Canadian Railway and Marine World

GENERAL INDEX

FOR 1915

ACTON BURROWS LIMITED, PUBLISHERS
70 BOND STREET, TORONTO, CANADA

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STEAM RAILWAY AND GENERAL MATTER

ELECTRIC RAILWAY DEPARTMENT

MARINE DEPARTMENT

APPOINTMENTS AND BIOGRAPHICAL

Canadian Railway and Marine World

January, 1915.

Champlain Market Station at Quebec, for the National Transcontinental Railway.

Plans were prepared by N. T. R. engineers in the early part of the year for a station building and platforms in Quebec, and a contract was let to W. J. Gosselin, Levis, Que., for the construction work shown in the accompanying plans. The work is in progress, and is expected to be completed at an early date.

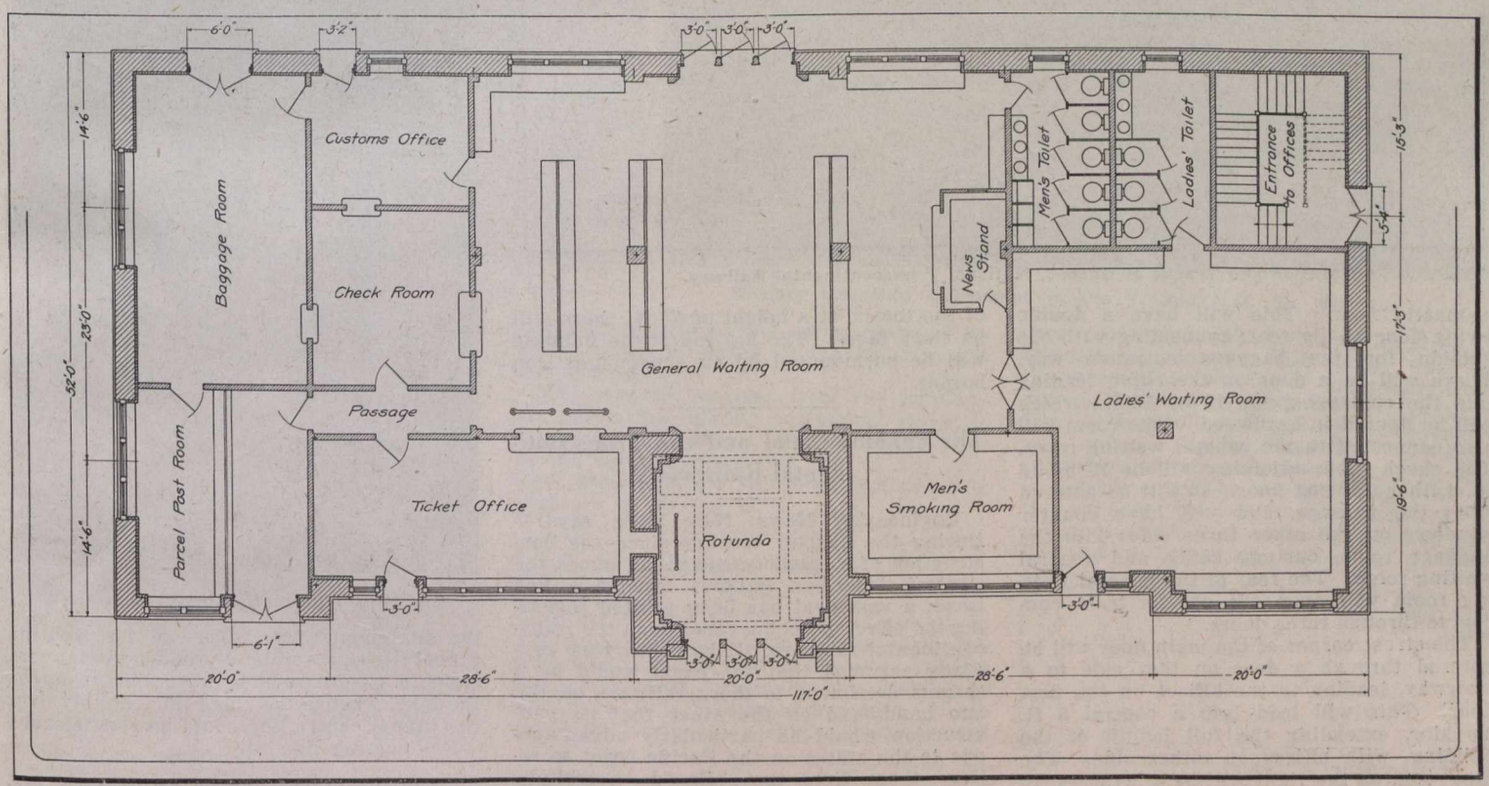
The station is being built on the Champlain Market site, on Champlain St., directly below the Dufferin Terrace, near the Levis ferry, and adjoining King's wharf, and will be reached by a line from the west, which skirts the shore below the cliffs from the Quebec bridge to the station site. It was originally intended to build the main station on this site, but it was subsequently decided to utilize the site for the station now being erected, which will be used for local traffic only, and the main freight and passenger terminal will be a joint one with the C. P. R. about the site of the latter's present Palais station.

From the small volume of traffic that it is anticipated will be handled locally through the Champlain Market station, it was not necessary to erect a large building. In consequence, it will measure only 52 by 117 ft., and will be parallel with the river, on the east side of the site, with the front facing the river. Immediately back of the station will be the concourse, with a 40 ft. platform at the rear end of the stub tracks, with four platforms 15½ ft. wide leading off from this back platform, each 250 ft. long. The station will have 7 tracks, 6 of which will come in alongside the platforms, those each side of a platform being at 26 ft. 8½ in. centres, with a central distance of 16 ft. between adjoining tracks between platforms. A power house will be located in the north west corner of the site.

The building will be a composite structure of concrete, stone and brick. At each of the corners, at a point midway in each end, at four intermediate points along the back wall, at two points in the front wall, and at the four corners of the rotunda tower, there will be concrete foundation piers, carried down to solid bearing ground. Each of these piers will be 4 ft. thick, varying in length from 6 to 9 ft. The concrete subwall will be 2 ft. 8 ins. thick, carried by these piers, the wall between the piers being spanned by three 18 in. I beams bedded in the concrete. The concrete wall is to be carried up to the ground level. The principal walls will be built from the top of the concrete foundations to a height of 4 ft. from the ground level, and will be 18 ins. thick. They will be of Beauport, or Chateau Richer, limestone, with headers, and the outer facing of this wall will be Riviere a Pierre granite. Above this line, the walls will be of brick, except for the outside face, which will be of Citadel shale brick. The brick will be entirely kiln run common. All of it will be laid in stretcher courses, with every fifth course a header course. The window sills and caps will be of Deschambault dressed stone. The porch or main entrance, comprising the columns, base blocks and cornice, will also be of Deschambault dressed stone. The inner columns will be false. Over the porch in the front of the building, there will be a chain suspended canopy projecting 8 ft., and 17 ft. wide. It will be of wired glass on a metal frame, with an ornamental iron edging.

The entrance rotunda, 16 ft. square, will lead directly into the general waiting room. Along the left side of the rotunda, there will be a ticket wicket from the ticket office. The general waiting room will be 33 by 50 ft., with a composition floor, and wainscotted to a height of 4 ft. It will contain three double benches, 18 ft. long. To the left of the entrance way in the general waiting room, there will be a double ticket wicket from the ticket office, while on the right hand side of the room, there will be a news stand, 6 by 11 ft., entered from the general waiting room. The men's smoking room, entered from the general waiting room, will adjoin the rotunda on the right, and will be 13 by 18 ft. It will have a wall seat extending clear around the room, and will also have a composition floor. The entrance to the women's waiting room will adjoin that of the men's smoking room, which will be approximately 30 ft. square, also with a composition floor, and with a wall seat extending around the room. Back of the women's waiting room, there will be two lavatories for men and women, respectively, each 9 by 16 ft., and tiled with a mosaic floor. The women's will be entered from the women's waiting room, and the men's from the general waiting room.

To the left of the rotunda, will be located the ticket office, 13 by 30 ft., floored in hard-



Ground Floor of Station at Quebec, National Transcontinental Railway.

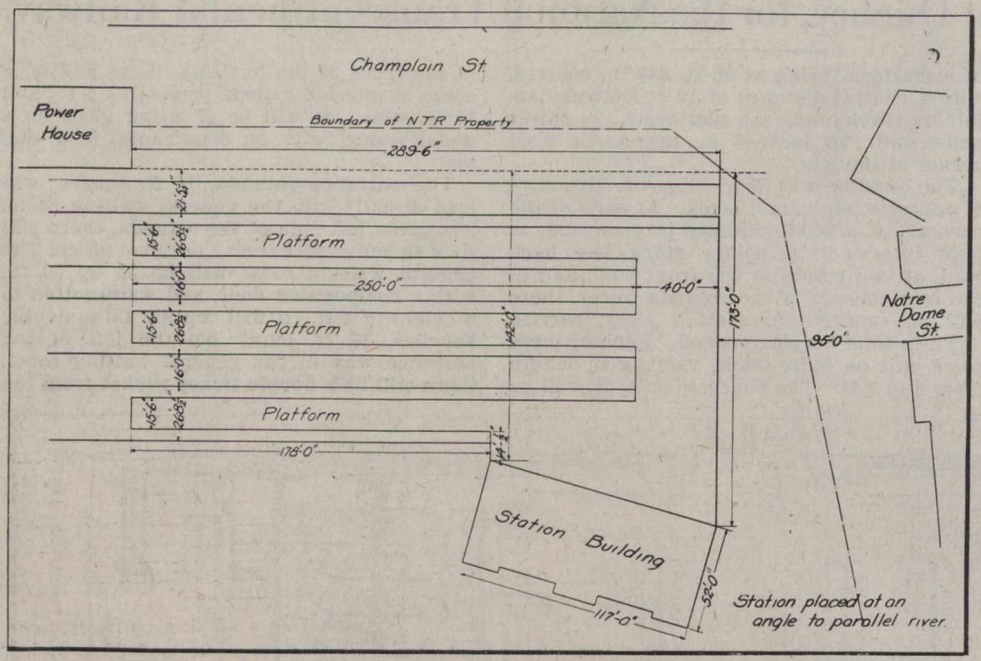
wood. There will be three ticket windows and two entrances, one from a passageway from the general waiting room, and the other from the front of the building. The passage from the general waiting room will be 4 ft. wide, leading to the parcel post office, which will be 16 by 20 ft. Back of this room, and connecting with it through a door, will be the baggage room, 20 by 29 ft., with a mastic floor. This will have a double swing door at the rear, connecting with the outside for the baggage entrance way. There will be a door on the right, leading into the customs room, 12 by 15 ft., which will be floored in hardwood. This room will also connect with the general waiting room. The check room adjoining will be 15 by 16 ft., with hardwood floor. It will be entered from the passage, and will have counter windows on the other three sides into the baggage room, customs office and general waiting room. The rear of the general waiting room will open out on the train concourse through three doors.

The street corner of the main floor will be entered through a door on that side to a stairway, leading to the offices on the first floor. This will lead into a central 8 ft. corridor, extending the full length of the building, with offices on either side. The first room on the right will be a lavatory, 11 by 19 ft., tiled in mosaic. Next in order will be an office, 17 by 19 ft. The next room, in the centre of the rear of the building, will be the train dispatcher's office, 19 by 29½ ft., with a counter extending around the doorway, and an operator's desk along a 10 ft. window at the rear. The remainder of that side of the corridor will be divided off into three offices, two 12 by 19 ft. each, and the third, 17 by 19 ft.

Opposite the stairway on the front side of the building there will be a conductors' and trainmen's room, 17 by 21 ft., followed by two offices, 15 by 19 ft. and 14 by 19 ft. respectively. Under the tower there will also be an office, 15½ by 16 ft., the balance of that side containing three more offices, 14 by 19 ft., 15 by 19 ft., and 17 by 21 ft., respectively.

The second, or top, storey will form one large room, the corner stairway leading directly into it. On account of the sloping sides to the roof, it will be 40 by 105 ft., slightly smaller than the other floor areas, with three windows on the rear, and six on the front sides. There will be a room under the tower, with a stairway leading up into the tower from it. The height of rooms on the three floors will vary, the ground floor rooms being 15 ft., first floor, 12 ft., and the second floor, 9 ft.

The tower will have a total height of 68 ft., surmounted by a flagpole. On the four sides of the tower, at a height of 57 ft., there will be clock faces. The flat top of the building will be surmounted by an ornamental iron border.



Station and Tracks at Quebec, National Transcontinental Railway.

The Panama Canal and the Transcontinental Railways.

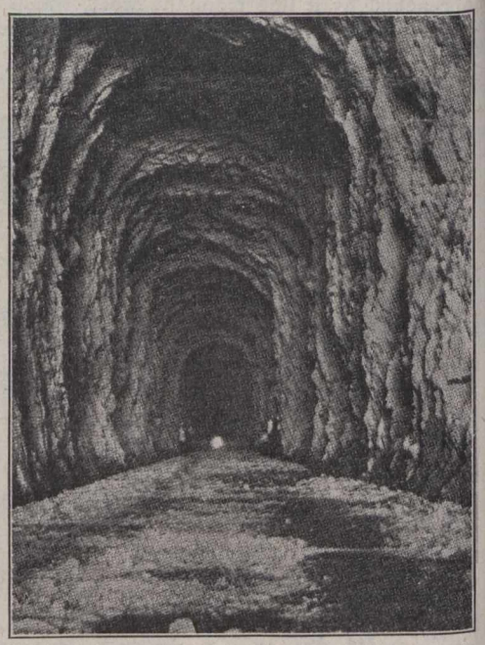
Engineering News, New York, says:—During the quarter century since the construction of a transoceanic canal across the Central American Isthmus became a live issue, a vast deal has been printed regarding the effect of such a canal upon the transcontinental railways. It has been very generally assumed that the canal would be a serious detriment to these railways on the one hand, and on the other that its construction would be particularly advantageous to the states on the Pacific coast to relieve them from the alleged exorbitant freight charges of the railways from the east. In recent years, however, a saner view has gradually gained ground, and it has come to be realized by those closest to the problem that the amount of railway traffic which the canal will affect and which will be diverted to the canal will be, after all, comparatively small. Further, it is seen that the stimulating effect upon certain lines of traffic and business resulting from the canal will have in all probability some compensating benefits for the railways.

Some attention is given to this matter in the annual report of the Northern Pacific Rd. Co., issued recently, which says:—"The bulk of the traffic moving into and out of the ports on either ocean starts from or is destined for the country's great interior. The main lines of the Northern Pacific at the head of Lake Superior to Puget Sound are more than 1,900 miles in length, but the average haul of a ton of freight on the company's railways last year was only 275 miles."

These figures indicate how comparatively small is the percentage of the freight traffic which moves from coast to coast. A considerable part of this traffic also will be carried by the railways notwithstanding the existence of the canal route. For certain high class merchandise it will be cheaper to pay a somewhat higher freight rate and have the shipment go through by rail in a week or less, rather than incur the delay of nearly a month required for the voyage from a north Pacific port to a north Atlantic port through the Panama Canal.

A Small Sighting Tunnel on the Canadian Northern Pacific Ry.

The tunnel interior shown in the accompanying view is that of tunnel 14, 2837 ft. long, under Battle Bluff on Kamloops Lake, on the C. N. P. R. in British Columbia. Near the far portal the centre line is curved for 300 ft., and the daylight seen in the centre of the bore comes through a 4 by 4 ft. sighting tunnel 300 ft. long, driven to check up the alignment. By the use of the sighting tunnel it was possible to produce the tangent sight to a point several miles distant across the lake, whence the ridge immediately over the tunnel centre line could be seen clearly. —Engineering Record.



Sighting Tunnel to Check Alignment.

Valuable Information on an Accident Report Blank.—On the Baltimore & Ohio Rd., when an accident occurs to an employe, the foreman under whom the employe is working must fill out and send in to headquarters an accident report blank. The Chicago Tribune says that while a gang of carpenters were at work on a bridge over the Chicago River, one of them missed his footing and fell in. The foreman filled out the accident blank and opposite the question "What does the injured person say?" he wrote, "He says it was a damn good thing he could swim."

Australia imported locomotives in 1912 to the value of £468,572, and in 1913 to the value of £425,395. Of those imported in 1913 the United Kingdom supplied £409,434 worth, and the United States £1,951. The chief states importing locomotives were New South Wales, Western Australia and Queensland, in which the requirements of the state systems could not be filled by the established railway work shops and some manufacturing companies.

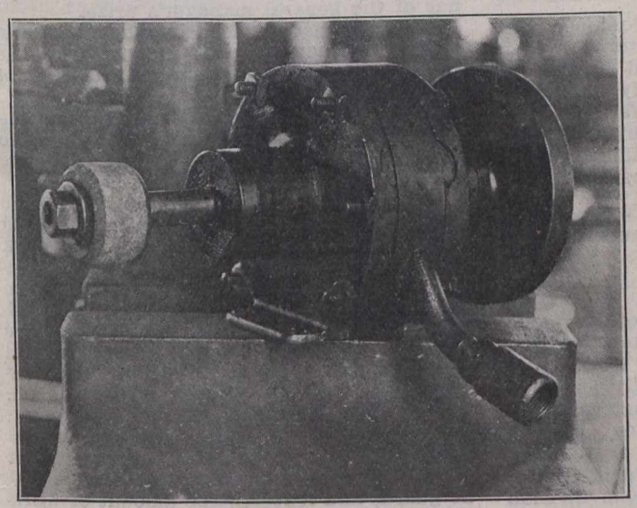
Methods and Devices in the Timiskaming and Northern Ontario Railway Shops.

A Small Air Motor.

The oft repeated statement that necessity is the mother of invention is exemplified in a small air motor used in the T. and N.O.R. shops, and which is shown herewith. Occasion arose some time ago to grind out the bore of a damaged air hammer, and as there was no spindle grinding machine in the shop, it became necessary to construct some sort of apparatus that would fulfill requirements. The result was the production of this little motor by E. McGahey, who is employed in the locomotive machine shop.

The end, or bearing members, of the motor, are old heads removed from the ends of disinfectant receptacles in passenger car lavatories, which had been scrapped. From their very nature they proved most serviceable, as they had side flanges, which serve as a base on which to set the motor. Between these two head members, which are about 6 ins. diam., there is secured a ring, about 1 in. thick, by means of bolts passing through both heads and the ring, from side to side as shown. The rotor consists of a set of 12 thin galvanized iron blades set in the central spindle. This spindle extends through the heads, and on one end there is a light flywheel, and on the other the emery grinder. Air enters through a ¼ in. pipe, and exhausts through a small slit on the opposite side. It is the intention to modify the construction so as to make the size of the exhaust variable as required.

The motor can be bolted on the carriage of a lathe, and with the member to be ground in the chuck, excellent results can be accomplished. A wide range of uses has been found for this motor.



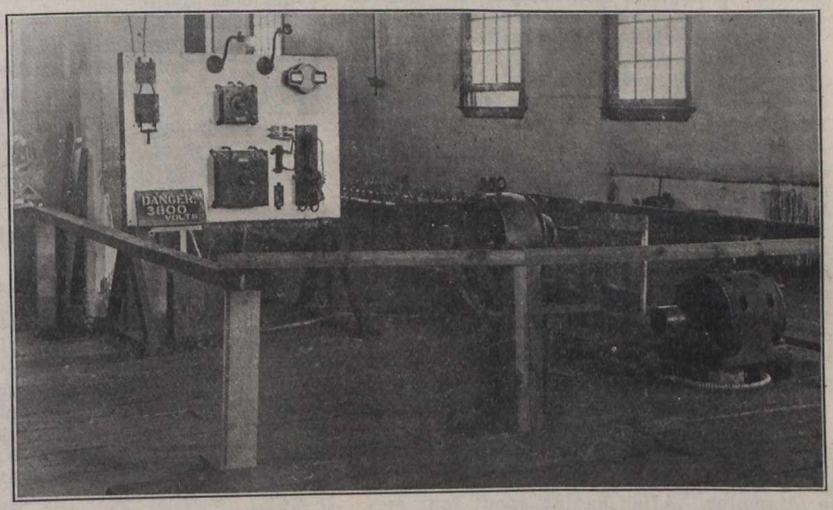
Small Grinder Air Motor, made from Scrap Parts.

A Battery Charging Installation.

On some of the more recently acquired equipment of the T. and N.O.R., especially the steel passenger cars received last year, electric lighting is used. To handle the battery charging on these cars, special provision was made at the North Bay shops to take care of this phase of car work, by equipping a charging station in one end of the locomotive house, between a pair of the tracks. The accompanying illustration shows the power apparatus, and the battery charging stand in the background.

Power is received from outside sources at high potential, and is stepped down before bringing it to the switchboard shown, which is equipped with all the necessary apparatus for handling the motor and generator, and battery charging. The motor is a 5 h.p., 60 cycle, 104-208 volt, 48-24 amp., 1,750 r.p.m. single phase machine, belt connected to a 7.5 k.w. 125 volt, 60 amp., 1,000 r.p.m. direct current generator, which supplies the storage batteries. The supply to the batteries is controlled through the switchboard, and a long cable connects up the batteries in series on the stand in the background.

The cars, as received from the builders, are minus the lighting equipment, which is installed in the shops. The set of batteries in the background is for one of the new steel cars, and has just been charged preparatory to placing in the cars.

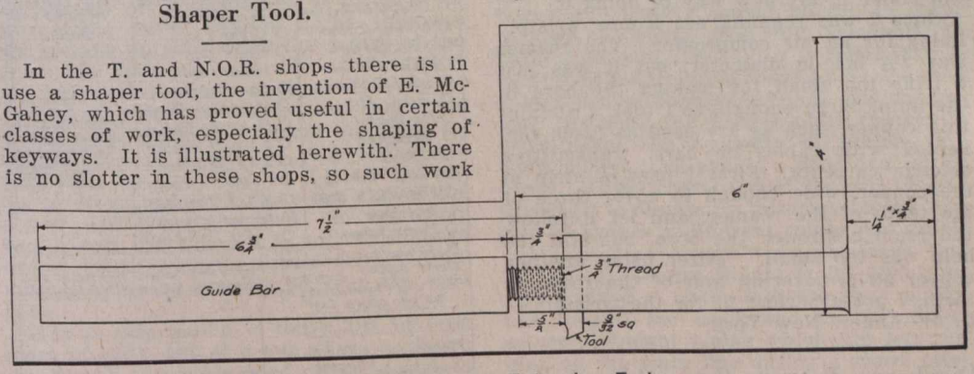


Battery Charging Equipment in the T. and N.O. Ry. Shops.

Shaper Tool.

In the T. and N.O.R. shops there is in use a shaper tool, the invention of E. McGahey, which has proved useful in certain classes of work, especially the shaping of keyways. It is illustrated herewith. There is no slotter in these shops, so such work as the slotting of keyways, which is usually done on that machine, must be done otherwise.

The tool, as will be noticed, is similar in most particulars to the ordinary screw clamp tool used for a variety of purposes, the essential difference being that instead of a set screw being used in the end of the bar to clamp the tool, there is an extension rod, of the same diameter as the bar, with a threaded end, which fits into the set screw hole, clamping the tool in this manner. The advantage of this arrangement is that it serves as a handle for lifting the tool out of the cut on the return stroke, and also acts as a guide for the operator.



Shaper Tool with Extension End.

A Flange Lubricator.

On a railway line that has a great many curves, such as the T. and N.O.R., which traverses a very rough and hilly country, where the locating engineers, in order to secure economical gradients, were forced to follow a circuitous route, the flange wear due to the rounding of so many curves, is very great. The amount of tangent is comparatively small on this line, which follows circuitous valleys and along the edges and winding shores of rocky lakes, making the number and degree of curves high as compared to lines more favorably situated in agricultural country. The flange wear on the locomotives became so great that steps had to be taken to minimize it if possible. The method followed has not only materially reduced it, but has the additional advantage of removing most of the oil that is carried out from the air compressor in the exhaust, this oil formerly having an injurious effect in coating the exhaust cavity and corroding the exhaust tip. The flange lubricant is this otherwise injurious oil, which, by the means adopted, is put to a useful purpose.

A Westinghouse dust collector, with 1¼ in. pipe connection, is placed in the exhaust pipe line from the air compressor to the exhaust, and is attached between the frames on the cross brace just back of the crosshead guides. The exhaust enters through the top, and from the forward side it passes out and thence through the former course to the exhaust cavity, but the passage through the dust collector, changing the direction of flow of the exhaust, causes the heavy oil in the exhaust to be

precipitated to the bottom of the dust collector. From this bottom there is a ¼ in. pipe connection, leading to a T, with a branch pipe leading to each side of the locomotive.

The bottom cap of the dust collector has four 1-32 holes drilled in it, through which the oil escapes through the T connection to the flanges, with just enough steam passing through the holes to carry the oil to where it is needed. The ends of the pipes leading to the outside of the locomotive are bent around, so that the tip is radial to the flange corner, the tip being about ½ in. back from the corner.

We are informed by W. Black, General Foreman, by whom these flange lubricators have been applied, that the results obtained have been excellent, and that even in the very severe winter weather to which this line, situated far north and in a comparatively high altitude, is subjected, no trouble has been experienced from the apparatus freezing, enough steam passing through to keep the parts free. Nearly all the road locomotives have been equipped, but it has only been found necessary to pipe them to lubricate the flanges of the front driving wheels, as it is only there that excessive flange wea rhas been experienced. The flange wear has been materially minimized, as no trouble has been experienced with the oil running on the tread of the tire reducing the adhesion.

Interesting Shop Kinks.

Among my jobs as machinist once was one of repairing a leaky boiler, in which there were about 700 copper flues of ½ in. diameter. After having spent four successless hours in order to get out one of the flues that had to be replaced with a new one, I got the idea of threading one end of the flue with a tap, large enough to make sufficient hold for a bolt or screw, but not so large as to cut through the copper flue. When I had the bolt or screw in the one end of the flue, I unloosened the other end of the flue, put a steel rod through the flue, hit the rod with a hammer, and it took only about a minute to get each of the other faulty flues out of the boiler in my new way of doing it.

Once I was reaming out a new wristpin lining for an air compressor. The reamer was 2½ ins. in diameter, but it was just a trifle too small for making the bore in the lining large enough, so I took a strip of thin copper, such as are used as fuses connected with cables or bars, transmitting electric currents. First I used a strip of the copper, wide enough to cover three of the teeth of the reamer, and let it follow the reamer through the bore, but still the hole was too small. After using another copper strip, covering four of the reamer's teeth, I got a perfect fit for the wristpin.—G. H. Ander, New York.

Diaphragm Between Cab and Tender on Intercolonial Locomotives.

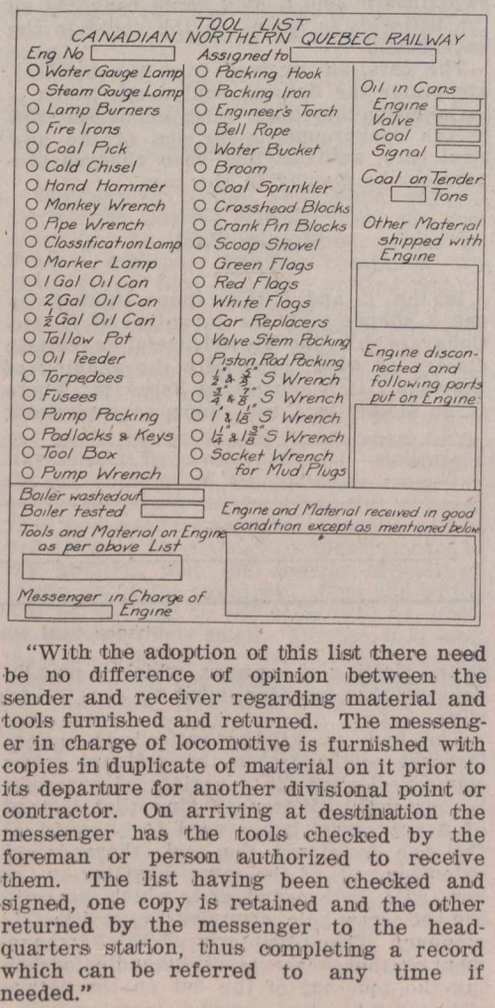
The Intercolonial Ry. is equipping part of its passenger motive power with a diaphragm between the cab and tender, to protect the enginemen more thoroughly against inclement weather. The arrangement is identical with that in use on some of the C. P. R. locomotives, which was described in detail in Canadian Railway and Marine World for June, 1912.

The rear wall of the cab has a large square opening, around the contour of which there is a diaphragm ring as between vestibuled passenger cars. A corresponding diaphragm ring on the tender is held in contact with the former by means of four spring plungers in the forward end of the tender. The tender diaphragm has hinged to it another bearing plate, at right angles thereto, which bears against a passage wall from the cab, the hinged plates being kept apart by four intermediate coiled springs on each side. This hinged arrangement permits of free movement of the locomotive with regard to the tender, as in passing around curves, the pressure of the connecting plates being always maintained by the springs, so that the cab is at all times closed to the weather in a more effective manner than by the usual canvas curtain method. Coal passes into the cab floor through the usual coal doors.

The sides of the cab are equipped with doors, and entrance is made through them by way of a ladder embodied in the cab structure, and which is slightly forward of its usual position, and of a different design. We are indebted to G. R. Joughins, Superintendent of Rolling Stock, Canadian Government Railways, for this information.

Tool List on Canadian Northern Quebec Railway.

T. C. Hudson, Division Master Mechanic, C. N. Q. R., Joliette, Que., writes Canadian Railway and Marine World:—"I note your interesting publication frequently publishes methods used to facilitate mechanical work. I am, therefore, sending you a tool list which is used on the C. N. Q. R. lines, which has been found very convenient when transferring locomotives from one division to another, also when locomotives are allotted to contractors.


