Stanley Ry. Commission. The specifications are being based on the report on the cost, etc., of electrifying this city owned line, made by the Ontario Hydro Electric Power Commission's engineer, working in conjunction with S. B. Storer, consulting engineer, Syracuse, N.Y., and which was given in detail in Canadian Railway and Marine World for December, 1912.

At the request of the people of Huron County, the engineers of the Ontario Hydro Electric Power Commission have completed surveys on 166 miles of line in that county. These surveys have been made with the idea of connecting with London, St. Mary's, Stratford and Sarnia. Most of the towns in the county are included in the survey, which covers the following places: Goderich, Bayfield, Dashwood, Grand Bend, Crediton, Exeter, Hensall, Seaforth, Brussels, Wroxeter, Wingham, Dungannon, Benmiller, Clinton and Walton. The surveys are now awaiting the action of the Commission.

Applications have been received from practically all the municipalities in Lambton County, and from the municipalities in the district between Guelph and Georgian Bay. In the former instance, the Commission is requested to report on a system of railways, connecting Chatham with the country to the north. In the latter case, similar information is desired for a line connecting Guelph with some point on Georgian Bay between Owen Sound and Collingwood. Surveys on these lines will be commenced immediately.

A press report from London says that a survey is being made of a line between that city and St. Mary's and Stratford. It also says that seven projected routes have been surveyed for the main line from London to Windsor, and are awaiting final selection. The report also states that practically all the property owners along the line have agreed to give the land necessary for the right of way. This scheme is said to be to join the London and Port Stanley Ry. line 9 miles south of London, and from that point, by way of Glencoe and Chatham, the distance to Windsor is 104 miles.

At a meeting of the Berlin City Council, Jan. 19, it was decided to invite neighboring municipalities to join in a request to the Commission to have a report prepared on the cost of an electric railway from Berlin to Woodstock, via New Dundee, Plattsville and Tavistock. It is also proposed to discuss the question of having township electric lines built in Waterloo County.

We are officially advised that the press reports that a draft of the agreement under which the Ontario Hydro Electric Power Commission proposes to build and operate the projected electric railway between Toronto, Port Perry and Uxbridge, has been submitted to the municipalities interested, is incorrect, and that the draft had not been completed for submission to the committee, although there has been some correspondence between the Commission's engineering department and the municipalities respecting the headings, manner of financing, and for their suggestions.

The reports stated that the Commission was prepared to raise the money necessary for construction by an issue of bonds to be secured by debentures issued by the municipalities, thus enabling the securing of money under the best possible conditions; that the Commission would retain full control over the lines built, regulating and fixing fares and rates for all classes of service; that the maximum fare was not to exceed 2c. a mile, with a minimum cash fare of 5c.; that arrangements might be made by the Commission for the interchange of traffic with other lines as might be desirable; that any applications for extensions of the line were to be considered by representatives of all the municipalities interested; that after all charges of operation had been met, and provision made for the fixed charges, the surplus if any would be divided among the municipalities according to the capital invested, the services rendered, the benefits derived and all other conditions.

It was further stated that the municipalities interested were being asked to send representatives to a meeting to be held at an early date to discuss the agreement, the plans for the line, and to deal with the whole question fully.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies.—Gross earnings for Nov., $746,152; operating expenses, maintenance, etc., $544,508; net income, $201,644, against $741,876 gross earnings; $512,077 operating expenses, maintenance, etc.; $229,799 net income for Nov., 1912. Aggregate gross earnings for five months ended Nov. 30, $3,760,507; net income, $976,721, against $3,477,083 aggregate gross earnings; $1,017,013 net income for same period, 1912.

Brantford St. Ry.—W. P. Kellett, General Manager and Chief Engineer, Lake Erie and Northern Ry., is said to have made an offer for the purchase of the Brantford St. Ry. It was reported in Brantford, Jan. 3, that the C.P.R. had secured control of the L.E. and N. Ry., and that the proposal to acquire the B. Ry. was a part of that company's plans.

W. P. Kellett had a conference with the Receiver of the company, and F. Nicholls, of the Canadian General Electric Co., in Toronto, Jan. 16, when he made a proposal regarding the future of the line. The Receiver intimated that the proposal would be submitted to the bondholders on Jan. 21. It is stated that all the money necessary to carry out the proposal has been arranged for, that if the deal goes through, a first class line, involving the reconstruction of the road and the supply of new rolling stock, will result, and that franchises for additional streets will be asked for, and a belt line will be run through Eagle Place and Parkdale.

Berlin and Waterloo St. Ry.—Press reports say that the statement for 1913 shows a gross profit of approximately $10,000. After deducting the usual amount for depreciation, the net profits will be about $4,000, of which Berlin will receive three quarters and Waterloo the remainder.

Calgary Municipal Ry.—The revenue for 1913 is reported as $757,042.26. It is stated that the net receipts will, when audited, show some decrease owing to a new system of accounting, involving a considerable percentage of the revenue being set aside for street repair, maintenance and depreciation.

Cape Breton Electric Co.—Gross earnings for November, $34,848.93; operating expenses and taxes, $18,080.19; net earnings, $16,768.74; interest charges, $4,808.33; balance, $11,960.41; bond sinking and improvement funds, $1,190; balance for reserves, depreciation, etc., $10,770.41, against $34,562.72 gross earnings; $15,809.75 operating expenses and taxes; $18,752.96 net earnings; $4,475 interest charges; $14,277.96 balance; $1,206.67 bond sinking and improvement funds; $13,071.29 balance for reserves, depreciation, etc.

International Ry.—The Public Service Commission for the second district of New York has authorized the company to execute a supplemental mortgage amending one approved in 1912, so as to require it to expend for maintenance, or to reserve in a fund for such purpose, not less than 16½% of its gross operating revenue, and providing that no bonds shall be issued in future, except when the earnings available for bond interest are 1½ times the amount of interest on the bonds then outstanding and of those it is proposed to issue.

Niagara Falls Park and River Ry.—See International Ry.

Montreal Tramways Co.—The third call of 10% upon the new capital issued April 15, 1913, is payable by subscribers, Feb. 2.

Nelson St. Ry.—By a vote of 404 to 84 the ratepayers of Nelson, B.C., decided recently to purchase the franchise and property of the N.S. Ry.

Peterborough Radial Ry.—The Ontario Legislature is being asked to increase the company's bonding powers from $20,000 to $35,000 a mile of single track.

Quebec Ry., Light and Power Co.—The interest on the company's bonds, due Dec. 1, 1913, was not paid, and it is anticipated that, as was done in the case of the interest due last June, the amounts will be paid within the 90 days of grace allowed in the terms of the mortgage.

St. Thomas Street Ry.—Receipts for Dec., 1913, $1,783.74, against $1,304.06 for Dec., 1912. Passengers carried in Dec., 1913, 42,252, against 37,715 in Dec., 1912. The aggregate total receipts for the year showed an increase of $4,832.82 over 1912.

Toronto and York Radial Ry.—The ratepayers of Toronto, by a vote of 15,126 to 7,726, approved recently of a bylaw authorizing the Toronto City Council to issue debentures to pay for the Toronto and Mimico Ry. section of the Mimico Division of the T. and Y.R. Ry. This piece of line extends from Sunnyside to the Humber River, and is being taken over by the city upon the expiration of the franchise. The purchase price was fixed by the Ontario Railway and Municipal Board, after the company and the municipality had come to terms upon most points involved.

Toronto Ry., Toronto and York Radial Ry., and allied companies.—Gross earnings for November, $849,279; operating expenses, maintenance, etc., $409,973; net earnings, $439,306, against $742,156 gross earnings; $358,371 operating expenses, maintenance, etc.; $383,785 net earnings for Nov., 1912. Aggregate gross earnings for 11 months ended Nov., 1913, $8,893,984; net earnings, $4,438,524, against $7,717,304 aggregate gross earnings; $3,951,504 net earnings for same period, 1912.

Winnipeg Electric Ry.—Gross earnings for November, $360,082; operating expenses, $198,874; net earnings, $161,208, against $345,091 gross earnings, $181,051 operating expenses; $164,040 net earnings for Nov., 1912. Aggregate gross earnings for 11 months ended Nov. 30, 1913, $3,698,831; net earnings $1,658,193, against $3,403,683 aggregate gross earnings; $1,595,755 net earnings for same period, 1912.

The figures given above represent the total earnings of the company, including receipts from lighting, etc. The actual street railway earnings for 1913 were $2,384,597.28, an increase of $269,604.48 over 1912. The amount received by the city as its percentage was $125,788.96.

The British Columbia Electric Ry. will furnish a private ward in the Royal Columbian Hospital, New Westminster, to be called the B. C. Electric Ry. Ward.

Electric Railway Projects, Construction, Betterments, Etc.

Brandon Municipal Ry.—Two miles of additional track which was under construction at the end of 1912 were, we are advised, completed during 1913, the work being done by day labor, under the charge of J. Antonisen, Superintendent. The construction programme for this year has not been arranged. (Dec., 1913, pg. 592.)

British Columbia Electric Ry.—The total mileage of the company's lines on the mainland, in and around Vancouver, and on Vancouver Island, in and around Victoria, B.C., counted as single track, was at Dec. 31, 1913, we are officially advised, 370.09 miles. During 1913, there were 36.07 miles of line added, viz.—On the Vancouver city and suburban lines on the mainland, 9.66 miles, and on the Victoria city line and the Saanich Peninsula interurban line, 26.41 miles.

The Hastings St. car extension to North Burnaby, B. C., was opened for traffic Dec. 24. F. R. Glover, General Executive Assistant, stated in a speech at the opening ceremony, that this is the first of a series of lines which the company propose to build through the territory. This extension is two miles long. Another two mile extension out of Kerrisdale is completed, and is expected to be put in operation in February. Plans have been approved for the building of additional lines in South Vancouver, and from Kerrisdale to Point Grey, and it is expected that construction will be started in the spring. (Jan., pg. 38.)

Dunnville, Wellandport and Beamsville Electric Ry.—Press reports that the charter of this company was about to be purchased by the Toronto, Hamilton and Buffalo Ry., are denied by officials of that railway. The D. W. & B. E. R. Co. has power to build a line from Dunnville to Jordan and St. Catharines and other points in the Niagara peninsula.

Application is being made to the Ontario Legislature to extend the time for building the lines. (Dec., 1913, pg. 592.)

Edmonton Radial Ry.—The total length of the system of lines owned and operated by the city of Edmonton, Alta., under this title is 52.644 miles, counted as single track, of which 0.777 of a mile are spurs, terminals, wyes and loops; the remaining 51.867 miles is classified as follows:—Permanent double track, 30.891 miles; permanent single track, 1.186 miles; temporary double track, 8.837 miles; temporary single track, 10.343 miles; spurs, 0.610 mile. During 1913, the following mileage of new track were laid:—Permanent double track 21.024 miles; permanent single track, 0.630 mile; spurs, 0.123 mile; sidings, terminals, wyes and loops, 0.777 mile; total, 21.892 miles. Deducting the sidings, etc., this leaves 21.115 miles of new operating track, calculated as single track, added to the system during the year. The construction programme for this year has not yet been determined. (May., 1913, pg. 235.)

Estevan Transit and Power Co.—The Saskatchewan Legislature has incorporated a company with this title to build the lines mentioned in issue of Dec. 1913, pg. 593. (Jan., pg. 38.)

Forest Hill Electric Ry.—Application is being made to the Ontario Legislature to increase the bonding powers of the company to $50,000 a mile, and for an extension of the time within which the company is required to expend $50,000 on construction, from Apr. 6 to Dec. 15, 1914.

Fort William Electric Ry.—The city of Fort William, Ont., is applying to the Ontario Legislature to sanction a by-law to expend $30,000 to build and equip an extension of the street railway to the corporation stone quarry near Mount McKay; and also a by-law to expend $238,000 for further improving and extending the street railway system. The present street railway debenture debt is officially stated to be $854,000. (See Port Arthur and Fort William Electric Ry., Jan., pg. 39.)

Galt, Preston and Hespeler St. Ry.—The Town Council of Preston, Ont., has granted the company a franchise for 25 years, dating from Feb., 1913, when the previous 20 year franchise expired. The franchise gives the company permission to build a second track on its lines. (July, 1913, pg. 367.)

The Galt, Preston and Hespeler St. Ry. did no construction work during 1913, with the exception of putting in some service sidings.

Guelph Radial Ry.—The company is applying to the Ontario Legislature for an extension of time within which it may complete a number of authorized branch lines, and for power to build branches not exceeding half a mile each, in Guelph, Ont.

London and Lake Erie Ry. and Transportation Co.—Representatives of the municipalities interested in the proposed electric railway from St. Thomas via Aylmer to Port Burwell, Ont., met in St. Thomas recently, and discussed the matter. They decided to ask the L. and L.E. Ry. and T. Co. to put its proposition in writing, and to ask the Ontario Hydro-Electric Commission for information as to the conditions under which that body is prepared to co-operate with municipalities for the building of lines. (Jan., pg. 38.)

London St. Ry.—A start was made Dec. 25, in operating the L. S. Ry. with power supplied by the local Hydro-Electric Commission, and on Jan. 1, the line south of the

Medicine Hat Tramways, Ltd.—We are officially advised that pending the result of the litigation instituted by E. G. Fagan, to have the bylaw granting an extension of time for construction quashed, the company is not in a position to continue its arrangements for proceeding with the work in the spring. R. O. Sweezy, General Manager of the Montreal Engineering Co., which has the franchise, was in Medicine Hat, during the last week in January, negotiating for a settlement of the matter. (Jan., pg. 38.) Dundas St. line was being so operated. It is expected that early in February the entire line will be operated under the power agreement with the city. (Dec., 1913, pg. 593.)

Montreal and Southern Counties Ry.—Progress is being made with construction on the extension from Marieville to St. Cesaire, Que., 9 miles, the work being done by the company's own staff. The bridge across the Yamaska River at St. Cesaire, is being built by Ross and McComb. It is expected this section will be completed during the summer, after which the line will be continued from St. Cesaire to Granby, 15 miles. Surveys have been completed into Granby.

The Montreal City Council, Jan. 12, after considering the report of the Board of Control, which passed on the report of the Municipal Tramways and Railway Engineer, recommending that the company's application to lay tracks on Youville and St. Peter streets be not entertained, decided to give the company permission to extend its line to Youville Square. The company desires to lay tracks on these streets in connection with its terminal improvements. (Jan., pg. 38.)

Montreal Tramways Co.—We were advised, Jan. 9, by the chairman of the Quebec

Legislature's Committee on Private bills, that no application has been made for the consideration of any act in the interests of the M. T. Co., and that the press statements referred to in our last issue, in connection with his alleged statement of a projected extension of the franchise are "utterly baseless."