TOOL LIST
CANADIAN NORTHERN QUEBEC RAILWAY

Eng No ____ Assigned to ____

- ○ Water Gauge Lamp
- ○ Steam Gauge Lamp
- ○ Lamp Burners
- ○ Fire Irons
- ○ Coal Pick
- ○ Cold Chisel
- ○ Hand Hammer
- ○ Monkey Wrench
- ○ Pipe Wrench
- ○ Classification Lamp
- ○ Marker Lamp
- ○ 1 Gal Oil Can
- ○ 2 Gal Oil Can
- ○ ½ Gal Oil Can
- ○ Tallow Pot
- ○ Oil Feeder
- ○ Torpedoes
- ○ Fusees
- ○ Pump Packing
- ○ Padlocks & Keys
- ○ Tool Box
- ○ Pump Wrench

- ○ Packing Hook
- ○ Packing Iron
- ○ Engineer's Torch
- ○ Bell Rope
- ○ Water Bucket
- ○ Broom
- ○ Coal Sprinkler
- ○ Crosshead Blocks
- ○ Crank Pin Blocks
- ○ Scoop Shovel
- ○ Green Flags
- ○ Red Flags
- ○ White Flags
- ○ Car Replacers
- ○ Valve Stem Packing
- ○ Piston Rod Packing
- ○ ½ & ⅝" S Wrench
- ○ ¾ & ⅞" S Wrench
- ○ 1" & 1⅛" S Wrench
- ○ 1¼ & 1⅜" S Wrench
- ○ Socket Wrench for Mud Plugs

Oil in Cans: Engine ____ Valve ____ Coal ____ Signal ____

Coal on Tender ____ Tons

Other Material shipped with Engine

Engine disconnected and following parts put on Engine

Boiler washed out ____ Boiler tested ____

Tools and Material on Engine as per above List

Engine and Material received in good condition except as mentioned below

Messenger in Charge of Engine ____

"With the adoption of this list there need be no difference of opinion between the sender and receiver regarding material and tools furnished and returned. The messenger in charge of locomotive is furnished with copies in duplicate of material on it prior to its departure for another divisional point or contractor. On arriving at destination the messenger has the tools checked by the foreman or person authorized to receive them. The list having been checked and signed, one copy is retained and the other returned by the messenger to the headquarters station, thus completing a record which can be referred to any time if needed."

Track Section Prize Competition on Eastern Lines, Canadian Pacific Ry.

For the past two years an annual track section prize competition has been carried out on the eastern lines, C.P.R., which has aroused a healthy spirit of rivalry and keen competition among the officers and section force of the different divisions and districts. Sixty-two prizes are awarded in the competition, as follows:

A general manager's prize to the foreman having done the best season's work on eastern lines.

Four general superintendent's prizes, to the foreman on each division who has done the best season's work, exclusive of the winner of the general manager's prize.

Fourteen district superintendent's prizes, to the foreman on each district who has done the best season's work, exclusive of winners of higher prizes.

Forty-three roadmaster's prizes, to the foreman on each roadmaster's territory who has done the best season's work, exclusive of winners of higher prizes.

Under this system no man can win more than one prize, and all foremen have an equal chance, as the quality of the work done throughout the season is the deciding factor, and not the actual physical condition of the section at the end of the season. The basis on which the sections are judged is entirely eniciency and careful consideration is given throughout the season to the condition of, and work done on, ditches, gauge, spiking, line, surface, bolts, rail wear, so far as it can be controlled by the section forces, switches, sidings, right of way and station grounds, track signs, cattle guards and fences. The amount of work done and the hours of labor put in, both by regular force and extra gang, are also carefully considered, and the foreman accomplishing the best work with the least amount of labor—the physical condition of the section, as to grades, alignment, drainage, and character of roadbed being taken into consideration—wins the first prize.

The number of hours of regular labor and the number of hours of extra labor on the section are figured against the number of ties renewed, tie plates installed or changed, rails changed over on curves and ditching done. The amount of track handled, right of way, spikes and bolts is fairly uniform on all sections, so that the condition with respect to these items at the end of the season is usually a criterion of the amount and quality of the work done thereon throughout the season. Where special conditions affect such work they are taken into consideration. Track gauge testing machines are run over each roadmaster's territory periodically during the season and records are kept of the condition of gauge found.

Towards the end of the season each roadmaster, after careful consideration of each section, as above outlined, reports to his superintendent the prize winner on his territory. The superintendent and resident engineer then carefully inspect each roadmaster's prize section, and decide on the winner of the superintendent's prize, reporting same to the general superintendent, who, together with the division engineer, decides which superintendent's prize section is entitled to the general superintendent's prize. Finally the best section on each division is inspected in detail by the General Manager and the Engineer of Maintenance of Way, together with division officers, gauge and surface are checked throughout, bolts, spikes, and every detail of track maintenance examined, and on these observations, taking into account physical, labor and other conditions, the General Manager's prize is awarded.

The Handling of Snow and Care of Track in Winter.

Canadian Railway and Marine World for December contained two papers on this subject, written in competition for the prize offered by the Canadian Northern Ry. management to roadmasters on its lines east of Port Arthur, viz., the paper by R. J. Munroe, Roadmaster at Joliette, Que., to which the prize was awarded, and a paper by W. M. Jocklin, Track Inspector, Port Arthur, which was highly commended by the judges. Through the courtesy of L. C. Fritch, Assistant to President, C. N. R., we are enabled to publish in this issue four other papers which were submitted in the competition, as follows:—

By H. B. Cassidy, Roadmaster, Quebec.

Cleaning tracks of ice and snow around frogs, switches and interlockers is very important, and should be handled promptly, as accumulation of snow in such places forms ice and strains the connecting parts around switches and guard rails. Prompt attention is required during stormy weather by men in charge to see that they are kept clear of snow and ice, and it is the duty of every roadmaster to impress upon foremen the necessity of attending to this work promptly. Where foremen allow carelessness to creep in, it is quickly noticed, switch points become strained and will not close properly, guard rails will turn out of their place and in such cases the track spreads, causing derailments. The only secret to this work is prompt attention and to have the work well done. The same applies to interlocking plants, otherwise the adjustment will be affected, very often doing away with the use of signals at a very particular time, necessitating the use of hand signals in stormy weather.

Leaky locomotives, particularly yard ones, are the worst enemy trackmen have, especially in this part of the country where there is so much snow and cold weather. Every effort should be made on the part of the mechanical department to avoid this, as it often necessitates extra men to keep tracks clear, thus increasing the maintenance of way department's pay roll. If the money expended in this way was applied to the leaky locomotives good results would be obtained.

Patrolling the Track.—Track should be patrolled by competent men every day. In the event of a foreman not being able to go over his section every day, it should be patrolled by a competent man, capable of knowing by the look of the track whether it is spreading or not during the winter.

The interested trackman endeavors to educate himself, and it has always been my policy to endeavor to educate every man to know the look of track and what causes it to spread, such as being out of line and surface, and what action the trains are liable to have on such track. Owing to our climate track often becomes very rough in the course of 24 hours; in this case the competent, interested man will be able to see at a glance what is liable to happen and report it to his foreman, who will make every effort, even if other work should suffer, in order to get out and have the track shimmed and put back to proper shape again.

Shimming Track.—Every foreman should be carefully instructed in this work, shimming first the rail which is lowest, which is very often the case where track heaves badly, bringing it to surface, shimming joints, centres, and quarter, and having shim spiked to proper line by going back a short distance from the work to see that the line is maintained when the rails are being spiked, every second tie shimmed and spiked and the other side brought to surface, shimmed in the same way, in all cases using the gauge. The work of fininshing the shimming can then be completed quickly. Shims should never be driven in by force but fitted so as to avoid raising or humping the rail. In bad curves or cuts, work of this nature should not be done without first being well protected.

A foreman should never undertake to shim a bad place that he cannot finish before the approach of a regular time card train. Good judgment must be used on his part and on the other hand he must not be so much afraid as to think that he cannot get through with a certain piece of work in the way of shimming before the arrival of a train.

Spikes must be put through all shims over ¼ in. and track well braced. Shimming 3 ins. and up should have a long shim every third tie, all the way underneath both rails, and every second tie as the shim gets greater. In doing heavy shimming such as this, the foreman must keep himself well protected by the use of proper signals.

Snow ploughs and flangers should be properly equipped and in readiness for the first storm of the season, and should always have a clawbar, spiking hammer, track gauge, two track wrenches, some track spikes and bolts ready in the event of a derailment. A competent foreman should be in readiness and should have the privileges of going over the road a few times before it is necessary to run the plough, in order to be acquainted with the different changes along the line, such as sidings which have been put in and other changes made during the summer. Ploughs should only be run when really necessary, as it is known that there is no revenue from running them when they are not necessary, in this case good judgment must be used, as in many cases ploughs and flangers are not put over the road at the proper time. For example there may not be much of a storm and trains may get through with probably very slight delay. If the storm ends at that, the line should be cleaned out immediately, as locomotives team much better hauling trains, they are not picking up snow from the centre of the track nor bothered with side drifts, and it also gives section men an opportunity to get over their sections and see the conditions of their track and to perform the work required. If it is possible to keep trains running until the storm is over it is always better to do so and then make one run of the plough and clean the road. In extremely bad storms and where it is not advisable to cancel trains, ploughs should be kept running as often as possible to keep the road open.

It is an easy matter to throw 2 ft. or even more of snow out of a cut where a plough can be run at a fairly good rate of speed, in order to throw the snow far enough from the track, but if 2 ft. or more of snow gets into cuts and is allowed to remain there during a storm, it does not take long to fill the cut level, so that the running of ploughs frequently is necessary where cuts are bad and storms heavy. Great care should be taken when ploughs stall in the snow, to see that after being pulled out of the snow bank that there is no ice on the flange along the rails, and that the face of the snow bank where the plough backed out is broken with shovels, so as to avoid breaking the front of the plough or causing derailment from the ice in the flange when taking the second run into the bank.

By E. Meyers, Roadmaster, Toronto.

Drainage is an important matter in connection with maintenance of track. The track should be well drained at all seasons. All cuts and ditches should be well cleaned out in the autumn before the wet season sets in, and ditches well opened at the mouth of cuts, so that water may get away freely. Culverts should also be well cleaned out in the autumn, and during the early part of the spring, ice and snow should be removed from culverts and mouths of ditches before the snow melts in the spring, so that the water can be freely drained off from the right of way.

Snow fences for cut protection should be erected 25 or 30 ft. outside of the right of way fence, according to the condition of the cutting. For instance, if it is a deep cut it will occupy a larger part of the right of way, whereas a small cut will not be nearly the width and not so open as a larger cut; therefore one has to use judgment as to the distance for setting up snow fence. All snow fencing should be erected before the frost sets deeply in the ground, and two stakes should be driven in, one at each end of fence panel, and the leg of snow fence nailed to the stake with one nail at each end, so as to prevent fencing being blown down by wind and broken. When taking down snow fencing in the spring it should be piled in small piles and on two old ties in a level spot, so as to not to warp the snow panels. The piles should be 200 ft. or more apart, as a protection in case of one pile taking fire.

Handling of Snow Ploughs and Flangers.—It is not advisable to have the same man assigned to operate both snow plough and flanger, as in the event of a heavy storm coming up while the flanger is out on the line with the snow plough man in charge, there might not be an experienced man available to take charge of the plough. Another reason is that a cheaper man can be obtained to run the flanger; for instance a section laborer should be taught to perform this work at laborer's rate which is much lower rate than that paid to a man competent to run a snow plough. The flanger should be run over the line often, as it is very cheaply handled and a great benefit to the track. Even if the flange is not very heavy, the flanger should be run in order to keep the flange free from accumulating hard snow and ice. With a bad flange it is difficult for trains to operate over the road with a heavy tonnage and it is also dangerous. Running the flanger quite frequently often saves the necessity of running the snow plough, and avoids a good deal of expense. Dispatchers should be kept posted in regard to storms by trainmen on the line, also by agents at different points, and should order out snow plough when necessary. During a heavy storm freight trains should be side tracked at once, until the snow plough has cleared the track and the storm has ceased. Freight trains which are left running on the main line during a storm often tie up the road for a long time, whereas if freight trains are side tracked and snow plough is kept running immediately ahead of passenger trains, the passenger service can be kept moving with little or no detention. For each division there should be two snow ploughs. From the Ottawa Division there should be a snow plough at Rosedale and one at Trenton, also one at Ottawa, and one at Trenton, for. Ottawa Division. One flanger at Trenton and one at Ottawa is quite sufficient.

Shimming is also an important feature of track maintenance. A track poorly shimmed is dangerous, and is often the cause of rails breaking and track spreading. Shim-

ming should only be done where positively necessary. In many cases section foremen will shim along a sag perhaps 100 ft. or more whereas 25 to 30 ft. would answer the purpose and would make just as good riding track as though the whole sag had been taken out and the rails set up on high shims, which, as previously stated, is dangerous. A section foreman should always use a level board when shimming, the same as when surfacing, and should be very careful about spiking the track to line and gauge. All shims should be bored and spiked through the shim holes. Where spikes have been pulled, ties should be plugged, and long spikes used on outside of rail, and also on every other tie on inside of rail where shimming is done. The balance of the ties should be spiked with 6 in. spikes inside. Each shim that is placed under the rail should have an equal bearing. At each end of where shimming is done very thin shims should be used; shingles may be found very useful for this. The track should be well braced where high shimming is done, with a shim 2 ins. thick and both edges of the end of shim bevelled off so as to fit under the ball of the rail, with three spikes in the shim on the end of the tie and one through the hole of the shim and the other two at the end of the shim. This should be done on every three or four ties, according to the height of the shimming. Where shimming is done on the track, particular attention should be given to it, when sectionmen are going over the section each day, to see that the track is staying in good condition and that shims are all in place and not split. Care should be taken to see that the track is not heaved any more at a point where shimming is done, not by merely looking at it, but by testing it with the level board.

Switches and interlocking plants require a great deal of attention. In case of a heavy storm there should be a man stationed at the plant. All switches should be kept free from snow and ice and should be examined by the foreman the first thing in the morning when coming on duty, and the switches should be tested by throwing them to and fro to see that they are in good working order. During a heavy storm a man should also be kept on duty in the yard over night. The very best grade of oil should be used for switch lights.

All Spikes over the entire section should be tapped down tight to the rails in the autumn, so as to keep the rails firm in place; spikes should be tapped down carefully so as not to break off the heads. All bolts in track should be well tightened before frost sets in. Tightening bolts in frosty weather tends to break them. Track walking should not be allowed in winter except when impossible to run a hand car, so that the men may have the proper material and tools to work with. When it is necessary for a man to walk track, he should be an experienced man, and should start walking the first thing when he comes on duty in the morning.

By O. Ogden, Supervisor of Track, Ottawa.

After ties are all in and track surfaced, the foreman should start to get ready for winter, and the first and most important thing is to keep the water away from the track. All ditches and water courses must be properly cleaned out, then the ballast trimmed, and trimming ballast has a lot to do with the heaving by frost or making rough track. It should be trimmed very even, as heaps in the ballast will make humps in the track, especially, where the track is through cuttings or wet places. The centres of track must be kept well filled so that water will not lie on the track, and switches and frogs must be trimmed so snow can be got away easily. All low places must be tamped up to surface, leaving the track in good surface when frost comes; bolts kept tight, and spikes driven down, and the inside spikes put down first to avoid as much as possible the canting out of the rail.

A thing all trackmen find hard to do is to keep the rail up to proper level, especially on curves. Track must be kept in good gauge and line and shimmed up to good surface, as very little in the surface makes a track ride rough when it is frozen hard; all ice and snow to be kept cleaned away from frogs and switches, and when frost comes, and before heaving or snow comes, the foreman should get snow plough and flanger markers up in the proper places.

All crossing plank should be removed that can be, cut all brush, have all rubbish piled up, and in the spring have it and all grass burned, all fences repaired, station yards cleaned and raked up, making the right of way have a neat and clean appearance.

By D. Macdonald, Supervisor of Track, Trenton, Ont.

To ensure a good winter track, all surfacing, lining, and spiking to gauge should be done not later than Nov. 15. The bolts and joints should be gone over and tightened and made secure.

Where rails creep, they should be bunted back, so as to avoid joints breaking away in extreme cold weather.

Points of switches should have the ballast lowered so that the gravel would not heave and interfere with the working of the switch.

Ditches, drains, and culverts should be cleaned and opened out before it freezes up.

In cuts where there are stones or rock projecting out, these should be tried, and if loose should be taken out, if not they should be carefully watched as the frost goes out in the spring.

Snow gates should be placed before it freezes up, and set in the ground so the frost will help hold them to their place.

As soon as the first snow comes all switches and sidings should be shoveled out and snow cleared back, to prepare for another storm.

Before snow gets too deep, the snow plough and flanger should be run and track opened out, cuts and snow banks to be widened by shovelling.

Track surface should be kept level by shimming, as soon as track begins to heave with frost. Where shimming has been done on curves, it should be braced.

As winter advances, snow ditches and culverts should be opened, to prepare for thaw. As frost is going out care should be taken to keep the surface level, by lowering the shims, and shimming should be done where frost is going out unevenly.

Birthdays of Transportation Men in January.

Many happy returns of the day to:—

J. Abrams, Wharf Freight Agent, C. P. R., Vancouver, B. C., born at Manchester, Eng., Jan. 24, 1870.

W. U. Appleton, General Master Mechanic, Intercolonial Ry., Moncton, N.B., born there, Jan. 29, 1878.

R. Armstrong, Superintendent, District 4, Manitoba Division, C. P. R., Souris, born at Kingston, Ont., Jan. 27, 1865.

F. X. Belanger, General Freight and Passenger Agent, Temiscouata Ry., Riviere du Loup, Que., born at Chlorydormes, Que., Jan. 20, 1876.

R. H. Bell, General Agent, Canadian Northern Ry., Chicago, Ill., born at Toronto, Jan. 13, 1865.

E. Bower, Travelling Passenger Agent, Canadian Northern Ry., Saskatoon, Sask., born at Nottingham, Eng., Jan. 17, 1889.

G. McL. Brown, European Manager, C.P.R., London, Eng., born at Hamilton, Ont., Jan. 20, 1866.

R. F. Chapman, Chief Dispatcher, District 1, Saskatchewan Division, C. P. R., Regina, born at Coal Branch, N.B., Jan. 21, 1874.

W. A. Cowan, Resident Engineer, Canadian Government Railways, Truro, N.S., born at Galt, Ont., Jan. 22, 1877.

J. E. Dalrymple, Vice President, G.T.R., G.T.P.R., and Central Vermont Ry., Montreal, born there, Jan. 1, 1869.

A. Davidson, General Agent, G. T. Pacific Ry., Prince Rupert, B.C., born at St. Henri, Montreal, Jan. 29, 1885.

J. E. Everell, Superintendent, Montmorency Division, Quebec Ry., Light and Power Co., Quebec, born at Cap Rouge, Que., Jan. 1, 1863.

Sir Sandford Fleming, K.C.M.G., director, C.P.R., born at Kirkcaldy, Scotland, Jan. 7, 1827.

J. Gordon, Foreman Electrical Engineer, Car Department, Grand Trunk Pacific Ry., Transcona, Man., born at Forres, Scotland, Jan. 1884.

Gordon Grant, Chief Engineer, National Transcontinental Ry., Ottawa, born at Dufftown, Scotland, Jan. 2, 1861.

G. F. Hichborn, formerly Agent, Great Eastern Fast Freight Line, New York, born at Boston, Mass., Jan. 13, 1875.

Carl Howe, Manager, New York Central Fast Freight Lines, Chicago, Ill., born at Berrien Springs, Mich., Jan. 11, 1870.

W. C. Hunter, ex-Manager, New Brunswick Coal and Ry. Co., Moncton, N.B., born at St. John, N.B., Jan. 4, 1865.

H. G. Kelley, Vice President, G. T. R., Montreal, born at Philadelphia, Pa., Jan. 12, 1858.

James Kent, Manager, C.P.R. Telegraphs, Montreal, born Jan. 15, 1854.

A. J. McGee, Secretary-Treasurer, Timiskaming and Northern Ontario Ry., Toronto, born at Lachine, Que., Jan. 24, 1876.

G. C. Martin, General Freight and Passenger Agent, Toronto, Hamilton and Buffalo Ry., Hamilton, Ont., born at Creemore, Ont., Jan. 2, 1866.

J. J. Nelligan, Division Freight Agent, Canada Steamship Lines, Ltd., Montreal, born at Hamilton, Ont., Jan. 20, 1876.

G. Pepall, Assistant Division Freight Agent, G.T.R., and Agent, National Despatch-Great Eastern Line, Toronto, born at High Wycombe, Bucks, Eng., Jan. 15, 1849.

W. Phillips, European Railway and Steamship Manager, Canadian Northern Ry., London, Eng., born at Toronto, Jan. 31, 1870.

W. Pratt, Superintendent, Sleeping and Dining Cars and Hotels, Canadian Northern Ry., Winnipeg, born at Sibbertoft, Northamptonshire, Eng., Jan. 18, 1870.

John Pullen, President, Canadian Express Co., Montreal, born at Shepton Mallet, Eng., Jan. 23, 1863.

L. J. Rouleau, Travelling Freight Agent, G.T.R., and Agent, National Despatch-Great Eastern Line, Montreal, born there, Jan. 6, 1879.

B. G. F. Rutley, ticket agent, C.N.R. and G.T.P.R., Fort Garry Union Station, Winni-

peg, born at Chatham, Ont., Jan. 25, 1879.

S. J. Shannon, Comptroller and Treasurer, Intercolonial Ry., Moncton, N.B., born at Halifax, N.S., Jan. 18, 1865.

J. G. Sullivan, Chief Engineer, C.P.R. Western Lines, Winnipeg, born at Bushnell's Basin, N.Y., Jan. 11, 1863.

Ross Thompson, Chief Engineer, St. John and Quebec Ry., Fredericton, N.B., born at Newry, Ireland, Jan. 1, 1865.

O. C. Walker, Inspector, Refrigerator Service, C.P.R. Western Lines, Winnipeg, born at Newport, Mon., Eng., Jan. 31, 1877.

F. J. Watson, Assistant General Freight Agent, G.T.R., Montreal, born at Toronto, Jan. 12, 1866.

G. H. Webster, M. Can. Soc. C.E., Vancouver, B.C., born at Creemore, Ont., Jan. 31, 1858.

T. H. White, Chief Engineer, Canadian Northern Pacific Ry., Vancouver, born at St. Thomas, Ont., Jan. 27, 1848.

A. Wilcox, General Superintendent, Central Division, C.N.R., Winnipeg, born at Kincardine, Ont., Jan. 2, 1865.

Comparison of Canadian Pacific and Canadian Northern Locomotives.

A subscriber at Winnipeg wrote Canadian Railway and Marine World recently as follows: "To decide a bet will you kindly answer the following question: Are the 2,400 class, 2-8-0 type, locomotives on the C.N.R. more powerful, and can they in all conditions haul more than the 5,000 class 2-8-2 type locomotives on the C.P.R.?"

Data.—Following are the data of the two types of locomotives referred to:

	C.P.R.	C.N.R.
Class	2-8-2	2-8-0
Weight of locomotive	255,500 lbs.	232,000 lbs.
Weight on drivers	197,300 lbs.	208,000 lbs.
Cylinders	23½x32 ins.	24x32 ins.
Boiler pressure	180 lbs.	200 lbs.
Diameter of drivers	63 ins.	63 ins.
Capacity rating	210% or 42,000 lbs.	50% or 50,000 lbs.

C.P.R. and C.N.R. capacity ratings differ in the unit, the C.P.R. unit being 20,000 lbs. for 100%, and the C.N.R. unit 1,000 lbs. for 1%. Hence the wide difference in the percentage capacity rating.

Computation.—The tractive effort of a locomotive is the average maximum tractive force at the tread of the driving wheels, assuming a 100% cutoff in the cylinder. It is given by the following equation:

$$F = \frac{d^2 p s}{D}$$

F is the tractive effort at the driving wheels in lbs.; p, the average maximum pressure in the cylinder in lbs. per sq. in., usually taken as 85% of the boiler pressure; s, the piston stroke in ins.; d, the diameter of the cylinder in ins.; and D, the diameter of the drivers in ins. Hence,

for C.P.R. locos.,

$$F = \frac{(23\frac{1}{2})^2 \times (180 \times 0.85) \times 32}{63} = 42{,}918 \text{ lbs.}$$

for C.N.R. locos.,

$$F = \frac{(24)^2 \times (200 \times 0.85) \times 32}{63} = 49{,}737 \text{ lbs.}$$

However, the available tractive effort of the locomotive is limited by the grip of the drivers on the rails, which is only about 23% of the weight of the locomotive on the drivers. Hence, the maximum gripping effect of these locomotives is:

for C.P.R. locos., 197,300 x 0.23=45,379 lbs.
for C.N.R. locos., 208,000 x 0.23=47,840 lbs.

Conclusions.—From the above, it will be seen that the C.N.R. locomotives have a greater gripping effect on the rails than the C.P.R. ones. They also have a greater tractive effort; in both types the tractive effort exceeds the gripping effect. It will, therefore, be seen that the C.N.R. locomotive can start a heavier train load under similar conditions than the C.P.R. ones, and maintain a heavier load at low speed.

However, the principal reason for the introduction of the mikado locomotive, with its reduced proportional weight on the drivers, was the demand for a locomotive with greater boiler capacity, which is possible by lengthening it over the trailing wheels, as at higher speeds the tractive effort is limited by the capacity of the boiler to supply the cylinders with steam, falling much below the gripping effect of the tires on the rails, so that the full extent of the latter cannot be realized. Hence, the C.P.R. locomotives, having a larger boiler capacity, can supply a greater volume of steam, and in consequence, under similar loadings, can maintain higher speeds than the C.N.R. locomotives.

It will thus be seen that for low speeds, the C.N.R. locomotives are more powerful, but as the speed increases beyond the point where the tractive effort and gripping effect lose their balance, the C.P.R. locomotives, on account of their greater boiler capacity, have a greater capacity.

After the foregoing answer had been prepared in Canadian Railway and Marine World's office, copies of it were sent to H. H. Vaughan, Assistant to Vice President, C.P.R., Montreal, and to S. J. Hungerford, Superintendent of Rolling Stock, C.N.R., Winnipeg for criticism or suggestions. Mr. Vaughan replied that it was satisfactory to him, and that he had no suggestions to make. Mr. Hungerford has written as follows: "In general our locomotive was designed to haul bulk freight at a maximum running speed of 25 miles an hour, as experience has shown the economy of handling ordinary freight traffic in heavy trains at moderate speed. We believe that this statement is true in relation to the coal consumption, but it is also true in respect to wear and tear on equipment and track. Beside this there is the important advantage of greatly reducing the element of danger; the ordinary type of freight car truck not being safe at high speeds.

"I take exception to the assumption that the gripping effort upon the rails is 23% of the weight thereon, as experience has shown a great diversity of results. The factor of adhesion of the Canadian Northern locomotive is practically 4.16 (24%, Editor C. R. and M. W.), admittedly low, but the results in service have been entirely satisfactory, and on a dry rail the full tractive effort can be employed without slipping. The actual adhesion upon slightly wet, muddy or greasy rails varies so widely that no factor can be safely assumed, but with modern sanding appliances this trouble is almost entirely overcome and the employment of the highest possible tractive effort is undoubtedly justified.

"The boilers of the Canadian Northern locomotives have proved their ability to supply all the steam required by the cylinders when working at maximum cut off at speeds under 10 miles an hour, and also when working at the speed limit at an economical cut off.

"It should be borne in mind that nearly all railways are more or less undulating, and only a few lines have very long continuous grades of maximum rise. The result of this is that under usual conditions a locomotive in freight service is only required to supply the maximum amount of steam for a comparatively short period, and the average consumption of steam over a subdivision is greatly below the maximum requirements.

"A careful consideration of the above facts led us to the decision that it would be unwise to adopt the mikado type with its greater gross weight, higher initial cost and subsequent maintenance while the consolidation type was amply capable of performing the work under our conditions, particularly as the question of employing longer and stronger turntables and increasing the size of roundhouses had to be considered. It is freely admitted that for very high speed service approximating passenger service the mikado type is preferable, on account of greater ultimate boiler pressure, but we do not believe that any considerable portion of the freight in this country is handled under such conditions.

"On the whole our locomotives have shown their ability to furnish all the steam required under all ordinary conditions, and in addition have shown a high efficiency in connection with the consumption of fuel. Reducing the whole proposition to its simplest terms, why should large additional expense be incurred to provide abnormal power that is not required by the service, as conclusively shown by extensive experience?"

Rogers Pass Tunnel Construction, Canadian Pacific Railway.

Canadian Railway and Marine World for December had, on pg. 537, a progress diagram of the work on this tunnel in the Selkirk Mountains up to Oct. 9, and also particulars of the work up to Oct. 31. Following is the record for construction for November:

East and centre heading, 588 ft., schist with some quartzite.

East and pioneer heading, 529 ft., quartzite with some schist.

West end pioneer heading, 817 ft., slate with small quartzite bands.

West end centre heading 654 ft., slate with small quartzite bands.

The west end pioneer heading footage is believed to be the American record, and was driven down grade through rock that could not be broken over 6 ft. per round. The greatest footage in one day was 37 ft.

The work is in charge, for the contractors, Foley Bros., Welch and Stewart, of A. C. Dennis, M. Can. Soc. C.E., Superintendent, Jos. Murphy, Assistant Superintendent, east end, and Jos. Fowler, Assistant Superintendent, west end.

A notable bridge replacement has been carried out on the Victorian Government Railways, in Australia, at Maribyrnong River bridge, between South Kensington and Footscray, Melbourne. The old bridge consisted of three girders, one heavy middle span and two lighter outside ones; the total length being 216 ft. In 1911 it was determined to do away entirely with the old box girder bridge, by replacing it with a modern lattice girder bridge. There were special reasons which made it necessary to exercise the utmost care in doing the work, the main one being that the bridge carried over 320 trains a day during ordinary traffic conditions. The stoppage of running over the bridge would have meant the cutting off of all the Victorian Railways traffic to the west of the Bendigo lines. No attempt was made to provide any temporary diversion; and, in addition to the total renewal of girders, the line at the bridge had to be lifted 5¼ft. during the progress of the works.

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.

22864. Nov. 12.—Approving Bell Telephone Co.'s agreement with La Compagnie Telephone, St. Paul de Chester, Oct. 27.

22865. Nov. 14.—Authorizing Saskatchewan Highway Commissioners to build highway over G.T. Pacific Branch Lines Co.'s line in Lajord rural municipality 128, and rescinding orders 20402, Sept. 24, 1913, and 20521, Oct. 8, 1913.

22866. Nov. 14.—Authorizing C.P.R. to use bridge 19.5 across Napier St., Iberville, Que.

22867. Nov. 18.—Authorizing C.P.R. to build siding for Gunns, Ltd., West Toronto, Ont.

22868. Nov. 14.—Authorizing C.P.R. and Quebec, Montreal and Southern Ry. to operate over crossing at Iberville Jct., Que., without stopping train.

22869. Nov. 18.—Approving revised location C.P.R. Moose Jaw South Westerly Branch from mileage 37.85 to C.P.R. Weyburn-Stirling Branch at mileage 64.59, Sask.

22870. Nov. 14.—Authorizing G.T.R. to use bridge over public road near C.P.R. station at Ste. Anne de Bellevue, Que.

22871. Nov. 16.—Relieving, until further order, the G.T. Pacific Ry. from erecting fences along right of way at Jarrow station, between Irma and Kinsella, Man.

22872. Nov. 6.—Authorizing G.T.R. to make changes in turntable on Wabash Rd. at St. Thomas, Ont., and approving clearance at turntable: and rescinding order 21544. March 24.

22873. Nov. 16.—Approving Montreal and Southern Counties Ry. standard tariff of rates for carriage of express freight, C.R.C. 3, between Montreal and Longueuil and intermediate points, and rescinding order 15236, Oct. 27. 1911.

22874. Nov. 16.—Approving Bell Telephone Co.'s agreement with La Compagnie de Telephone Electrique de Lothbiniere.

22875. 22876. Nov. 19.—Ordering New York Central and Hudson River Rd. to stop three eastern trains at specified times at Highlands and Adirondack Jct., Que., until further order, and to submit statement of passengers handled to and from these points up to Jan. 31. 1915.

22877. Nov. 17.—Authorizing C.P.R. to use bridges 68.2, 109.36, 24.20 and 117.42, British Columbia Division.

22878. Nov. 20.—Approving C.P.R. plan Q-7-43, Aug. 12, showing minimum clearance for all structures except bridges and those for which special approval of the Board is obtained.

22879. Nov. 19.—Approving location and details of G.T.R. station to be built at St. Liboire, Que.

22880. Nov. 16.—Dismissing application of Standard Paint Co. of Canada for reduced rating on prepared roofing in Canadian Freight Classification.

22881. Nov. 14.—Authorizing Lake Erie and Northern Ry., pending installation of interlocking plant, to operate for construction purposes only, between 6 a.m. and 7 p.m., over crossing of G.T.R., Brantford, Ont., interlocking plant, to be completed by June 30, 1915, and crossing to be protected by flagmen, appointed by G.T.R., at expense of L.E. & N.R.

22882. Nov. 19.—Authorizing C.N. Ontario Ry. to build spur from Lot 3, Con. 4, Darlington Tp., for S.E. Marchment.

22883. Nov. 20.—Authorizing C.P.R. to operate over crossing of Kingston and Pembroke Ry. by its Glen Tay to Cobourg line, at mileage 24.8.

22884. Nov. 20.—Relieving Windsor, Essex and Lake Shore Rapid Ry. from providing further protection at crossing of Ruthven side road between Lots 10 and 9, Con. 1, Gosfield South, near Ruthven, Ont.

22885. Nov. 20.—Relieving G.T.R. from providing further protection at crossing of highway in Con. 3, King Tp., Ont.

22886. Nov. 20.—Authorizing C.P.R. to use bridge 109.7 over Pitt River, B.C.

22887. Nov. 31.—Authorizing Glengarry and Stormont Ry. (C.P.R.) to operate for construction purposes only for 60 days after installation of diamond, over crossing of G.T.R. near Cornwall, Ont.; trains to be stopped and flagged over by a watchman appointed by G.T.R., at applicant's expense.

22888. Nov. 21.—Approving C.P.R. plan showing interlocking signals to be installed at swing bridge over Chambly Canal, St. John's, Que., mileage 19.9, Farnham subdivision, and authorizing C.P.R. to operate northbound trains over bridge without first stopping, provided signals are clear.

22889. Nov. 23.—Extending to June 30, 1915, time within which C.P.R. shall complete sidings in Bala, Ont.

22890. Nov. 23.—Authorizing C.P.R. to open for traffic its Swift Current Northwest branch from Westerham, mileage 94 to mileage 110.8, Sask.

22891. Nov. 23.—Extending for two months from Nov. 29, time within which C.N. Ontario Ry. was authorized to use temporary grade on its Montreal-Hawkesbury line, from mileage 46.69 to 48.62, for construction purposes only.

22892. Nov. 21.—Authorizing G.T.R. to build two sidings for the Jenckes Machine Co., St. Catharines, Ont.

22893. Nov. 17.—Dismissing complaint of W. J. Guest Fish Co., Winnipeg, Man., in regard to express rate charged on fresh fish, carload lots, Vancouver, B.C., to Winnipeg.

22894. Nov. 21.—Ordering G.T.R. by June 1, 1915, to install improved type of automatic bell at crossing between lots 10 and 11, con. 3, North Orillia, west of Uhthoff, Ont., 20% to be paid out of railway grade crossing fund.

22895. Nov. 25.—Approving supplement 4 to Canadian Freight Classification 16, as amended, revised, and resubmitted for approval by G. C. Ransom, Chairman Canadian Freight Association, Nov. 18, to become effective not later than Jan. 2. 1915.

22896. Nov. 25.—Authorizing City of Montreal to open up Park Ave., across C.P.R.; crossing to be protected by gates, operated by day and night watchmen appointed by C.P.R.; company to install gates upon plans prepared and submitted within 30 days from date, 20% of cost to be paid out of railway grade crossing fund, remainder by city, city also to pay cost of maintenance and operation.

22897. Nov. 25.—Amending order 22509, Sept. 5, re alteration of C.P.R. spur, Rachel St. East, Winnipeg.

22898. Nov. 24.—Authorizing C.P.R. to move its standard A-2 station building from Reford to Conquest, Sask., and to place in its stead standard portable station building, partitioned off at one end for freight shed purposes; latter to be erected immediately after removal of the former.

22899. Nov. 25.—Amending order 20383, Sept. 23, 1913, re road diversion by C.P.R., near Leon St., Alix, Alta.

22900. Nov. 25.—Authorizing C.P.R. to lower grade of Maple St., Winnipeg, company to pay for all damage to immigration building and inconvenience to its use resulting from lowering the grade.

22901 to 22904. Nov. 25.—Extending to July 1, 1915, time for approval of C.P.R., Great North Western Telegraph Co., G.T. Pacific Telegraph Co., and White Pass and Yukon Route telegraph tolls.

22905. Nov. 25..—Ordering that all Canadian Northern Ry. passenger trains be flagged over Central Ave., Prince Albert, Sask., two thirds of cost to be paid by C.N.R., balance by city, and rescinding order 19555, June 11, 1913.

22906. Nov. 25.—Relieving Canadian Northern Ry. from speed restrictions on trains from Drumheller to Calgary, Alta., mileage 314.7 to 399.5, from Saskatoon, Sask.

22907. Nov. 25.—Amending order 21571, Mar. 30, 1914, re Canadian Northern Ry. extension to gravel pit spur in McIrvine Tp., Ont.

22908. Nov. 25.—Authorizing C.P.R. to operate over crossing of Calgary Municipal Ry. at Eleventh St. East, without first stopping.

22909. Nov. 25.—Authorizing Town of Tuxedo, Man., to build highway over Canadian Northern Ry., and G. T. Pacific Ry. at Kennaston Boulevard, Winnipeg, and Tuxedo, Man.

22910. Nov. 24.—Authorizing Kettle Valley Ry. to build across public roads, mileage 67.59 and 67.65, west of Penticton, B.C.

22911. Nov. 25.—Approving Dominion Atlantic Ry. revision at Sissiboo River Bridge, Weymouth, N.S.

22912. Nov. 24.—Amending order 22751, Oct. 23, re opening up of certain streets in Montreal across C.N. Quebec Ry.

22913. Nov. 24.—Authorizing C.P.R. and Canadian Northern Ry. to operate over crossing near Rosetown, Sask., mileage 41.4, of C.P.R. Kerrobert subdivision, without first stopping.

22914. Nov. 24.—Relieving C.P.R. from speed restrictions on trains over its Bassano-Empress and Swift Current Northwestly branches.

22915. Nov. 25.—Ordering C.P.R., within 30 days, to build transfer track with G.T.R. at Coldwater, Ont., to provide reasonable facilities, and to keep detailed account of expense of putting tracks; C.P.R. to supply bond to cover half cost of construction; such sum, or so much as board may deem proper, to be paid over according to board's direction, and for determination of such sum C.P.R., G.T.R., and Village of Coldwater shall keep account of cars received and shipped over transfer for 12 months following completion.

22916. Nov. 24.—Authorizing C.N. Ontario Ry. to use bridge over White Creek, mileage 64.9 from Toronto.

22917. Nov. 24.—Authorizing Canadian Northern Ry. to build a spur for T. Jackson & Sons, Marchand, Man.

22918. Nov. 26.—Recommending to Governor in Council for sanction lease of Lake Erie and Northern Ry. by C.P.R., dated Oct. 8.

22919. Nov. 25.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to operate over crossing of Toronto Eastern Ry. at Scugog and Wellington Sts., Bowmanville, Ont., mileage 149.2 from Glen Tay, without first stopping trains.

22920. Nov. 28.—Authorizing C.P.R. to operate bridges, 1.9, 19.1 and 18.8, Eastern Division.

22921. Nov. 26.—Approving Kettle Valley Ry. standard freight mileage tariff, C.R.C. 27, to apply between stations in British Columbia.

22922. Nov. 27.—Authorizing City of Winnipeg to build highway over C.P.R., at Midwinter Ave., Winnipeg.

22923. Nov. 24.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to divert road across its line at mileage 54.99, to take certain lands, to build across road allowance at mileage 54.88, and divert road. Richmond Tp., and rescinding orders 19296, 19360, 21046 and 21158.

22924. Nov. 30.—Authorizing C.P.R. to build its Swift Current Northwesterly Branch at grade across road allowance at mileage 35.33, Cabri, Sask.

22925. Nov. 28.—Approving Erie and Ontario Ry. (T.H. & B.R.) bylaw 3, authorizing F. F. Backus, General Traffic Manager, and Geo. C. Martin, General Freight and Passenger Agent, to prepare and issue tariffs of tolls.

22926. Nov. 30.—Approving plan and specifications of Loughlin Ditch, to be built under G.T.R. in Lots 15 and 16, Con. 5, North Dorchester Tp., Ont.

22927. Dec. 1.—Authorizing C.N. Ontario Ry. to operate trains over crossing of C.P.R. Stobie Branch in Lot 4, Con. 5, McKim Tp., without first stopping, and authorizing C.P.R. to operate its trains at 15 miles an hour.

22928. Nov. 30.—Authorizing C.P.R. to open for traffic its line between Govanlock and Altawan, mileage 307.3 to 314.2, and relieving it from speed limitation of 18 miles an hour from Shaunovan, mileage 230.8, to Govanlock.

22929, 22930. Nov. 28.—Authorizing G.T.R. to build a siding to opposite Stratford Chair Co. premises, Stratford, Ont., and one for Thos. Davidson Manufacturing Co., Montreal.

22931. Nov. 25.—Authorizing Canadian Northern Ry. to build spur for Slocum Howland Coal Properties, Secs. 9, 8 and 7, Tp. 29, R. 20, w. 4 m., Alta.

22932. Nov. 30.—Approving location of G.T.R. station in Norwich, Ont., and authorizing it to build additional track across Main St.

22933. Nov. 30.—Authorizing Bank of Hochelaga, Winnipeg, to repay to Local Treasurer C.P.R. at Winnipeg, $750 deposited to credit of Board, with accrued bank interest, if any, in connection with spur for the B. Shragge Iron and Metal Co., Ltd.

22934. Nov. 30.—Ordering Quebec Oriental Ry. and Atlantic, Quebec and Western Ry. to provide separate lavatory accommodation on each of their first class cars; work to be completed by May 1, 1915.

22935. Nov. 30.—Relieving G.T.R. from providing further protection at crossing of public highway near Honborough, Ont.

22936. Dec. 2.—Ordering Great Northern Ry. to build pedestrian subway at Cox St., Fernie, B.C., with headroom 7¼ ft., width 8 ft.; cost to be paid equally by G.N.R. and the city.

22937. Dec. 2.—Amending order 22826, Nov. 4, re Sudbury-Copper Cliff Suburban Electric Ry. crossings of C.P.R. in Sudbury, Ont.

22938. Dec. 1.—Authorizing Alberta Public Works Department to build highway crossing over C.P.R., in S.E. ¼ Sec. 12-8-5, w. 5 m.

22939. Dec. 2.—Authorizing C.N. Ontario Ry. to use bridge over diverted road in Lot 12, Con. 4, Scarborough Tp., Ont.

22940. Dec. 2.—Extending to June 1, 1915, time within which G.T. Pacific Ry. shall complete standard 1A station, with 60 ft. platform at point between Tofield and Deville, Alta., at milepost 759, and spur to hold at least 4 freight cars, provided it immediately place temporary shelter there to protect those waiting for trains.

22941. Dec. 2.—Authorizing C.N. Ontario Ry. to carry passenger traffic between North Bay and Capreol, Ont., until July 1, 1915.

22942. Nov. 30.—Approving location of G.T. Pacific Ry. standard no. 1 station at Hansard, B.C., mileage 1233.3 west of Winnipeg.

22943. Dec. 2.—Authorizing C.P.R. to build its Weyburn-Stirling Branch at grade across 46 highways, mileage 316.77 to 361.61, and to divert highways at mileage 356.10 and 360.53.

22944. Nov. 28.—Approving location of Esquimalt and Nanaimo Ry. station at Palmer, B.C., without prejudice to any rights British Columbia Government may have in Island highway.

22945. Dec. 2.—Amending order 22751, Oct. 23, 1914, re opening up of certain streets in Montreal across C.N. Quebec Ry., and rescinding order 22912, Nov. 24.

22946. Nov. 20.—Apportioning cost of main-

taining watchman at G.T.R. crossing, Windsor Mills, Que., as provided for by order 12917.

22947. Dec. 3.—Rescinding orders 22058 and 22264, June 25 and July 16 respectively, and authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build its Trenton business spur across Sophia and Marmora Sts., and diverting Bocage, Eugenia, Louisia, Elizabeth and Leopold Sts., Trenton, Ont.

22948. Dec. 1.—Amending order 22741, Oct. 21, re highway over Canadian Northern Ry. north of Sec. 3, Tp. 29, R. 29, w. 3 m., Sask.

22949. Dec. 3.—Approving Canadian Northern Ry. Standard Passenger Tariff, C.R.C., no. E. 488, between stations east of and including Port Arthur, Ont., in Ontario and Quebec, on basis of 3c a mile.

22950. Dec. 4.—Ordering Canadian Northern Ry. to complete work of diverting Rue la Verandrye, St. Boniface, Man., as authorized under order 20808, Nov. 13, 1913, by June 1, 1915.

22951. Dec. 2.—Authorizing Alberta Public Works Department to construct highway over Canadian Northern Ry. in n½ Sec. 19-53-16, w. 4 m.

22952. Nov. 17.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to take certain lands in Belleville, Ont., in connection with team yard; to close Dundas St., between Norfolk and King Sts., and divert it to Brock St. by way of Norfolk and Willard Sts.; Willard St. be widened to 66 ft.; to close Mary and James Sts., between Dundas St. and C.N. Ontario Ry. right of way, and divert traffic by grade level highway crossing near King and Water Sts.; question of providing protection at crossings reserved.

22953. Dec. 2.—Approving agreement between Bell Telephone Co., and La Compagnie Telephone Local de Ham Nor, Nov. 8.

22954. Dec. 2.—Approving C.N. Ontario Ry. plan, Montreal, Aug. 29, showing revision in grades on its line and C.P.R. between Dovercourt Road and Dufferin St., North Toronto, Ont.

22955. Dec. 4.—Approving Halifax and South Western Ry. standard freight mileage tariff, C.R.C. no. F-1, on general merchandise in absence of special or other tariffs giving lower rates.

22956. Dec. 1.—Approving Lake Erie and Northern Ry. plan showing proposed protection fences at crossing of River Road, mileage 1.02.

22957. Dec. 5.—Authorizing Hamilton St. Ry. to build across G.T.R., on Kenilworth Ave., Barton Tp., Ont., by subway, having clear headroom of 14 ft.; authorizing City of Hamilton to cut grade of street to 3%, instead of 5%; extra cost to be paid by city; G.T.R. to pay extra cost of widening subway to accommodate any greater number of tracks than 4 it may desire to build; provided total right of way of G.T.R. shall not exceed 100 ft.; 20% of cost, not exceeding $5,000, of subway to be paid out of railway grade crossing fund; balance, 7½% by Barton Tp., 32½% by G.T.R., 25% by city, and 35% by Hamilton St. Ry.

22958. Dec. 2.—Amending order 22624, Nov. 4, re G.T. Pacific Ry. crossing of Fort William Electric Ry. on Empire Ave., Fort William, Ont.

22959. Dec. 5.—Authorizing C.P.R. to operate bridges 113.1, 0.16 and 49.8, Sherbrooke, Farnham and Orford Subdivisions, Que.

22960. Dec. 5.—Authorizing C.P.R. to operate bridge 19.8 over Chambly Canal, at St. Johns, Que.

22961. Nov. 30.—Approving proposed deviation of G.T.R. through Thorold, Ont.; and authorizing G.T.R. to build along and across 15 highways; and under Niagara, St. Catharines and Toronto Ry., near Welland and Richmond Sts., latter to be carried over G.T.R. by overhead bridge, now building by Railways and Canals Department; and approving location of G.T.R. station at Welland, Ont.

22962. Dec. 4.—Approving Halifax and South Western Ry. Standard Passenger Tariff, on uniform basis of 3c per mile, C.R.C. P-1.

22963. Dec. 4.—Re freight tariffs on building brick. This order is given fully under "Traffic Orders by Board of Railway Commissioners" on another page of this issue.

22964 to 22968. Dec. 3.—Authorizing Ontario Hydro Electric Power Commission to erect wires across railways at Welland, Paris, Embro, Fergus and Etobicoke Tp., Ont.

22969. Dec. 7.—Approving location of G.T. Pacific Branch Lines Co. station at Domremy, Sask.

22970. Dec. 5.—Ordering that G.T. Pacific Ry. stations to be built at Engen, Otway, McCall, Sheraton, Hulatt, Bednosti, Miworth and Tintagel, B.C., locations of which were approved by order 22769, Oct. 27, be of standard no. 1 plan.

22971. Dec. 4.—Ordering C.P.R. by June 1, 1915, to install improved type of automatic bell at crossing of highway, mileage 60.09, Eldon Tp., Ont.

22972. Dec. 7.—Approving location of G.T. Pacific Ry. station at Nichol, mileage 438.3, Prince Rupert East, B.C.

22973. Dec. 7.—Ordering changes in express merchandise receipts, relating to shipments of specie, valuable documents, letters for mailing from other points, and relating to limitation of liability. This is given fully on another page under "Among the Express Companies."

22974. Dec. 7.—Ordering C.P.R. forthwith to cancel embargo placed against traffic for delivery on its team tracks at Mile End, Montreal.

22975. Dec. 10.—Dismissing application of American Coal and Coke Co.'s, Detroit, Mich., for order disallowing note 3 to rule 1, page 7, of M.C.R. Tariff C.R.C. 2171.

22976. Dec. 10.—Establishing Dominion Ex. Co.'s collection and delivery limits in Jerome, Que.

22977. Dec. 5.—Authorizing C.P.R. to build its Moose Jaw Southwesterly Branch, at grade, across street at Reycraft, Sask.

22978. Dec. 10.—Approving C.P.R. Plan B-1-1417, Oct. 8, showing details of bridge to be built over Muskrat River at Meath, Ont.

22979. Dec. 9.—Authorizing C.P.R. to close its station at Clanwilliam, B. C.

22980. Dec. 9. — Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build branch or Y at mileage 15.41, Havelock Subdivision, Ont., per T. R. Sharpe.

22981. Dec. 10.—Authorizing G.T.R. to build siding for Horn Bros., Lindsay, Ont.

22982 Dec. 7.—Approving plan and specifications of Jewell award drain along G.T.R. lands in Harwich Tp., Ont.

22983. Dec. 10.—Authorizing C.P.R. to remove its agent at Bonheur station, Ont., and ordering C.P.R. to have waiting room kept heated for arrival of local trains, and shipment of package freight.

22984. Dec. 5.—Authorizing C.P.R. to build extension to siding for Wallace and Robinson, Waterloo, Que.

22985. Dec. 15.—Recommending to Governor in Council for sanction, amalgamation agreement between Toronto, Hamilton and Buffalo Ry. and Erie and Ontario Ry., Nov. 11.

22986. Dec. 15.—Ordering C.P.R. to appoint watchman at crossing of Twelfth St. East, Calgary, Alta., to be on duty between 8 a. m. and 7 p. m., city to have right at any time to submit any further scheme of protection, if it so desires; after watchman has been installed, C. P.R. to be relieved from speed limitation of 10 miles an hour over crossing.

22987. Dec. 15.—Extending for 30 days from date, time within which G.T.R. shall build siding for Chatham Bridge Co., Chatham, Ont.

22988. Dec. 14.—Ordering C.P.R. to continue station agent at Mazeppa, Alta.

22989. Dec. 17.—Suspending, pending hearing and determination by Board, Supplement 2 to C.P.R. Joint Tariff C.R.C. no. W. 1890, to take effect Jan. 1, 1915.

22990. Dec. 16.—Authorizing G.T.R. to take certain additional lands in Callander, Ont., for widening Main St.

22991. Dec. 17.—Establishing express delivery limits in Lacombe, Alta.

22992. Dec. 17.—Authorizing Saskatchewan Highway Commissioners to build highway crossing over Canadian Northern Ry. right of way at Brock, Sask.

22993. Dec. 14.—Authorizing Canadian Northern Ry. to cross and divert road between Secs. 12-6-20, and 7-6-19, w. 2 m., Sask.

22994. Dec. 18.—Approving revised location of Kettle Valley Ry. through Hope, B.C., from station 1920 to 2010, west of Coquihalla Summit.

22995. Nov. 23.—Ordering G.T. Pacific Ry. to maintain station on south side of main line, opposite land between Oak St. and Ash St., shown on plan of townsite of Prince George, B.C.; and to file with board by Jan. 15, 1915, detail plans for approval; station to be built by June 1, 1915; and rescinding orders 18902, March 20, 1913, and 19347, May 14, 1913.

22996. Dec. 15.—Approving C.P.R. clearances of telegraph poles along South Bank Branch of Lachine Canal, on St. Patrick St., Montreal.

22997. Dec. 17.—Approving location of C.P.R. station at Kaslo, B.C.

22998. Dec. 15.—Approving C.P.R. plan of interlocking plant at swing bridge over Lachine Canal, mileage 43.1, Farnham Subdivision, Que.

22999. Dec. 15.—Relieving C.P.R. from providing further protection at crossing of highway, mileage 76, east of Leduc, Alta.

23000. Dec. 14.—Relieving C.P.R. from speed limitation of 18 miles an hour over its Weyburn Westerly Branch from Assiniboia, mileage 112, to Woodrow, mileage 145.7; and of 25 miles an hour from Woodrow to Shaunavon, mileage 145.7 to 230.8.

23001. Dec. 14.—Authorizing Canadian Northern Ry. to carry traffic over its line from Inwood to Hodgson, Man., until July 15, 1915; speed of trains to be limited to 12 miles an hour.

23002. Dec. 15.—Authorizing C.P.R. to open for traffic its Moose Jaw Southwesterly Branch from Expanse, mileage 35.0 to mileage 50.0, Sask.; and relieving company from speed limitation of 15 miles an hour from Moose Jaw to Expanse, mileage 0 to 35.0.

23003. Dec. 14.—Authorizing C.N. Manitoba Ry. to open for traffic its line from Deerfield Jct. to Steel Rock, Man., 12½ miles; speed of trains limited to 20 miles an hour.

George Higgs, switchman in the C.P.R. service at Toronto, was fined $50 and costs or 6 months in jail for being drunk on duty recently.

Railway Rolling Stock Notes.

The G.T.R. has received 7 first class cars from Canadian Car and Foundry Co.

The Acadia Coal Co. has ordered 250 all steel mine cars from Eastern Car Co., New Glasgow, N.S.

The Central Vermont Ry. has ordered 3 ten wheel locomotives from American Locomotive Co.

The Russian Government is reported to be ordering locomotives on this continent for prompt delivery. It is stated that an order for 30 has been secured by the Lima Locomotive Co., Lima, Ohio.

The National Steel Car Co., Hamilton, Ont., has, according to press reports, received orders for a number of cars for a French railway, and also orders from the British and French war offices.

The Board of Railway Commissioners has issued an order directing the Quebec Oriental Ry. and Atlantic, Quebec and Western Ry. to provide separate lavatory accommodation on each of their first class cars.

The C.P.R., between Nov. 15 and Dec. 15, ordered 8 all steel second class cars, 6 all steel 60 ft. mail cars, and 8 class D4 locomotives, from its Angus shops, Montreal.

The New Ladysmith Lumber Co., Nanaimo, B.C., has received a 2-4-2 saddle tank locomotive, details of which were given in our last issue, from Canadian Locomotive Co.

The Greater Winnipeg Water District Commissioners have invited tenders to Jan. 20, for gravel pit excavation, screening, elevating and crushing machinery, and for locomotives and cars for pit and other railway service.

The Chicago, Milwaukee and St. Paul Ry. has ordered 12 260 ton double unit, 4-4-4-0-0-4-4-4 electric locomotives from the General Electric Co., for delivery by Oct. 1, for use on the Rocky Mountain Division, which is to be electrified.

With reference to rolling stock orders placed for the Intercolonial Ry., mentioned in our last issue, we have been officially advised that 250 steel gondola cars, 50 tons capacity, have been ordered from Eastern Car Co., and 200 steel frame flat cars from Nova Scotia Car Works.

The Quebec Central Railway is not building 2 American (4-4-0) locomotives in its shops at Sherbrooke, as mentioned in a press report quoted in our December issue. We are officially advised that the report may have arisen from the fact that the company equipped 2 of its existing locomotives with superheaters some little time ago.

The C.P.R., between Nov. 15 and Dec. 15, received the following additions to rolling stock:—52 steel frame box cars, 35 refrigerator cars, 2 single track flangers, 9 flat cars, from its Angus shops, Montreal; 19 ore cars from National Steel Car Co., and 1 double track snow plough and 3 single track snow ploughs from Canadian Car and Foundry Co.

Locomotive men have, according to an Ottawa press dispatch, asked the Minister of Labor for legislation limiting the time they can be kept continuously on duty to 16 hours, and for a Dominion workmen's compensation law applicable to all railway employes.

The Lehigh Valley Rd.'s new freight terminal at Buffalo, N.Y., requires the demolition of 30 buildings on the quarter mile square purchased recently by the railway for $1,200,000. Most of the buildings are small frame stores and dwellings, and their demolition is under way.

Railway Development.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta and Great Waterways Ry.—Track laying was reported completed to mileage 65, Nov. 30. (Dec., 1914, pg. 544.)

Burrard Inlet Tunnel and Bridge Co.—The directors had a conference with the Provincial Government at Victoria, B.C., Dec. 3. R. Modjeski, the Consulting Engineer, whose report on the bridge designs, was referred to in our last issue, had a consultation with the directors previously and strongly emphasized the necessity for having new plans made and new tenders invited. The directors will take no action pending the decision of the Government, which it is expected will be announced early in February. The directors desire to complete arrangements for the immediate construction of the bridge. (Dec., 1914, pg. 542 and pg. 544.)

Athabasca Northern Ry. Co.—The Dominion Parliament is being asked to authorize the continuance of this company's corporate existence, and to grant an extension of time for building the projected line from Edmonton to Athabasca Landing, Alberta. The provisional directors named in the act of incorporation, chap. 57, statutes of 1905, were F. H. Markey, Montreal; J. K. McKenzie, Selkirk, Man.; O. E. Fleming, Windsor, Ont.; M. Burton, Barrie, Ont. (May, 1913, pg. 219.)

Dominion Government Railway to Hudson Bay.—We are officially advised that up to Dec. 4 165 miles of track had been laid on the railway under construction from Pas to Port Nelson, Man., and that tracklaying was being continued. Grading has been carried on during the season as far as mile 293, and it was expected to have all the grading connected up as far as mile 242 by Dec. 31, 1914. The telegraph line has been finished to mile 175, and standard water tanks erected to mile 159. The first crossing of the Nelson River is at mile 242, and will be a steel structure of over 500 ft. long. The second crossing of Nelson River will be at mile 332, and will be a steel structure of over 600 ft long. Very little work has been done in the terminal yard at Pas, or at the first divisional point, mile 157, on account of all energies having been devoted to getting grading and tracklaying advanced. The general progress made, however, has been good. J. W. Porter, Winnipeg, is Chief Engineer. (Dec., 1914, pg. 544.)

Edmonton, Dunvegan and British Columbia Ry.—Tracklaying was reported to have been completed to mile 230, Dec. 1, and was expected to reach Big Smoky River, mile 290, by Dec. 31. Press dispatches, Dec. 12, stated that tracklaying would not reach beyond McLennan, mile 260, by the end of the year. W. J. Pace, Superintendent of Construction, left Edmonton, Alta., Nov. 30, to look after the starting of work on the 65 mile section from Big Smoky River to Spirit River. Surveys are being made for the extension of the line from Spirit River to the Alberta-British Columbia boundary, 64 miles, where a junction is to be effected with the Pacific Great Eastern Ry. (Dec., 1914, pg. 544.)

Erie and Ontario Ry.—Tracklaying has been completed from Smithville, on the Toronto, Hamilton and Buffalo Ry., to Dunnville, Ont., 14.9 miles. It is intended to continue the line from Dunnville to Port Maitland, Ont., 3.12 miles. Construction on this extension will, it is expected, be started early in the spring. Surveys have been completed, and it is reported that the right of way has been acquired. The company has been amalgamated with the Toronto, Hamilton and Buffalo Ry., and the line will be operated by that company. R. L. Latham, Hamilton, Ont., is Chief Engineer. (Dec., 1914, pg. 544.)

Esquimalt and Nanaimo Ry.—The Esquimalt, B.C., City Council is applying to the Board of Railway Commissioners for an order directing the company to extend its line from the present station to the centre of the town. The present station is a considerable distance from the business centre, and this is claimed to be a great inconvenience, owing to the increasing trade. (Sept., 1914, pg. 418.)

Glengarry and Stormont Ry.—Tracklaying on this line from the C.P.R. at St. Polycarpe Station, Que., with Cornwall, Ont., was completed Nov. 30, and the event was celebrated by a dinner in Williamstown, Dec. 2, at which C. L. Hervey, the principal promoter of the railway, was the chief guest. The line is 28 miles long, and passes through St. Telesphore, Bridgend and Williamstown. The contractor for the grading, tracklaying, etc., was the Glengarry Construction Co., Montreal, and A. A. Mellor was the Chief Engineer. The C.P.R. financed the construction of the line and will operate it. (Dec., 1914, pg. 544.)

Hudson Bay, Peace River and Pacific Ry.—The Dominion Parliament is being asked for an extension of time for the building of this projected railway from Winnipeg to Hudson Bay and thence westerly to the Pacific Coast, and to change the name to Winnipeg and Hudson Bay Ry. Lewis and Smellie, Winnipeg, Man., solicitors for company.

A deputation from the company waited on the Transcona, Man., Town Council, Nov. 28, to discuss the erection of shops for the projected line. Two routes were, it was stated, under consideration, and before deciding which to adopt, the company desired to know if Transcona would assist the company by voting a bonus. The company suggested a grant of 120 acres, on which to erect shops. Messrs. Brown and Armstrong, in stating the case for the company, said it was proposed, if arrangements could be completed, to build 65 miles of line during 1915, and that the first unit of the shops would involve the expenditure of $100,000. The matter is under consideration. (Mar., 1914, pg. 121.)