The company's construction department is building an extension known as the Longue Pointe line, from Montreal to Pointe Aux Trembles, 6.78 miles of single track.

The company has acquired a block of land containing 411,200 square feet on the Lachine canal, on which it is proposed to erect car barns and yards for the Lachine cars. It is expected that the work of laying out this area will be started in the spring.

G. B. McLeod, who is the engineer in charge of tramway and railway affairs under the City Engineer of Montreal, is understood to have practically completed his report on the proposals of the M. T. Co., and of the Canadian Autobus Co., as to the construction of subways and underground lines in the city. It is not expected, however, that the report will be made public before Feb. 1.

The M. T. Co. has informed the Outremont Town Council that it proposes, early in the spring, to start construction on the extension of the Van Horne Ave. line to the town limits. (Jan., pg. 38.)

Morrisburg and Ottawa Ry.—At a meeting of the Morrisburg Council, Jan. 21, an application by the M. & O. Ry. was heard, for a right of way through the town. The council has already granted a right of way to the Ottawa and St. Lawrence Electric Ry., which right will expire on Oct. 1, if not taken advantage of, and it was announced that nothing could be done in the way of granting any fresh rights until after that date.

Morrisburg and Ottawa Ry.—Calls of 10% on the subscribed capital of the company are due and payable at the office of the company, Canada Life Building, Ottawa, Feb. 2, April 6, June 8, and Aug. 22. R. A. Bishop is Secretary. (Nov., 1913, pg. 544.)

Niagara, Welland and Lake Erie Ry.—Track was laid on 0.85 of a mile of line on North and West Main streets, Welland, Ont., during 1913. The company has under consideration the building of a line from Welland to Port Colborne and Fort Erie, 20 miles, and from Welland to Niagara Falls, 13 miles. T. R. Cummins, Welland, Ont., is Engineer. (Oct., 1913, pg. 494.)

Nipissing Central Ry.—The new car barns at North Cobalt, Ont., have been completed and opened. The general and operating offices are located in the northwest end, while adjoining is a general waiting room. The barn will accommodate 10 cars, and is fitted with three pits, two of which are in the workshop section. A room for motormen and conductors is arranged in the rear, and at the west end is the boiler and generator room. The building is of brick, on reinforced concrete foundation, with a steel framed roof. (Sept., 1913, pg. 442.)

North Midland Ry.—Application is being made to the Ontario Legislature for an extension of time for the commencement and completion of this line.

The Ottawa, Rideau Lakes and Kingston Ry. is applying to the Ontario Legislature to increase its bonding powers to $40,000 a mile, and to extend the time for the completion of the road.

The Peterborough Radial Ry. is applying to the Ontario Legislature to increase its power to issue bonds, debentures or other securities, from $20,000 to $35,000 a mile of single track.

The Quebec Ry., Light and Power Co. added 1.87 miles to its tracks during 1913. It has no new work on hand or projected. (Sept., 1913, pg. 442.)

Regina and Moose Jaw Interurban Ry.—We are officially advised that surveys have been completed and a satisfactory route secured for the proposed interurban railway from Regina to Moose Jaw, Sask., 40 miles, and that it is expected construction will be started early in the spring. Nothing has been decided as to whether the line will be operated by gas or electric cars, in fact, we are advised Diesel oil engines may be adopted. J. Friedman, Seattle, Wash., is the principal promoter of the company, the organization of which is not fully completed.

St. John Ry.—We are officially advised that the company has under consideration the following extensions:—From Fairville to Manawaganish Road, one mile, and from Kane's Corner to Crouchville, two miles. (Jan., pg. 39.)

St. Thomas St. Ry.—We are officially advised with respect to the projected extension of the line to Pinafore Park, St. Thomas, Ont., that nothing will be done for some time. (Dec., 1913, pg. 593.)

Saskatoon Municipal Ry.—The new electric railway built under an agreement with the Sutherland, Sask., Town Council, by Saskatoon and Sutherland Contracting Co., between Saskatoon and Sutherland, has been put in operation. The line, which is 4.5 miles long, will be operated as part of the Saskatoon Municipal Ry., under a 20 year contract. An hourly service is being given, with a 5c. fare, from Sutherland to the top of the Long Hill, where connection is made with the Saskatoon city system. (Jan., pg. 39.)

Toronto, Barrie and Orillia Ry.—The ratepayers of Barrie, Ont., have approved of a bylaw granting a franchise to this company for an electric railway in the town, and the property owners, voted in favor of granting the company a fixed assessment of $15,000 during the continuance of the franchise.

The agreement provides for the building of a line with the necessary turnouts and switches on Elizabeth St., and such other streets as may be agreed upon, so as to give a continuous line through the town from the eastern limits south of the bay to the eastern limits of the town north of the bay. In the event of a line being built on Bradford St. the company is to assume the responsibility borne by Curran and Clement under the terms of about Oct. 17, 1913. The company also agrees to build during the currency of the franchise an electric railway from either Utopia or Midhurst stations on the C.P.R. Toronto-Sudbury line, to Barrie, entry into that town being made along Elizabeth St. This line is to be put under construction by April, and the lines in Barrie are to be ready for operation by Sept. 1. A freight and express station is to be provided, where all freight and express matter is to be received and delivered. No freight cars are to be run along its tracks in the town between 8 a.m. and 11 p.m., but express cars can be run at all hours. Five cent fares are to be charged for distances up to three miles, and beyond that distance the fare is not to exceed 2c. a mile; children's fares are to be 3c. for three miles, and 1c. a mile for distances over that. School children under 17 years will be sold tickets at eight for 25c. An hourly service is to be maintained between 8.30 a.m. and 11 p.m. between Blake St. and Milburn St., and a reasonable service from these points to the town limits. The franchise is to run for 25 years, and the Town Council has the right, on giving a year's notice prior to its expiry, to assume possession of the line within the town on the payment of the actual value as determined by the Ontario Railway and Municipal Board. If this right is not exercised the franchise is to be continued, the corporation having the right to take over the line under the same conditions at the expiration of any period of five years. The corporation reserves the right to grant a franchise to any other company for an electric railway in the town, and to use the company's tracks upon such terms as may be agreed upon. The company's property in the town is to have the value for assessment purposes of $15,000 for eight years from Jan. 1, 1916. W. H. Jackson, Toronto, is interested, and we are informed that the final organization of the company is being completed, and that a statement of the company's plans will be made at an early date. (Jan., pg. 22, and also Monarch Ry., Feb., 1912, pg. 91.)

The Toronto, Barrie and Orillia Ry. is asking the Ontario Legislature to increase its bonding powers, to extend the time within which it is required to expend 15% of its capital on construction, and to authorize the operation of cars on Sundays.

Toronto Civic Car Lines.—The Mayor of Toronto, in his recent inaugural message to the City Council, said:—"During the past year we have put into operation the civic car lines on St. Clair Ave. and Danforth Ave. These lines are second to none in construction and equipment, and along with Gerrard St. line give us 16.96 miles of single track equipment with 24 double-end prepayment cars. While these lines will necessarily be operated at a heavy loss, the accommodation provided for the people living in these outlying districts is greatly appreciated. No doubt these lines will be extended in the near future to connect with the existing city system at points like Lansdowne Ave. and Royce Ave., and at Dovercourt Road and Van Horne St.

Toronto Eastern Ry.—We are officially advised that track was laid on 12.8 miles of line during 1913 as follows:—Whitby to Oshawa, 4.0 miles; Oshawa to Bowmanville, 8.8 miles; and that construction is advanced on the line between Whitby and Pickering, 6.4 miles. The contractor is Ewen Mackenzie, Toronto. Surveys have been completed for the extension of the line from Pickering to a point in Scarboro tp., 15 miles. It is understood that this line will connect with the Canadian Northern Ontario Ry., and enter Toronto over that line. E. W. Oliver, Toronto, is Chief Engineer. (Jan., pg. 38.)

Toronto Ry.—During 1913 there were completed 2.213 miles of new lines on the company's system in Toronto. (Jan., pg. 39.)

The Toronto Suburban Ry. has let a contract to Canadian General Electric Co. for the substation apparatus for the line from Lambton to Guelph, Ont., 46 miles, and which will probably be extended to Berlin, 13 miles farther on. It is said that this will be the first interurban line in Canada to operate at 1,500 volts direct current. The catenary type of overhead construction will be used, and there will be three substations at Islington, Georgetown and Guelph, respectively. Fifteen hundred volt rotary converters of 500 k.w. capacity each will be used, power being transmitted to the substations at 25,000 volts. Provision will also be made for the supply of power from a separate bank of transformers in each substation for distribution along the line for miscellaneous power and lighting purposes.

Winnipeg Electric Ry.—During 1913 there were laid 6.61 miles of new track on streets in Winnipeg; two miles of an extension from St. Boniface through part of

St. Vital; and 5.37 miles on a line through part of Fort Garry.

The Stonewall line, which is being built under the Winnipeg, Selkirk and Lake Winnipeg Ry. charter, branches off from the main line at Middlechurch. Track was laid to Stony Mountain, 9.77 miles during 1913, and it is expected to complete construction during this current year from Stony Mountain to Stonewall, Man., 7.5 miles. Wilford Phillips, Winnipeg, is General Manager. (Jan., pg. 39.)

Electric Railway Notes.

The Hull Electric Co. has ordered four pairs of trailer trucks in the United States.

The Toronto Ry. Co. is assessed for $3,625,626 by the City of Toronto.

The Port Arthur Electric Ry. has ordered two single truck cars from Preston Car and Coach Co.

The Halifax Electric Tramway Co. recently received six 21 ft. closed cars from the Nova Scotia Car Works.

The Saskatoon, Sask., City Council has adopted a new schedule for the operation of cars on the municipal railway. Seven routes are to be operated, by six large and 10 small cars, two extra cars being put on during the rush hours. The Mayor stated that the traffic does not at present warrant the operation of more cars.

The Fort William Electric Ry. has been placed under the direct supervision of a street railway committee of which the following are members for this year: R. J. Mamon, Chairman; H. Murphy, M. B. Dean, A. H. Dennis, and the Mayor (S. C. Young). M. O. Robinson is Manager as well as of the Port Arthur Electric Ry.

A report was submitted to the Winnipeg City Council, Jan. 6, by the City Engineer, as to the cost of a municipal omnibus system in the city. The capital expenditure necessary for land and buildings is put at $70,000, and for 40 busses at $240,000, a total of $310,000. The annual cost of the system is estimated at $178,562. The probable revenue is put at $175,000.

The Saskatoon Municipal Ry. rolling stock consists of 12 single truck, two motor cars, each with seating capacity of 32; they are 34 ft. 4 ins. long, 8 ft. 4 ins. wide, 11 ft. 5 ins. high, and with a wheel base of 8 ft., built in the United States; also 6 double truck, four motor cars, 45 ft. long over all, with a seating capacity of 44, built by Preston Car and Coach Co.

The British Columbia Electric Ry. Co. ordered the following rolling stock during 1913:—3 passenger motors, closed, 43 1-3 ft., interurban service, trucks standard C60, built at the company's shops; 30 freight cars, box, 60,000 lbs., 40 ft., interurban trucks, built at Seattle, Wash.; 30 freight cars, flat, 60,000 lbs., 41 ft., interurban service, built at Seattle; 3 sweepers, 28¼ ft., city service, built by Ottawa Car Co.; 15 logging cars, 80,000 lbs., 42 ft., interurban service, built at Seattle; 2 combination passenger and mail motors, 38 ft., interurban service, trucks standard C60, rebuilt at company's shops from old cars.

The Toronto Suburban Ry. is preparing specifications for cars for its line which is being built from Lambton to Guelph, Ont., and it is probable that an order for about ten 65 ft. cars will be placed in the near future. The electrical equipment will be supplied by Canadian General Electric Co. The cars will be equipped with four 85 h.p. motors of the latest type, fully ventilated, and the control will be of the multiple unit type to permit of train operation. The cars will operate on 600 volt line at approximately half normal speed, and changing from 1,500 volt to 600 volt trolley or vice-versa will involve no loss of time in adjustment of control apparatus.

The Port Arthur St. Ry. has ordered from the Ottawa Car Manufacturing Co., one single truck, p.-a.-y.-e. car, double end, double end control, for delivery in six weeks; and three double end, single truck, double end control, p.-a.-y.-e. cars, from Preston Car and Coach Co., for delivery in 75 days.

The London St. Ry. intended putting into operation a Sunday service over its lines, commencing Jan. 25, subject to the necessary amendments to its agreement with the city being satisfactory. The service as outlined by the city was a half-hourly one from 8 to 10 a.m., every 15 minutes from 10 a.m. to 10 p.m., and half-hourly from 10 to 10.30 p.m. Additional service may be given if deemed desirable. The fares will be the same as on week days, except that workmen's tickets will not be available.

The Niagara, St. Catharines and Toronto Ry. has ordered six interurban cars from the Preston Car and Coach Co. The body of these cars will be 56 ft. long, with steel underframing, steam car type of hood and full empire interior finish. Three of the cars will be equipped as combination baggage and smokers, and in the other three the baggage compartment will be eliminated. They will have multiple unit control for train operation, the intention being to operate the main line cars in one or more units, according to traffic requirements. Taylor trucks, electric markers, classification lamps, air sanders, etc., will be supplied, but, at the time of writing, the type of motor has not been decided on. The weight of the cars will be about 65,000 lbs. each, with a seating capacity of 66 passengers.

London and Port Stanley Railway Electrification.

The City of London, Ont., is applying to the Dominion Parliament for an act to confirm and declare to be valid and binding the lease of the L. and P. S. Ry. to the city; to ratify and confirm the appointment of the London and Port Stanley Railway Commission by the city council, and to authorize the commission to have the entire management and control of the railway for and as agents of the city, and to grant such powers as are necessary or expedient to enable the commission to have the whole management and control of the construction, equipment, maintenance and operation of the L. and P. S. Ry.

The city council has issued a notice to the effect that any motion to quash the by-law approved by the ratepayers and finally passed by the city council, Nov. 11, to provide $700,000 for the electrification of the line, must be filed within three months from Dec. 20, 1913.

The Mayor of London is an ex-officio member of the commission, the appointed members of which are:—Hon. Adam Beck, M.L.A., Chairman, appointed for two years; P. Pocock, Vice Chairman, appointed for two years; W. Spittal, and M. D. Frazer, commissioners, appointed for one year. (Jan., pg. 37.)

In the electrification which the Chicago, Milwaukee and St. Paul Ry. is projecting on its mountain division, the installation will resemble in a general way that on the C.P.R. Rossland Branch, not only in point of electrical equipment, but also from the power sources. The 2,400 volt direct current system will be employed, and power will be obtained from a local power company, as in the C.P.R. installation.

The Windsor & Tecumseh Electric Railway Extension Application.

Canadian Railway and Marine World for January contained full particulars of the proceedings before the Ontario Railway and Municipal Board in reference to the application by the Sandwich East Township for an order to compel the company to build a belt line between Tecumseh and Walkerville. The Board has since decided that the present line in the township is not being operated at a profit, and that the company is not therefore as yet liable to build a belt line. The costs have been divided equally between the township and the company.

Crossings of Montreal Tramways Co.'s Tracks in Pointe aux Trembles.

The Quebec Board of Public Utility Commissioners on Dec. 27, 1912, authorized the Town of Pointe aux Trembles to open four streets across the Montreal Tramways Co.'s tracks, reserving provisions for their protection and maintenance for a further order. The matter again came before the Board recently, when it was shown that two of the streets had been opened, but had not been provided with fences, cattle guards and signs. The Board therefore ordered that the town forthwith construct such fences, wing fences and cattle guards as are ordinarily required at such crossings, and to erect the usual signs, the whole work to be done subject to the M.T. Co.'s approval, and in event of any difficulty between the parties the same to be determined by the Board's engineer. The work up to within 18 ins. of the M.T. Co.'s outer rails to be done by the town, and the other work between the spaces mentioned to be done by the town at the M.T. Co.'s expense. The work done by the town to be maintained by it, and the work done by the company to be maintained by the latter.

The Power Question in Manitoba.—The Manitoba Public Utilities Commissioner is preparing a report for submission to the Government, upon the subject of hydro-electric power. A report on this question has already been prepared by the water power branch of the Department of the Interior. The principal part of this report deals with the possibilities of development of power on the Winnipeg River, which is described as one of the most notable rivers for power purposes on the continent, having a considerable fall, and a most uniform flowage throughout the year. The maximum flowage is about four times its minimum flowage, in contrast with the Ottawa River, where the maximum flowage is about 40 times the minimum. It is estimated that at eight not distant power sites 400,000 continuous horse power can be developed.

Montreal City and Autobus Co.—The Quebec Court of Appeal decided Jan. 10, that the contract entered into between the City Council and the company is a legal and binding one. The original applicant to have the agreement quashed was D. Robertson, of the Montreal Tramways Co.

A charge for street railway transfers at Cleveland, Ohio, is likely to be put into effect after Jan. 1, to recoup the Cleveland Railway for losses sustained by the recent heavy snowstorm. The charge will be 1 cent per transfer.

The Ontario Railway and Municipal Board passed an order recently requiring the Hamilton St. Ry., to complete by May 19, the installation of all its double truck cars with air brakes of a type to be approved by the Board's engineer.

Answers to Questions on Electric Railway Topics.

Following are answers to questions in the American Electric Railway Association's question box, sent in by officials of Canadian electric railways:—

Shop Men's Instructions. — Should not more detailed and specific instructions and data be furnished shop men, and if so, what should be its nature? Shop men are disposed, in most instances, to do exactly what is desired, but in very many cases, do they really know what is wanted, and how to do it efficiently?

W. R. McRae, Master Mechanic, Toronto Ry.—"Most decidedly shop men should be furnished with full data and instructions relative to the work in which they are engaged. The practice of this company is to engage only those men who have had, at least, a good common school education and who speak English. Blue prints, printed instructions, both electrical and mechanical, are supplied the men. In addition to this, blue prints and instructions are posted in convenient places both in the shops and the several divisions. We also have an apprenticeship course, which has been very beneficial in securing trained men for the service."

Foremen's Visits to Other Shops.—While officers and heads of departments get together and interchange ideas at conventions, meetings, etc, is there not too much stay at home for foremen and sub foremen of smaller shops and departments? Would it not be to the advantage of the railway companies, creating as well a better feeling among the men who are on the firing line, to have occasional visits to shops, and see men engaged on lines of neighboring companies?

W. R. McRae, Master Mechanic, Toronto Ry.—"For the past few years, and it still is, the policy of this company to send officials and employes to neighboring companies' shops, to see what is being done along similar lines to their own work, the company, of course, paying all expenses. The above outlined practices, in conjunction with skilled, painstaking foremen, are undoubtedly responsible for the high standard of the shop men employed by this company."

Collection of Transfers and Free Tickets. —What are the advantages of collecting transfers and free tickets at the end of each trip?

F. L. Hubbard, Assistant to Manager, Toronto Ry.—"Do not see much, if any. Certainly no advantage under our system of collecting fares with portable hand box. The conductor makes a record of the transfers collected on each half trip and encloses the transfers for each round trip in an envelope, which is then sealed. At the termination of his run, the conductor wraps envelopes in a folder and deposits same at division office. Free tickets are deposited in fare box by passengers in same manner as revenue fares."

Advertising Attractions.—Of the following, which plan or system of advising the public as to band concerts, special entertainments, such as carnivals, circuses, ball games, etc., has given the best results—printed signs or notices on dash of cars, signs on interior or exterior of car windows, interior advertising rack signs, hanging of folders in cars so that passengers can help themselves to copies?

F. L. Hubbard, Assistant to Manager, Toronto Ry.—"We use boards with printed paper signs pasted thereon, 29½ by 21½ ins. in size, displayed on the upright portion of fender in front of dash of car. By limiting, whenever possible, the printed matter to four lines in large type, a plain, bold sign is obtained, which experts consider is the best advertisement in the city for the purposes named. We use this method to advertise features at our summer park, and the privilege is much sought after for other large events in the city."

Road Construction. With crushed stone ballast and concrete paving foundation, are creosoted ties an ultimate economy? (a) When concrete paving foundation comes only to the top of the tie; (b) When concrete paving foundation comes 2 ins. above top of tie.

W. F. Graves, Chief Engineer, Montreal Tramways Co.—"Do not consider the use of creosoted ties an ultimate economy in any track construction with crushed stone ballast and concrete paving base."

What has been your experience regarding the wear of the grooved granite block paved up to the gauge side of the T rail track on a narrow street where the vehicular traffic is heavy? Do you find that a groove block laid in connection with a T rail on such a street keeps vehicular traffic out of the railway strip, as compared with the modern groove girder rail?

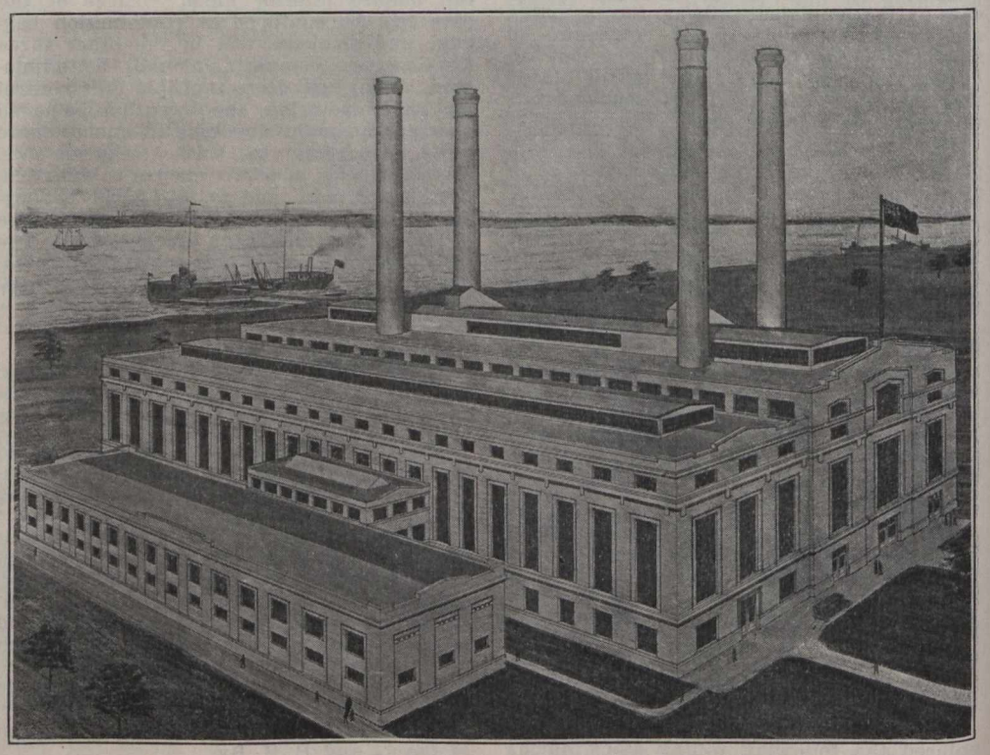
W. F. Graves, Chief Engineer, Montreal Tramways Co.—On a narrow street, where vehicular traffic is heavy, it should have the type of rail which offers the least resistance to getting in and out of the track, and that is the grooved girder rail. If necessary to use T rail, the granite nose block should be used in preference to any other block. The grooved block laid with T rail on such a street would probably tend to keep the vehicular traffic out of the railway strip, providing there is sufficient roadway on either side, but it is very much to the detriment of the car traffic.

Are there any systems using portable toilets, connecting to sewer manholes in streets where construction work is in progress? What is the best design of such portable toilets? What is the best method of keeping check on track laborers where it is necessary to leave the work to use toilets, when portable toilets are used?

W. F. Graves, Chief Engineer, Montreal Tramways Co.—Most urban systems use the portable toilet in connection with the sewer manholes on construction work. They should be about 4 by 4 by 6 ft. in height, and under all circumstances have a roof. The matter of keeping check on track laborers should be directly under the supervision of the gang foreman, as toilets should be located sufficiently close so that he would have supervision of his men at all times.

Dominion Power and Transmission Co.'s Steam Plant.

The steam power station which is to be erected in Hamilton, Ont., by the Dominion Power and Transmission Co., is designed for the accommodation of six 10,000 kilowatt generating units, turbines, operated by steam at 200 lbs. pressure, 200 degrees superheat. The auxiliaries will be mostly steam driven, except the exciter, which will be motor driven. There will also be one or two steam driven exciters. There will be used surface condensers, turbine driven, air and hotwell pump, circulating pump and boiler feed pump. The feed heater will be of the open type. The boiler plant will ultimately consist of 14 units of 1,050 h.p., each equipped with superheaters and underfeed stokers.



Dominion Power and Transmission Co.'s Power House.

The accompanying illustration shows the location of the boiler room, turbine room, offices and transformer house, as they will be when completed. Definite plans of the interior arrangements are not yet finally arranged.

The plans show two buildings. The larger one will be the boiler room, and the smaller one the transformer room. The foundation work for the first part of the structure is expected to be started early in March and will be done under the direction of the company's own staff. Tenders will be invited at a later date for the steel and other work of the structures. W. C. Hawkins, Hamilton, is Managing Director.

Marine Department

The Organization of Canada Steamship Lines, Limited.

During 1913 Canadian Railway and Marine World published full details of the various absorptions and amalgamations with which the Richelieu and Ontario Navigation Co. has been concerned, and also of the rounding off of the series by the formation of Canada Transportation Lines, Ltd., and the change of name to Canada Steamship Lines, Limited. Following is a complete list of the new company's officers: President, James Carruthers, heretofore President, Richelieu and Ontario Navigation Co., Montreal; Vice Presidents, W. Wainwright, Vice President, G.T.R. and G.T.P.R., Montreal; M. J. Haney, hertofore President, Canada Interlake Line, Toronto; J. P. Steedman, heretofore director, Richelieu and Ontario Navigation Co., Hamilton; Managing Director, J. W. Norcross, heretofore Managing Director, Canada Interlake Line, office, Montreal; General Counsel, C. A. Barnard, K.C., Montreal; Assistant to President and Secretary, F. Percy Smith, heretofore Secretary, R. & O.N. Co., office, Montreal; Comptroller, F. S. Isard, heretofore Secretary and Chief Accountant, Canada Interlake Line, Toronto, office, Montreal; Treasurer, J. I. Hobson, heretofore Comptroller and Treasurer, R. & O.N. Co., office, Montreal. The following appointments have also been made, effective from Jan. 1:—

W. E. BURKE, heretofore Traffic Manager, Canada Interlake Line, Ltd., Toronto, Assistant Manager. Office, Montreal.

H. FOSTER CHAFFEE, heretofore Passenger Traffic Manager, Richelieu and Ontario Navigation Co., Montreal, Passenger Traffic Manager. Office, Montreal.

L. A. W. DOHERTY, heretofore Freight Traffic Manager, Richelieu and Ontario Navigation Co., Toronto, Freight Traffic Manager. Office, Montreal.

GILBERT JOHNSTON, heretofore Mechanical Superintendent, Richelieu and Ontario Navigation Co., Montreal, Mechanical Superintendent Passenger Steamers. Office, Montreal.

THOMAS HENRY, heretofore Manager, Eastern Lines, Richelieu and Ontario Navigation Co., Montreal, Operating Superintendent Passenger Steamers. Office, Montreal.

PETER PATON, heretofore Manager, Northern Navigation Co., Sarnia, Ont., Assistant Operating Superintendent Passenger Steamers. Office, Toronto.

H. H. GILDERSLEEVE, heretofore Manager WesternLines, R. & O.N. Co., Toronto, Manager, Northern Navigation Co. Office, Sarnia, Ont.

H. W. COWAN, heretofore Operating Superintendent, Canada Interlake Line, Toronto, Operating Superintendent Freight Steamers. Office, Toronto.

J. J. PHELAN, heretofore Assistant to Mechanical Superintendent, Richelieu and Ontario Navigation Co., Purchasing Agent. Office, Montreal.

R. DUGUID, heretofore Chief Engineer, Canada Interlake Line, Superintendent Engineer. Office, Toronto.

W. H. FEATHERSTONHAUGH, heretofore Shore Superintendent, Inland Lines, Ltd., Superintendent of Hulls. Office, Toronto.

JOHN F. PIERCE, heretofore Assistant General Passenger Agent and General Baggage Agent, R. & O.N. Co., same position in the new company, in charge of party business and baggage, and with jurisdiction over territory and ticket offices east of Sharbot Lake in Ontario and Quebec. Office, Montreal.

W. F. CLONEY, heretofore District Passenger Agent, R. & O.N. Co., Buffalo, N.Y., General Agent, Passenger Department, in charge of Buffalo, Rochester and Niagara Falls ticket offices, his passenger jurisdiction to embody New York State west of Syracuse, Pennsylvania, Pittsburg and west, Ohio and Southern States. Office, Buffalo,

J. F. DOLAN, heretofore District Passenger Agent, R. & O.N. Co., Boston, Mass., General Agent, Passenger Department, with territory covering Maine, Massachusetts, Connecticut, Rhode Island, New Hampshire, Vermont and the Maritime Provinces. Office, Boston, Mass.