Huntingdon and Hemmingford Ry.—Application is being made to the Quebec Legislature for an extension of time for building the authorized line from Huntingdon to Hemmingford, and to the International boundary line between Lacolle, Que., and Rouse's Point, N. Y., where the Delaware and Hudson Ry. crosses. (Feb., 1913, pg. 83.)

Intercolonial Ry.—The Minister of Railways, who was in Levis, Que., on his way back to Ottawa from a brief inspection over the line, accompanied by F. P. Gutelius, General Manager, is reported to have stated that a new and enlarged station will be built there to restore the one destroyed by fire, Nov. 24. It is proposed to build the new station on the town side of the tracks, and to connect it by a viaduct with the ferry landing, so that passengers may pass between the station and the ferry without having to cross the tracks as at present.

The City Council of Truro, N.S., is asking the Government to build a subway at the station to permit citizens to reach the park without having to cross the tracks. The Minister during his inspection suggested that the subway be built at Yonge St., and that the city pay a part of the cost.

Questions concerning the reduction of gradients, and the building of second track at various points were looked into during the inspection, and the Minister stated that these matters would be fully considered before any decisions were arrived at. (Dec., 1914, pg. 531 and pg. 544.)

Klondike Mines Ry.—The Yukon Gold Mining Co. is applying to the Board of Railway Commisioners for an order directing the K. M. Ry to elevate its tracks over several creeks, so as to allow hydraulic mining operations to be carried on. The K. M. Ry contends that to do this would be detrimental to mining business further north, and that it might as well go out of business. The matter came before the board Dec. 1, and is under consideration. (July, 1912, pg. 339.)

Moncton and Buctouche Ry.—Press reports state that surveys have been made for an extension of the line from the present terminus at Buctouche to the Intercolonial Ry. at Loggieville, N.B., 65 miles. We stated in our issue of Jan., 1914, on official advice, that the preliminary surveys for this line were being made by the Moncton and Northumberland Strait Ry., which had been incorporated under a Dominion charter to build this and other lines, and to take over the M. and B. Ry. Although the same interests, to a large extent, own the two companies, we were advised in May, 1914, that the amalgamation had not taken place. E. G. Evans, Hampton, N.B., is associated with both companies. [See also Moncton and Northumberland Straits Ry.] (Dec., 1914, pg. 544.)

Moncton and Northumberland Strait Ry.—The Dominion Parliament is being asked to extend the time within which the projected railways from Buctouche to Richubucto Harbor, N.B., from Richibucto to Chatham or Loggieville, N.B.; from Painsec Jct. to Cape Tormentine, N.B., and from Westport to Coleman, P.E.I., may be built. The company has power to operate a car ferry from Cape Tormentine to Westport, and is authorized to amalgamate with the Moncton and Buctouche Ry. (Dec., 1914, pg. 544.)

Pacific Great Eastern Ry.—It was reported, Dec. 5, that a train service would be put in operation on the line from Squamish, B.C., to the head of Anderson Lake, 85 miles, Dec. 15, an extension of 27 miles beyond Pemberton, to which point a train service had previously been operated. Track is reported to have been laid to Lillooet 120 miles from Squamish, and it is expected to have this additional 35 miles ready for operation in February. Between Lillooet and Fort George, 317 miles, grading is reported to be approaching completion. Grading of one section has been completed to Horse Lake Summit, 250 miles from Squamish, and another section of 30 miles has been completed south of Fort George. On the intervening section of 167 miles, about 78% of the grading has been completed. With the exception of one section, on which there is some heavy work to be done, the grading is expected to be completed by the end of February and the last section in June.

J. W. Stewart, President, after completing a trip of inspection over the line, is reported to have said that surveys had been completed for the extension of the line from Fort George to the Peace River Valley, where connection would be made with the Edmonton, Dunvegan and British Columbia Ry. and the Canadian Northern Ry. The company, however, was not yet ready

to proceed with construction on this section of the line.

F. G. Gamble, Chief Engineer of the British Columbia Railways Department, in a report on the progress of construction, confirms the figures mentioned above, and gives the following additional details:—A temporary bridge has been erected at Anderson's Creek on the Lillooet River, which will be replaced by a steel one, when the Dominion Government has decided whether it will contain a movable or a fixed span. Between Lillooet River and Anderson Lake there will be two truss bridges, one over Oriole Creek, with a 100 ft. span, and the other over Birkenhead River, with a 125 ft. span, between trestle work. Temporary bridges are being erected. There are several small bridges to be built between Anderson Lake and the Fraser River. Between Squamish and Pemberton Meadows, 39,877 lineal feet of side tracks and sidings have been put in, and ballasting is being carried on. The track laid is in excellent shape. (Dec., 1914, pg. 544.)

Pacific, Peace River, and Athabasca Ry.—C. F. Law, Vancouver, B.C., who is the local representative of this British company, is reported to have stated that the location survey for the first section of this projected railway from the Pacific coast at the Maas River to the Groundhog coal district, B.C., had been completed. He went to London, Eng., early in December to report progress to the company, and possibly to make arrangements for starting construction in the spring. [See also Peace River Tramway and Navigation Co.] (Dec., 1914, pg. 544.)

Peace River Tramway and Navigation Co.—This undertaking is part of the plan of the company proposing to build the Pacific, Peace River, and Athabasca Ry. C. F. Law, Vancouver, B.C., the local representative of the company, is reported to have said the railway and tramway companies would open up for navigation about 2,500 miles of waterways, by way of Slave Lake and Mackenzie River to the Arctic Ocean. Plans for the boats have been prepared. They are of the shallow draft Mississippi River type, and will cost about $50,000 each. Tramway boats will give connection at certain points on the route where rapids intervene. (Sept., 1914, pg. 419.)

Prince Edward Island Ry.—Press reports state that owing to the Armstrong, Whitworth plant at Elswick-on-Tyne, England, having been taken over by the British Government for war purposes, it is doubtful whether the car ferry under construction for the Carleton Point-Cape Tormentine route will be completed according to contract. The terminals on the island and in New Brunswick are approaching completion. In connection with the ferry it is proposed to standardize the gauge of the railway on the island, on work which it is expected to put in hand this year. No decision will be rendered on this matter until the railway estimates are prepared for Parliament. (Dec., 1914, pg. 544.)

Winnipeg.—The commissioners of the Greater Winnipeg Water District have authorized the Northern Construction Co. to build a spur line to a gravel pit, for construction and other purposes, and the purchase by tender of rolling stock for the operation of the line.

The Fire, Water, and Light Committee of the Winnipeg City Council has authorized the preparation of plans for the building of an overhead bridge over the Lee River, seven miles from Lac du Bonnet, on the railway to the city's power plant. The estimated cost is $20,000. The bridge is to replace an old structure, which is not strong enough for the present traffic. (Dec., 1914, pg. 545.)

The West's Great Tribute to George Bury.

Shortly before leaving Winnipeg for Montreal to take up his new duties as Vice President of the Canadian Pacific Ry., with jurisdiction over the entire system, George Bury, who for several years past has been Vice President at Winnipeg, in charge of Western Lines, was entertained at dinner at the Royal Alexandra Hotel, on Dec. 4, the gathering being representative of the whole of Western Canada, and embracing over 400 of its leading citizens. Mayor Deacon, of Winnipeg, was in the chair, and the other speakers, all of whom paid high tributes to the great work Mr. Bury has accomplished in the west, and of the public confidence in him, were Hon. R. Rogers, Minister of Public Works; Sir Rodmond Roblin, Premier of Manitoba; Premier Scott, of Saskatchewan, and Premier Sifton, of Alberta; D'Arcy Scott, Assistant Chief Railway Commissioner; D. B. Hanna, 3rd Vice President Canadian Northern Ry.; Morley Donaldson, Vice President and General Manager, Grand Trunk Pacific Ry.; the Mayors of Fort William, Regina and Calgary; the Presidents of the Winnipeg, Medicine Hat and Lethbridge Boards of Trade, and Grant Hall, who succeeds Mr. Bury at Winnipeg.

In responding to the welcome given him, Mr. Bury, as reported, expressed appreciation of the reception, which he took to be an indication of the friends the railway had made, stating that to be successful a railway must be so managed as to be fair to the three great interests involved—the public, the employes and the owners. He attributed his advancement to having started under that master railway executive, Sir Thos. Shaughnessy, and always having his sympathetic guidance, also to capable, loyal, zealous men working with and for him, the friendship of the patrons of the road and the consideration given his efforts by the press. He paid a fitting tribute to the memory of the late Sir William Whyte, and announced that Grant Hall would be his successor in Winnipeg, stating the large part that official had had in the operations of the road. He referred to the progress the west had made, and begged that they should be not carried away by the high prices of grain that are certain to obtain for at least the next two years, pointing out that conservation of the soil through mixed farming is all that is necessary for a permanent, continued progress. The new start of this, he predicted, would be not later than next fall. He pointed out that exclusive grain growing, with the consequent marketing, in a few months depressed the price, while the moving of a vast traffic, in so short a time, necessarily threw many men out of employment for long periods. Prosperity and unemployment did not go hand in hand. He advised the well to do to take up scientific farming, saying, "There may not be as much fun in it as in playing golf, but there is at least as much exercise, and that is the reason generally given for the game." He made a plea for closer relations between the east and the west, asking that we think as Canadians instead of sectionally. To this end he advocated that the governments should subsidize a telegraphic news service, and thus enable western papers to print more news of the empire and Canada generally. In conclusion, he made a feeling reference to Winnipeg and the west, and said that both he and Mrs. Bury would look forward to their periodical visits to Winnipeg as visits home.

Grant Hall was the last speaker of the evening, and made a decided impression by his clear cut businesslike remarks. He said it would take more eloquence than he possessed to show his appreciation for the friendly spirit in which they had received the announcement with regard to himself. Vice President Bury had set a very hard pace for him, and would still be the pace maker—still hold the watch. However, he would personally leave nothing undone in his efforts to make things go as smoothly as they had done in the past. He said that he felt it an honor that the chief executive of the railway in the west should receive such a compliment as had been tendered to Mr. Bury, by such a magnificent dinner. It was a compliment such as no railway man had ever received in Western Canada. He was proud of the fact that the company had selected Mr. Bury to fill such an important position. If he undertook to say what he proposed to do in the future he would be like the man in a story he quoted who purchased a fine yacht, the main attraction of which was its unusually loud whistle. When the engineer was ordered to proceed he could not do so because all the steam was exhausted in blowing the whistle.

Canadian Northern Railway Contractors Suits.

A lien of claim has been filed in the registry office at Sudbury, Ont., by Foley, Welch and Stewart and the Northern Construction Co., against the Canadian Northern Ontario Ry.'s lands, the claim being $4,276,000, for work done and material supplied up to Dec. 3, 1914, for Mackenzie, Mann & Co., Toronto, and the British Empire Trust Co., London, Eng. The lien is filed under the Mechanics' Lien Act of Ontario on behalf of the contractors for the section of the line from Port Arthur easterly to Ruel, Ont. It is stated that differences have arisen between Mackenzie, Mann & Co., who were the general contractors for building the line, and the plaintiffs who actually did the work, as to the classification of materials, and that in order to bring about a settlement the plaintiffs have filed a general lien on the company's property and lands. Mackenzie, Mann & Co. claim that Foley, Welch and Stewart have been paid in full and that there is nothing owing to them.

Action has been taken at Calgary, Alta., against Mackenzie, Mann & Co., the Northern Construction Co., and the Canadian Northern Ry., by Phalen, Shirley and Co., who claim between $300,000 and $400,000 and interest. The plaintiffs had subcontracts on the main transcontinental line west of Edmonton, and allege that the various sums were not paid as they became due under the agreements.

The Safety First Propaganda.—G. Bradshaw, who is in charge of the safety first work on the G.T.R. and G.T. Pacific Ry., has issued a booklet entitled "Fred Warren," which contains the personal narrative of a boy of that name who lost a leg through "hopping" cars in a freight yard. To this narrative is added a few words by a school teacher, Miss Hudson, showing how safety first facts can be taught in connection with the regular history and geography lessons in school. The booklet can be had at a special price for distribution, and at 30 cents a single copy, from G. Bradshaw, Highland, N. Y.

The Northern Pacific Ry. has paid the New Westminster, B.C., city council $25,000 as the first instalment on account of rentals for the water front property leased for terminal purposes. The company may take possession of the property any time up to July 1, 1916, when a further payment of $27,000 is to be made.

Interstate Commerce Commission Authorizes Increased Freight Rates in Eastern Territory.

The Interstate Commerce Commission of the United States gave a decision on Dec. 18, which is of the greatest importance to railways in eastern U. S. territory and through them to the business community generally. The decision, from which Chairman Harlan and Commissioner Clements dissented grant increases as explained below:

With the exception of lake and rail traffic, coal, coke, iron ore and certain other traffic, upon which the commission has affixed rates adjudicated reasonable all the railway systems operating between the Atlantic seaboard and the Mississippi, north of Potomac and Ohio rivers, were allowed the flat 6% increase for which they have been asking during the last four years. The roads hoped to get increases which would add to the annual revenue some $50,000,000. The commission's decision is expected to give them additional revenue approximating $30,000,000.

The roads east of a north and south line drawn through Buffalo, Pittsburg and Charleston, W. Va., won by the decision, the increases, other than upon the traffic excepted, which were denied them in the commission's decision last August. The roads west of this line, which got partial advances in the August decision, received further advances, so that now, all the roads in what is described as official classification territory will enjoy uniform advances in both class and commodity rates.

In administration circles at Washington the outcome of the case was welcomed as a development which would hasten and support the expected general business revival. President Wilson issued no formal statement, but White House officials said he was greatly pleased and expected the decision to have an immediate effect upon the country's economic situation. The President had made no secret of his belief that improvement of conditions generally was dependent, to an extent, at least, upon additional revenue being provided in some way for the railroads.

Traffic on which no increase was allowed by the commission represents about 55% of the entire volume of freight handled by the roads. Coal, coke and iron ore, however, are bulky commodities, taking low rates. consequently the amount of revenue derived from them is relatively small. In the eastern district 10% of the entire volume of freight is anthracite, 31% bituminous coal, 6% coke and 5% ores. The coal roads, in the opinion of the commission, are already profitable.

In its decision the majority held that the roads had established in the latest hearings a greater need of additional net income than ever before. This was due, in part, to the war in Europe and, in part, to the already existing necessity, in the judgment of the commission, for additional revenues to maintain the railroad properties.

Text of the Decision.

Following is the decision of the majority of the commission: "These cases were originally submitted in May, 1914, and decided on July 29, 1914. Upon petition of the carriers filed Sept. 15 the Commission, on Sept. 19, ordered that further hearing in said cases be granted; the hearing to be limited to presentation of facts disclosed and occurrences originating subsequently to the date upon which the records previously made in these cases were closed. Under these limitations hearing was hed before the Commission continuously for five days, ended Oct. 23. Evidence was introduced by carriers, investment bankers, and various protestants. Some of the exhibits supplemented those offered at the original hearing. The cases were argued before the Commission on Oct. 29 and 30, and thereupon submitted.

"It is not necessary to make any extended summary of the conclusions contained in the Commission's original report. Among other things, it found that in view of a tendency toward a diminishing net operating income, as shown by the facts described, we are of opinion that the net operating income of the railways in official classification territory, taken as a whole, is smaller than is demanded in the interests of both the general public and the railroads; and it is our duty and our purpose to aid, so far as we legally may, in the solution of the problem as to the course that the carriers may pursue to meet the situation.

"The Commission did not acquiesce in the carriers' proposal of a general increase as indicated in the tariffs filed by them, but suggested various methods by which they might properly conserve their revenue. In central freight association territory, however, by reason of the low general level of rates there found to prevail and also by reason of the financial necessities of the carriers in that territory, intraterritorial increases of approximately 5% were permitted, except on certain articles, mainly heavy lowgrade commodities. It was suggested in view of the modifications required in the tariffs that the central freight association lines might find it more desirable to undertake at once the tariff readjustment asserted by them to be necessary. Save as above indicated, the proposed increases were denied and the tariffs carrying them were ordered canceled.

"The facts disclosed and occurrences originating' subsequent to May 29, 1914, as presented at the further hearing may be summarized under three heads—first, completed returns for the fiscal year ended June 30, 1914, and returns for succeeding months; second, the war in Europe; and third, results of the original order.

When these cases were originally submitted, as also when the original report was prepared, the revenue and expenditure account for June, 1914, and the property investment account for that fiscal year, were not available, the war was unforeseen, and the results of our order were, of course, yet to come. Collectively they present a new situation. The carriers offered further evidence of their financial condition during the fiscal year ended June 30, 1914, including returns for that year completed by addition of the revenue and expenditure account for June and the capital investment account for the year. They also introduced revenue and expenditure accounts for July and August of the current fiscal year. Reports to the Commission for Sept., 1914, have since made possible a similar statistical statement for that month also. These figures serve to emphasize our previous finding of the need of carriers in official classification territory, taken as a whole, for increased net revenue.

"For the fiscal year just ended the net operating revenues as shown by the carriers are lower than was estimated or anticipated when the original report was issued. Not since 1908 have the net operating revenues of the carriers been so low as in the fiscal year ended June last. In 1908, moreover, the property investment account of the carriers was $1,309,000,000 less than in this last fiscal year. The surplus for 1908, after deducting $102,000,00 paid in dividends, was $47,000,000, whereas for the last fiscal year the dividends paid, amounting to $118,000,000, drew on the accrued surplus to the extent of $8,200,000. Of this amount the New England roads contributed over $4,000,000. It is not to be inferred from these figures that the total surplus in 1913-14 decreased by $8,200,000. From reports made by the carriers to this Commission the appropriated surplus for class I roads, eastern district, was $343,508,201 on June 30, 1914. This was an increase over appropriated surplus existing on June 30, 1913, of $19,378,945. During the same year there was, however, a shrinkage in the excess of credit over debit balances to profit and loss of $53,957,233, indicating for the last fiscal year a shrinkage in total surplus of $34,578,288.

"From whatever comparative standpoint viewed, the net operating revenues of the last fiscal year must be regarded as unduly low. Operating costs and operating revenues fail to show the tendency to such concomitant variation as should prevail in the transportation industry. While the gross revenue in that year declined only about 3.4%, the net revenue shrank approximately 17.7% as against the previous fiscal year. The indication is that some important items of cost have became relatively inelastic, and that a fall in gross revenue leaves an increasingly narrow margin of net revenue. The situation is different when an attempt is made to estimate the decline in the rate of return. The property investment accounts as now standing on the books of the carriers cannot be accepted as accurately representing the fair value of their property devoted to serving the public.

"Objection was raised to the increasing amounts charged in recent years to additions and betterments, particularly because the carriers in presenting a financial review of their operations for a series of years failed to indicate separately the relative effect upon their accounts of outlay for additions and betterments as compared with allowance for depreciation, it being contended that this caused an unwarranted diminution in the resulting net income from operation. The fact nevertheless remains that if the increase in depreciation and betterment accounts in the last fiscal year over the average of similar allowances for the five year period were added to their net operating income for the last fiscal year the results of operation would still fall below a fair return upon the amounts carried upon roadway. We cannot view with favor While there has been recently an enlarged expenditure for maintenance of equipment, it is clear that it has not been sufficient to restrict to proper limits the number of cars and locomotives needing repairs. The carriers in the past have not known how large an expenditure to figure upon for the maintenance of the newer type of steel freight cars, and appear now to have discovered that such expenditure must be greater than was anticipated. The like may be said as to the recent enlargement of expenditure upon roadway. We can not view with favor any attempt to obtain an increase in net revenue through unduly restricted expenditures upon maintenance. To whatever extent recent increased provision for depreciation or expenditure for maintenance may militate against a fair comparison of supposedly comparable statistical items for various years, we cannot say on this record that such charges as at present returned by the carriers are excessive, viewed either from the standpoint of power accounting or of safety of operation. The testimony shows that while some maintenance is being deferred, other maintenance deferred during the last fiscal year is now being made, and that the expenditure therefor during July

and August measured up to the level of recent years. The testimony also shows that transportation expense is being reduced through the laying off of employes and cancenation of train service.

"It was urged on behalf of the carriers and the investment bankers who appeared at the hearing that tne war in Europe has created a condition which renders the diminution of the carriers' net income a menace to the prosperity of the country; that the war has placed an added strain upon the credit of carriers; that rates of interest will rise; that a large volume of railroad securities is held abroad; that the denial of the increase in freight rates would, in view of the diminished net income, be followed by a dumping of foreign securities upon the American markets; that our markets would not be able to absorb these securities—at least, without great fall in price; that disaster would result not only to our railways, but to insurance, banking and industrial concerns; and that for these and other reasons, extending far beyond the direct needs of the carriers themselves, we should now allow the proposed increase in rates. With some of these considerations we have, as a commission, nothing to do. Our powers and functions are those, and only those, conferred by Congress. As was said in Advances in Rates, Western Case, 20 I.C.C. 307, at page 317: 'We must not regard too seriously, however, the effort of railway counsel to establish this Commission in loco parentis towards the railways. We must be conscious in our consideration of these rate questions of their effect upon the policy of the railways and, ultimately, upon the welfare of the state. This country cannot afford to have poor railways, insufficiently equipped, unsubstantially built, carelessly operated. We need the best of service. Our railway management should be the most progressive. It should have wide latitude for experiment. It should have such encouragement as would attract the imagination of both the engineer and the investor. Nevertheless, it is likewise to be remembered that the Government has not undertaken to become the directing mind in railway management. We are not the managers of the railways. And no matter what the revenue they may receive there can be no control placed by us upon its expenditure, no improvements directed, no economies enforced.'

"The conflict in Europe will doubtless create an unusual demand upon the world's loan fund of free capital, and may be expected to check the flow of foreign investment funds to American railways. It appears that our railways represent the bulk of European investment in this country The rate of interest—the hire of capital—has risen during the last decade, and may rise still further. It is computed that in 1915, 1916, and 1917 the carriers in official classification territory must arrange for the payment or refunding of securities aggregating over $500,000,000. True, the representations of the carriers in the 1910 cases, that without the increases then sought their credit must totally vanish, proved strangely at variance with their subsequent experience in the borrowing of many hundreds of millions. But we do not doubt that the financial problems of the carriers have been made much more acute by reason of the war, and if we are to set rates that will afford reasonable remuneration to these carriers, we must give consideration to the increased hire of capital as well as to other increased costs. The suggestions, made in our original report, of methods whereby to increase net revenue were not susceptible of being put into immediate operation or calculated to produce immediate financial results. This was recognized in our original report. The period which has since elapsed has, of course, been entirely too short for either purpose. Some testimony was offered at the further hearing bearing on what had been done or undertaken in line with these suggestions, and estimates were made by the traffic officials of several carriers as to the annual yield to be expected These estimates were not based on any accounting computation and can afford little guide as to what the results will prove to be.

"While we differ as to the relative importance to be attached to the various considerations presented, we agree in the conclusion that, by virtue of the conditions obtaining at present, it is necessary that the carriers' revenues be supplemented by increases throughout official classification territory. Whatever the consequences of the war may prove to be, we must recognize the fact that it exists, the fact that it is a calamity without precedent, and the fact that by it the commerce of the world has been disarranged and thrown into confusion. The means of transportation are fundamental and indispensable agencies in our industrial life and for the common weal should be kept abreast of public requirements. The original report, besides approving a rate increase in central freight association territory, suggested 10 sources of additional revenue for all carriers throughout official classification territory; the present report, recognizing the existence of the relief granted to the central freight association lines by permitting the carriers to file tariffs providing, with certain exceptions specified herein, for horizontal rate increases in official classification territory. It is expected that the constructive work suggested in the original report for the purpose of conserving and augmenting the net revenues of the carriers generally will be carried forward without interruption. Carriers will be required to keep an account of the additions to their revenues from increases in rates subsequent to July 29, 1914, and from new charges, and to report separately thereon to the Commission at the end of 12 and 24 months, respectively. For various reasons we shall expect from the proposed increase the following rates:

"1. Rail-lake-and-rail, lake-and-rail, and rail-and-lake rates. It is shown on the record that since the rail carriers acquired ownership and control of the lake lines successive increases have been made in the rates via lake tending to lessen the differences between them and the all-rail rates.

"2. Rates on bituminous coal and coke. Not long since these rates were investigated and maximum rates were prescribed by the Commission. The key rates upon bituminous coal—the rate from the Pittsburgh district to Youngstown, and the rate on lake cargo coal to Ashtabula—have been fixed in the light of the various factors which enter into the transportation of such coal. The prevailing rates are remunerative, and the financial condition of the principal bituminous coal—the rate from the Pittsburg dis- that of many of the other carriers in official classification territory. Twice in the not distant past the rates on bituminous coal have been increased 5c. a ton, and would seem now to be as high as may fairly be allowed. It must be remembered also that the carriers are not seeking general increases in rates on anthracite coal, and both kinds of coal are used in competitive markets. As to coke, the rates controlling the greater volume of traffic now moving in official classification territory have recently been set by the Commission upon a basis which was specifically designed to guard against shrinking the carrier's revenue therefrom, and which really resulted in substantial additions to their earnings on that traffic.

"3. Rates on anthracite coal and iron ore, largely because they are before us for review in other proceedings.

"4. Rates held by unexpired orders of the Commission.

"In our original report we declined, for reasons there stated, to allow increased rates in central freight association territory on cement, starch, brick, tile, clay, and plaster. On further consideration, in the light of the existing situation, these rates may be increased throughout official classification territory under the limitations herein set forth.

Joint rates between official classification territory on the one hand, and southeastern territory, the southwest and points on or east of the Missouri River on the other, may be increased not to exceed 5% of the division of the rate accruing to the carriers in official classification territory. If these increases involve a change in the relationship under the long-and-short-haul rule between intermediate points and more distant points outside of official classification territory relief from the fourth section of the act must first be secured on regular application.

"Interstate rates to and from New England from and to points in trunk line or central freight association territory, where necessary to preserve established relationships between points or ports in New England and points or ports in trunk line territory, may be increased not to exceed 5%.

"Subject to the maintenance of the established Atlantic port differentials, rates to and from New York may be increased not to exceed 5%, and rates to and from Portland, Boston, Philadelphia, and Baltimore may be increased to the extent necessary to maintain said differentials.

"Except as otherwise above specified rates in official classification territory may be increased by not more than 5%; but rates increased since July 29, 1914, may not now be again increased so as to exceed those then in effect by an aggregate of more than 5% of the intraterritorial rate, or of the portion or division of the intraterritorial rate accruing to the road or roads in official classification territory, as the case may be.

"If fractions in excess of one-half a mill are rounded upward, fractions less than one-half a mill are to be discarded.

"In some instances, and in part because of the pendency of this proceeding, we have recently suspended proposed increased rates in this territory. Carriers may, if they so elect, now cancel such tariffs so suspended and file in lieu thereof tariffs which conform to the limitations above specified. If that is done such suspensions will be vacated.

"To the extent above indicated we now modify our previous findings, and carriers affected may file, effective or not less than 10 days notice, such tariffs as do not offend gainst the restrictions above stated..

Chairman Harlan and Commissioner Clements gave dissenting judgments.

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

	Acres.
Calgary and Edmonton Ry.	3,724.97
Canadian Northern Ry.	24,816.67
Canadian Pacific Ry.	16.58
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.	2,245.10
Total	30,803.32

When hardening springs in oil, the oil should be watched, and a little fresh oil added every day or so. When the whole mass has become pretty well burned, it should be thrown out, the tank cleaned and filled with fresh oil, as worn out oil loses its power, and will not harden plate steel as it should be hardened.

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:—

Interswitching at Listowel.

22819. Nov. 4, re application of Town of Listowel, for an order directing the G. T. R. and the C. P. R. to establish interswitching facilities between their lines at Listowel. It is ordered that a transfer track for the interchange of traffic between the G. T. R. and the C. P. R. at Listowel, be constructed near Reserve St.: the work to be done by the C. P. R.; a plan showing the proposed transfer track to be filed by the C. P. R. for the approval of an engineer of the Board; and such track to be constructed and completed within one month after the erection of Libby, McNeill & Libby Co.'s factory. That the Town of Listowel pay one third of the cost of installing the interchange track, the remainder to be divided equally between the two railway companies; and that when the interchange is established, the Board's general interswitching order apply to all movements to or from the industrial tracks of the two railway companies.

Classification of Prepared Roofing.

22880. Nov. 16, re application of Standard Paint Co. of Canada, Ltd., for a reduced rating on prepared roofing in the Canadian Freight Classification. It is ordered that the application be dismissed.

Express Rates on Fish from Vancouver.

22893. Nov. 17.—The complaint of W. J. Guest Fish Co., Ltd., of Winnipeg, in regard to express rate charged on fresh fish, in carload lots, from Vancouver to Winnipeg. Upon hearing the matter at Winnipeg, May 28, 1914, in the presence of a representative of the complainant company, no one appearing for the Dominion Express Co., and upon reading the arguments of the parties thereafter filed, it is ordered that the complaint be dismissed.

Supplement 4 to Canadian Freight Classification 16.

22895. Nov. 25, re application of Canadian Freight Association, behalf of railway companies subject to the Board's jurisdiction, under sec. 321 of the Railway Act, for an order approving the proposed Supplement 4 to Canadian Freight Classification 16, containing certain increased, reduced, and additional ratings. 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 Wholesale Grocers' Guild, and the Boards of Trade of Halifax, St. John, Quebec, Montreal, Ottawa, Toronto, Hamilton, Brantford, London, Winnipeg, Brandon, Regina, Saskatoon, Calgary, Edmonton, Vancouver, and Victoria; It is ordered that the said supplement as amended and revised and resubmitted for approval by the Canadian Freight Association, be approved, to become effective not later than January 2, 1915 .

Interswitching at Coldwater.

22915. Nov. 25, Re application of Village of Coldwater, Ont., for an order directing the G.T.R. and the C.P.R. to provide interswitching facilities there it is ordered that 30 days from date the C.P.R. construct a transfer track between its railway and the G.T.R. at Coldwater, so as to provide for the reasonable receiving, forwarding, delivering, and interswitching of traffic between their respective railways; the C.P.R. to file, within 15 days from date, plans showing the proposed interchange tracks, for the approval of an engineer of the Board; the C.P.R. to keep an accurate and detailed account of the expense of putting in the tracks. That the Applicant supply a bond, to cover one-half of the cost of the work of constructing the interchange tracks; such sum, or so much thereof as the Board may later, and after investigation, deem proper, to be paid over on and according to the Board's direction; and for the determination of such sum to be so paid over, the applicant, and the C.P.R. and G.T.R., shall keep an account of the cars received and shipped over the transfer track during 12 months following its completion.