J. W. CANVIN, heretofore District Passenger Agent, R. & O.N. Co., Alexandria Bay, N.Y., General Agent, Passenger Department, with territory covering New York State west to Syracuse, New Jersey, Pennsylvania east of Pittsburg, Delaware, Maryland, Virginia and Washington, D.C. Office, New York City.

HUGH D. PATERSON, General Agent Passenger Department, in charge of city and dock ticket offices in Toronto, Hamilton, Lewiston, Queenston, Niagara on the Lake and Alcott, with jurisdiction over passenger matters from Sharbot Lake west in Ontario, and the State of Michigan. Office, Toronto.

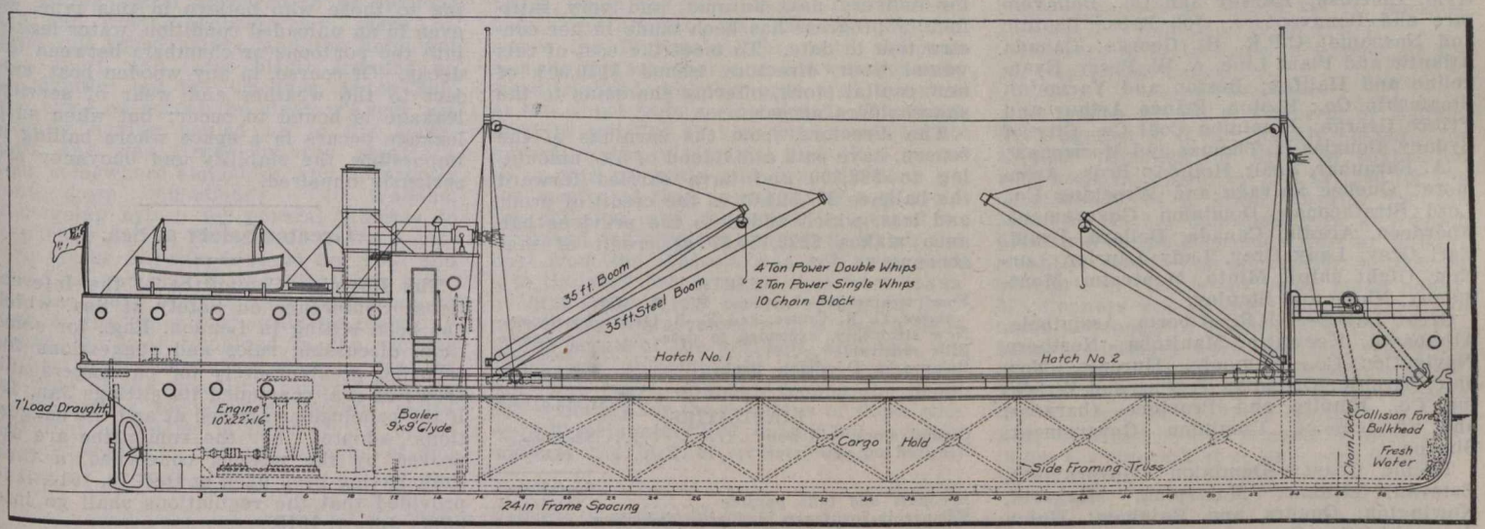
J. V. FOY, heretofore District Passenger Agent, R. & O.N. Co., Toronto, General Agent, Passenger Department, with territory covering Illinois, Missouri and Arkansas and west to the coast. Office, Chicago, Ill.

GEORGE PUJOS, Excursion Agent in charge of Ticket Department, reporting to the Passenger Traffic Manager. Office, Montreal.

S. J. MURPHY, heretofore Travelling Passenger and Excursion Agent, Niagara River Line, R. & O.N. Co., Toronto, Travelling and Excursion Agent, reporting to the General Agent Passenger Department, Toronto. Office, Toronto.

H. J. CRAWFORD, Travelling Passenger Agent, Rochester, N.Y., reporting to General Agent, Passenger Department, Buffalo, N.Y.

C. C. BONTER, Special Agent, Montreal, reporting to Assistant General Passenger Agent and General Baggage Agent, Montreal.



Dominion Government Steel Steam Lighters for Hudson's Bay Service.

Dominion Government Steam Lighters for Hudson Bay.

The Department of Railways and Canals has ordered two steel steam lighters from Polson Iron Works, Toronto, for use at Port Nelson, Hudson Bay. They are to be of steel construction throughout, equipped with ice belt and docking keels, and with watertight collision bulkheads. The propelling machinery will consist of fore and aft compound, surface condensing engines with attached air and auxiliary feed and bilge pumps, the engine cylinders being 10 and 22 ins. diar. by 16 ins. stoke. Steam will be supplied by a Scotch marine type boiler 9 by 9 ft., and built under Government inspection for 160 lbs. working pressure. A full equipment of spare parts for the main engines and pumps, and a miscellaneous outfit will also be supplied. Each lighter will be equipped with two 15 ton cranes and two 4 ton cranes, steam winches, steam windlass, steam steering gear, wrecking pump, sanitary pump, water filters and complete electric lighting equipment. Living quarters for 10 men will be provided aft on a raised deck. The dimensions will be,—length over all 128 ft., length between perpendiculars 120 ft., moulded breadth 21½ ft., depth from bottom of keel to deck at side 10¼ ft., draught loaded 7 ft. Delivery is to be made by June 1.

Wireless Telegraphy on Canadian Vessels

The act providing for the compulsory installation of wireless telegraph equipment on certain vessels leaving Canadian ports came into effect, Jan. 1. The section giving details as to what vessels must be so equipped was given in full in Canadian Railway and Marine World for Oct., 1913. The majority of Canadian vessels which come under the act have already been equipped with the necessary wireless telegraph installation, but there are a few for which, at the time of writing, application for the necessary licenses have not been made. Of these, three operated last season on the Pacific coast, seven or eight on the Great Lakes, and one on the Atlantic coast. If, therefore, it is intended that these vessels are to be operated during the forthcoming season, as last, the installations must be made before the season opens.

Following is a list of Canadian registered vessels which have been equipped for wireless telegraphy by the Marconi Wireless Telegraph Co.:—

Newfoundland and Atlantic Coast:—Reid Newfoundland Co., Bruce, Invermore, Kyle, Lintrose; Harvey and Co., Bellaventure and Bonaventure; Job Bros., Beothic and Nascopie; C.P.R., St. George; Canada Atlantic and Plant Line, A. W. Perry, Evangeline and Halifax; Boston and Yarmouth Steamship Co., Boston, Prince Arthur and Prince George; Dominion Coal Co., City of Sydney, Douglas H. Thomas and Morwenna; J. A. Farquhar, Seal; Holliday Bros., Aranmore; Quebec Salvage and Wrecking Co., Lord Strathcona; Dominion Government, Aberdeen, Acadia, Canada, Dollard, Druid, Earl Grey, Lady Grey, Lady Laurier, Lurcher (light ship), Minto, Montcalm, Montmagny, Niobe and Stanley.

Great Lakes—C.P.R., Alberta, Assiniboia, Athabasca, Keewatin, Manitoba; Northern Navigation Co., Hamonic, Huronic, Noronic, Saronic; Canadian Towing and Wrecking Co., Empire and Province (barges), and St. Ignace; Dominion Government, Simcoe.

Pacific Coast:—Dominion Government, Estevan, Galilano, Malaspina, Margaret, Newington, Quadra and Rainbow; Union Steamship Co., Camosun; British Columbia Salvage Co., Salvor; R. Dollar, Robert Dollar; Grand Trunk Pacific Coast Steamship Co., Prince Albery, Prince George, Prince John and Prince Rupert; C.P.R., Monteagle, Princess Adelaide, Princess Alice, Princess Beatrice, Princess Charlotte, Princess Ena, Princess Mary, Princess May, Princess Royal, Princess Sophia, Princess Maquinna, Princess Victoria and Tees.

Of the foregoing vessels, the Dominion Government steamships Simcoe and Margaret are having the equipment installed, and the Northern Navigation Co.'s s.s. Noronic has just been completed. In addition to the vessels mentioned above, which are all engaged in purely Canadian or local service, there are a number of ocean vessels running to and from Canada, which are also equipped with the Marconi system, including the C.P.R. steamships on the Atlantic and Pacific oceans, the Canadian Northern Steamships' vessels, and numerous others.

Marine Casualties in 1913.—A cablegram from London, Eng., states that marine insurance losses during 1913 were unusually heavy, aggregating $35,000,000. During the 11 completed motnhs of the year 5,332 accidents of all descriptions to vessels were reported, 1,820 being collisions, 1,532 strandings, 895 weather damage, and 423 fires and explosions. The number of vessels reported totally lost was 216, of which 62 were British.

St. Lawrence & Chicago Steam Navigation Co.'s Annual Report.

Following are extracts from the report for the year 1913 as presented at the annual meeting in Toronto, Jan. 13:—

The season of 1913 has been a satisfactory one financially to vessel interests on the Great Lakes. We regret, however, that in common with many other companies, we suffered from the unprecedented storm of Nov. 9 in the loss of the s.s. James Carruthers with many valuable lives, and we take this opportunity to extend our sincere sympathy to the bereaved families and relatives of our officers and men. We are pleased to state that the policy regarding insurance which you authorized some years ago has proved exceedingly satisfactory. We have collected $272,794.09 from the underwriters on the s.s. James Carruthers and after providing for the full balance of her cost out of our insurance fund, we still have the substantial sum of $61,096.94 at the credit of that account.

On account of the increasing business offering, your directors have placed an order for a large modern side tank steamer for delivery next autumn, and very satisfactory progress has been made in her construction to date. To meet the cost of this vessel your directors issued $140,000 of new capital stock, offering the same to the shareholders at par.

The directors, from the earnings of the season, have paid a dividend of 8%, amounting to $68,800 and have carried forward the balance $63,504.61 to the credit of profit and loss, which added to the previous balance makes $222,150.57 at credit of that account.

ASSETS.

Four steamships—Iroquois, W. D. Matthews, G. R. Crowe, and E. B. Osler	$900,000.00
New steamship, expended to date	50,000.00
Bills receivable	20,000.00
Balance in Dominion Bank	315,935.57
	$1,285,935.57

LIABILITIES.

Capital stock, old issue	$860,000.00
Received on new issue	40,875.00
	$900,875.00
Accounts and bills payable	101,813.06
Balance in insurance fund after deducting loss on s.s. James Carruthers less insurance recovered from underwriters	61,096.94
Balance of profit and loss carried forward	222,150.57
	$1,285,935.57

PROFIT AND LOSS ACCOUNT.

Balance forward Jan. 2, 1913		$158,645.96
Steamship earnings	$150,161.53	
Interest	1,500.40	
		151,661.93
		$310,307.89
Cost of management		$ 19,357.32
Dividend 8% payable Jan. 2, 1914		68,800.00
Balance carried forward		222,150.57
		$310,307.89

At the annual meeting bylaws were passed authorizing the directors to borrow money from the Dominion Bank should it become necessary; also respecting the issue of $140,000 of new capital stock.

The directors, who were re-elected for the current year, are:—President, W. D. Matthews; Vice President and Secretary, J. H. G. Hagarty; Managing Director, A. A. Wright; other directors, Jas. Carruthers, Capt. S. Crangle, G. R. Crowe, C. S. Gzowski and Sir Edmund Osler.

Society of Naval Architects and Marine Engineers.

At the annual meeting in New York recently, W. N. McFarland, who presided, in commenting on the use of fuel oil for ship propulsion, said that oil is economical when its cost in cents per gallon is not greater than one half the cost of coal in dollars per ton; i.e., oil at 2c. per gallon is more economical than coal at $4 a ton.

Two papers dealt with the possibility of building unsinkable vessels, and the changes in their structure to accomplish this. Wm. Gatewood, whose paper treated the latter feature, expressed the opinion that subdivision by transverse bulkheads, combined with suitable freeboard, is the logical method of preserving buoyancy and stability; that the proportion of the length of the vessel which may be damaged without danger of foundering should regulate the spacing and height of the bulkheads; and that for a coastwise steamer of standard type, carrying passengers small in number compared with the Atlantic liners, no other subdivision would seem necessary.

H. A. Everett, Assistant Professor of Marine Engineering, at the Massachusetts Institute of Technology, read a paper on the stability of lifeboats, which represented the results of inclining experiments and subsequent stability calculations upon four types of 28 ft. lifeboats:—1st, standard metallic; 2nd, standard wooden; 3rd, metallic; and 4th, collapsible wooden. The tests on the collapsible boat were not reassuring to those who believe in this type, as, even in an unloaded condition, water leaked into the pontoons or chambers between the decks. Of course, in any wooden boat, subject to the weather and wear of service, leakage is bound to occur; but when such leakage occurs in a space where bailing is impossible, the stability and buoyancy are seriously impaired.

Greater Safety at Sea.

The Revision Committee of the International Conference on Safety at Sea, which has been sitting in London, Eng., for some time, discussing rules and suggestions for securing greater safety for passengers and crews at sea, concluded its sittings Jan. 19. If the conclusions arrived at and the suggestions adopted by the committee are approved by the nations concerned, a time limit having been fixed at Dec. 19, 1914, it is provided that the regulations shall go into effect July 1, 1915.

Among a large amount of matters dealt with, the two chief features were the adoption of a plan for an arrangement lengthwise and crosswise of watertight compartments for vessels, which it is stated will make a vessel practically unsinkable; the exemption of passenger vessels carrying less than 50 passengers, or those plying within 100 miles of the shore, from the necessity of being equipped with wireless telegraphy, and the adoption of a miniature life-saving apparatus for children. The President of the conference was Lord Mersey, who presided at the enquiry into the loss of the s. s. Titanic.

The Minister of Marine gave notice in the Dominion House of Commons, Jan. 21, that he would introduce a bill to amend the Canada Shipping Act so as to make its provisions conform to the international regulations adopted at the recent conference in London, Eng., which dealt with matters pertaining to greater safety at sea.

First Vessel Through the Panama Canal.—The passage of the first vessel through the Panama Canal, from the Pacific to the Atlantic, was accomplished, Jan. 7, when the crane vessel Lavalley left the Pacific entrance to the canal. The trip was done by stages, chiefly for the purpose of showing the practicability of navigation through the canal, and no passengers were carried. The Lavalley is 100 ft. long, 40 ft. beam, and 15 ft. draught.

The Wabana-Annie Roberts Collision.

Commander H. St. G. Lindsay, Dominion Wreck Commissioner, recently investigated the collision between the British steamship Wabana and the Newfoundland schooner, Annie Roberts, which took place outside Sydney Harbor, N.S., Oct. 22, 1913, whereby the schooner was sunk and four persons drowned. Following is the judgment, concurred in by captains, F. Nash, J. M. Reith, and J. O. Grey, nautical assessors:—

The s.s. Wabana, which was under charter to the Dominion Coal Co., left Sydney, Oct. 22, at 5.25 p.m., for St. John, N.B., with a cargo of coal. On passing Southeast Bar light at about 6 p.m. a course was set (N. 60 W.) which would take her out to the Fairway buoy, and slightly to the southward of the range lights astern. Shortly after this a vessel's red light was sighted slightly on the port bow, and the order was given to port 10 degrees, which was done, and one blast of the whistle sounded. A little later, seeing that the vessel showing the red light was opening out her green light, the engines were stopped, and, as the sailing vessel appeared to be steering wild and yawing considerably, were ordered full speed astern, and the helm put hard aport, and three blasts sounded on the whistle; but the schooner, Annie Roberts, came on across the steamer's bow, apparently having hauled up to the southward, and was struck by the steamer's stem, somewhere amidships, and apparently went down immediately. The Wabana, after going astern for several minutes to keep clear of the Petrie reef to the southward of the fairway, lowered her boat and picked up one man of the schooner's crew, who was found clinging to a plank; but no trace of the other four could be found, although the boat remained in the vicinity for nearly an hour. The schooner was, at the time of the casuality, running back to North Sydney for shelter, having sailed from that port early in the morning, bound to Newfoundland, but on account of the easterly wind and swell encountered during the afternoon had decided to turn back at about 4 p.m., and return to North Sydney, and in running before the wind with only her fore and main sails set, and boomed off wing and wing, and apparently steering no particular course, came into collision with the steamship.

The court, after carefully considering the evidence, is unanimous in its opinion that the collision between these two vessels, and the unfortunate loss of four lives, was entirely due to the negligent way in which the schooner was handled and navigated, as it would appear to the court that the Wabana's lights were apparently not noticed, or perhaps even seen, until that vessel was close to the schooner, and when those on board of her did see them in the panic which ensued, an order was given to "let her come up," which she did, with her head to the southward, with the result that she ran across the bows of the steamship. It would suggest itself to the court that those in charge of the schooner were engaged watching the lights and movements of the s.s. Morwenna, which came up on their starboard quarter, and passed them to starboard, going the same way, a few minutes before the accident, and therefore did not notice the Wabana's lights until she was close to the schooner, and the way the sails were trimmed probably prevented the man at the wheel from seeing ahead. The court is quite satisfied that no blame can be attached to the steamship, and that everything was promptly and properly done by the master of that vessel to try and avoid the collision, and the court is pleased to commend the efficient manner in which the boat from the Wabana was got away, and also the very proper steps that were taken by him immediately on his return to Sydney, in sending a vessel with a search light to the scene of the accident, although the effort was unfortunately quite unsuccessful. The court, although feeling the deepest sympathy for the relations of those who were unfortunately lost, cannot but severely criticize the lack of even ordinary care, and of all knowledge regarding the Rule of the Road, which appear to have existed on board of the Annie Roberts. Such ignorance is not only a danger to the persons themselves, but it is a menace of the gravest character to any ship that may be navigating in their neighborhood.

Floating Equipment for Quebec Harbor Improvements.

The Quebec Harbor Commissioners have ordered three five-pocket steel dump scows of 300 yds. capacity, and three seven-pocket steel dump scows of 500 yds. capacity from Polson Iron Works, Toronto.

The five-pocket dump scows will be built of steel throughout, with oak doors in the hoppers, the doors being operated by hand through a worm gearing. Their dimensions will be, length 108 ft., moulded breadth 28 ft., moulded depth 9 ft.

The seven-pocket dump scows will also be built of steel throughout with oak doors in the hoppers, operated by patent steam winding gear with double cylinder 8 by 8 ins. engines placed in the hold. Their dimensions will be, length 144 ft., moulded breadth 31 ft., moulded depth 11½ ft.

Delivery is to be made in Quebec by the opening of navigation.

An action by W. J. Conners, of Buffalo, N.Y., against a U. S. weekly paper, for $100,000 damages for libel, in connection with a contract held by him in 1900 for the construction of a grain elevator for the Montreal Harbor Commissioners, and which came before the Supreme Court at Buffalo, recently, was, it was announced, settled out of court, the terms not being made public. Mr. Conners was awarded the contract, and made a deposit of $53,000, and after doing some preliminary work, withdrew, the Commissioners retaining $6,000 as compensation. The periodical alleged that he surrendered the contract, to enable a contracting company in which he was financially interested, to get the contract at an enhanced figure.

List of Steam Vessels Registered in Canada during December, 1913.

No.	Name	Port of Registry	When and Where Built		Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc.	Owner or Managing Owner
134013	Edward C. Whalen	Port Arthur, Ont.	Port Arthur, Ont	1913	76 0	19 1	10 0	113	77	35n.h.p. sc.	James Whalen, Port Arthur, Ont.
136044	Malaspina	Ottawa, Ont.	Dublin, Ireland	1913	162 4	27 1	13 1	392	129	161 " "	Dublin Dockyard Co., Dublin, Ireland. (c)
130629	Mouton	Yarmouth, N.S.	Liverpool, N.S.	1913	82 0	17 0	6 8	53	36	14 " "	Neville Canneries, Ltd., Halifax, N.S.
134014	Noronic	Port Arthur, Ont.	Port Arthur, Ont	1913	362 0	54 0	24 8	6905	3935	328 " "	Western Dry Dock & Shipbuilding Co., Port Arthur, Ont. (d)
134133	Q. H. C. Dredge No. 1	Quebec, Que.	Elbing, Germany	1913	187 0	34 5	14 7	748	420	108 " "	Quebec Harbor Commission, Quebec, Que.
134012	Roi Tan (a)	Port Arthur, Ont.	Buffalo, N.Y.	1876	66 5	16 3	8 0	61	41	10 " "	Thunder Bay Contracting Co., Port Arthur, Ont.
134011	Sarnian (b)	" " "	Cleveland, O.	1893	331 8	41 5	22 0	2656	1710	140 " "	Canada Interlake Line, Ltd., Toronto.

(a) Formerly Pacific. (b) Formerly Chili. (c) Owned by Dominion Government, Marine Department. (d) Owned by Northern Navigation Co., Sarnia, Ont.

List of Sailing Vessels and Barges Registered in Canada during December, 1913.

No.	Name	Port of Registry	Rig	When and Where Built		Length	Breadth	Depth	Reg. Tons	Owner or Managing Owner
131203	Bessie A. Crooks	Liverpool, N.S.	Schr	Liverpool, N.S.	1913	110 6	28 6	10 4	199	A. Crooks, M.O., Liscombe, N.S.
134158	C. S. & G No. 1	Montreal	Scow	Beauharnois, Que.	1912	145 5	28 5	6 8	284	Canadian Sand & Gravel Co., Montreal.
134159	" " 2	"	"	" "	1912	141 1	28 8	6 9	228	" " " " "
134160	" " 3	"	"	" "	1912	142 3	28 2	7 0	233	" " " " "
134221	" " 4	"	"	" "	1912	51 3	17 7	2 8	64	" " " " "
134222	" " 5	"	"	" "	1912	36 6	15 9	2 2	10	" " " " "
134223	" " 6	"	"	" "	1912	98 7	34 3	6 5	185	" " " " "
134171	Effie May Petite	Shelburne, N.S.	Schr	Allendale, N.S.	1913	89 4	25 2	9 0	83	J. Petite, English Harbor, Nfld.
60969	Kaleva (a)	Halifax, N.S.	Barge	Glasgow, Scotland	1869	215 6	35 1	20 0	1039	C. Brister & Son, Halifax, N.S.
52322	Laugen (b)	" "	Schr	" "	1865	224 4	34 2	22 5	1221	" " " "
134156	Laurin & Leitch No. 5	Montreal	Scow	Montreal	1912	76 1	22 0	6 8	91	T. Bastian, J. Laurin and W. C. Leitch, J.O., Montreal.
13 760	Lobnitz P.W.D. No. 3	St. John, N.B.	Dredge	Renfrew, Scotland	1912	100 0	36 2	8 8	389	Minister of Public Works, Ottawa, Ont.
134192	McLean No. 2	Sault Ste. Marie, Ont.	Scow	Sault Ste. Marie, Ont.	1911	80 0	24 0	6 5	125	A. B. McLean, Sault Ste. Marie, Ont.
134157	Mary Lyon	Montreal	Barge	Port Huron, Mich.	1874	142 0	26 3	11 9	310	A. Desrosiers, Lanoraie, Que.
131075	P.W.D. No. 313	Vancouver, B.C.	Dredge	North Vancouver	1913	76 0	35 0	6 0	208	A. Wallace, North Vancouver, B.C.
131100	Susan E. Inkpen	Shelburne, N.S.	Schr	Shelburne, N.S.	1913	101 0	23 3	10 0	99	L. Inkpen, Burin, Nfld.

(a) Formerly Zealandia, recovered wreck. (b) Formerly Ruthin, recovered wreck.

Canadian Notices to Mariners.

The Department of Marine has issued the following:—

438. Dec. 20. British Columbia, Kootenay Lake, west arm, beacon lights established.

439. Dec. 20. British Columbia, Kootenay Lake, Kootenay Landing, range lights established.

440. Dec. 20. British Columbia, Slocan Lake, Silverton, light established.

441. Dec. 20. British Columbia, Columbia River, beacon lights established.

443. Dec. 26. New Brunswick, Bay of Fundy, Grand Manan Island, Seal Cove, buoy established off Wilcox Point.

444. Dec. 26. New Brunswick, St. John River, Belleisle Bay, Shampers wharf, lighthouse established.

442. Dec. 20. British Columbia, Columbia River, Upper Arrow Lake, Arrowhead, day beacon established.

445. Dec. 26. British Columbia, west coast, Barkley Sound, Ucluelet Arm, day beacon erected.

446. Dec. 26. United States of America, Washington, Juan de Fuca Strait, Cape Flattery light station, intended change in character of light.

447. Dec. 26. United States of America, Washington, Juan de Fuca Strait, New Dungeness light station, intended change in character of light.

448. Dec. 30. Canada, list of wireless telegraph stations.

449. Dec. 31. Ontario, Georgian Bay, Nottawasaga Island, new illuminating apparatus.

450. Dec. 31. Ontario, Lake Couchiching, southern end, buoy to be established.

451. Dec. 31. British Columbia, Haro Strait, Discovery Island light station, new fog alarm building, change in fog alarm.

452. Dec. 31. British Columbia, Chatham Sound, Prince Rupert, Pillsbury Point, characteristic of fog bell, correction.

1. Jan. 2. New Brunswick, Bay of Fundy, Grand Manan Island, southwest head, change in character of light.

2. Jan. 7. Nova Scotia, Bay of Fundy, St. Mary Bay, Sissiboo River mouth, dredging, buoyage, position of lighthouse.

3. Jan. 7. Nova Scotia, south coast, entrance to Halifax harbor, Sambro outer bank, light ship placed for winter months.

4. Jan. 7. Nova Scotia, Cape Breton Island, east coast, Sydney harbor, obstruction north of Whitney pier marked by buoy.

5. Jan. 8. New Brunswick, Bay of Fundy, Deer Island Leonardville, lighthouse established.

6. Jan. 8. New Brunswick, south coast, Bay of Fundy, Passamaquoddy Bay, Chamcook harbor, lighthouse established.

7. Jan. 8. Nova Scotia, west coast, Peases Island, intended change in character of light.

8. Jan. 13. British Columbia, Vancouver Island, west coast, Barkley Sound, Amphitrite Point, light carried away, temporary light.

9. Jan. 13. British Columbia, Vancouver Island, east coast, Hammond Bay, light discontinued.

10. Jan. 14. Ontario, River St. Lawrence, Thousand Islands, Gananoque Narrows light station, hand fog horn discontinued.

11. Jan. 14. Ontario, Lake Ontario, Simcoe Island, Ninemile Point, intended change in character of light.

12. Jan. 14. Ontario, Lake Erie, Port Stanley, fog alarm established on west breakwater.

13. Jan. 14. Ontario, Georgian Bay, Meaford west pier, hand fog horn discontinued.

14. Jan. 16. Nova Scotia, Bay of Fundy, Lurcher Shoal, wireless telegraph apparatus installed on lightship.

15. Jan. 16. Nova Scotia, Bay of Fundy, Minas Basin, Five Islands, lighthouse established on Sand Point.

16. Jan. 16. Nova Scotia, southwest coast, Baccaro Point, intended change in character of light.

17. Jan. 16. Nova Scotia, Halifax harbor, alteration in Examination anchorage.

18. Jan. 16. Quebec, River St. Lawrence, ship channel between Quebec and Montreal, Grondines upper range, back light improved.

19. Jan. 16. Labrador, east coast, Cape Harrigan, shoals to northward.

20. Jan. 20. Prince Edward Island, southwest coast, West Point, intended change in character of light.

21. Jan. 20. Quebec, River St. Lawrence, ship channel between Quebec and Montreal, Lake St. Peter, Pointe du Lac range, front light to be improved.

22. Jan. 21. Caution when approaching Canadian ports.

23. Jan. 21. Canada, signals to be made by vessels approaching ports when inconvenienced by searchlights.

Atlantic and Pacific Ocean Marine.

The Allan Line s.s. Alsatian sailed from Liverpool, Eng., for Halifax, N.S., Jan. 17, on her maiden voyage.

The Allan Line Orcadian, which has been running for some time in the River Plate trade, is reported sold to Italian purchasers for £14,000.

The C.P.R. s.s. Montrose, which sailed from Halifax, N.S., Jan. 2, was compelled to put back to port on the following day, owing to a breakdown of her engines.

Furness, Withy and Co., it is reported, have ordered four additional steamships for the North Atlantic trade. Two of these, it is said, will be built on the Tyne, and two at Middlesbrough, Eng.

The new Cunard liner Aquitania will possess the largest turbine engines ever built. They will weigh 1,400 tons and will contain over 1,000,000 blades, varying from 1½ to 20 ins. long. The engines will contain high, intermediate, and low pressure turbines.

The Royal Mail Steam Packet Co's. s.s. Carnarvonshire was launched recently at Belfast, Ireland. She will be operated to the British Columbia coast, via the Suez Canal, with her sister vessel Cardiganshire, now on her maiden trip, and is expected at Victoria early in March.

Capt. H. F. Letson, heretofore Assistant Marine Superintendent, Cunard Line, New York, is reported to have been appointed Marine Superintendent for the same company's services to Halifax, Montreal and Boston, with headquarters at Boston, Mass.

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during 1913.