Kettle Valley Railway Tariff.

22921. Nov. 26.—Re application of the Kettle Valley Ry., under sec. 327 of the Railway Act, for approval of its Standard Freight Mileage Tariff of Maximum Tolls, C.R.C. 27, applying between stations in British Columbia, whereas, in accordance with the judgment of the Board in the Western Rates Case, the lawful effective date of the said tariff should have been Sept. 1, 1914; and upon the company undertaking to refund all freight charges exceeding the said Standard Tariff, C.R.C. 27, collected upon shipments made since and including Sept. 1, it is ordered that the tariff C.R.C. 27.

Halifax & South Western Ry. Freight Tariff.

22955. Dec. 4.—Granting application of the Halifax & South Western Ry. for approval of its Standard Mileage Freight Traffic, C. R. C. no. F-1, applying on general merchandise in the absence of special or other tariffs giving lower rates.

Freight Rates on Brick, Etc.

22963. Re complaints of Milton Pressed Brick Co. and Hagersville Contracting Co. against certain minimum carload tariffs of the railway companies, applicable to the carriage of brick, crushed stone, and other construction materials. It is ordered, with respect to the tariffs of railway companies operating in Eastern Canada, as follows, namely: That wherever it occurs, the provision of a minimum weight of 50,000 lbs. a carload of building brick, other than enamelled or glazed brick, be supplemented to provide that should a car of the loading capacity of 40,000 lbs. be ordered which the carrier is unable to furnish within a reasonable time, a car of greater capacity shall be furnished and charged for on the basis of the actual weight of the brick loaded therein, subject to a minimum of 40,000 lbs.; but that should such car so furnished be loaded in excess of 45,000 lbs. the minimum weight assessable for freight charges shall be 50,000 lbs. That wherever it occurs in the special tariffs applicable to brick, stone, and other commodities commonly described in the tariffs as "building material," the provision for an increase of 5% per foot to the tariff minimum weight, in the case of cars longer than those covered thereby, be withdrawn and cancelled. That effect be given to this order not late than Dec. 21, 1914.

C. P. R. Embargo at Mile End, Que.

22974. Dec. 7.—Re embargo placed by C. P. R. upon all traffic originating on the Canadian Northern, Grand Trunk, and Intercolonial Railways, consigned for delivery on its team tracks at Mile End, Montreal, it is ordered that the C. P. R. be required forthwith to cancel the said embargo.

Holding Cars for Consignees' Orders.

22975. Dec. 10.—The application of American Coal and Coke Co., of Detroit, Mich., for an order disallowing note 3 to rule 1, pg. 7, of Michigan Central Rd., C.R.C. 2171, which reserves the right to the company to hold cars for consignees located within the Detroit switching limits at Windsor, Ont., awaiting final delivery orders, or when delivery cannot be effected due to inability of consignee to receive the same; also for an order requiring the company to refund, with interest, sums paid under protest by the applicant under the said tariff rule. It is ordered that the applications be refused.

Mixed Carload Rates on Groceries, Etc.

General Order 133. Dec. 19.—Re proposed cancellation on Jan. 1, 1915, of arrangements whereby mixed carloads of foreign and native liquors, and mixed carloads of groceries, classified 5th class in straight carloads, and dried fruits, classified 4th class in straight carloads, are carried at their respective carload rates between points west of and including Port Arthur, and thereto from eastern shipping points. Upon hearing the matter at Toronto, Dec. 12, 1914, the Toronto, Montreal and Hamilton Boards of Trade, and other parties interested being represented, it is ordered that the proposed cancellation of the said arrangements be, and it is hereby suspended until further order of the board.

Grand Trunk Railway Betterments, Construction, Etc.

London, Ont.—The city freight sheds, York St., London, Ont., were destroyed by fire, Dec. 6, the offices and the bonded warehouse alone escaping. The shed was about 200 ft. long.

Port Huron Shops.—The residents of Port Huron, Mich., have voluntarily raised $100,000 for the purpose of buying the Huron Thresher Co.'s plant, in order that the site may be utilized for the new G.T.R. shops. Nothing has yet been announced as to when construction will be started.

Great Northern Railway Lines in Canada.

Vancouver Terminals.—The Board of Railway Commissioners has made a new order respecting the three viaducts which were planned to span the G.N.R. tracks in the east end of Vancouver, connecting the False Creek terminal grounds with the inlet. Under the original order a viaduct has been erected at Hastings St. at a cost of $100,000. The new order cancels for the present the necessity of building the viaducts at Pender, Keefer and Harris Streets. This is the outcome of the recent decision of the Imperial Privy Council relieving the British Columbia Electric Ry. of the payment of 20% of the cost of these viaducts. (Dec., 1914, pg. 545.)

Canadian Society of Civil Engineers in B.C.—The officers of the Victoria, B.C., branch were elected at the annual meeting Dec. 9. as follows:—Chairman, D. O. Lewis, Canadian Northern Pacific Ry.; Vice Chairman, H. W. E. Cavanau; Secretary, E. W. McIntyre; Executive Committee, A. W. Wilby, A. E. Foreman; Auditors, E. H. Harrison, H. A. Icke. The retiring chairman was F. C. Gamble, Chief Engineer of the B. C. Department of Railways. On Dec. 10 and 11, the members of the Vancouver branch met with the Victoria branch. A paper on harbors was read by J. S. McLaughlin, engineer in charge of harbor works in Vancouver, and G. R. G. Conway, Chief Engineer, British Columbia Electric Ry., and chairman of the Vancouver branch, read a paper on legislation and the engineering profession. On the afternoon of the 11th the party made a trip to Albert Head, and in the evening attended the annual dinner.

Canadian Pacific Railway Construction, Betterments, Etc.

Eastern Division. — Construction was reported to have been started on the new double track bridge over the Lachine Canal at Montreal, Dec. 9. This is the last piece of work necessary to complete the building of the second track between Montreal and eastward. The cost of widening the approaches and erecting the bridge is estimated at $1,000,000.

Ontario Division. — The Campbellford, Lake Ontario, and Western Ry. has a joint terminal with the Canadian Northern Ontario Ry. at Belleville, Ont., and a section of joint track and terminals with the Georgian Bay & Seaboard Ry. at Orillia, Ont. The Dominion Parliament is being asked to confirm the agreements between the two companies with respect to the same.

The C.P.R. is applying to the Dominion Parliament for the confirmation of an agreement with the Canadian, Northern Ontario Ry. respecting the use of terminals at North Toronto, Ont.

The new double track bridge over the Humber River, near Toronto, on the Toronto-Windsor line is completed. Trains commenced to run over the southerly, as well as the northerly, track Dec. 1.

The C.P.R. is applying to the Dominion Parliament for an extension of time for the construction of its projected line from between Bolton Jct. and Palgrave, on the Toronto-Sudbury line, and Campbellville, Ont., on the Toronto-Windsor line.

The South Ontario Pacific Ry. is applying to the Dominion Parliament for an extension of time for the building of its projected railway from Hamilton to the Niagara River at Niagara Falls, Ont.

Manitoba Division.—An agreement has been reached between the Winnipeg City Council and the company providing for the settlement of various matters which were the subject of difference between the two corporations. There were 31 matters on which the city is asked for a settlement with the company, and 12 of which the company asked for a settlement with the city.

As a result of a deputation which waited on the company's officials at Winnipeg, Dec. 5, the Mayor of Souris announced on his return that the direction for the transfer of the present divisional point at Souris to Brandon was withdrawn.

Saskatchewan Division.—The Manitoba and Northwestern Ry. is asking the Dominion Parliament for an extension of time for the building of the projected line from Theodore to some undecided point on the line running from Govan to Lanigan, Sask.

The Expanse subdivision has been extended to Vantage, Sask., by the opening for traffic of the line from Ryecroft, mile 41.2, to Vantage, mile 49.6 from Moose Jaw. The line is being extended to Vanguard, which was expected to be reached by the tracklaying gang by Dec. 31.

Alberta Division.—The Alberta Central Ry. is applying to the Dominion Parliament for an extension of time for the building of the following lines:—From Rocky Mountain House to the G.T. Pacific Ry., near Yellowhead Pass; three branch lines of 30 miles each, and two of 35 each into the Big Horse Range and along the Brazeau River.

Kootenay Central Ry.—The line which connects the Crowsnest Pass line at Coalmount with the main transcontinental line at Golden, B.C., 160 miles, is reported to have been opened for traffic, Dec. 8. It has been under construction for several years, and has been in operation for some time between Golden and Spillimacheen, 40 miles. Although about 40 miles of track had been laid at the southern end of the line for some time, no regular train service had been operated over it.

British Columbia Division.—The British Columbia Southern Ry. is applying to the Dominion Parliament for an etxension of time within which it may build the projected line from Michel to Kananaskis, B.C.

The new double track bridge over the Pitt River at Coquitlam, B.C., has been completed and opened for traffic.

The viaduct at Granville St., Vancouver, which is part of the new terminal works, was finally completed and opened for general traffic, Nov. 30. It had been opened for pedestrian traffic nearly two weeks previously. (Dec., 1914, pg. 543.)

Railway Finance, Meetings, Etc.

Algoma Central and Hudson Bay Ry.—It was announced in Toronto, Dec. 1, that on account of depressed traffic conditions, the railway was unable to meet the half yearly bond interest coupons due that day. The board proposes to place before the bondholders at an early date a plan to redeem the indebtedness. This railway, together with the Algoma Eastern Ry., is controlled by the Lake Superior Corporation.

Canadian Pacific Ry.—The Guaranty Trust Co. of New York, in association with a number of other New York financiers, has purchased an issue of $12,690,000 of 4½% equipment trust certificates, maturing in semi annual instalments of $470,000 each from July 1, 1915. These are the balance of the Victoria Rolling Stock and Realty Co.'s securities, the amount of which was shown in the annual report as $13,630,000, of which $940,000 has since been paid. They are called C.P.R. 4½% equipment trust certificates to designate them on what is called the Philadelphia plan.

Grand Trunk Ry.—A London, Eng., press cablegram, Dec. 17, says:—"The G.T.R.'s new issue of 5½% three year notes is put forward under burdensome conditions, the company offering 1% commission to the underwriters, and apart from general expenses the issue will cost it 7%. The company during the summer sold £2,000,000 one year bills on a 4⅜ basis, which, like the latest offer, were secured on debenture stock."

Great Northern Ry. (Canada).—The construction of this railway, which now forms a section of the Canadian Northern Quebec Ry., was undertaken by the Great Northern Construction Co., payment being made partly in bonds, partly in stock and partly in cash. Portions of the work were sublet to Ross, Barry and McCrae, who were to be similarly paid, the contract being entered into in 1899. After the contracts were completed the subcontractors and the general contractors failed to agree as to the price for certain portions of the work, and suit was entered, the Bank of Ottawa taking up the subcontractors' interests. The action has dragged on for over 10 years, judgment being given, Nov. 25, by Justice Guerin for $426,886, of which $63,000 is to be paid in cash, and the remainder in stock and bonds.

Temiscouata Ry.—Net earnings for September, 1914, $4,755, against $2,500 for October, 1913.

Toronto, Hamilton and Buffalo Ry.—The Dominion Parliament is being asked to confirm the agreement amalgamating the Erie and Ontario Ry. with the T.H. and B. Ry.; to authorize the amalgamated company to issue bonds to the same extent as the E. and O. Ry. is authorized, and to secure the same by a mortgage of that railway and by a third mortgage of the T.H. and B. Ry.; to authorize the amalgamated company to issue bonds or other securities to the amount of $15,000,000 to provide for the retirement of all existing bonds and securities of the amalgamated company, and to secure the same by a mortgage upon the entire undertaking of the amalgamated company.

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those for 1913-14, from July 1, 1914:

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	$1,594,300	$1,163,800	$420,500	x $83,800
Aug.	1,367,700	1,123,000	244,700	x 163,900
Sept.	2,109,500	1,519,000	590,700	65,800
Oct.	1,895,300	1,332,100	563,200	x440,900
Nov.	1,670,200	1,123,100	547,100	x417,700
	$8,667,400	$6,261,200	$2,376,200	x$1,040,500
Decr.	$2,471,500	$1,431,000	$1,040,500	.....

x Decrease.

Approximate earnings for three weeks ended Dec. 21, $1,019,700, against $1,602,100 for same period 1913.

Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1913-14, from July 1, 1914:

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	$10,481,971.72	$6,703,525.89	$3,778,445.83	x$338 347.35
Aug	8,917,764.38	6,554,606.68	3 373.157.70	x 597,981.54
Sept.	10,754.139.67	6,387,091.28	4,367.048.39	x 48 530.30
Oct.	9,282,928.49	5,961,600.13	3,321,328.36	x2,281,529.48
	$40,436,804.26	$25,606,823.98	$14,829,980.28	x$3,266,388.62
Dec.	$ 9,628,016 79	$ 6,361,628.17	$ 3,266,388.62	.....

x Decrease.

Approximate earnings for Nov., $7,823,000, against $13,270,000 for Nov., 1913; and for three weeks ended Dec. 21, $5,077,000 against $8,389,000 for same period 1913.

Grand Trunk Railway Earnings, Etc.

The following figures show the earnings of the G.T.R., G.T.W.R., and D.G.H. & M.R. for Sept. and Oct.:

	September.	October.
Grand Trunk Railway (Including Canada Atlantic Ry).		
Earnings	$3,838,250	$3,509,350
Expenses	2,858,900	2,533,100
Net earnings	$979,350	$976,250
Grand Trunk Western Railway.		
Earnings	$611,450	$639,900
Expenses	553,450	602,000
Net earnings	$58,000	$37,900
Detroit, Grand Haven & Milwaukee Ry.		
Earnings	$221,800	$255,100
Expenses	233,750	224,800
Net earnings	$11,850	$30,300

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate traffic receipts from July 1 to Nov. 30, 1914:

	1914	1913	Incr.	Decr.
G.T.R.	$18,147,042	$20,434,612	.....	$2,287,570
G.T.W.R.	3,122,020	3,106,466	$15,554	.....
D.G.H.&M.R.	1,170,392	1,134,043	36 349	.....
Totals.....	$22,439,454	$24,675,121	.....	$2,235,667

Approximate earnings for three weeks ended Dec. 21, $2,576,361, against $3,039,297 for same period 1913.

Grand Trunk Pacific Railway Earnings.

The approximate earnings of the Prairie Section and Lake Superior Branch, 1,104 miles, for November were $532,924, against $1,004,915 for Nov., 1913. Aggregate earnings for five months ended Nov. 30, $2,758,996, against $3,738,188 for the same period 1913.

Mainly About Railway People.

SIR WM. VAN HORNE returned from Cuba to Montreal, just before Christmas.

SIR THOMAS, Lady, and Miss TAIT, will spend part of the Winter in Florida.

JOHN WATSON, who died at Battle Creek, Mich., recently, aged 79, was at one time Superintendent of Dining Cars, G.T.R.

C. G. HIRT, Eastbound Agent, C.P.R., St. Louis, Mo., was married on December 2, to Miss F. M. Pendergast.

SIR THOMAS SKINNER, director, C.P.R., London, Eng., has een elected a director of Laurentide, Ltd., Montreal.

A. W. WHEATLEY, Vice President and General Manager, Canadian Locomotive Co., Kingston, Ont., has been in Europe for a short trip.

R. SMITH, a dispatcher on the Temiskaming and Northern Ontario Ry. at North Bay, Ont., was drowned there while skating, Dec. 6.

T. RODGERS, Travelling Car Inspector, G.T.R., London, Ont., has, after 48 years of continuous service with the company, retired under the pension fund.

E. S. HART, Chairman of the Board of Directors of the Rodger Ballast Car Co., Chicago, Ill., died Nov. 23. He was one of the founders of the Rodger Ballast Car Co.

C. T. SELWAY, heretofore Assistant Superintendent Great Northern Ry., England, has been appointed Superintendent of the Line, succeeding the late W. H. Hills.

M. J. BUTLER, C.M.G., M.Can.Soc.C.E., of Montreal, has been appointed a valuation expert to examine into the physical aspects of the Montreal Water & Power Co., to succeed E. Belanger, M.Can.Soc.C.E.

Hon. N. Curry, President, Canadian Car & Foundry Co., Montreal, sailed from Halifax, N.S., Nov. 29, on the s.s. Franconia for England and is expected to return early in January

JOHN NUGENT, who died at Moncton, N.B., Nov. 29, aged 69, was, until his retirement on the pension fund about three years ago, Foreman of the Erecting Shop, Intercolonial Ry.

F. C. ELLIOTT, who has been elected President, White Pass & Yukon Route, is a lawyer, with office at Chicago, and has been counsel for and identified with the W. P. & Y. R. since its inception.

E. F. L. STURDEE, Assistant District Passenger Agent, C.P.R., Toronto, is a second cousin of Admiral Sir F. C. D. Sturdee, who destroyed the German Pacific squadron off the Falkland Islands, Dec. 9.

R. O. SWEEZEY, B.Sc., A.M. Can. Soc. C. E. formerly General Manager, Montreal Engineering Co. Ltd., has been appointed Professor of Civil Surveying and Astronomy, Royal Military College of Canada, Kingston, Ont.

F. H. PHIPPEN, K.C., General Counsel Canadian Northern Ry., who was operated on in New York, Nov. 25, and subsequently spent a short time at Atlantic City returned to Toronto for Christmas, thoroughly convalescent.

F. C. SALTER, European Traffic Manager, G.T.R., returned to London, Eng., Dec. 10, after a business trip to Holland. He stated that further help was urgently required to enable the Belgian refugee problem to be adequately dealt with.

C. L. HERVEY, M.Can.Soc.C.E., Chief Engineer of the Glengarry and Stormont Ry., which has been leased to the C.P.R., was entertained to a luncheon early in December, to celebrate the completion of the laying of steel on the line

CAPT. T. C. IRVING, JR., Vice President of Robert W. Hunt & Co., Ltd., Bureau of Inspection, Tests, and Consultation, who is in England with the Canadian Engineers, sent a cablegram of Christmas greeting to the Mayor of Toronto, on behalf of his men.

JAMES MANSON, Assistant to the Vice President, C.P.R., Winnipeg, spent a part of December in California, on a vacation, prior to removing to Montreal, where he accompanies George Bury, who has been appointed Vice President there.

H. WHEELER, who has been appointed General Manager, White Pass & Yukon Route, at White Horse, Yukon, has been in the company's service for 14 years, his last position having been Superintendent of the Mail Service Department and River Division.

S. B. CARTER, heretofore District Superintendent, London and North Western Ry., (England) at Manchester, has been appointed District Superintendent at Liverpool, vice, W. M. Turnbull appointed Assistant Superintendent of the Line.

LT. COL. E. WALTER RATHBUN, President, Bay of Quinte Ry., Thousand Islands

E. W. Beatty,
Vice President and General Counsel, Canadian Pacific Railway.

Ry. and Oshawa Ry., Deseronto, Ont., has been appointed to command the 6th brigade of field artillery, which is to be sent as part of the Canadian overseas force.

F. J. HOLMAN, who retired recently from the position of Bridge and Building Foreman, G.T.R., Stratford, Ont., was entertained by the employes of the department there, Nov. 28, and presented with a pair of rocking chairs.

N. P. TRACY, Division Storekeeper, Quebec Grand Division, Canadian Northern Ry., Limoilu Jct., was presented with a silver fitted club bag, and a toilet set for Mrs. Tracy, Dec. 8, on their leaving for a holiday in England. They sailed from St. John, N.B., Dec. 12, on the s.s. Hesperian.

JOHN GALBRAITH, Dean of the Faculty of Applied Science, Toronto University, who died July 22, left an estate of $33,404, in which his wife has a life interest. At her death it is to be divided equally among the daughter and two sons. He also left $6,262 life insurance in favor of his wife.

H. C. OVIATT, recently Superintendent of the old Colony division of the New York, New Haven, and Hartford Rd., has been appointed Assistant Mechanical Superintendent in charge of a new bureau, known as the Bureau of Fuel Economy, with office at New Haven, Conn.

Major A. H. TYLER, R.E. who was killed in action in France in November, was a son of the late SIR HENRY TYLER, a former President of the Grand Trunk Ry., and Lieut. A. Tyler, R.E., who was also killed in action at the same place a day later, was a nephew of Major Tyler.

ANGUS GORDON, who has been appointed Manager, Chatau Laurier, G.T.R., Ottawa, Ont., was born in Scotland, and was for several years, from the opening, Assistant Manager, King Edward Hotel, Toronto, and afterwards Manager of the Victoria Hotel, New Yor.

E. ROBB, who has been appointed Traveling Freight Agent, Intercolonial Ry., Montreal, was presented with a pipe, pouch and umbrella, by his associates in the General Freight Agent's office, and some other friends in Moncton, N.B., on his leaving there recently, to enter on his new duties.

A. F. ZIPF, who has been appointed Traffic Manager, White Pass & Yukon Route, at Seattle, Wash., was formerly in the Alaska Commercial Co. and the Northern Navigation Co.'s service, and while the latter company operated its steamboat on the Yukon River he was its Traffic Manager.

Lieut. A. Lacey Johnson, of the Montreal Heavy Brigade, who has been appointed Lieutenant, No. 4 Section, Divisional Ammunition Column, 6th Field Artillery Brigade, Canadian Expeditionary Force, is a son of Lieut.-Col. LACEY R. JOHNSON, of the Montreal Heavy Brigade, and General Superintendent, Angus Shops District, C.P.R.

J. M. RAPELJE, who was appointed General Manager, Lines East of Paradise, Mont., Northern Pacific Ry., recently, was born at Chippewa, Ont., Jan. 22, 1857, and entered railway service in 1879, as brakeman, G.T.R., and was later a conductor on the C.P.R. All his railway service since 1888 has been in the United States.

A. E. WILKINSON, Division Freight Agent, Intercolonial Ry., Halifax, N.S., who died there Nov. 26, aged 45, was born at Hawkesbury, Ont., June 3, 1870. He entered I.R.C. service, June 1, 1890, as a clerk at Moncton, N.B. In Dec. 1909 he was appointed chief clerk, General Freight Agent's Office, Moncton, N.B., and on May 1, 1912, Division Freight Agent, Halifax.

JOHN WILLIAM PUGSLEY, who has been appointed Secretary, Railways and Canals Department, Ottawa, was born at Amherst, N.S., Mar. 12, 1861, and first entered the civil service Feb. 14, 1880. From 1889 to 1896 he was Assistant Accountant, from 1896 to 1903 Clerk of the Railway Committee of the Privy Council and from 1903 to Dec., 1914, Assistant Secretary, Railways and Canals Department.

M. FRANK TOMPKINS, who has been appointed Division Freight Agent, Intercolonial Ry., Halifax, N.S., was born at Margaree, N.S., Dec. 6, 1878, and entered I.R.C. service Nov. 23, 1896, since when he has been, to Mar. 31, 1900, telegraph operator at various points; Apr. 1 to May 1, 1900, freight clerk, Truro, N.S.; May 1, 1900, to Sept. 2, 1902, freight clerk, Sydney, N.S.; Sept. 1, 1902, to July 1, 1903, division time keeper, New Glasgow, N.S.; July 1, 1903, to July 1, 1904, telegraph operator, New Glasgow, N.S.; July 1, 1904, to Jan. 1, 1911, relieving agent;

Jan. 1, 1911, to Nov. 30, 1914, chief clerk, Division Freight Agent's office, Halifax, N.S.

GEORGE BURY, who took over the position of Vice President, C.P.R., at Montreal, Jan. 1, was described recently in an Ottawa paper as "Mr. David Bury, New Zealand Manager of the Canadian Pacific Railway."

JOSEPH S. CARTER, who was appointed District Passenger Agent, C.P.R., Nelson, recently, was born at Aurora, Ill., Aug. 14, 1864, and entered C.P.R. service, Aug. 1, 1883, since when he has been, to Oct. 1889, in Passenger Department, Toronto; Oct. 1889 to Jan. 1901, ticket agent, Winnipeg; Jan. 1901 to May 1907, District Passenger Agent, Nelson, B.C.; May 1907 to Mar. 1910, General Agent Passenger Department, Spokane, Wash.; Mar. 1910 to Dec. 1913, General Agent, Atlantic Steamships, Winnipeg. During 1914 he was on extended leave of absence.

A. F. HAWKINS, who has been appointed Trainmaster, Moose Jaw Terminals, C.P.R., was born in Kent, England, Aug. 9, 1884, and entered C.P.R. service, Oct. 23, 1903, since when he has been, to May 15, 1906, in various positions in yard office, Winnipeg; May 15, 1906, to Aug. 1, 1908, chief clerk, Fort William, Ont.; Aug. 1, 1908, to July 1, 1909, Assistant Yardmaster, Fort William, Ont.; July 1, 1909, to Apr. 1, 1911, General Yardmaster, Fort William, Ont.; Apr. 1 to Oct. 1, 1911, Night Yardmaster, Winnipeg; Oct. 1, 1911, to Aug. 15, 1914, General Yardmaster, Winnipeg; Aug. 15 to Dec. 31, 1914, Trainmaster, Medicine Hat, Alta.

GEORGE W. HAY, who has been appointed General Passenger Agent, Lehigh Valley Rd., New York, was born at Woodstock, Ont., May 29, 1869, and entered railway service, Oct. 13, 1888, since when he has been, to April, 1897, in train service, G.T.R., Detroit, Mich.; April to July, 1897, baggage inspector, G.T.R., Toronto; July, 1897, to July, 1902, chief clerk, General Baggage Agent, G. T.R., Toronto; July, 1902, to December, 1906, Assistant to General Baggage Agent, G.T.R., Toronto; January, 1907, to Nov. 24, 1914, General Baggage Agent and District Passenger Agent, Lehigh Valley Rd., South Bethlehem, Pa.

HENRY BEATTY, at one time Manager, Upper Lake Steamship, C.P.T., Toronto, who died there April 10, 1914, left an estate of $707,734.78. Within a year prior to his death he had transferred $106,605 to relatives, including Dr. H. A. Beatty, Chief Surgeon, Ontario Division, C.P.R., Toronto, son, $27,750, E. W. Beatty, Vice President and General Counsel, C.P.R., Montreal, son, $37,250, G. M. Beatty, son, $18,236, M. H. Beatty, daughter, $21,869. The widow is left an income for life on $40,000. The three sons and the daughter each receive $171,933.71, and $40,000 is to be divided among them at their mother's death. Four nephews receive $5,000 each.

C. H. BUELL, who has been appointed Staff Registrar, and Secretary of the Pension Fund, C.P.R., Montreal, was born at Jacksonville, Ill., Nov. 21, 1873, and entered C.P.R service Sept 1, 1895, since when he has been, to Oct. 1, 1896, secretary to General Passenger Agent; Oct. 1, 1896 to July 1. 1899, secretary to Passenger Traffic Manager; July 1, 1899 to Sept. 1, 1900, clerk to Assistant General Manager; Sept. 1, 1900 to Aug. 1, 1901, clerk to Second Vice President and General Manager; Aug. 1, 1901 to Nov. 1, 1906, chief clerk to Assistant to the Vice President; Nov. 1, 1906 to Mar. 1, 1907, clerk to Vice President McNicoll; Mar. 1, 1907 to Nov. 27, 1914, chief clerk to Vice President McNicoll.

OTTO H. BECKER, who was appointed District Freight Agent, C.P.R., Portland, Ore., recently, was born in Norfolk County, Ont., Nov. 19, 1873, and entered railway service in April 1893, since when he has been, to July 1899, telegraph operator at various points, Canada Division, Michigan Central Rd.; Sept. 1899 to July 1901, telegraph operator and agent, Fort William, Ont., and Columbia and Western Division, C.P.R., at various points in British Columbia; July 1901 to Apr. 1906, Traveling Freight Agent, C.P.R., Nelson, B.C.; Apr. to Oct 1906, Travelling Freight Agent, C.P.R., Seattle, Wash.; Oct. 1906 to July 1914, General Agent, Freight Department, C.P.R., Tacoma, Wash.

E. W. BEATTY, who has been appointed Vice President and General Counsel, C.P.R., Montreal, was born at Thorold, Ont., Oct. 16, 1877. He was educated at the Model School and Harbord Collegiate, Toronto, and the University of Toronto, graduating in 1898. He served his articles with the late D'Alton McCarthy, of McCarthy, Osler, Hoskin and Creelman, Toronto, and was admitted to the bar in 1901. On the appointment of A. R. Creelman as Chief Solicitor, C.P.R., in July 1901, he accompanied him to Montreal, and was appointed Assistant Solicitor, Jan. 1, 1905, General Solicitor,

Grant Hall,
Vice President and General Manager, Western Lines, Canadian Pacific Railway.

Mar. 1, 1910, and General Counsel, June, 1913. He is a son of the late Henry Beatty, at one time Manager of the Upper Lakes Steamships, C.P.R., Toronto, and is a brother of Dr. H. A. Beatty, Chief Surgeon, Ontario Division, C.P.R., Toronto.

SIR WILLIAM VAN HORNE, SIR THOS. SHAUGHNESSY, and Hon. G. S. Perley, who were born in the United States, will, according to an Ottawa press dispatch, be the first to secure the full status of imperial citizenship under the provisions of the new naturalization act, which comes into effect in Canada. They will be the first to take out their papers, having already applied for naturalization. Under the present naturalization laws a person born in the United States and naturalized in Canada becomes a Canadian, but is not recognized as a British subject in the British Isles. British naturalization, however, is recognized in Canada. The new act removes this anomaly. Any persons who have lived in Canada five out of the past eight years may, after Jan. 1, become entitled to full imperial citizenship.

CHARLES ERNEST STOCKDILL, who has been appointed Assistant to Vice President and General Manager, C.P.R., Winnipeg, was born at London, Ont., Oct. 25, 1881, and entered C.P.R. service July 1, 1899, since when he has been, to Feb. 1, 1900, clerk, Roadmaster's office, London, Ont.; Feb. 1, 1900, to Apr. 30, 1901, clerk in Superintendent's office, London, Ont.; May 1, 1901, to June 15, 1903, secretary to General Superintendent, North Bay, Ont.; June 15, 1903, to Sept. 23, 1904, chief clerk to Master Mechanic, North Bay, Ont.; Sept. 24, 1904, to July 12, 1905, chief clerk to Superintendent, Winnipeg; July 12, 1905, to Feb. 28, 1907, chief clerk to General Superintendent, Calgary, Alta.; Mar. 1 to Dec. 1, 1907, assistant chief clerk to Assistant General Manager, Winnipeg; Dec. 1, 1907, to Sept. 30, 1908, assistant chief clerk to Second Vice President, Winnipeg; Oct. 1, 1908, to Aug. 9, 1910, chief clerk to Second Vice President, Winnipeg; Aug. 9, 1910, to Oct. 1, 1911, chief clerk to General Manager, Winnipeg; Oct. 1, 1911, to Dec. 31, 1914, chief clerk to Vice President and General Manager, and then to Vice President, Winnipeg.