Articles			Canadian Canal	U. S. Canal	Total
Copper	Eastbound	Short tons	4,239	81,139	85,378
Grain	"	Bushels	49,473,309	62,756,660	112,229,969
Building stone	"	Short tons	5,700	481	6,181
Flour	"	Barrels	2,248,445	7,961,919	10,210,364
Iron ore	"	Short tons	32,404,398	15,672,579	48,076,977
Pig iron	"	"	.....	22,760	22,760
Lumber	"	M. ft. b.m.	24,781	574,805	599,586
Silver ore	"	Short tons	.....	.....	.....
Wheat	"	Bushels	132,202,313	72,619,194	204,821,507
General merchandise	"	Short tons	69,680	333,388	403,068
Passengers	"	Number	13,751	24,008	37,759
Coal, hard	Westbound	Short tons	543,620	2,200,954	2,744,574
Coal, soft	"	"	3,607,111	12,271,253	15,873,364
Flour	"	Barrels	1,600	703	2,303
Grain	"	Bushels	.....	400	400
Manufactured iron	"	Short tons	117,158	262,994	380,152
Iron ore	"	"	32,376	.....	32,376
Salt	"	Barrels	79,573	650,858	730,431
General merchandise	"	Short tons	605,943	761,849	1,367,792
Passengers	"	Number	22,947	16,488	39,435
Summary.					
Vessel passages		Number	8,196	15,599	23,795
Registered tonnage		Net	25,927,096	32,062,619	57,989,715
Freight—Eastbound		Short tons	37,778,408	21,427,445	59,205,853
" —Westbound		"	4,917,735	15,594,756	20,512,491
Total freight		"	42,696,143	37,022,201	79,718,344

COMPARATIVE STATEMENT FOR THE SEASONS 1912 AND 1913.

Items		Season 1912	Season 1913
Vessels: Steamers	Number	19,076	19,789
Sailing	"	1,805	1,992
Unregistered	"	1,897	2,014
Total	"	22,778	23,795
Lockages	"	16,088	16,867
Tonnage: Registered	Net	56,736,807	57,989,715
Freight	Short	72,472,676	79,718,344
Passengers	Number	66,877	77,194
Coal: Hard	Short tons	2,142,485	2,744,574
Soft	"	12,789,109	15,878,364
Flour	Barrels	8,652,153	10,212,667
Wheat	Bushels	174,086,456	204,821,507
Grain	"	69,024,546	112,230,369
Manufactured and pig iron	Short tons	654,892	402,912
Salt	Barrels	660,991	730,431
Copper	Short tons	116,954	85,378
Iron ore	"	46,303,423	48,109,353
Lumber	m. ft. b.m.	667,542	599,586
Building stone	Short tons	2,282	6,181
General merchandise	"	1,664,783	1,770,860

The Canadian canal was opened April 14, and closed Dec. 15, 1913; season, 246 days.

The U.S. canal was opened April 18, and closed Dec. 18, 1913; season 235 days.

succeeding Capt. A. Ashley, recently deceased.

The C.P.R. s.s. Metagama will probably be launched during May, and the s.s. Missanabie about August. Both these vessels are under construction in Scotland for the C.P.R. Atlantic service. They will be about 12,000 tons, twin screw type, with accommodation for 520 second class and 1,200 third class passengers.

A press report from Paris, France, Jan. 21, states that at the North Atlantic Shipping Conference it was announced that all existing agreements in relation to the pooling of the traffic expired on that date. The request of the Hamburg-American Line for a larger percentage of the transatlantic steerage traffic was refused.

The Canadian Northern Steamships s.s. Principello, formerly Principe di Piedmonte, and owned by Genoese parties, and which has been leased to the Uranium Steamship Co., in place of the s.s. Volturno, recently burnt at sea, is reported to have cost £120,000 to build in 1907. The price said to have been paid for her by the present owners is £135,000.

The Osaka Shosen Kaisha, one of the largest shipowning companies in Japan, is reported to be arranging for a freight and passenger service between Japan and Montreal, by way of the Suez Canal, and returning to the Orient via the Panama Canal. A representative of the company was in Montreal and the Maritime provinces recently studying harbor conditions.

A London, Eng., press dispatch states that it has been agreed amongst all the chief Canadian steamship lines on both the Atlantic and Pacific oceans, to grant substantial increases of pay to the captains and officers of their vessels, dating from Jan. 1. In addition, it is stated, that allowances will be given to officers when the vessel is laid up at home ports, also an annual bonus, and three weeks holiday on full pay.

The Reid-Donald Steamship Co., Ltd., the incorporation of which was announced in a recent issue, is operating a steamship between New York and the West Indies, and, it is reported, has another under construction. The company has an authorized capital of $100,000. Following are the officers and directors,—President, J. A. Donald, New York; Vice President, D. Reid, New York; other directors, C. I. De Sola, T. Muirhead and G. Farrill, Montreal.

The Austro-Americana Line's s.s. Canada, which was purchased from the Hamburg American Line last year for its service between Canada and Austria as a competitor of the C.P.R., and which was formerly known as Bulgaria, has been resold to the Hamburg American Line. The Austro-Americana Line is a subsidiary of the Hamburg American Line, and was merely formed for the operation of the Canadian Austrian service. Reports do not indicate that the Austrian service has been discontinued.

The enquiry into the loss at sea of the Canadian Northern Steamships s.s. Volturno, under charter to the Uranium Steamship Co., has just been concluded in London, Eng. The court found that the cumulative effect of the evidence was, that the fire originated among the chemicals carried as cargo, but it could not be attributed to spontaneous combustion. A tribute was paid to the officers and crew of their conduct, concluding with a reference to Capt. Inch, in the words, "it is sufficient to say he did his duty."

The Manchester Liners s.s. Manchester Commerce, which was docked at the Reid Newfoundland Co.'s dock at St. John's, Nfld., for repairs, after colliding with an iceberg in Belle Isle Strait in Oct., 1913, was floated out of the dock, Jan. 13. The repairs covered the removal and replacing of 60 damaged plates, the erection of a new stem, and a number of lesser repairs, which the contract required to be completed in 50 days. The whole work was completed in 47 days, under the charge of W. E. Ladley, superintendent of Motive Power, R. N. Co.

The Royal Mail Steam Packet Co's. s.s. Cobequid, en route from the West Indies to Halifax, N. S., ran ashore on the southwestern end of the Trinity Ledges in the Bay of Fundy, during a heavy storm, Jan. 13, and became a total loss. Owing to the continuance of the storm, and the discontinuance of the wireless telegraphy, due to the fires having been put out, and there being no reserve power to operate the equipment, the wreck was not located until the following day, when the passengers and crew were rescued by the steamships Westport and John L. Cann.

Maritime Provinces and Newfoundland.

The Eastern Steamship Corporation, operating a steamship line between Yarmouth, N.S., and Boston, Mass., will run four round trips each week, between these ports, commencing with March. This is an increased service.

It is reported that the Reid Newfoundland Co. will probably order a new steamship shortly, to be built in Scotland, to take the place of the s.s. Duchess of Marlborough, which was wrecked at Battle Harbor last year.

The Department of Public Works announces that a channel, 8 ft. deep at low water and 100 ft. wide, has been dredged through the bar at the mouth of the Sissiboo River, St. Mary Bay, in the Bay of Fundy, N.S. The channel has not yet been swept clean, and it is known that there are some lumps in it at less than standard depth. It is intended eventually to deepen and straighten the channel up to Weymouth bridge.

Maritime and Newfoundland Steamship Co., Ltd., has been incorporated under the Dominion Companies Act, with $150,000 capital, and office at Halifax, N.S., to carry on a general shipping business, and in connection therewith to own and operate steam and other vessels, and to carry on a general towing and wrecking business. The incorporators are: J. G. Farquhar, C. W. Rowlings, O. E. Smith, Hon. A. W. Redden and A. N. Whitman, Halifax.

An order in council has been passed, providing that steamships of not less than 2,000 tons gross, belonging to Norway, Sweden, Austro-Hungary and Japan, shall be admitted to the Canadian coasting trade in carrying freight and passengers between any port in Nova Scotia and any port in Quebec, and vice versa, on the same conditions as are applicable to Canadian vessels, until Dec. 31, 1914. The vessels chiefly affected are those engaged in the coal trade.

The Dominion Coal Co.'s s.s. Bridgeport, which sailed from Sydney, N.S., in October, for Montreal, with coal, and has not since been heard of, has been posted as missing at Lloyd's. It is reported that the loss on the hull is £64,000, and on the cargo £10,000. She was owned by Brown, Jenkinson and Co., London, Eng., and leased to the Dominion Coal Co., having been built specially for that trade. The s.s. Glace Bay, a similar vessel, owned by the same company, and chartered by the Dominion Coal Co., was also lost on the same route earlier in the year.

At the annual meeting of the Miramichi Steam Navigation Co., at Chatham, N.B., Jan. 13, the report showed that the earnings for 1913 were in excess of those for the previous year, but on account of the heavy expenditure for alterations and improvements on the steamboats Alexandra and Sybella H., no dividend was declared. The officers for the current year are:—President, Hon. J. P. Burchill; Vice President, J. D. Creaghan; other directors, W. B. Snowball, R. A. Snowball, J. D. B. F. Mackenzie, John McDonald; Secretary and Manager, H. B. McDonald.

Province of Quebec Marine.

The Montreal Harbor Commissioners took their customary New Year trip down the harbor, on their steam tug Sir Hugh Allan, Jan. 2.

Reports for the navigation season of 1913 show a considerble increase in the export of grain from Montreal, and also in general freight and passenger traffic. During the season, 62,565,000 bush. of grain were received there, of which 53,351,000 were for export, as compared with 37,800,000 in 1912.

The Quebec and Lotbiniere Navigation Co., Ltd., has been incorporated under the Quebec Companies Act, with $75,000 capital, and office at Ste. Croix, to carry on a general passenger and freight transportation business within the province. J. H. Boisvert, Quebec, Que., E. Boisvert, St. Antoine, D. Boisvert, Ste. Croix, S. Boisvert, Quebec, J. A. Boisvert, St. Raymond and G. Boisvert, Quebec, are the provisional directors.

La Compagnie de Navigation de Matane et Sept Isles has been formed in Quebec, Que., to establish a weekly winter steamboat service, as well as a summer service, between Matane and Seven Islands. It is stated that the scheme is quite feasible during the winter, especially for a small vessel, as the ice is constantly moving. J. A. Fafard is President of the company, which has the support of the Quebec Board of Trade.

It is reported that Canada Steamship Lines, Ltd., will probably order a new steamship to take the place of the s. s. Longueuil plying across the St. Lawrence, at Montreal. It is also announced that the company will shortly take up the matter of a service between Quebec and Bermuda, in which it is considered there are good possibilities. Its subsidiary, the Quebec Steamship Co., already operates a direct line between New York, Bermuda and other West Indian ports.

The Quebec and Levis Boards of Trade have protested against the breaking up of the ice formation in the St. Lawrence River at Cap Rouge, as it has the effect of blocking up the harbors at Quebec and Levis, and interfering with the navigation between the two ports. It is claimed that these two ports are the only two opposite each other on the St. Lawrence, between which a considerable trade is done throughout the winter, and that the means of communication should not be affected by what is stated to be a really useless breaking up of the ice. Local authorities state that the work done by the ice breakers does not in any way assist in the earlier opening of navigation, and even if the channel between Quebec and Montreal were opened earlier the shipping companies would still carry out their schedules to the seaboard.

Ontario and the Great Lakes.

The Ontario Car Ferry Co.'s car ferry steamship Ontario no. 1 has been equipped with a wireless telegraph apparatus for testing purposes.

The Canada Steamship Lines s.s. Dundurn arrived in Toronto harbor, crossing

the lake from Port Dalhousie, Jan. 1. It is reported that she will have a complete overhauling, and a number of extensive repairs during the winter.

Sprinkler equipments are now carried in a number of vessels plying on the Great Lakes. The cost of installation prevents equipments in many boats just as it does in the case of factories, but there is no doubt about its advisability.

The 1913 season is reported to have been the worst in the history of lake navigation for vessel losses, the approximate total loss being $6,000,000, with a heavy loss of life. The great storm of Nov. 9 was the chief cause of the high loss.

The operator at the Point Edward wireless telegraph station has been presented with an engraved gold locket by Pickands, Mather and Co., managers of the Interlake Steamship Co., Cleveland, Ohio, in recognition of his services during the storm on the Great Lakes, on Nov. 9, 1913.

As the result of an investigation by the Dominion Government, locally, the crew of the lightship stationed off the Corsica Shoal, near Sarnia, were exonerated from charges of neglect of duty during the storm of Nov. 9. The enquiry was the result of local rumors to the effect that the vessel had been mishandled.

The large freight steamship which is under construction at Port Arthur, and which is said to be for Canada Steamship Lines, Ltd., will probably be launched soon after the opening of navigation. The work on the hull is progressing satisfactorily, and the engines, which have been built in Cleveland, O., have been received.

The Montreal Transportation Co.'s electrically propelled vessel Tynemount, a description of which has already been given in Canadian Railway and Marine World, and which is intended for service on the Great Lakes, sailed from the Tyne, Eng., recently, on her maiden voyage, to Santander, Spain. It is said that before coming to Canada, she will make a number of short sea voyages.

The Montreal Transportation Co.'s annual meeting was held at Montreal recently. Following are the officers and directors for the current year:—President, B. McLennan; Vice President, Farquhar Robertson; Managing Director, L. L. Henderson; other directors, T. A. Crane, A. Kingman, F. McLennan and A. G. Thomson; Secretary, W. Crawford.

The Dominion Government is reported to have awarded a contract to Jennings and Ross, for the construction of a large dam at the head of the Big Chaudiere, French River, at prices aggregating about $23,124.40. This is said to be a portion of the French River improvement work, which is being undertaken as a preliminary to the proposed Georgian Bay canal undertaking.

A press report of Jan. 20, stated that a large amount of machinery had arrived on the site of the new Welland Ship Canal, five sections of which are under contract. Some of this machinery, it is said was used on the construction of the Panama Canal. The Provincial Government has issued instructions regarding the prohibition of the sale of intoxicants within the canal area.

The Ontario Transportation and Pulp Co., Ltd., has been incorporated under the Dominion Companies Act, with $10,000 capital and office at Thorold, Ont., to own and operate steam and other vessels in the passenger and freight trade, and to deal in pulpwood, etc. The incorporators are, W. Curtis, Jr., G. S. Brack, F. A. Dean, Jr., G. V. McCune, Thorold, Ont., and R. R. McCormick, Chicago, Ill.

A press dispatch from Ottawa, Jan. 18, states that the channel improvements at Fighting Island, in the Detroit River, for which the Dominion Government included $57,000 in the appropriations last year, will be of a wider scope than at first anticipated. A new channel between 3 and 4 miles long will be dredged, and it is stated that work will be commenced in the spring. Owing to the increasing traffic the additional channel has become a necessity.