LUCIUS TUTTLE, who died of angina pectoris, at Brookline, Mass., Nov. 30, was born at Hartford, Conn., Mar. 11, 1846, and entered railway service Aug. 1865, since when he was, to 1866, ticket clerk, and from 1866 to Oct. 1, 1878, General Ticket Agent, Hartford, Providence and Fishkill Rd.; Oct. 1, 1878 to Feb. 11, 1879, Assistant General Passenger Agent, New York and New England Rd.; Feb. 11, 1879 to Jan. 1885, successively, General Passenger and Ticket Agent, and Assistant to General Manager, Eastern Ry.; Jan. 1885 to Jan. 1887, General Passenger and Ticket Agent, Boston and Lowell Rd.; Jan. 1887 to 1889, Passenger Traffic Manager, C.P.R., Montreal; 1889 to May 1890, Commissioner, Trunk Line Association Passenger Department; May 1890 to Feb. 1892, General Manager, New York, New Haven and Hartford Rd.; Feb. 1892 to Sept. 1893, Vice President, same road; Oct. 1893 to Oct. 1910, President, Boston and Maine Rd.; 1910 to 1913, Chairman of the Board, same company. Mr. Tuttle had not been in good health since the amputation of a leg about three years ago, but he continued quite active until within about a week of his death.

D'ALTON CORRY COLEMAN, who has been appointed Assistant General Manager Western Lines, C.P.R., Winnipeg, was born at Carleton Place, Ont., July 9, 1879, and entered C.P.R. service Nov. 4, 1899, since when he has been, to Jan. 11, 1900, stenographer in Assistant Engineer's office, Fort William, Ont.; Jan. 11 to July 1, 1900, secretary to Superintendent, Fort William, Ont.; July 1 to Sept. 20, 1900, secretary to General Superintendent, Winnipeg; Sept. 22, 1900 to Feb. 1, 1901, secretary to Superintendent, Fort William, Ont.; Feb. 1, 1901 to June 1, 1902, chief clerk, Superintendent's office, Cranbrook, B.C.; June 1, 1902 to Feb. 15, 1904, chief clerk and accountant, General Superintendent's office, North Bay, Ont.; Feb. 15, 1904 to Mar. 1, 1907, chief clerk, General Superintendent's office, Winnipeg; Mar. 1, to June 1, 1907, chief clerk, Assistant General Manager's office, Winnipeg; June 1, 1907 to Dec. 1, 1908, Superintendent, Nelson, B.C.; Dec. 1, 1908 to Apr. 1, 1912, Superintendent Car Service Western Lines, Winnipeg; Apr. 1, 1912 to July 15, 1913, General Superintendent, Manitoba Division, Winnipeg; July 15, 1913 to Jan. 1, 1915, General Superintendent, Alberta Division, Calgary.

G. H. WEBSTER, M. Can. Soc. C.E., who died at Vancouver, B.C., Dec. 27, 1914, was born at Creemore, Ont., Jan. 31, 1858, and entered railway service in May, 1872, since when he was, to Jan. 31, 1879, articled pupil,

Northern Ry., Toronto; Jan. 31, 1879, to Apr., 1882, Assistant Engineer, Northern, and Hamilton and Northwestern Rys.; Apr., 1882, to Apr., 1883, in private practice in Winnipeg; June, 1883, to June, 1885, Assistant Engineer, Manitoba and North Western Ry.; June, 1885, to July, 1900, Engineer in Charge, same road; July, 1900, to Oct., 1901, Resident Engineer, Main Line and Branches, Western Division, C.P.R., east of Moose Jaw, Sask.; Oct., 1901, to May, 1903, General Tie Agent, C.P.R., Montreal; May, 1903, to Jan., 1904, Right of Way and Lease Agent, C.P.R., Montreal; Jan., 1904, to Jan. 25, 1905, Division Engineer, C.P.R., Vancouver, B.C. In Jan., 1905, he retired from railway service to become President and Engineer of the British Columbia General Contract Co., Vancouver, from which he retired toward the end of 1908, after which he practised as a civil engineer and carried on contracting work on his own account. His name appears in "Birthdays of Transportation Men in January" on page 7 of this issue, which was printed before the news of his death reached us.

SENATOR ROBT. JAFFRAY, who died at Toronto, Dec. 16, aged 82, was at different times prominently connected with a number of transportation interests. In 1874, during the Mackenzie government's regime, he was appointed as the Dominion Government director of the old Northern Ry. of Canada, and on his representations a royal commission was appointed to investigate its affairs. With the late Senator G. A. Cox, he purchased the Midland Ry. of Canada, originally the Port Hope, Lindsay and Beaverton Ry., which they reorganized and sold to the Grand Trunk. He was a strong supporter of the late Geo. Laidlaw's projects, which did so much to make Toronto a railway centre. He was appointed a commissioner of the Timiskaming and Northern Ontario Ry. early in 1914, and on the retirement of the first chairman, A. E. Ames, he succeeded him, retaining that office for about a year, until the Whitney Government came into power, when he resigned. He was one of the organizers of and among the first directors of the Crowsnest Pass Coal Co., which built the Morrisey, Fernie and Michel Ry. in British Columbia. He was one of the spectators when the first locomotive built in Toronto was taken from Good's foundry to the Northern Ry. tracks on the Bay front. Among the many directorates of which he was a member up to the time of his death were those of the Canadian General Electric Co., the Nova Scotia Steel and Coal Co., the Imperial Bank and the Globe Printing Co., Toronto.

Free Transport for Hosmer People.—Application was made to the Board of Railway Commissioners at Victoria, B.C., Dec. 2, for an order authorizing the C.P.R. to carry free of charge such of the residents of Hosmer as desired to remove to some other place. Hosmer was a C.P.R. mining town, but with the abandonment of the collieries a large number of people were left stranded and without employment. The C.P.R. was willing to carry them elsewhere free. The Commissioners said there would be no objection made to the carrying out of any arrangement which the C.P.R. and the B.C. Government might make in the matter. A suggestion was made that a special 5c. tariff should be issued to meet the necessity, but it was pointed out that any such rate would be open to anyone at Hosmer who applied. A further suggestion was made that the C.P.R. could carry persons free under sec. 41 of the Railway Act, but it was pointed out that, while the people to be benefitted in Hosmer were practically without money, they were neither the destitute nor homeless persons contemplated in the act.

Great North-Western Telegraph and Canadian Northern Telegraph Companies Merge.

The Great North Western Telegraph Co. of Canada and the Canadian Northern Telegraph Co. have been merged, and from Jan. 1 will be operated under one system as the Great North Western Telegraph Co. of Canada. Under the arrangement the Western Union Telegraph Co.'s lines in New Brunswick, from Moncton east, and in the United States, will in the near future become part of the G.N.W. system, except the direct lines from the International Boundary between Maine and New Brunswick to the Atlantic cable landing stations at Canso and North Sydney, N.S., which will be retained by the W.U.

This means that the G.N.W.T. Co., heretofore controlled, if not entirely owned by the Western Union, a U.S. organization, has passed under Canadian ownership. While neither the Canadian Northern, nor the G.N.W. managements have made any official statement to that effect, Canadian Railway and Marine World is in a position to state that the W.U. holdings in the G.N.W. have been bought by Canadian Northern Ry. interests.

Z. A. Lash, K.C., who is a director and Senior Counsel of the C.N.R. and who, since the death of H. P. Dwight in 1912, has been President of the G.N.W.T. Co., remains in that position, and G. D. Perry continues as General Manager, the executive officers remaining at Toronto. W. C. Muir, now General Superintendent, Canadian Northern Telegraph Co. and Canadian Northern Express Co., at Winnipeg, will in future confine himself to the General Superintendency of the latter company.

The following appointments of district superintendents of the G.N.W.T. Co. have been made:

L. S. Humes, Superintendent 2nd district, and will continue to act as Manager, Montreal office.

W. G. Barber, Toronto, heretofore Assistant Manager, local office, Toronto, to be Superintendent 3rd district. Office, Toronto.

J. Padington, to be Superintendent 4th district, and will continue as Manager, Winnipeg office.

G. H. Stead, heretofore Superintendent at Winnipeg, Canadian Northern Telegraph Co., to be Superintendent 5th district, G.N.W.T. Co. Office, Saskatoon.

The merger will give the G.N.W.T. connection, through Canadian territory, with Manitoba, Saskatchewan, Alberta and British Columbia, which it has had to reach hitherto from Eastern Canada via W.U. lines through the U.S., and will give the Canadian Northern Telegraph access to places served by the G.N.W. and W.U. throughout Ontario, Quebec and the Maritime Provinces. The combination will have over 1,700 offices in Canada. There will be a friendly alliance with the Western Union, which will give the Canadian combination access to some 22,000 W.U. offices in the U.S. and with 8 trans-Atlantic cables, 6 of which land in Canada.

The principal lines hitherto operated by the G.N.W.T. Co. are owned by the Montreal Telegraph Co. and the Dominion Telegraph Co. The Montreal Telegraph Co. was incorporated by the Legislature of Canada in 1847, to build lines in Canada and the U.S. Its lines are maintained and operated by the G.N.W.T. Co. under a lease for 97 years, from July 1, 1881. Its capital stock, authorized and issued, is $2,000,000. Dividends of 8% are paid under guarantee from the G.N.W.T. and the W.U. companies.

The Dominion Telegraph Co. was organized in 1868, and its lines are leased for 99 years, from July 1, 1879, to the W.U.C., which sublets the lines west of Moncton, N.B., to the G.N.W.T. Co., and operates those in N.B., east of Moncton and in Nova Scotia, under its own name. Its capital authorized and paid is $1,000.000. Dividends of 6% a year are paid quarterly, the rental paid by the W.U. under the lease being equivalent to the dividends.

The Great North Western Telegraph Co. of Canada was incorporated by the Dominion Parliament in 1880, one of its principal promoters being E. P. Leacock, an Englishman, who a year previously went from Ontario to Manitoba, where he had a meteoric career as a real estate speculator, member of the Legislature, etc., for a few years, after which he returned to England. He interested a number of Winnipeg and Toronto people in the project, and one of the incorporators was the late Hon. John Norquay, then Premier of Manitoba.

Following is a copy of the original notice of application for incorporation of the company which appeared in the Canada Gazette:

"Notice is hereby given that an application will be made to the Parliament of Canada at its next session for an act to incorporate the Great Western Telegraph Co. of Canada and to confer on such company corporate rights with powers to build, lease and purchase lines, and to maintain lines for others, and to carry on the business of telegraphing in the provinces of Manitoba, British Columbia and Ontario, the district of Keewayden, the Northwest Territories and elsewhere, with power to amalgamate with any other company or companies.

"Acton Burrows, agent for applicants.

"Winnipeg, Dec. 3, 1879."

It was subsequently decided to change the name to the Great North Western Telegraph Co. of Canada, and the act of incorporation was passed accordingly.

The company, which had its first headquarters in Winnipeg, built and operated a few local lines in Manitoba. Its act of incorporation was a comprehensive one, giving very wide powers, and in 1881, when the Western Union wanted to amalgamate the Montreal and Dominion Telegraph Companies' properties, it bought out the G.N.W.T. Co's shareholders' interests and acquired the charter. Its operations hitherto have been confined to New Brunswick, Quebec and Ontario, with a small mileage in Manitoba connecting with the W.U. lines at the International Boundary, and also a small mileage at different points near the border in the United States.

The Canadian Northern Telegraph Co., a subsidiary of the Canadian Northern Ry. Co., was organized June 30, 1902. It has an issue of $800,000 first mortgage bonds and $500,000 common stock. Its operations follow more or less closely the C.N.R. lines in Ontario, Manitoba, Saskatchewan and Alberta.

Following are statistics of the merged companies as at June 30, 1913:—

	Great North Western.	Canadian Northern.
Capital stock	$500,000.00	$500,000.00
Funded debt	.....	$800,000.00
Revenue from operation	$1,244,302.67	$276,739.70
Operating expenses	$911,884.98	$141,742.68
Net earnings	$332,417.69	$134,997.02
Pole mileage	9,409.00	5,013.10
Wire mileage	22,858.00	16,243.50
No. of land messages	4,225,919	554,393
No. of cablegrams	301,147	1,970
No. of operators	1,632	46
Other officers and employes	375	127
Salaries and wages	$546,382.82	$105,993.31

Inverness Ry. and Coal Co.'s October statement is the best since war was declared. The production was 26,140 tons of coal, against 27,520 in October, 1913.

National Transcontinental Railway Construction.

The Minister of Railways made an inspection of the N.T.R. from Quebec to Lake Superior Jct., Ont., early in December. The section of the line from Moncton to Levis is being operated under the Canadian Government Railway's management, and the section between Lake Superior Jct. and Winnipeg is being operated by the G.T. Pacific Ry., under an arrangement with the Department. The intervening mileage from Quebec to Lake Superior Jct. is practically completed, and local services are being given over the various sections. It is expected that arrangements will be completed for the operation of through traffic in the spring. (Dec., 1914, pg. 548.)

Grand Trunk Pacific Railway Construction.

We are officially advised that during 1914 grading was practically confined to the main line, and even this was completed by the spring of the year. Tracklaying was continued on the main line and several of the branches, and in all about 190 miles were laid, exclusive of second track, sidings, ballast pits, etc. A short resurvey of a portion of the Wattsview Boundary Branch was made.

Main Line.—The entire grade was completed in the early part of the year. Track was laid westerly from mile 1265 to 1374. On April 7 connection was made with track laid easterly from mile 324 east of Prince Rupert to mile 372. The entire line was also ballasted, and is in operation throughout. The grading for Prince Rupert terminals has been practically completed, and the construction of roundhouse and divisional point facilities is under way at Prince George, Endako, Smithers and Pacific. The divisional point at McBride has been installed with a very modern equipment. This completes the terminals on the line, with the exception of Prince Rupert, for which immediate plans are under consideration. Fuel oil facilities in lieu of coal are being prepared for at the divisional points in British Columbia. The following steel bridges were completed during the year:—

Little Shuswap crossing, mile 1101—one span.
3rd crossing Fraser River, mile 1231—950 ft.
Willow River, mile 1262—450 ft.
4th crossing Fraser River at Prince George (combination railway and highway bridge—2650 ft.
Mud River, mile 1292—160 ft.
Upper Nechaco crossing, mile 1373—675 ft.
Endako River crossing, mile 1386—one span.
Endako River crossing, mile 1403—one span.
Bulkley River crossing, mile 1481—one span.
Bulkley River crossing, mile 1486—350 ft.
Also 12 bridges each consisting of one span over fast mountain streams running into the Skeena River east of Prince Rupert.

Harte-Brandon Branch—Length 25 miles. No work was done during the year. Grading is completed to mile 21.85. The substructure for the steel bridge, consisting of two spans (450 ft.) was completed, but steel not yet erected, although on the ground.

Talmage-Weyburn Branch — Length 15 miles. Track was laid during the year, and the branch put in operation.

Prince Albert Branch—Length 111.5 miles. Grade is completed throughout, and track laid to mile 87.2, this being at the southern approach to the bridge over the South Saskatchewan River, which will be 1,200 ft. long and will consist of six spans. The substructure has recently been completed, ready for erection of steel. The branch is in operation to mile 87.2.

Cutknife Branch — Length 50 miles. Tracklaying was completed from mile 33 during the year. The line is in operation from mile 0 to 33.

Moose Jaw North West Branch—Length 67.86 miles. This branch is completed for 67 miles northwest of Moose Jaw and is in operation. A steel under crossing with the C.P.R. at the western boundary of Moose Jaw was built during the year.

The question of the terminals in Moose Jaw, Sask., came before the Board of Railway Commissioners, Dec. 11, when an extension of time was granted for the deposit of plans for the laying out of the exhibition ground site for terminal purposes. This site is being acquired from the city upon liberal terms.

The Board also had before it on the same day the question of spur tracks to the government grain elevator at Moose Jaw. The C.P.R. is the only line at present connected with the elevator, and plans were submitted showing a spur which would enable the G.T.P.R. and the Canadian Northern Ry. to have connection. The commissioners took the plans under consideration.

A contract has been let to Nettleton-Bruce-Eshbach Co., Seattle, Wash., for the erection of a dock at Seattle, to replace the one destroyed by fire, June 30, 1914. A full description of it is given in the Marine Department, further on in this issue. (Dec., 1913, pg. 548.)

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

The following figures have been compiled by the Trade and Commerce Departments, from official reports received by it:—

Week ended Dec. 17, 1914.	Wheat. Bushels.	Oats. Bushels.	Barley. Bushels.	Flax. Bushels.	Totals. Bushels.
Fort William:—					
C.P.R.	205,639	73,474	17,753	3,547	300,413
Consolidated	219,987	123,806	37,806	59,314	440,913
Empire Elevator Co.	189,569	228,064	21,150	53,603	492,386
Ogilvie Flour Mills Co.	336,921	55,895	8,764	....	401,580
Western Terminal Elevator Co.	220,035	59,106	10,410	202,507	492,058
G.T. Pacific	514,100	323,480	22,318	63,690	923,588
Grain Growers' Grain Co.	942,998	231,413	49,364	....	1,223,775
Fort William Elevator Co.	168,223	89,672	24,926	23,668	306,489
Eastern Terminal Elevator Co.	83,814	78,959	5,466	....	167,549
Port Arthur:—					
Port Arthur Elevator Co.	618,701	421,909	62,372	45,261	1,148,243
D. Horn & Co.	16,279	8,247	....	29,770	54,316
Dominion Government Elevator	292,683	115,364	9,847	54,173	472,067
Total Terminal Elevators	3,808,259	1,809,389	270,176	535,553	6,423,377
Saskatoon Dominion Government Elevator	444,436	589,140	11,715	....	1,015,291
Moosejaw Dominion Government Elevator	1,298,455	293,497	12,185	190	1,604,327
Total Interior Terminal Elevators	1,742,891	852,637	23,900	190	2,619,618
Depot Harbor	....	101,050	....	....	101,050
Midland:—					
Aberdeen Elevator Co.	536,016	247,897	....	....	783,913
Midland Elevator Co.	....	....	....	....	....
Tiffin, G.T.R.	1,301,135	858,788	....	....	2,159,923
Port McNicoll	3,148,749	783,551	....	97,729	4,030,029
Collingwood	36,025	....	....	....	36,025
Meaford	*362,433	*158,141	....	*33,417	*553,991
Goderich	852,190	124,377	....	....	976,567
Point Edward	....	....	....	....	....
Quebec Harbor Commissioners	2,005	54,032	....	....	56,037
Kingston:—					
Montreal Transportation Co.	15,076	17,039	16,267	....	48,382
Commercial Elevator Co.	2,792	97,459	....	....	100,251
Port Colborne	945,472	324,088	108,036	†83,387	1,460,983
Prescott	....	....	....	....	....
Montreal:—					
Harbor Commissioners no. 1	338,574	....	9,067	37,830	385,471
Harbor Commissioners no. 2	385,382	748,142	67,373	43,889	1,244,786
Montreal Warehousing Co.	64,277	382,927	200,289	37,472	684,965
St. John, N.B.	....	....	....	....	....
West St. John, N.B.	822,041	445,453	....	....	1,267,494
	....	....	....	†83,387	....
Total Public Elevators	8,812,167	4,342,944	401,032	250,337	13,889,867
Total quantity in store	14,363,317	7,004,970	695,108	786,080	22,932,862

*Grain afloat in vessels. †Corn.

Kettle Valley Lines.—Press reports state that construction is so far advanced that it is expected to have the line ready for operation through to the Fraser River, where connection will be made with the C.P.R., by the end of next summer. (Dec., 1914, pg. 544.)

The Intercolonial Ry. Efficiency Association of Cape Breton has been formed by I.R.C. employes in that portion of Nova Scotia, its officers being W. A. Fitch, Assistant Superintendent, Sydney, President; A. S. Prowse, Vice President; D. McGillivray, Secretary; R. J. McNeil, C. Scothorn, N. McKinnon and N. Johnston, executive committee.

Grain and Dried Beans Tariffs on Michigan Central Rd.—The Interstate Commerce Commission has decided that increased rates on dried beans and grain from points on the Detroit and Mackinac Ry., to points on the Michigan Central Rd. and its connections, which would result from the cancellation by the M.C.R. of transit rules and charges applicable to such traffic, are not justified.

Veneered Steel Interior Finish for Passenger Cars on the Canadian Pacific Railway.

A suitable interior finish for passenger cars has been one of the problems which railways and car builders have been endeavoring to solve for some time and more especially since the advent of steel car construction. A suitable finish should in a general way possess the following qualities: Lightness, strength, durability, pleasing to the eye, poor conductor of heat, occupy a minimum of space and be fire resisting.

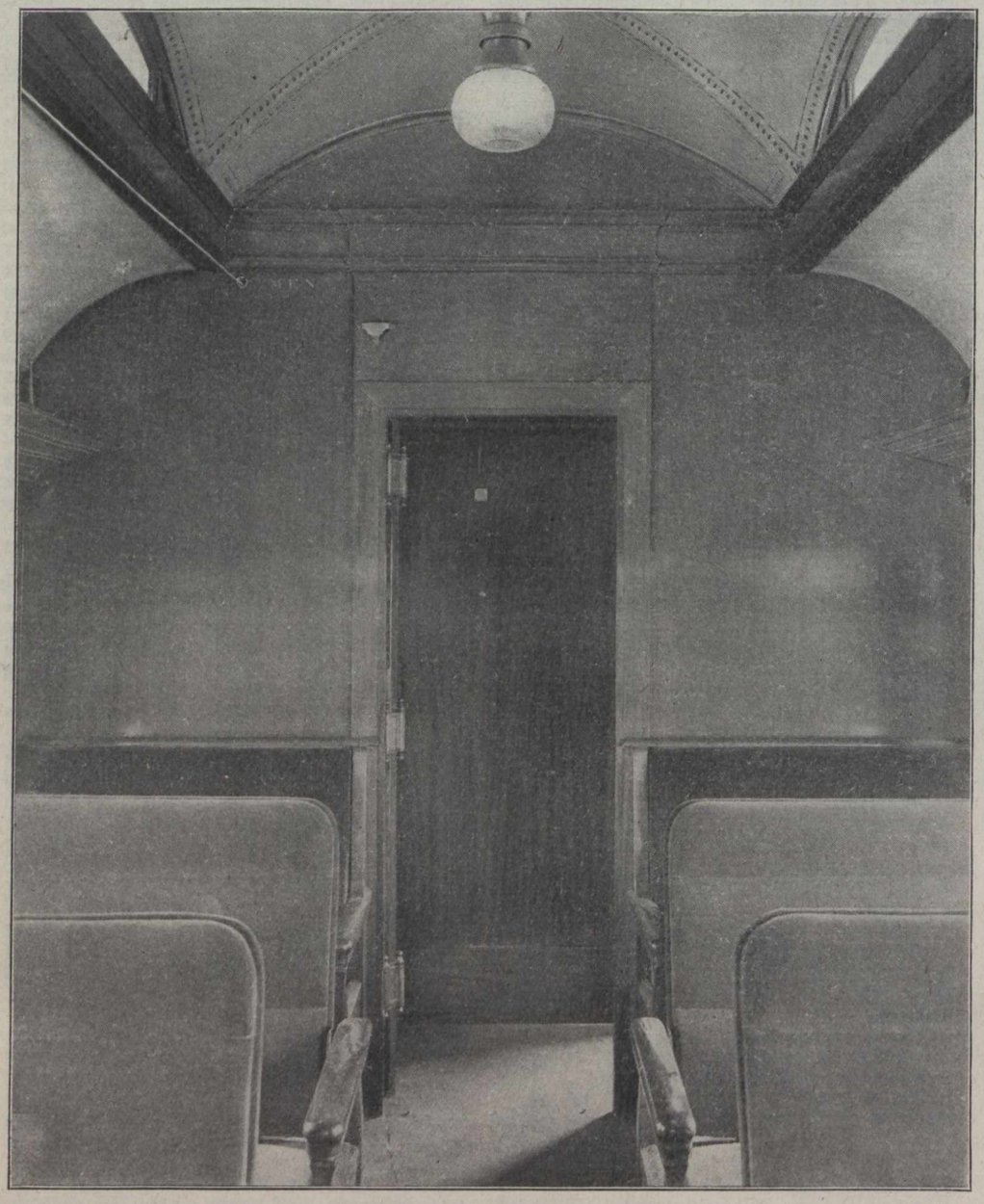
An all wood interior finish is bulky, and does not seem to be in harmony with modern car construction. While it is possible by using great care to make a clever imitation of wood by using steel interior finish, the mere fact that wood is imitated would seem to indicate that it is the desirable finish, but with the use of steel there are many disadvantages that do not seem to be much nearer solution than when steel was first used. The steel surface is often wavy, even when new, particularly on flat surfaces, it is easily dented and the dents or buckles cannot be easily removed. It is very cold and noisy, and corrodes on the unexposed side.

It seems that the question of a suitable interior finish has been solved by the C.P.R. use of veneered steel. The veneer is of varying dimensions, from 1-18th of an inch up, depending on the severity of service which is governed by the location in car and class of car.

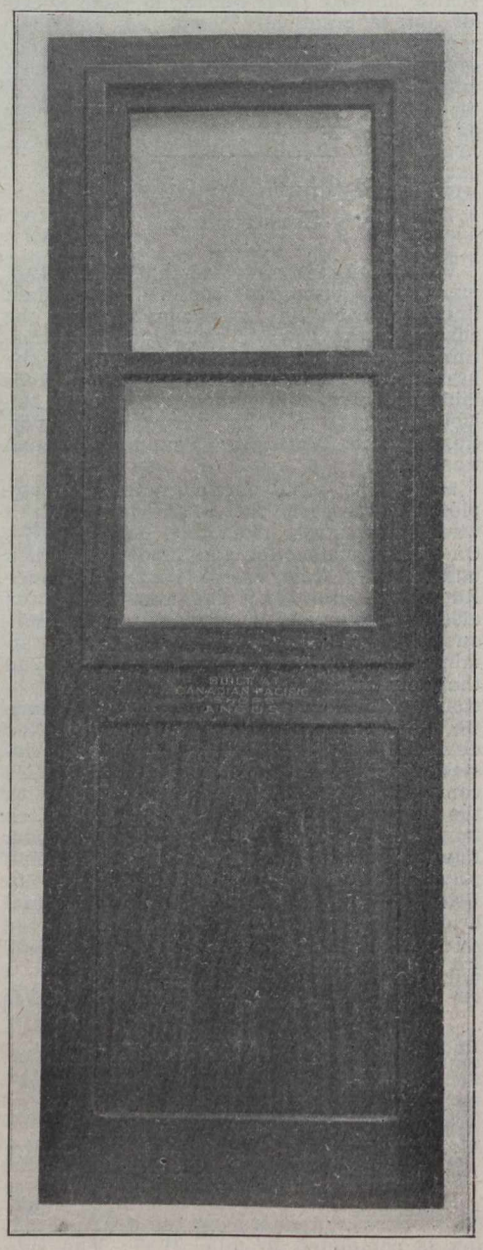
This veneered steel is used in the construction of doors, panels, wainscot, bulkheads, sleeping car berths, sleeping car seat ends, etc., and is of approximately the same cost as steel or wood. It is claimed that it has the insulating effect of wood, is not subject to corrosion the same as steel alone, does not splinter in wrecks, is fire resisting and can be made attractive to the extent that one cares to go into the use of beautiful veneers, and that it combines all the good points of wood and steel with none of the disadvantages of either. It is not an experiment, as it has been used sufficiently long to know that it does not deteriorate and is now in service on about 60 cars and its use has been arranged for on dining, sleeping, and all passenger carrying cars.

In the construction of doors, bulkheads, panels, etc., the veneer is used on each side of the steel and in this way oak can be used on one side and mahogany on the other, or any other class of wood that is desired.

In the accompanying illustration, all of the wood in sight in the bulkhead, smoking room partition, etc., is of thin veneer, except the casings for the door frame and the moulding. This veneered steel finish is the invention of R. W. Burnett, General Master Car Builder, C.P.R., Montreal.



Mahogany Veneered Steel Bulkhead on C.P.R. Cars.



Mahogany Veneered Steel End Door.

C.P.R. Montreal-Chicago Service.—The C. P.R., on Dec. 14, started the operation of its through trains between Montreal and Chicago, over the Lake Shore route east of Toronto, which became available with the opening of the Campbellford, Lake Ontario and Western Ry. Sir Thos. G. Shanghnessy and a party of directors, made a trip over the line the same day.

An all steel caboose has been built by the Pennsylvania Rd., and is being tried experimentally on various divisions.

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.
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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.

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

TORONTO, CANADA, JANUARY, 1915.

PRINCIPAL CONTENTS.

Steam Railway Track Laid in 1914.

In pursuance of its annual practice Canadian Railway and Marine World issued circulars on Dec. 1, to all railway companies in Canada, asking information as to new track laid during 1914. The following table gives a preliminary statement of the new track laid. In a number of cases the figures given have been estimated either by the railway companies, or in our own offices, pending the receipt of the final figures for the year. Estimated figures are distinguished by an asterisk.

The total new single track laid during 1914, so far as can be ascertained and estimated, is 2,088.09 miles. This is less by 1,180.46 miles than the final corrected total mileage of track laid in 1913, and less by 141.38 miles than the corrected figures of track laid in 1912. This is entirely to be accounted for by the fact that the National Transcontinental Ry. and the Grand Trunk Pacific Ry. main line from Moncton, N.B., to Prince Rupert, B.C., 3,552 miles, have been completed, and that the only big trunk line construction in progress is the Canadian Northern Ry., which is now practically completed across the continent. The construction of branch lines by the C.P.R., the Canadian Northern Ry., and the G.T. Pacific Ry. maintains the average of recent years. Outside these lines the largest construction in progress are the lines under construction largely on the initiative of the British Columbia and Alberta Governments, which are to be operated under agreements with the G.T. Pacific Ry. These are the Pacific Great Eastern Ry, from Vancouver to the B.C.-Alberta boundary; the Edmonton, Dunvegan and British Columbia Ry., from Edmonton to a junction with the last railway; the Alberta and Great Waterways Ry., and the Central Canada Ry. On the first three of these lines 351 miles of track were laid in 1914, and 30 miles of grading is ready for tracklaying on the last named.