A report from London, Eng., states that the cost of 11 total losses of insured vessels on the Great Lakes, during the storm on Nov. 9, 1913, was £483,600. The value of cargoes carried by 18 vessels known to have been lost amounts to a further £160,000. Seven vessels, apparently uninsured, which were also wrecked, are not included in the foregoing figures. The value of these vessels is given as £296,200, making the total estimated loss to shipping property £1,243,200.

The past year was one of great progress on the New York State barge canal, and it looks as though within about two years' time it will be possible for 1,000-ton barges to pass between the Great Lakes and the Atlantic, by way of the Hudson River.

A press report from Sarnia, states that the Northern Navigation Co.'s s. s. Saronic, which has been running between Sarnia and the head of the lakes for several years, will, on the reopening of navigation, be placed on the route between Toronto and Montreal.

The U. S. Lake Survey reports the levels of the Great Lakes in feet above tidewater for Dec., 1913, as follows:—Superior, 602.74; Michigan and Huron, 580.35; Erie, 572.14; Ontario, 245.91. As compared with the average December levels for the past ten years, Superior was 0.42 ft. above; Michigan and Huron, 0.15 ft. above; Erie, 0.45 ft. above, and Ontario 0.39 ft. above. It was anticipated that during January, Superior would fall about 0.3 ft., Michigan and Huron about 0.1 ft., Erie remain stationary, and Ontario rise about 0.1 ft.

British Columbia and Pacific Coast Marine.

The G. T. Pacific Coast Steamship Co.'s s. s. Prince John, which has recently had equipment installed for burning liquid fuel, sailed from Victoria, Jan. 5, for Ladysmith, where she loaded coal for Prince Rupert.

A press report from Vancouver states that the Dominion Government has made a grant of practically the whole of the foreshore at Newport, at the head of Howe Sound, to the Pacific Great Eastern Ry., as a seaport, on condition that the company expend $2,000,000 in making harbor improvements.

The Dominion Public Works Department is making a thorough survey of the portion of the Columbia River within Canada, with a view to determining the possibility and probable cost of making the river navigable from its head waters to the international boundary. A report on the progress of the work will probably be made in the spring.

At the White Pass and Yukon Ry. Co.'s annual meeting in London, Eng., in December, O. L. Dickeson, of Vancouver, President of the local companies, referred to the steamboat service established by the company in the lower portion of the Yukon River, to the rate war which resulted, and to the probability of the company establishing a steamship line between Seattle, Vancouver and Skaguay. His remarks are given in full in the report of the annual meeting on another page of this issue.

The Dominion Government is reported to have acquired a site for its projected Pacific coast dry dock, at Lang's Cove, Esquimalt. The plans are being prepared by the Public Works Department, and it is stated that tenders will probably be called for early in the spring. It is estimated that the cost of the dock will be about $4,000,000. The dimensions will be, length 1,150 ft., depth 40 ft., and width 120 ft., or practically a duplicate of the one which the Government has under contract at Lauzon, Que. It is reported that a similar dry dock will shortly be undertaken at Halifax, N.S.

Investigation of Wrecks on the Great Lakes.

Recent press reports stated that a commission had been, or was about to be, appointed, by the Dominion Government, to investigate the wrecks resulting from the great storm on the lakes on Nov. 9, and that Capt. J. B. Foote, of Toronto, had been named as one of the commissioners by the Dominion Marine Association. Though the question of appointing such a commission is under consideration, we are officially advised that no appointments have been made, nor has the question as to whether a commission is to be appointed, been definitely decided.

The origin of the report relating to Capt. Foote, is the recommendation of a joint meeting of the executive committees of the Dominion Marine Association and the Canadian Lake Protective Association, to the effect that it is advisable, on all wreck investigations relating to casualties on the inland waters, that the court should have with it an assessor familiar with conditions and practice on the lakes, and Capt. J. B. Foote was suggested as one who would be generally approved by all parties concerned.

J. A. Currie, M.P., gave notice in the House of Commons, Jan. 15, of the following resolution:—"That in the opinion of this House an enquiry should be held by a committee of this House regarding the disasters last fall on the Great Lakes and Atlantic Ocean, involving such terrible loss of life, with a view of ascertaining if by legislation such disasters can be avoided in the future, and that such committee have power to call witnesses, examine them under oath, and send for papers and documents, and report to this House from time to time."

Non-magnetic Rails and Track Signaling.—In order to accommodate the increasing use of track and signaling circuits on railways, with the necessity for bonding joints, points, and crossings, and separating rail sections to form the desired electric circuits, it is proposed by a German engineer to use non-magnetic rails. The non-magnetic track rails are made of nickel steel containing about 18 to 20% of nickel, and they are inserted at desired points in the ordinary magnetic track for controlling signals, brakes, etc., from the cars. For light railways, the whole of the track may be formed from these rails, which do not affect the action of the weak electric current used in controlling the railway.

Lloyd's Register of Shipping.—The general committee has appointed W. S. Abell, Professor of Naval Architecture at Liverpool University, to succeed the late Dr. S. J. P. Hearle as chief ship surveyor to the society. C. Buchanan, who was Dr. Hearle's senior assistant, has been appointed Principal of the Chief Ship Surveyor's staff. T. B. F. Benton, A. I. N. A., Toronto, has been appointed Surveyor for District of Lake Ontario and Collingwood, Ont.

Canadian Pacific Railway Dining Car Service Building at Vancouver.

The C.P.R. is erecting at Vancouver, for its dining car service, a building 185¾ by 52¼ ft. with basement and two stories above.

The machinery room in the basement, 32 by 20 ft. will contain a 20 h.p. electric motor, a 10 ton double acting horizontal ammonia compressor, 2 electric pumps for pumping brine through refrigerating pipes, and a 10 ton brine cooler. The ammonia compressor, when working in connection with a condenser and refrigerator of equal capacity, will have a refrigerating power equal to the melting of 10 tons of ice a day, when working continually for 24 hours at 120 revolutions a minute, and with cooling water having temperature of 60 degrees. The compressor will be fixed on a massive cast iron bed plate upon which will be formed girders for crosshead and bearing of crankshaft. The refrigerating pipes will be 2 in. brine pipes inside 3 in. ammonia pipes and will run up to the first floor, encircling the entire four walls of each cold storage room, pipes being laid one above the other the full height of the walls. The rest of the basement will be devoted to storing of supplies, and potatoes will be taken in by a chute which will run down the basement from the north track side of the building.

On the ground floor will be the commissary kitchen, 39 ft. 10½ ins. by 24 ft. 8½ ins. It will contain the latest equipment throughout, including a large range using either coal or coke, large sink for washing milk cans, drain pipe, hot and cold water faucets, etc. There will be a soap room just off the kitchen for manufacturing all soap used, containing vats and all necessary equipment. The kitchen and the bakeshop will be separate rooms connected by a doorway on the north side of the kitchen and the south side of the bakeshop. The bakeshop will contain two large brick bake ovens, movable mixing table, pastry table, movable bread racks, mixing machine, marble slabs, sink, drain boards, etc.

Next to the kitchen and the bakeshop will be eight cold storage rooms, constructed of nonperel cork, which contains 94% of pure cork and 6% of patent binder, making them both damp and mould proof. The floor will consist of two layers of cork, surmounted by a 2 in. concrete top, while the side walls and ceiling will be 5 ins. throughout solid corkbed. It will only be necessary to run the refrigerating machinery 12 hours per day, to keep the cold storage rooms as follows: Vegetable room from 40 to 45 degrees, kitchen refrigerator 32 degrees, ice cream refrigerator 30 degrees, fresh meat room 20 to 32 degrees, salt meat from 20 to 32 degrees, poultry room 32 degrees, fish room 35 degrees, and dairy and produce room 30 to 35 degrees below zero. The entire eight rooms will measure 24 by 43 ft., with an entrance from the kitchen and one from the east side. The dining car stores office, 9ft. 10 ins. by 16 ft. 7 ins. will also be on the ground floor, as well as the wine and equipment room, soiled linen room, clean linen room, and linen room office. The linen room office will be between the clean linen room and the soiled linen room thus keeping the soiled linen at all time from coming into contact with the clean linen.

On the top floor will be the general office, and private office for the Assistant Superintendent. A large clothes closet will open off from the general office as will also the lost property room, and a long narrow filing room. A large store room for bar case goods, and one for dining car stores department case goods will be next to the general office on the north while the rest of the floor will be used for silverware storage room, dining and sleeping cars department linen storage, seamstress room, pressing room, porters' assembly room, and cooks' and waiters' assembly and instruction rooms. There will be two large lavatories on this floor, and hot and cold water will be available at all times. Communication between general office, and porters', cooks' and waiters' assembly rooms will be held by means of large window counters opening directly into the rooms from the office.

There will be two outstanding features about this building, the heating and lighting, both natural and artificial. Fifty-two large radiators will be used in heating, and the electric lighting system will have a 21,500 watt capacity. There will be 102 windows to admit the sunlight.

The laminated floor construction will be unusually strong, in some places carrying as much as 300 lbs. to the square foot, the average weight being 125 lbs. The building is being constructed on heavy concrete piers, and of brick with heavy timber columns supporting the floors. Three staircases will give access to the three floors and there will be elevators, one at the east end and one in the centre of the building. Steel doors will be placed at the entrances to the stairways and the building is being built as nearly fire-proof as possible. The storage space will be very large, viz., 3,000 sq. ft. in the basement and 1,092 sq. ft. on the ground floor. Great difficulty was experienced in getting the basement constructed, it being necessary to contend with from 15 to 18 ft. of water when excavating was started. Two centrifugal pumps, one electric and the other steam driven, were in constant use pumping. The basement now, however, is thoroughly waterproof, and the elevator pits, which go down somewhat lower than the basement floor, are treated with a specially prepared waterproof combination, thus eliminating the possibility of water seeping through the floor.

Summoning Police by Train Wireless.—The wireless equipment now used on the Lackawanna Rd. trains has proved very serviceable on a number of occasions. Recently when a locomotive broke down, another one was summoned by wireless communication and much time was saved. The new means of communication was employed recently to summon two of the road detectives in order to arrest suspected crooks who were found riding between the baggage car and the tender. The detectives were on hand when the train pulled in at Binghamton, N.Y., and placed the men under arrest. No doubt wireless communication between stations and moving trains will prove useful in a thousand and one unexpected situations.

Locomotives Furnished Power during the replacement of a battery of worn out boilers, at the plant of Schaum and Uhlinger, of Philadelphia, Pa., recently. Two American type locomotives were rented from the Pennsylvania Rd., and while these were in operation the old battery of two boilers was replaced. The locomotives, whose connecting rods and valve gears had been disconnected, were hauled to a convenient point on a siding of the plant; their throttle valves were closed, and a connection piped from their auxiliary steam domes over the fireboxes to the main steam headers in the plant.

The C.P.R. has opened a children's nursery adjoining the women's waiting room at Windsor St. station, Montreal. It is equipped with bath tubs, cots and seats for the little ones, and rockers for mothers with infants in arms.

Modification of Express Freight Charges.

The Board of Railway Commissioners' general order 117 of Jan. 9, in the matter of the minimum through charge of express companies subject to the Board's jurisdiction, for shipments of express freight carried by two or more companies in Canada, is as follows:

"On and after Feb. 1, shipments of express freight subject to the table of graduate charges for shipments weighing less than 100 lbs. incorporated in the Express Classification for Canada, approved by the Board, the carriage of which between points in Canada involves the services of two or more express companies, subject to the Board's jurisdiction, shall be charged the appropriate graduate under the lowest through or aggregate rate per 100 lbs.

"Sec. c of rule 9 of the conditions of carriage of the said express classification, imposing, subject to qualification, a minimum through charge of 60c. when the through or aggregate rate per 100 lbs. is less than $2, shall be abolished on and after said date. The said express companies shall, by lawful notice, jointly publish and file an amendment to the said express classification giving effect to this order on the said date.

W. H. Plant, General Auditor, Dominion Express Co., writes: "There has been misunderstanding in connection with the reduction of express charges to be made on Feb. 1. This has been due to examples of reductions having been given without having shown to what traffic the reductions refer. So there may be no confusion, and that the public may understand exactly, the following explanation is given. The order refers: 1. To shipments carried by two or more companies. 2. Between points in Canada. 3. To shipments subject to graduated charges.

Qualifications referred to in the paragraph 2 of the order indicates that when the graduate charge under rate of $2 per 100 lbs. is less than 60c, such graduate charge will apply instead of the minimum. Therefore, the result is, after Feb. 1, section C of rule 9 will be discontinued, and when carried by two or more companies there will then be a single graduate on the through rate, without this minimum. The reductions are as follows:

Weight.	(Rate.)				
pounds.	90c.	$1.00.	$1.25.	$1.50.	$1.75.
1	Nil.	Nil.	Nil.	Nil.	Nil.
2	.05	.05	.05	.05	.05
3	.15	.15	.10	.10	.05
4	.20	.15	.15	.10	.05
5	.15	.10	.10	.05	Nil.
6	.25	.20	.15	.10	.05
7	.25	.20	.15	.10	.05
8	.25	.20	.15	.10	.05
9	.20	.15	.10	.05	Nil.
10	.20	.15	.10	.05	Nil.
15	.15	.15	.05	Nil.	Nil.
20	.15	.10	Nil.	Nil.	Nil.
25	.10	.05	Nil.	Nil.	Nil.
30	.05	Nil.	Nil.	Nil.	Nil.

John Pullen, President, Canadian Ex. Co., has issued the following statement: "It is our understanding that the new order is really the outgrowth or the working out to a finality of the judgment of the Board of Railway Commissioners in 1910 in the matter of joint rates on express shipments forwarded from an office of one company to an office of another company. Prior to 1910 these joint or inter company shipments were subject to a through charge made by combining the separate charges of each company. The first step taken as a result of the Board's order in 1910 was to establish a single through charge for two or more companies. The charges so arranged applied only to shipments weighing less than 100 lbs. This arrangement provided for a minimum charge for each of the carrying companies. This was more by way of ex-

periment to see how it would work out. The last and present arrangement waives the minimum charge for each company for the shorter distances, so that on a through shipment weighing several pounds for an office of one company to an office of another company, the former charge on which was 60c. as a minimum, will now be charged 35c. and upwards, according to the distance carried. Corresponding reductions have also been made in the same manner for shipments weighing less than 7 lbs. The present order has no bearing whatever upon the shipments carried by one company only, but where two or more companies are involved in the transportation."

Among the Express Companies.

The Canadian Northern Ex. Co. has opened an office at Langruth, Man.

The Canadian Ex. Co. has recently opened offices at Nash's Creek, N.B., Black Capes, Chandler and Marcil, Que., and Iroquois Falls, Ont.