Following are the details of track laid on the several lines:—

	Miles.	Miles.
Alberta and Great Waterways Ry.		
Carbondale to Lac La Biche	.....	114.00
Canadian Northern Ontario Ry.		
Between Montreal and Grenville	39.00	
Between Ottawa and Capreol	130.00	
		169.00
Canadian Northern Ry.		
Birds Hill to Pt. Grand Marias, Man.	50.77	
Chatfield northerly	27.08	
Laird northerly	8.67	
C. N. A. Ry., Yellowhead easterly	2.48	
C. N. Western, Stolberg-Brazeau	17.44	
		106.44
Canadian Northern Pacific Ry.		
Various sections between Port Mann and Yellowhead Pass, in B.C.	.....	248.00
Canadian Pacific Ry.		
Quebec—		
Forsyth St. branch, Montreal	0.64	
Interprovincial and James Bay Ry., mileage 7.5 to 9.87 Kepawa north	2.37	
Ontario—		
Trenton freight spur	1.11	
Manitoba—		
Gimli to Riverton	26.30	
Saskatchewan—		
Weyburn-Lethbridge line..	87.00	
Moose Jaw South West line	22.40	
Kerrobert to Sask. boundary	50.00	
Alberta—		
Monitor to Alberta-Sask. boundary	22.00	
Empress to Westerham	18.00	
Empress to Bassano	118.30	
Suffield S. W., m. 57 to 84	27.00	
Coronation to Lorraine	16.70	
Gleichen to Shepard	12.50	
Alberta Central Ry. between Red Deer and m. 64.50.	32.00	
British Columbia—		
Kootenay Central Ry., Edgewater to Kootenay River	68.30	
		508.60
Dominion Atlantic Ry.		
Centerville to Weston, N.S.	.....	14.80
Edmonton, Dunvegan and B.C. Ry.		
Smith to McLennan	.....	131.00
Erie and Ontario Ry (T., H. & B. R.).		
Smithville to Dunville, Ont.	.....	14.90
Esquimalt and Nanaimo Ry.		
Big Qualicum to Courtenay, B.C.	.....	29.70
Essex Terminal Ry.		
Extension to Ojibway, Ont.	.....	1.00
Glengarry and Stormont Ry.		
St. Polycarpe, Que., to Cornwall, Ont.	.....	28.00
Grand Trunk Pacific Ry.		
Shelley to Tintagel, B.C.	157.30	
Talmage to Weyburn, Sask.	14.50	
Central Butte to Riverhurst, Sask.	17.60	
Rossman to Carruthers, Sask.	15.30	
		194.70
* **Hudson Bay Ry. (Dominion Government).**		
Mileage .36 to 175	.....	139.00
* **Kettle Valley Lines.**		
Extensions	.....	60.00
* **Lake Erie and Northern Ry.**		
Brantford to Galt, Ont.	.....	29.00
* **Pacific Great Eastern Ry.**		
Mileage 13.50 from Squamish, B.C., to m. 120	.....	106.00
* **Prince Edward Island Ry.**		
Carleton Point spur	.....	2.50
Quebec Central Ry.		
Extension east of St. Camille, Que.	.....	5.00
St. John and Quebec Ry.		
Fredericton to Woodstock, N.B.	24.98	
Fredericton to Gagetown	3.51	
Woodstock to Centreville	1.50	
		29.99
Vancouver, Victoria and Eastern Ry.		
Coalmount to Brooks, B.C.	.....	25.56
Winnipeg Water District.		
St. Boniface to Shoal Lake, Man.	.....	85.00

In connection with the figures for the Grand Trunk Pacific Ry., we were advised, Dec. 18, that track was actually laid in 1913 to mileage 1,265 west of Winnipeg, and to mileage 324 east of Prince Rupert, making 14 miles more than was covered in the figures published in our issue of Feb., 1914, as having been laid in 1913. The information that this mileage was laid was received at the company's office too late to be used at the date the figures published were supplied us. The track laid as reported this year, 157.3 miles, and the 14 miles referred to, totals 171.3 miles, which makes the difference between mileage 1,260 west of Winnipeg, and mileage 315 east of Prince Rupert, the points reported to have been reached in our report of February last.

The Great Northern Ry., during 1914, laid track on 23 miles of the line from Wenetchee to Oroville, Wash., where it connects with one of the U.S. links of the Vancouver, Victoria and Eastern Ry. The remaining 112.88 miles of the line were laid in 1912 and 1913.

The Reid Newfoundland Co. laid the following mileage of track on its branch lines under construction:—Fortune Bay branch, 27 miles; to complete Bay-de-Verde branch, 6 miles; total, 33 miles.

Index to Canadian Railway and Marine World for 1914.

At the end of this issue is a very complete index to the contents of the volume for 1914, which, as in former years, will doubtless be fully appreciated by the large number of subscribers who bind Canadian Railway and Marine World for reference purposes.

Even a casual glance over the six pages of closely printed matter will show the tremendous range of subjects covered and the thorough manner in which this paper represents the entire transportation interests of the whole Dominion, steam railway, electric railway and marine, as well as the subsidiary express and telegraph interests, and railway and canal contracting work.

Transportation Appointments Throughout Canada.

The information under this head, which is almost entirel ygathered 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.

Canadian Northern Ry.—J. BARBOUR has been appointed Chief Claim Agent in charge of personal injury, property damage, fire and stock claims, for Eastern Lines, reporting to L. C. Fritch, Assistant to President. Office, Toronto.

THOMAS HOWELL, Immigration Commissioner, Toronto, has resigned.

Canadian Pacific Ry.—GEORGE BURY, heretofore Vice President, at Winnipeg, in charge of Western Lines, has been elected a director and Vice President of the company, succeeding D. McNicoll, senior Vice President, resigned. His jurisdiction extends over the whole system.

E. W. BEATTY, heretofore General Counsel, has been appointed Vice President and General Counsel. Office, Montreal.

JAMES MANSON, heretofore Assistant to Vice President Bury at Winnipeg, will, it is stated, be his Assistant at Montreal.

C. H. BUELL, heretofore chief clerk to Vice President McNicoll, Montreal, has been appointed Staff Registrar, and in addition to acting as Secretary of the Pension Department, will have charge of the company's staff records. Office, Montreal.

B. A. POTTER, heretofore dispatcher, Woodstock, N.B., has been appointed acting Chief Dispatcher, there, vice I. B. Merriman, promoted.

I. B. MERRIMAN, heretofore Chief Dispatcher, Woodstock, N.B., has been appointed Assistant Superintendent, District 1, Atlantic Division. Office, Brownville Jct., Me.

C. A. MURDOCK, heretofore Car Inspector, Outremont, Que., has been appointed Car Foreman, Three Rivers, Que., vice R. Lilly transferred.

G. H. McCLELLAND, heretofore Car Foreman, Ottawa, Ont., has been appointed Car Foreman, Place Viger, Montreal, vice G. H. Turner, transferred.

R. LILLY, heretofore Car Foreman, Three Rivers, Que., has been appointed Night Car Foreman, Place Viger, Montreal, vice E. Minshell, assigned to other duties.

G. H. TURNER, heretofore Car Foreman Place Viger, Montreal, has been appointed Assistant Car Foreman, Outremont, Que., vice R. D. C. Weldon, transferred.

R. D. C. WELDON, heretofore Assistant Car Foreman, Outremont, Que., has been appointed Car Foreman, Sortin Yard, Montreal, vice M. I. Miller, assigned to other duties.

S. GORDON has been appointed Foreman Locomotive Store Orders, Angus Shops, Montreal, vice F. G. Goddard.

A. KEYWORTH, heretofore Assistant Foreman, Ottawa, Ont., has been appointed Night Foreman, there, vice H. Hymers, assigned to other duties.

T. G. GALLAGHER, heretofore a fitter, has been appointed Assistant Foreman, Ottawa, Ont., vice A. Keyworth, promoted.

GRANT HALL, heretofore General Manager, Western Lines, has been appointed Vice President and General Manager, vice George Bury, whose new appointment is referred to above. He reports to Mr. Bury.

D'ALTON C. COLEMAN, heretofore General Superintendent, Alberta Division, Calgary, has been appointed Assistant General Manager, Western Lines. Office, Winnipeg.

C. E. STOCKDILL, heretofore chief clerk, to Vice President, has been appointed Assistant to the Vice President and General Manager. Office, Winnipeg.

J. A. DeWOLFE, heretofore chief clerk, Engineering Department, has been appointed chief clerk to Vice President and General Manager. Office, Winnipeg.

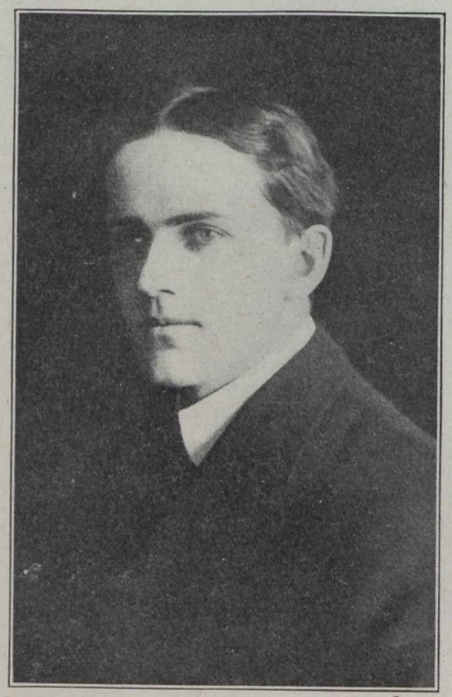
A. HALKETT, heretofore Trainmaster, Moose Jaw Terminals, has been appointed Superintendent, District 1, Manitoba Division, vice W. A. Mather, transferred. Office, Kenora, Ont.

E. ASHWORTH, heretofore Storekeeper, Minnedosa, Man., has been appointed night clerk, Winnipeg.

T. W. COOKE has been appointed Storekeeper and Timekeeper, Minnedosa, Man., vice E. Ashworth, Storekeeper, transferred

H. A. SEWELL has been appointed Storekeeper, Broadview, Sask., vice P. J. Murphy, transferred.

A. F. HAWKINS, heretofore Trainmaster, District 1, Alberta Division, Medicine Hat, has been appointed Trainmaster, Moose Jaw Terminals, vice A. Halkett, promoted.



D'Alton C. Coleman,
Assistant General Manager, Western Lines, Canadian Pacific Railway.

F. REID, heretofore charge hand, has been appointed Car Foreman, Weyburn Sask., vice C. H. Zerbach, dismissed.

J. M. COLES has been appointed Storekeeper, Swift Current, Sask., temporarily, vice G. O. Jackson, who has enlisted for active military service.

J. B. A. DESALEUX, heretofore Storekeeper, Wilkie, Sask., has been appointed Storekeeper, Assiniboia, Sask., and his former position has been abolished.

A. E. STEVENS, heretofore Assistant General Superintendent, British Columbia Division, Vancouver, has been appointed General Superintendent Alberta Division, vice D'Alton C. Coleman, promoted. Office, Calgary.

A. MALLINSON, heretofore District Master Mechanic, Cranbrook, B.C., has returned to Ogden shops, Calgary, Alta., as machinist.

W. A. MATHER, heretofore Superintendent, District 1, Manitoba Division, Kenora, Ont., has been appointed Superintendent, District 1, Alberta Division, vice J. M. Cameron, promoted. Office, Medicine Hat.

J. N. MURPHY, heretofore engineer on construction, has been appointed Trainmaster, District 1, Alberta Division, vice A. F. Hawkins, transferred. Office, Medicine Hat.

G. M. LANG has been appointed Roadmaster in charge of Coronation Subdivision, vice W. E. Lissiman. Office, Coronation, Alta.

P. J. MURPHY, heretofore Storekeeper, Broadview, Man., has been appointed Storekeeper, Crowsnest, B.C., vice E. J. Burke, who has left the service.

W. J. MANLEY, heretofore Chief Dispatcher, Lethbridge, Alta., has been appointed Chief Dispatcher, Cranbrook, B.C., vice W. E. Cline.

W. McINNES, heretofore General Yardmaster, Vancouver, B.C., has been appointed Yardmaster, Kamloops, B.C.

A. P. HUNTER has been appointed Storekeeper, Coquitlam, B.C., vice C. Bradley, resigned.

J. EDWARDS, heretofore Night Yardmaster, Coquitlam, B.C., has been appointed Yardmaster, there, vice D. Nicks, promoted.

D. NICKS, heretofore Yardmaster, Coquitlam, B.C., has been appointed General Yardmaster, Vancouver and Coquitlam, B.C.

J. M. CAMERON, heretofore Superintendent, District 1, Alberta Division, Medicine Hat, has been appointed Assistant General Superintendent, British Columbia Division, vice A. E. Stevens, promoted. Office, Vancouver.

E. RALSTON, heretofore Assistant Yardmaster, Vancouver, B.C., has been appointed Yardmaster, there, and his former position has been abolished.

Canada Steamship Lines, Ltd.—See under "Changes in Organization, Canada Steamship Lines, Ltd.," in Marine Department on page 34.

Central Vermont Ry.—W. GILLESPIE heretofore Master Car Builder, has been appointed Mechanical Superintendent in charge of Motive Power and Car Departments, reporting to the President, and his former position has been abolished. The position of Superintendent of Motive Power and Master Mechanic, heretofore held by T. A. Summerskill and J. E. Fitzsimons, respectively, have also been abolished, and the holders have been assigned to other duties. Office, St. Albans, Vt.

J. DUGUID has been appointed Assistant Mechanical Superintendent (Motive Power Department). Office, St. Albans, Vt.

J. E. MAUN has been appointed acting Assistant Superintendent, Montpelier, Barre and Williamstown Lines including Montpelier Jct., in charge of transportation. Office, Montpelier, Vt.

Erie Rd.—S. J. SHARP, who has been appointed Canadian Passenger Agent, at Toronto, as announced in our last issue, has been assigned the Province of Ontario as territory.

Grand Trunk Pacific Ry.—E. HACKING, heretofore General Car Foreman on the line, has been appointed General Foreman, Transcona Shops, Man., vice L. E. Burnsville, resigned to enter other service.

W. MILLS has been appointed General Car Foreman on the line, vice E. Hacking promoted.

G. I. ROOT has been appointed Inspector of Track, with jurisdiction from Fort William, Ont., to Prince Rupert, B.C., including branch lines.

The following station agents have been appointed,—Juniata, Sask., F. H. Keefe; Reford, Sask., E. D. Young; Ryley, Alta., G. S. Bass; Stoney Plain, Alta.; J. W. McCulla; Three Hills, Alta., J. R. McKeegan.

Grand Trunk Ry.—The Freight Claim Agent's office has been placed under the jurisdiction of the Controller, W. H. ARDLEY. All loss and damage claims and correspondence relating thereto, should, as heretofore, be addressed to the Freight Claim Agent, E. ARNOLD, Montreal.

J. W. CROOKS, heretofore in Michigan Central Rd. service, has been appointed Night Yardmaster, London, Ont., vice J. Munnings.

F. W. WARREN, heretofore Locomotive Foreman, Coteau, Que., is reported to have been appointed Locomotive Foreman, Southwark, Montreal, vice D. Ross, transferred to Western Lines.

ANGUS GORDON, formerly Assistant Manager, King Edward Hotel, Toronto, has been appointed Manager, Chateau Laurier, Ottawa.

E. S. COOPER has been appointed Trainmaster, District 5, Belleville Division, Eastern Lines, vice W. J. Nixon, assigned to other duties. Office, Montreal. Brockville station and yard will hereafter be under the jurisdiction of the Trainmaster of District 6.

M. LEINWEBER, heretofore in the Bridge and Building Department, has been appointed Bridge and Building Foreman, Stratford, Ont., vice F. J. Holman, retired under pension rules.

JOHN A. FICKEL has been appointed Car Foreman, Fort Erie, Ont., vice D. C. Messeroll, assigned to other duties.

D. C. MESSEROLL, heretofore Car Foreman, Fort Erie, Ont., has been appointed General Travelling Car Inspector, Ontario Lines, and including Districts 8, 9 and 10, Eastern Lines, vice T. Rogers, retired under pension rules. Office, London, Ont.

The following station agents have been appointed,—Uhthoff, Ont., J. A. Payne; Beamsville, Ont., J. Butler; Burgessville, Ont., C. W. Vail; Rose Point, Ont., C. Arnold; Suspension Bridge, N.Y., J. S. Chenial; outside agencies,—Montreal, M. O. Dafoe; Sherbrooke, Que., C. A. Harrison.

Hudson Bay Ry. (Dominion Government).—J. W. PORTER'S title has been changed from acting Chief Engineer to Chief Engineer. Office, Winnipeg.

Intercolonial Ry.—M. F. TOMPKINS, heretofore Chief Clerk, Division Freight Agent's Office, Halifax, N.S., has been appointed Division Freight Agent, there, vice A. E. Wilkinson, deceased.

C. L. BURGESS, heretofore clerk to Mechanical Foreman, Gibson, N.B., has been appointed Storekeeper there, vice F. Dunbar.

Lehigh Valley Rd.—C. S. LEE, heretofore General Passenger Agent, has been appointed Passenger Traffic Manager. Office, New York, N.Y.

GEO. W. HAY, heretofore General Baggage Agent and District Passenger Agent, South Bethlehem, Pa., has been appointed General Passenger Agent, Office, New York, N.Y.

A. J. SIMMONS, heretofore General Eastern Passenger Agent, New York, has been appointed Assistant General Passenger Agent. Office, 1460 Broadway, New York, N.Y.

P. S. MILLSPAUGH, heretofore General Agent Passenger Department, Ithaca, N.Y., has been appointed Assistant General Passenger Agent. Office, 369 Main St., Buffalo, N.Y.

W. B. WHEELER, heretofore General Western Passenger Agent, Buffalo, N.Y., has resigned and has been appointed General Agent, Passenger Department, United Fruit Co., at Havana, Cuba.

Railways and Canals Department.—L. K. JONES, I.S.O., heretofore Assistant Deputy Minister and Secretary, has been appointed Assistant Deputy Minister.

J. W. PUGSLEY, heretofore Assistant Secretary, has been appointed Secretary.

Toronto, Hamilton and Buffalo, Ry.—The position of Auditor of Freight Accounts and Freight Claim Agent, heretofore held by Thos. Eedson, now deceased, has been divided, and A. S. DUTTON has been appointed Auditor of Freight Accounts, and J. M. EEDSON hos been appointed Freight Claim Agent. Offices, Detroit, Mich.

White Pass and Yukon Route.—F. C. ELLIOTT has been elected President, vice O. L. Dickeson, resigned. Office, Chicago, Ill.

H. WHEELER, heretofore Superintendent River Division, White Horse, Yukon, has been appointed General Manager. Office, White Horse, Yukon.

A. F. ZIPF has been appointed Traffic Manager, vice J. E. Dempsey. Office, Seattle, Wash.

Canadian Northern Railway Construction, Betterments, Etc.

Montreal, Ottawa, Port Arthur Line.—It was expected to connect up the several sections of this line by Dec. 31, with the exception of two or three steel bridges, which are not completed. The section of the line from North Bay to Capreol is being operated under a temporary order of the Board of Railway Commissioners, which will run to July, by which time it is expected that the ballasting, etc., on the line between Montreal and North Bay will be completed. The remainder of the line from Capreol to Port Arthur is fully completed, and is being partially operated.

The Canadian Northern Ontario Ry. is applying to the Dominion Parliament for the confirmation of an agreement with the Campbellford, Lake Ontario and Western Ry. (C.P.R.) respecting joint terminals at Belleville, Ont., and also respecting joint tracks and terminals at Orillia, Ont.

The Dominion Parliament is being asked to confirm an agreement made between the company and the C.P.R. respecting the use of joint terminals in North Toronto.

Canadian Northern Ry.—The ratepayers of Port Arthur, Ont., will vote on Jan. 1, on a bylaw confirming an agreement made between the City Council and the C.N.R., Nov. 14, adjusting certain differences between the parties respecting terminals. The city agrees to convey to the C.N.R. portions of streets and broken fronts of streets near the water's edge, and to release its interest in certain water lots, and to convey to the C.N.R., its interest in the original road allowance along the water's edge from Arthur St. to the north limit of William St., except a small section of the same which is to be conveyed by the C.N.R. to the city, and to aid the company in obtaining the withdrawal of certain registered plans affecting the streets in question. The C.N.R. agrees to hand over to the city a certain piece of land specifically described, subject to the restrictions that other railway than the C.N.R. is to be permitted to run spur tracks over it, and that the property is not to be leased or sold to any competing railway, but it is to be understood that boats belonging to competing railways may use the dock on the property. Pending the reconstruction of the dock a specific means of access is provided for. The company is also to pay the damages to property by the closing of the streets and to convey to the city a right of way to the present government elevator and certain other rights of way.

Contracts are reported let along the route of the Port Arthur and Duluth Ry., and in the Rainy River District for 250,000 ties.

The Dominion Parliament is being asked to confirm an agreement between the C.N.R. and the G. T. Pacific Ry., for the establishment, control and operation of joint terminals at Edmonton, Alta.

Canadian Northern Pacific Ry.—It was reported in Vancouver, Dec. 3, that there remained about 105 miles of track to be laid to connect up the various sections of the line between Port Mann and the Albreda Summit, which is the section of the line being built under the Vancouver staff's charge. While the staff looked forward to completing the work early in January it is not unlikely that there will be some delay, as at least two cargoes of rails have been detained on account of the war, and a steamship carrying another cargo went ashore in the Magellan Straits.

Work on the bulkhead at the site of the False Creek terminals, Vancouver, is reported to be progressing satisfactorily. About 1,100,000 cu. yds. of material have already been deposited behind the bulkhead, out of the 3,250,000 necessary to fill in the area to be developed.

Railway Features in the City Planning Problem at Ottawa.

An illustrated address on the city planning problem of Ottawa, with special reference to the railway features, was delivered by C. N. Cauchon, of Ottawa, before the Canadian Society of Civil Engineers, Toronto branch, Dec. 7. The scheme proposed is the abandonment of the present Rideau Canal through Ottawa, diverting it through a new route which would enter the Ottawa River below, and to the east of the city. At the point where it would enter the river, a large industrial area could be developed, which, in conjunction with a deep water harbor in still water, formed by throwing a dike across from the shore to Duck Island, would form the principal portion of the scheme. As it is said that the prevailing winds are from the west, it is claimed that the smoke from this area would blow away from the city. It is proposed to utilize the present canal prism as a traffic thoroughfare through the central part of the city. Connecting with this new area, there is proposed a common line for all the railways, leading into the area from the east, to the row of docks, along the front. All the lines from the east would enter over this line, crossing the Rideau River on a high level bridge, eliminating all the level crossings. This would eliminate many of the railway lines that now cut through the city, the idea being to utilize some of these rights of way as arterial highways. From a central station at the site of the present central station, the line would proceed through a tunnel to the western exit, to the Broad St. station, the various railways all leaving the city over a common line.

Great Lakes Vessel Classification.

Marine Engineering of Canada, Toronto, says: "We are pleased to be able to state that to Acton Burrows, proprietor and Editor-in-Chief of Canadian Railway and Marine World, is due the credit for having initiated the discussion on Great Lakes vessel classification, which has appeared in the columns of several old country shipping journals, and from which subscribers have had the benefit of the opinions expressed in our last two issues. We have just passed the anniversary date of the great storm which sent so many of our lake craft, with their crews, to destruction and a watery grave, and thereby again brought to the front this classification question."

It may be added that the letter on the above subject from J. M. Smith, ex-Manager of the Collingwood Shipbuilding Co., which was first published in Canadian Railway and Marine World, and subsequently reproduced in a number of other publications in Canada, Great Britain, and the United States, was written in response to a request from Canadian Railway and Marine World's Editor-in-Chief.

Electric Railway Department

All Steel Motor and Trailer Cars for London and Port Stanley Railway.

Canadian Railway and Marine World for November published particulars of the electrical equipment for the London and Port Stanley Ry., and, in the December issue, of orders given for 3 electric locomotives and for the electrical equipment for 5 motor cars and 4 trailers. Specifications were prepared subsequently for the bodies for the motor cars and trailers by the Hydro Electric Power Commission of Ontario's engineering staff, acting for the city of London, which owns the line, and tenders were received early in December. While the work of electrification is going on, the line is still being operated by steam by the Pere Marquette Rd., which has it under lease.

The initial car installation will comprise five motor cars and four trailers, both sets identical in structural details, differing only in the motor equipment. They will be of an all steel construction, of a design approaching that in use for heavy steam railway service, and have been developed as the result of extensive study of existing equipment, profiting by the experience of lines that have had steel equipment in use for years. The general dimensions of the bodies are as follows:—

Length over all	59 ft.
Length over end vestibules	58 ft.
Length over end of car body	48 ft.
Width over all	9 ft. 6 ins.
Width over sheathing	9 ft. 6 ins.
Width over platform floor, including trapdoors	9 ft. 5 ins.
Height from rail to top of roof, car light	13 ft. 5¼ ins.
Height from under side of sills to top of roof, car light	9 ft. 10¼ ins.
Height from top of rail to top of platform	4 ft. 3¼ ins.

The weight of the car body, including heating equipment, seats, light foundations, brake rigging, draught gear, including supports, ready for the installation of the control equipment and air brakes, has been estimated as follows:—

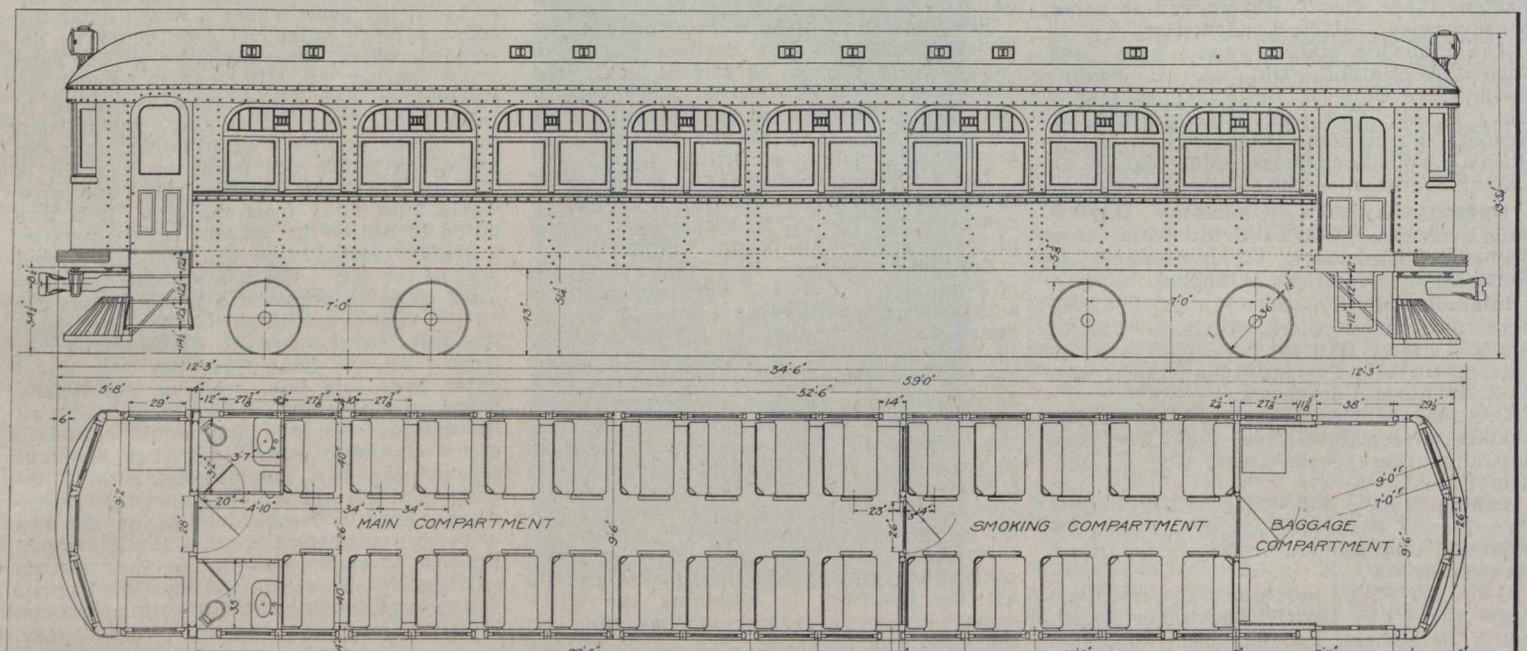
	Motor.	Trailer.
Car body, complete as above...	38,320	38,320
Control equipment	9,500	1,856
Air brake equipment	2,220	805
Four motors complete at 4,000 lbs.	16,000	....
Two 7 ft. wheel base trucks with 36 in. steel wheels	26,880	24,080
Total weight in lbs.	92,920	65,061

The entire frame of the cars will be of structural steel shapes and plates, with the centre and side sills continuous. The centre sill will consist of two 7 in. 15 lb. I beams at 20 in. centres, with a 3-16 in. cover plate, 24 ins. wide, extending between the diagonal tie plate in each panel. Centrally in each panel there will be a 3-16 in. plate, 9 by 24 ins., on the under side of the centre sill. The side sills will be composite members, with a 6 by 4 by 3-8 in. 12.3 lb. angle as a base. To the vertical flange of this angle there will be 1-8 in. steel side plate, 36¾ ins. deep, at the top of which, on the inside, there will be a 1½ by 2 in. 2.77 lb. angle, and on the outside a 3-8 by 3½ in. steel plate, this latter, with the angle and top of the side plate, forming the top section of the side sill girder.

The truck centres will be 34½ ft. The body bolster above the trucks will be 12 ins. deep at the centre, tapering to the depth of the side sill angle at the side. Between the centre sills there will be a 3-16 in. steel pressing, with similar pressings forming the web of the bolster outside the centre sills. Under the centre sills there will be a steel casting for the centre pin connection. A 3-8 by 14 in. steel plate will form the top plate of the body bolster, with a 5-8 by 14 in. steel plate for the bottom plate.

The intermediate space between the bolsters will be divided into six panels by five cross bearers. These cross bearers are to be the same depth as the centre sill, tapering to the side angle depth, and will consist of 3-16 in. steel pressings both between the centre sill I beams and between the latter and the side sill angles, flanged to a channel section. At the centre, these will be tied to the centre sill by 3-16 by 12 by 42 in. top plates. Diagonally between these tie plates in each panel there will be two 3 by 3 in. 4.9 lb. angles.

The body end sill will consist of a central 3-16 in. steel pressing between the centre sill I beams, which will extend to the buffer plates, outside of which there are to be two steel castings fitting between the I beams and a 6 in. 10.5 channel 26 ins. from the centre, which will form the end panels diagonal, passing alongside this casting to the end buffer. The top and bottom members of the end sills will be a 4 in. 6.25 lb. channel, the upper one on top of a 1-8 in. plate, 24 ins. wide, the width of the car.



Plan and Elevation of All Steel Motor and Trailer Cars for London and Port Stanley Railway.

The buffer will consist of a 7 in. 12.25 lb. channel, bent on a 7 ft. radius, with a cross 6 in. 10.5 lb. channel joining the curved ends. A 1-8 in. plate will cover this end form, being attached to the centre sill I beams and channel braces, the latter carrying the buffer stresses through to the body side sills.