The Dominion Ex. Co. has recently opened offices at McKinnons Harbor and Westchester, N.S., O'Leary, P.E.I., Kent Jct. and Wapske, N.B., Percival, Primate and Prussia, Sask., Consort, Ensigne, Erimine, Keoma, Monitor and Veteran, Alta., Bear Creek, Cambie and Weyholme, B.C.

Press reports from the west state that despite the recent reduction in express rates, the companies operating there report that business is maintaining the average of former years. The volume of traffic to the east is stated to be rather less, but the traffic from the east showed some increases, while there was considerable increase in purely local business.

The Canadian Northern Ex. Co's. returns to the Interstate Commerce Commission for July 1913, show total receipts from operation, $86,256; express privileges $33,545; total operating revenue $52,711; total operating expenses $33,422; net operating revenue $19,289; taxes $464; operating income $18,824; mileage over steam lines 5,740; mileage over other lines 22.

The Canadian Ex. Co., in its report for July 1913, to the Interstate Commerce, shows total receipts from operation, $311,254; express privileges $141,779; total operating revenue $169,475; total operating expenses $148,582; net operating revenue $20,892; taxes $2,750; operating income $18,142; mileage over steam lines 6,250; mileage over other lines 830.

Telegraph, Telephone and Cable Matters.

The C.P.R. direct wire between Toronto and Winnipeg was put into service early in January.

The Great North Western Telegraph Co. has opened an office at Phillipsburg, Que., and has closed its offices at Lionshead, Lyn and Manotick, Ont., Pabos Mills, Price and Waterloo, Que.

In connection with the construction of the Quebec bridge, eight iron box telephone sets have been installed for use at various points as building proceeds. The instruments are placed on a traveller 200 ft. high, two of them being connected with a sectional unit switchboard, which is equipped for 20 lines to the shore. The six other instruments will be used at different points, a flexible cable and reel allowing the traveller to be moved without disturbing the connections.

The Montreal Telegraph Co.'s annual meeting was held at Montreal, Jan. 8. The company's property, which is valued at $2,151,823.85, is leased to the Great North Western Telegraph Co., and its operation and maintenance is guaranteed by the Western Union Telegraph Co., under an agreement for 97 years, from July 1, 1881, which also guarantees the payment of dividends of 8 per cent. During 1913, four quarterly dividends, aggregating $160,000, were paid, and in addition, a twelfth annual bonus of $5,000 was distributed with the last quarterly dividend, the amount having been derived from the investment of the company's contingent fund.

The Great North Western Telegraph Co.'s office at Hamilton, Ont., has been completely overhauled, rewired and re-equipped, making it on a par with the company's best offices. A large steel frame switch, with slate charging panel in one end, has been installed, together with new natural white oak operating tables throughout. The placing of a special steel protector rack takes care of the liability of damage through high tension crosses on outside lines, while a new storage battery furnishes power for the lines, the battery being charged by a motor generator. Great improvement in working conditions is to be expected from the new plant. The work was done under the supervision of C. E. Davies, Supervisor of Equipment, and H. K. Clark, Electrician.

Marconi Wireless Telegraph Company of Canada, Limited, Annual Report.

Following are extracts from the annual report for the year ended Jan. 31:—

Under the new contract with the Canadian Government for the operation of wireless telegraph stations on the Great Lakes, four stations have been established and placed in operation during the past year; one station is being enlarged, and three other stations are to be built during the current year. The negotiations with the Newfoundland Government were brought to a satisfactory termination in December by completing a contract which will continue the company's exclusive rights in Newfoundland until 1926.

Under the agreements with the Newfoundland and Canadian Governments the following stations are operated:—Ten stations for Newfoundland Government, the controlling station of which, at Fogo, is the company's property; 22 stations in Eastern Canada and Newfoundland for the Canadian Government, 4 of which are the company's property; 5 stations on the Great Lakes, on behalf of the Canadian Government.

The number of steamships now operated by the company on its own behalf is 44, and in addition 4 steamboats are operated on behalf of affiliated companies. As the old contracts for the equipment of steamships expire, they are being replaced, wherever possible, by new standard contracts, by means of which better conditions are secured to the company. The standard ship contract is for five years.

The Trans-Atlantic station at Glace Bay, N.S., has been operated by the company on its own behalf throughout the year, and towards the end of the year the construction of the duplex receiving station at Louisburg and the construction of the 6 wire pole line connecting that station with the transmitting station at Glace Bay were completed. The duplex system will be put into operation as soon as its corresponding station, now in course of construction at Clifden, Ireland, has been completed. A large sum has been invested in these undertakings, but it is confidently anticipated that the increased returns will not only fully warrant the expenditure, but will also assist in bringing much better returns on the total outlay at the Glace Bay station.

The traffic receipts for the year show a satisfactory increase in all departments. The ship and shore station receipts were $52,322, against $45,367 for the previous year. The Transatlantic traffic returns were $44,950, against $27,745 for previous year. There is an increase in the amount advanced by Marconi's Wireless Telegraph Co., Ltd., of London; this is more than counterbalanced by the increased assets in new stations and new plant.

Contracts for the sale of apparatus for the equipment of a large number of ship and shore stations are in hand for the current year, all of which will show a satisfactory profit. During the last session of Parliament the Canadian Government enacted a law making wireless equipment on passenger vessels plying in Canadian waters compulsory. This legislation, which becomes effective on Jan. 1, 1914, will result in further business for this company, owing to the necessity of equipping about fifteen additional steamers in Canadian territorial waters.

An important factor in the new business anticipated by this company during the coming year is the construction of two high power stations at Hudson Bay and Pas, Man., for intercommunication. This important contract was awarded to this company by the Department of Railways in connection with the construction of the new Hudson Bay Ry. by the government, and marks an important factor in wireless telegraphy, in the utilization of the Marconi system for covering wide distances over land. It is possible that further developments may ensue in this direction in the near future.

The following are the directors:—A. A. Allan, President; G. Marconi, Vice President; J. N. Greenshields, R. Bickerdike, G. C. Isaacs, G. M. Bosworth, W. D. Birchall, J. H. Lauer, General Manager.

Wireless Telegraph and Telephone Progress in 1913.

Because it is a young branch of electrical engineering, there is a great deal to be said annually about the progress of wireless telegraphy. Early in 1913 communication was established for the first time directly between Germany and the United States. Several new stations have been built or are building for transatlantic wireless service. During the fall wireless telegraphy gave another demonstration of its importance to navigation, when the s.s. Volturno, afire and fearing immediate destruction in a storm, summoned a rescue fleet by wireless telegraphy, which arrived in time to save a large part of the crew and passengers. To aid the mariner in finding his way across the ocean, wireless signals are sent out daily from the Eiffel Tower in France and from the Arlington station in the United States. A number of wireless stations have been established in Canada, on the Atlantic Coast, on the St. Lawrence River, on the Great Lakes, at Pas, Man., and at Port Nelson, Hudson Bay, and on the Pacific Coast. Wireless telegraphy is being used on trains to permit of communication with stations along the line. Wireless or induction train signal systems are being tried on some lines.

Considerable progress has also been shown in wireless telephony. Spoken messages were sent 600 miles from Rome to Tripoli. At this late date it seems remarkable that material progress should have been made in telegraph and cable systems. During the year a system has been devised which permits of sending the regular dot and dash signals over cable lines and relaying them automatically over land lines.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The Standard Underground Cable of Canada, Ltd., Hamilton, Ont., has increased its authorized capital from $500,000 to $1,000,000.

Calendars for 1914 have been received from F. H. Hopkins & Co., Montreal, B. Greening Wire Co., Hamilton, Ont., the W. W. Butler Co., Ltd., Montreal, Flannery Bolt Co., Pittsburgh, Pa., the Hiram L. Piper Co., Ltd., Montreal.

The United States Light and Heating Co. has removed its New York City branch sales office from 30 Church St. to 210 West 50th St., which brings the New York United States Light and Heating Co.'s service station and sales office in the same building. The general offices remain at 30 Church St.

Independent Pneumatic Tool Co., Chicago, has issued circular W., describing and illustrating the different Thor roller bearing piston air drills, grinder, wood boring machines, single valve chipping hammer, one-piece riveting hammer, and two sizes of electric drills furnished with universal motors.

Gold Car Heating and Lighting Co.—Frank A. Purdy, heretofore Manager, Canadian Gold Car Heating and Lighting Co., Ltd., Montreal, has been appointed Sales Manager for Gold Car Heating and Lighting Co., and Canadian Gold Car Heating and Lighting Co., Ltd., with office at 17 Battery Place, New York, N.Y. He was born in New York, N.Y., Sept. 2, 1866, and started with the Gold Car Heating Co., July 1, 1905, as salesman. On Jan. 1, 1907, he was appointed Manager, Canadian Gold Car Heating and Lighting Co.

Canadian General Electric Co.—At a meeting of directors in Toronto, Dec. 27, to commemorate the 24th anniversary of the organization of a syndicate to enquire into the feasibility of establishing in Toronto, a system of incandescent lighting, which syndicate subsequently organized the C.G.E. Co., the President, Frederick Nicholls, made an address, in which he sketched the company's history. Of the eight original directors, six are still on the board, the other two having died. The syndicate started with a capital of $10,000. Now the company has assets of about $25,000,000, and a dividend has been earned and paid every year. During the 25 years, $6,286,744 has been paid in dividends, and a surplus equal to 40% of the paid up capital has been accumulated. Mr. Nicholls held that there is absolutely no "water" in the capitalization, every share, both common and preferred, have been sold for cash, at par or better, the average cash received by the company being $118 a share. The company has sufficient cash and current assets to pay off its whole indebtedness, also the entire issue of preferred stock, and still leave nearly $50 in net quick assets for every share of common stock, in addition to all the capital assets. The value of real estate, buildings and machinery is greatly in excess of the book values, and after deducting $1,000,000 reserved for depreciation, there remains $95 in capital assets for every share of common stock, so that the common stock represents a value of $140 a share. The company has no bond or mortgage indebtedness.

Transportation Conventions in 1914.

March 17-20.—American Railway Engineering Association, Chicago, Ill.
April 21.—American Association of Freight Agents, Houston, Tex.
May —.—American Railway Claim Agents, St. Paul, Minn.
May 18-22.—International Railway Fuel Association, Chicago, Ill.
May 19.—American Association of Demurrage Officers, St. Louis, Mo.
May 20-22.—Freight Claim Association, Galveston, Texas.
May 20-23.—Association of Railway Telegraph Superintendents, New Orleans, La.
May 21-22.—American Association of Railroad Superintendents, St. Louis, Mo.
May 26-29.—Master Boiler Makers' Association, Philadelphia, Pa.
May 28.—Association of American Railway Accounting Officers, Atlantic City, N.J.
June 10-12.—Master Car Builders' Association, Atlantic City, N.J.
June 15-17.—American Railway Master Mechanics' Association, Atlantic City, N.J.
June 16.—Train Despatchers' Association of America, Jacksonville, Fla.
June 24.—Association of American Railway Accounting Officers, Minneapolis, Minn.
July.—International Railway General Foremen's Association, Chicago, Ill.
Aug. 18.—International Railroad Master Blacksmiths' Association.
Sept. 8-10.—Roadmasters and Maintenance of Way Association, Chicago, Ill.
Oct. 20-22.—American Railway Bridge and Building Association, Los Angeles, Cal.
Nov. 17-19.—Maintenance of Way and Master Painters' Association of the United States and Canada, Detroit, Mich.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries.

Canadian Car Service Bureau. J. Reilly (acting), 401 St. Nicholas Building, Montreal.
Canadian Electric Railway Association, Acton Burrows, 70 Bond Street, Toronto.
Canadian Freight Association (Eastern Lines), G. C. Ransom, Canadian Express Building, Montreal.
Canadian Freight Association (Western Lines), W. E. Campbell, 502 Canada Building, Winnipeg.
Canadian Railway Club, J. Powell, St. Lambert, Que. Meetings at Montreal, 2nd Tuesday each month, 8.30 p.m., except June, July and August.
Canadian Society of Civil Engineers, C. H. McLeod, 176 Mansfield St., Montreal.
Canadian Ticket Agents' Association, E. de la Hooke, London, Ont.
Central Railway and Engineering Club of Canada, C. L. Worth, 409 Union Station, Toronto. Meetings at Toronto 3rd Tuesday each month, except June, July and August.
Dominion Marine Association, Counsel, F. King, Kingston, Ont.
Eastern Canadian Passenger Association, G. H. Webster, 54 Beaver Hall Hill, Montreal.
Engineers' Club of Montreal, R. W. H. Smith, 9 Beaver Hall Square, Montreal.
Engineers' Club of Toronto, R. B. Wolsey, 94 King St. West, Toronto.
Great Lakes and St. Lawrence River Rate Committee, Jas. Morrison, Montreal.
International Water Lines Passenger Association, M. R. Nelson, New York.
Niagara Frontier Summer Rate Committee, Jas. Morrison, Montreal.
Nova Scotia Society of Engineers, A. R. McCleave, Halifax, N.S.
Quebec Transportation Club, J. S. Blanchet, Quebec.
Ship Masters' Association of Canada, Capt. E. Wells, 45 John St., Halifax, N.S.
Western Canada Railway Club, W. H. Rosevear, 25½ Princess St., Winnipeg. Meetings at Winnipeg 2nd Monday each month, except June, July and August.

MAIL CONTRACT.

SEALED TENDERS, addressed to the Postmaster-General, will be received at Ottawa until Noon, on Friday, the 13th March, 1914, for the conveyance of His Majesty's Mails, on a proposed Contract for four years, six times per week each way, over Streetsville (via Huttonville and Churchville) Rural Mail Route from the Postmaster-General's pleasure.

Printed notices, containing further information as to conditions of proposed Contract, may be seen and blank forms of Tender may be obtained at the Post Offices of Streetsville, Huttonville, Churchville, and at the office of the Post Office Inspector, Toronto.

A. SUTHERLAND,
Post Office Inspector.

Post Office Inspector's Office,
Toronto, Jan. 23rd, 1914.

CANADIAN NORTHERN RAILWAY COMPANY.

NOTICE is hereby given that the Canadian Northern Railway Company will apply to the Parliament of Canada, at its next session, for an Act defining the manner of execution of the company's securities and the denominations of issue.

GERARD RUEL.

Toronto, 13th January, 1914.

CANADIAN NORTHERN MONTREAL TUNNEL AND TERMINAL COMPANY, LIMITED.

NOTICE is hereby given that the Canadian Northern Montreal Tunnel and Terminal Company, Limited, will apply to the Parliament of Canada, at its next session, for an Act authorizing the company to change its name.

GERARD RUEL,
Chief Solicitor.

Toronto, December 31, 1913.