The corner posts will be 4 by 4 by 3-8 in. 9.8 lb. angles. The main side posts will be 3 in. 4 lb. channels, all but the end ones being arranged in pairs at 8½ ins. These pairs are to be placed on each side of the body bolster and cross bearer centres. Intermediate to these, there are to be 2 by 2 by ¼ in. 3.56 lb. tees. Between the pairs of channel side posts at the centre of the car, and at the bolsters, there are to be ¼ in. pressed steel fillers, each side of which will be a diagonal brace, that at the centre of ¼ by 3 in. steel, and at the bolsters of 1 by 4 in. steel. There will be two vestibule posts of 3 in. 4 lb. channels on each side, with four 2½ by 2½ in. 10.5 lb. tees around the end on a 9 ft. radius. The

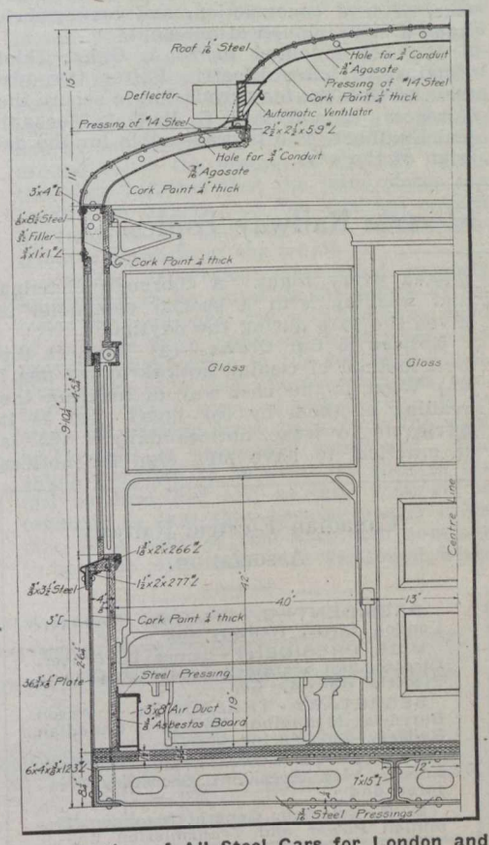
side sheathing of the body will form the main part of the side sill girder, and is to be of 1-8 in. plating, while around the vestibule it is to be of 1-16 in. sheeting.

The top side member will consist of a 3 in. 4 lb. channel, attached to a 1-8 by 8½ in. steel plate, along the inner lower edge of which there is to be a ¾ by 1 in. 1 lb. angle. The roof will be of the compromise deck monitor type, with the deck carlines of no. 14 steel pressing, carried in from the top of the top side channel to a longitudinal 2½ by 2½ in. 5.9 lb. angle, from the top of which the central carline spans of similar pressings to the side carlines will be carried. The roof plating will be of 1-16 in. steel, formed to the carline contour, and carried from the side top plate, which it will overlap, across the car in one stretch. All the roof joints are to be welded to present a smooth surface, with a reinforcing brace under each joint, with additional braces under the pantograph section of the roof. These carlines will be in line with the side posts, with an intermediate one in the side window spaces.

The platform, as mentioned, will be sheathed on the outside with 1-16 in. steel plating. On the inside it will be sheathed with wooden panel frames made of ash, with the windows of mahogany. It will have two drop windows, one either side of the centre, where there will be a 26 in. swinging end door. On each side of the vestibule there will be a 29 in. swinging door. The step openings will have single swing doors, swinging up against the end of the car body. There will be triple steps, of steel construction, the edges of which will be finished with brass stripping.

The inside finish of the cars is to be of the best selected inlaid mahogany, natural sanitary finish, including the doors, linings and mouldings. Rising from the floor to the underside of the window sill, which will be 2 ft. 6 ins. above the floor, there will be a wall of ⅞ in. wood. The body of the window sill is to be a 1⅜ by 2 in. 2.66 lb. angle, while the outside edge of the sill is to be a formed section of thin sheet steel.

The windows are to be in pairs, made of mahogany, and with 22½ by 24 in. windows of ¼ in. plate glass laid in rubber. These sash will rest on the inner end of the outside sill section, and may be raised into a sash space in the upper part of the car wall. The upper part of the windows, both on the inside and outside of the car, will be supplied with opalescent cathedral glass, laid in copper. All side windows are to have pantasote curtains.



Half Section of All Steel Cars for London and Port Stanley Railway.

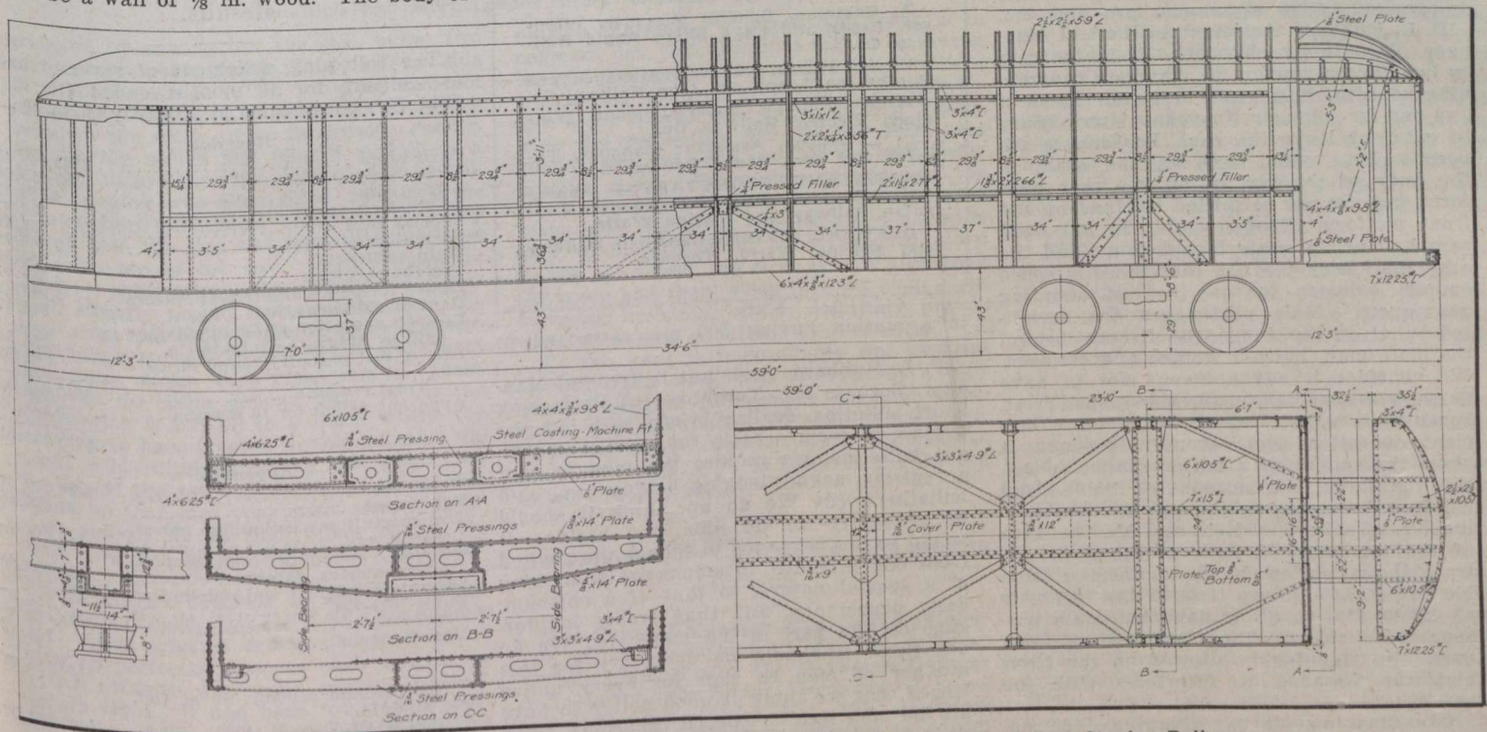
The headlining will consist of 3-16 in. agasote, secured to the inner flanges of the carlines. The underside of the car roof, inside the agasote line, is to be given a ¼ in. layer of cork paint.

The car trimmings will be of solid bronze, and will include grab handles on the body corner posts and vestibule corner posts, match scratchers between the seats in the smoking compartments, and the hinges, etc. The basket racks will be continuous, to be removeable in sections, running the full length of the car, and will be of a bronze finish. The seats will be of a high back design, finished in plush for the main compartments, and in pantasote for the smoking compartments. They will be 40 ins. wide overall, with the seat 19 ins. above the floor, and the back rising to a height of 42 ins. The aisle width will be 26 ins.

The heater is to be of the hot air type, situated at one end of the car, delivering air through a 3 by 8 in. duct of ⅛ in. steel along the floor line of the wall. This duct will be insulated from the wall by a ⅜ in. asbestos board. The upper face of the duct will have a steel pressing for passenger foot rest. The nature of the heater has not yet been determined, but consideration has been given to one in which electricity is the heating medium, delivering the air through the ducts from a central point, the same as in a coal heater.

Each car will have two lavatories, finished in white, with a sheet steel ceiling metal, giving a tile effect, and will be fully equipped with water closet, washstand, 5 gallon water cooler, and all requisites. The water will be provided from a 50 gallon tank over top of the lavatory, under the roof. Each side of the roof will contain 10 ventilators of the deflector type, automatic in their operation. The lavatories will contain special lavatory room ventilators.

Four of the motor cars are to have the three compartment layout, while the other one, and the four trailer cars, are to have the two compartment layout. In the three compartment layout, the car end is slightly changed so as to incorporate the vestibule into the baggage compartment, 8 ft. 11 ins. long. Adjoining is the smoking compartment, 13 ft. 8 ins. long, with the main compartment 29 ft. 5 ins. long to the other vestibule. The two compartment car has the two vestibules, with the main and smoking



Plan, Elevation and Sections of Steel Frame for All Steel Cars on London and Port Stanley Railway.

compartments dividing the length into two compartments.

The motor cars will have four 125 h.p. 1,500 volt d.c. motors, with complete electrical control apparatus. There will be two motors on each truck, one to each axle. Power will be brought into the car by either of two pantographs, one at each end of the car.

The lamp fixtures will consist of six clusters of five 40 watt lamps each, in inverted opalescent bowls 17 ins. diam., suspended from a bronze fixture of neat design. This will be the only car lighting. Each car will have a headlight of requisite strength.

Each car is to be equipped with the G.E. straight and automatic air brake equipment, with signal train line connections, whistles and air gauges. There will also be a steam locomotive type pilot at each end of the car, of iron construction, and arranged to take a snow plough attachment.

We are indebted to F. A. Gaby, Chief Engineer, Hydro Electric Power Commission of Ontario, for permission to secure the foregoing data from J. G. Baukat, Mechanical Engineer, who is responsible for the design of the cars.

Answers to Questions on Electric Railway Topics.

Following are the questions submitted to the American Electric Railway Association's question box, with replies thereto by Canadian electric railway officials:—

Wear of Wheels.—Can anyone give a good explanation as to why the wheels on the gear side of the axle wear much sharper and quicker than on the opposite end of the axle? Is this the prevailing condition on other roads?

D. E. Blair, Superintendent of Rolling Stock, Montreal Tramways Co., Montreal, sends a supplementary reply to the one given in our last issue, as follows:—We have completed a test on 200 wheels, taken from performance in pairs. The average useful wear, outside of metal lost by turning, shows reduction in circumference of wheels at free end of axle, of 7.14 ins., and at gear end, of 7.08 ins. What little difference there is shows that there was slightly increased wear at free end of axle. This is contrary to past experience, but we have never found the difference to be serious.

Standing Room in Open Cars.—Are passengers permitted to stand on the running board and between seats of open cars, or to sit on the front seat directly behind the motorman? Give arguments pro and con.

F. L. Hubbard, Assistant to General Manager, Toronto Ry., Toronto.—It is contrary to law for passengers to stand on the running board of open cars, or on the steps of any car for a longer time than is necessary to enter or leave the car. Passengers are permitted to stand between the seats in the body of the car, or on the rear platform, but are not permitted to stand on the front platform of open cars. In our open cars half of the seats face forward and the other half backward, so that there is space enough between for one row of standing passengers. Male passengers are permitted to sit on the front seat directly behind the motorman, but not women and children. We consider it advantageous not to have passengers standing on the side steps. First, because it makes for safer and more efficient operation, and secondly, beeause it gives the conductor a better chance to collect the fares. On account of women and children becoming frightened at the blowing out of a hood switch, and also because of the tendency of their presence to distract the attention of the motorman from his duties, we believe it is in the interests of safety first to allow none but male passengers to ride on the front seat of open cars. No standing is allowed on the front platform because it interferes with the motorman.

Car Cleaning.—Is car cleaning done under supervision of transportation or mechanical department? What is the average daily cost per car operated for labor and material for car cleaning?

F. L. Hubbard, Assistant to General Manager, Toronto Ry., Toronto.—Car cleaning is done under the supervision of the transportation department, all cars being swept and dusted every night. A thorough cleaning and washing with a special compound is given the cars during the daytime.

Notices to Car Crews.—(a) What is the best method of issuing notices to car men? (b) What is the best way of insuring the reading of them by car men? (c) Is it advisable to issue notices daily? (d) Is it practical to have men sign for notices in a station having 800 men attached to it?

F. L. Hubbard, Assistant to General Manager, Toronto Ry., Toronto.—(a) By issuing short bulletins, dealing briefly with but one subject in each. (b) In the case of important bulletins, we require the men to sign a register, acknowledging having read said bulletins. (c) We do not think it should be necessary to do this, and besides, it would have a tendency to change the method from one intended to emphasize something of a special nature, to that of a common, daily occurrence, and thus create indifference on the part of the men. (d) We do not think it should be necessary for this number of men to sign for every notice issued, but we think it good policy to have all the men sign on special occasions, when it is desired to direct their attention to some particularly important bulletin.

Canadian Electric Railway Association.

PRESIDENT—C. B. King, Manager, London Street Railway Co.

VICE PRESIDENT—James D. Fraser, Director and Secretary-Treasurer, Ottawa Electric Railway Co.

SECRETARY-TREASURER — Acton Burrows, Managing Director, Canadian Railway and Marine World.

EXECUTIVE COMMITTEE—The President, Vice President, Secretary-Treasurer and

E. P. Coleman, General Manager, Dominion Power and Transmission Co.

Patrick Dubee, Secretary-Treasurer, Montreal Tramways Co.

A. Eastman, General Manager, Windsor, Essex and Lake Shore Rapid Railway Co.

H. M. Hopper, General Manager and Purchasing Agent, St. John Railway Co.

Wilson Phillips, Superintendent, Winnipeg Electric Railway Co.

C. L. Wilson, Assistant Manager, Toronto and York Radial Railway Co.

ASSISTANT SECRETARY — Aubrey Acton Burrows, Business Manager, Canadian Railway and Marine World.

OFFICIAL ORGAN—Canadian Railway and Marine World, Toronto.

The Great Northern Ry. of Ireland has ordered 5,500 tons of 90 lb. bullhead rails, and 2,500 tons of 85 lbs. flat bottom rails, from the Dominion Iron and Steel Co., Sydney, N.S.

The Toronto Suburban Railway's Franchise in Toronto.

In response to a request from the City Board of Control, City Solicitor Johnston has given the following opinion:

"The Toronto Suburban Ry. Co., under an agreement with the York Tp., dated Sept. 4, 1899, has the exclusive right to construct, maintain and operate a single and double iron or steel railway on Davenport Road, from the northern limits of the city to the east limit of the Town of Toronto Junction, and in that part of Bathurst St., between Davenport Road and the northerly limits of the City of Toronto. The franchise entitles the company to use its railway for carrying freight, goods, merchandise and passengers. The franchise extends over 30 years and therefore expires on Sept. 4, 1929. Upon the expiration of the 30 years the company is entitled to a renewal for a further term of 20 years upon such terms as may be mutually agreed upon between the township and the company or to be determined by arbitration, and so on at the end of each 20 year period. There is a proviso for the township at the end of any of the periods taking over the railway at a valuation to be determined by agreement or arbitration.

There is a further provision in the agreement that the company "shall grant running rights over the portion of its railway on Bathurst St., from the C.P.R. tracks to Davenport Road, and on Davenport Road, to one other railway company operating a street railway and having ingress to the city, upon such terms as may be mutually agreed upon between the company and the company applying for such running rights, or in case of disagreement to be settled by arbitration under the Municipal Act."

Edmonton Radial Railway Operating Results.

The following statement of revenue and expenditure for 10 months ended Oct. 31, 1914, has been issued by the City Council:—

Revenue.

Cash fares	$239,640.10
Ticket sales	287,915.50
Advertising	4,510.11
Interest on spurs	152.87
Special cars	789.60
Sprinkling streets	3,306.78
Main contract	1,233.34
Freight earnings	3,585.91
Passes for police and truant officers	1,284.46
Rent of old barns, etc.	915.87
Loss on operation of Highlands line paid by Magrath-Holgate Co.	258.56
Sale of lost property found on cars	42.85
Total revenue	$543,645.95
Apparent deficit for 10 months	190,139.06
	$733,785.01

Expenditure.

Maintenance	$ 19,342.67
Equipment	44,926.25
Transportation, including power, wages, etc.	340,514.73
General, including management, office salaries, damages, etc.	38,839.20
Debenture interest and redemption	193,344.84
Bank interest	11,716.67
Depreciation	84,968.80
Miscellaneous	131.85
	$733,785.01

Net revenue account as at Oct. 31, 1914.

Deficit as at Dec. 31, 1913	$405,394.07
Apparent deficit for 10 months ing Oct. 31, 1914	190,139.06
	$595,533.13

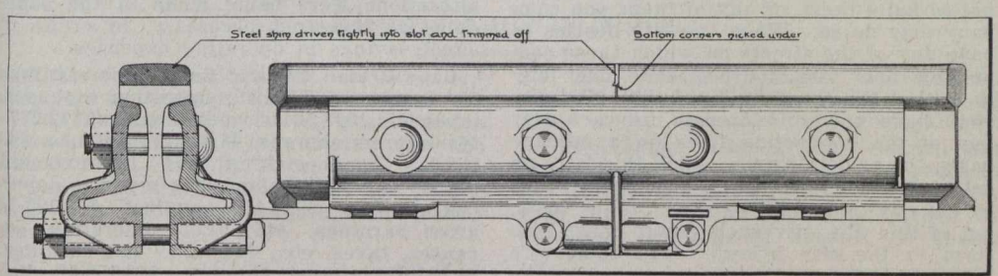
Capital account as at Oct. 31, 1914.

Purchase and construction of land, buildings, track and equipment to Dec. 31, 1913	$2,841,948.48
Additions during the year	217,694.54
	$3,059,643.00

An Invisible Rail Joint on the London Street Railway.

A very simple and apparently a very effective device in connection with track joints in paved streets was tried during the past summer by C. B. King, Manager, London St Ry., London, Ont. The track in which the experiment was made consisted of 80 lb. A.S.C.E. rail, on standard cedar ties, with concrete foundation 6 ins. beneath the ties and up to the top of the tie. When the brick pavement was being laid, instead of using a sand cushion, a mixture of 1 to 8 cement mortar was spread just ahead of the paving, the brick being carefully laid and levelled on top of the soft mortar. Before the mortar became dry, cement grout, in the proportion of 3 to 1 was run in over the bricks, thoroughly filling the joints between them. In forming such a bond with the mortar underneath, the brick pavement, together with the concrete foundation becomes so nearly monolithic that even should the rail be inclined to work loose there is no sand cushion or other soft substance to be washed out, allowing the rail to drop. Molded scoria blocks were laid in alternate courses inside the rail, thus forming the flangeway.

When the track had been concreted but just before the paving was being laid, the opening between the rails at each joint was widened by sawing out the slot, using two or three hack saw blades placed side by side in a special frame. The width of the slot should be about ⅛ in. greater than the space between the rails, so as to provide shoulders for the shims and should extend to a depth a little below the centre of the head. This opening was then filled with a piece of fairly hard sheet steel which was carefully driven into the slot and then filed off level with the top of the rail. Before inserting the steel shim the bottom corners of the slot were slightly nicked under, then when the steel shim had been driven to place, the corresponding corners of the shims were bent into these nicks, thus removing all possibility of the shim getting out. When the car service is put on to a track where the joints have been treated in this manner, the slight cold rolling effect of the wheels on the top of the rail still further tightens the shims, so that in a very short time it is almost impossible to find them, hence the reason for the novel title of an "invisible" joint.



Invisible Rail Joint, London Street Railway.

It is almost needless to add that whatever joint is used, whether it be a continuous joint, Atlas joint or ordinary angle bars, it must be perfectly tight, or such a shim inserted between two rails cannot possibly remain tight. It had been found, however, that even if the joint remained tight and there was even the smallest opening between the two rails, the small pound produced by even such a small opening would start a loosening process, which would gradually spread back from the end of the rail and finally loosen the whole joint. It was noticed that where rails butted very tightly together, so that the cold rolling effect practically ran them together, this gradual loosening of the joint plates would not take place. It is therefore believed that where this shim is inserted so that no pounding whatever can take place at the joint, the plates will remain tight and the joint be practically a perfect one. Joint shims inserted in this manner during the ordinary summer weather of June and August, have shown no signs of loosening, due to shrinkage by sufficient cold weather to freeze the ground below the bottom of the rail. It is therefore believed that the joint plates are holding so tightly that the stresses caused by temperature shrinkage are equally distributed throughout the whole rail.

Another experiment was tried recently by putting these shims in the joints of another piece of track laid with the same kind of rail, but in an unpaved street where the gravel is kept close to the top of the rail. This track was laid about two years ago, but the joints were showing very slight signs of working loose back from the ends of the rail as previously mentioned. The shims were put in between the ends of the rail as described and as they soon rolled together so that they became nearly invisible, it is believed that they will continue to hold the joint solid. It was found, when putting the shims in where the track is in constant use, that the shim had to be driven in, and the projecting part cut off with a cold chisel, not over ⅛ in. above the rail, before a car was allowed to run over it; otherwise the projecting part of the shim was mashed out over the ends of the rail, badly denting them. Then the mashed out top would break off, leaving a worse depression than ever. By using this care and allowing only ⅛ in. projection to be mashed down by the car wheel, the shim is only tightened the more and then, when filed off even, soon becomes invisible, which definitely proves that everything about the joint is solid.

As the joint is undoubtedly the weakest spot in track work, this is certainly a very simple method of helping to hold them tight and since after several months use, including wintry weather, they continue to show up favorably, it is believed the desired effect will continue.

Acceptance of United States Coins in Canada.

The General Manager of a Canadian electric railway company writes as follows: "While reading over the Canadian Railway and Marine World for December, I noted the paragraph stating that the Montreal Tramways Co. was not refusing to accept U. S. coins for fares on its cars, and shortly afterwards I came across a paragraph in the Electric Railway Journal in connection with the use of Canadian coins in the U. S. It is interesting to note the difference in point of view. The item in the Journal is as follows:

"Tricky Patrons.—A letter was addressed to the editor of the Topeka Capital recently in which the writer expressed the opinion that it would be interesting to know how many people are 'victimized' a week by the Topeka Ry. paying out in change Canadian dimes in place of American dimes. To the letter as published in the Capital the editor appended this note in the usual parentheses: 'Patrons should examine their change. We do not imagine the street railway company imports Canadian money. If it pays such coins out they are coins that tricky patrons have already passed to the Company.'"

Fares on Lethbridge Municipal Railway.

Commissioner A. Reid presented the following report to the City Council at the middle of November:

"From Jan. 1 to Oct. 31, 1914, the number of street railway fares paid by regular tickets (6 for 25c) was 396,737; number paid by limited tickets (8 for 25c) was 144,194, or nearly 31% of that paid by regular tickets; number paid by cash was 289,907, or 73% of that paid by regular tickets; number of fares paid by limited tickets was about 26% of that paid by cash and regular tickets; returns from children's tickets amount to $786.39; from limited tickets, $4,506.08; from regular tickets, $16,530.70, and from cash fares, $14,495.34.

"If the number of passengers carried remained the same up to Oct. 31, 1914, and we had charged 5c instead of giving 6 tickets for 25c the revenue would have been increased $3,300, and if 6 tickets for 25c had been given instead of 8 for 25c the revenue would have been increased $1,500, making a total of $4,800.

"After a careful study of above, and considering the small percentage of passengers using limited tickets, I would recommend the following changes, to go into effect on Dec. 1: That the use of the present limited tickets be discontinued, and the regular tickets (6 for 25c) be substituted; these tickets to be good for the following hours: 6 to 8 a.m., 12 noon to 2 p.m., and 5 to 7 p.m. The regular fare to be 5c, and 10c after midnight. Children's tickets (10 for 25c) to be continued. Two children to travel on one 5c fare, but not on one ticket. If children's tickets are used, each child must have a ticket, and the age to be limited to 5 to 14 years. Children under 5 to travel free.

"The present employes' tickets to be discontinued and books of blue tickets substituted (25 for $1). The carrying of policemen and firemen free to be discontinued, and these departments to purchase blue tickets as required."

The International Ry.'s New Freight Service inaugurated recently between Buffalo and Rochester, N.Y., has been such a decided success that the company contemplates the building of another freight terminal in Buffalo in the very near future. The present terminal, which has been in use only about three months and is located a little north of the heart of the city, has begun to outgrow itself, and in order to facilitate matters for the shippers the company is thinking of building the new terminal in the storage and commission house district, which is south of the heart of the city. With these two terminals the company hopes to be able to handle express freight more efficiently. This, of course, will mean a saving for shippers in cartage.

The question of the appointment of a commission to manage the Edmonton Radial Ry. was one of the issues raised in the December municipal campaign in Edmonton, Alberta.

Electric Railway Projects, Construction, Betterments, Etc.

Brandon Municipal Ry.—During 1914 the City Council has changed 0.734 of a mile of 60 lb., A.S.C.E. rail, on gravel ballast, to 70-264 section steel, with a concrete roadbed. T. Boden, Brandon, Man., is Superintendent. (Dec., 1913, pg. 592.)

Brantford Municipal Railway-Grand Valley Railway.—The rotary converter referred to in our last issue is being installed in the Hydro Electric sub station at Paris, Ont., and not at Brantford, as mentioned previously. It was purchased second hand in Phillipsburg, Pa.

The trestle bridge across Blue Lake, on the Grand Valley Ry., which is being considerably strengthened, is 365 ft. long and 22 ft. 8 in. at the centre span, which is one of 53 ft. The other spans vary, according to the nature of the slope of the banks and the soil, from 13 to 26 ft. The structure rests on piles and concrete blocks, 20½ ft. by 1 ft. 5 in. The reconstruction was rendered necessary owing to the expectation of increased traffic since the line passed under public ownership. (Dec., 1914, pg. 553.)

Hamilton St. Ry.—The Board of Railway Commissioners has authorized the company to build a subway under the G.T.R. tracks at Kenilworth Ave., Hamilton, Ont., with a headway of 14 ft. The city is to cut the street to a 3% gradient, and the G.T.R. is to pay the cost of widening the subway to carry any greater number than four sets of tracks. The cost of the subway is to be paid as follows: 35% by the H.S. Ry.; 25% by the City Council; 32½% by the G.T.R.; 7½% by Barton Tp., and 25%, not to exceed $5,000, from the Dominion grade reduction fund. (Sept., 1914, pg. 431.)

London St. Ry.—During 1914 the company laid new curves and second track at various points in London, Ont., totalling 1,096 ft. (Oct., 1914, pg. 476.)

Montreal and Southern Counties Ry.—The Dominion Parliament is being asked for an extension of time for building this railway from Montreal, via St. Lambert, to Granby and other points south of the St. Lawrence River. The line is being operated from Montreal to St. Cesaire, Que., 35 miles, and construction is in progress between St. Cesaire and Granby, 15 miles.

Ottawa and St. Lawrence Electric Ry.—The Ontario Legislature is being asked to extend the time for the building of the proposed railway from Ottawa to Morrisburg and along the St. Lawrence River to Brockville, then to Braeside, on the Ottawa River, and along the Ottawa River to Ottawa; and for power to build a line westerly from Brockville to Rockport; to build a branch line, or deviate the main line so as to serve Smiths Falls; and to extend the line from the village of Russell to Embreum, and northerly to South Indian. The company is also asking for a change of name, and for authority to use "steam or other motive power," instead of electricity, as in the original charter. (Dec., 1914, pg. 553.)

Port Arthur Electric Ry.—The Port Arthur, Ont., City Council has directed a report to be made upon a proposal to build a car line in Mariday Park. (Sept., 1914, pg. 431.)

Saskatoon Municipal Ry.—The Saskatoon City Council is constructing a bridge at Twenty-fifth St., at a cost of $400,000, towards which the Provincial Government is contributing two-thirds. Work was begun Sept. 2, and is reported to be well advanced. The bridge is of concrete, 65 ft. wide, and 1,490 ft. long. There are eight spans, of which four are of 150 ft. each. Provision is made for foot passengers by a cantilever on either side of the bridge. A double track is to be laid on the bridge for the municipal railway. One of the main reasons for building the bridge is the largely increased traffic due to the railway. (July, 1914, pg. 336.)

Toronto Civic Ry.—The City Council has under construction a double track line from Dundas St. to Quebec Ave., on Bloor St. W., 0.745 mile. A temporary track has been laid, but the permanent work will not be done until next spring.

The question of the building of a line on Lansdowne Ave., and a line to North Toronto, are to be voted on by the ratepayers, Jan. 1.

The City Council has authorized the erection of a temporary car barn on Dorval Road for the new Bloor St. line. (Dec., 1914, pg. 553.)

Tramways, Limited.—An agreement has been made between the company and the Edmonton, Alberta, City Council, under which the company may connect up its projected lines at certain points, and setting out the routes to be followed within the city, by the lines making such connection. The company is to ask the city to build the connecting lines when it is ready to have the connection made, and if the city decides not to build them, or any of them, the company may do so. When the city desires to pave any of the streets on which these connecting lines run, it shall take over any lines that the company has built. The city shall have power to operate its cars over any of the connecting lines on a mileage basis, the principle upon which this is to be calculated being set out. The company is to use any other motive power than steam, but within the city such power must conform to the city bylaws. The company's cars within the city are to be moved by the city, at the company's own expense. The rental to be paid by the company is to be fixed on a car mile basis for passenger cars, and a per car basis for freight and express cars. Statements are to be made monthly. Twenty miles of lines are to be built by Dec. 1, and the agreement is to run for 30 years. All differences are to be settled by arbitration. The bylaw was voted on by the ratepayers at the municipal elections, Dec. 14, 1914.

Winnipeg Electric Ry.—We are officially advised that the line from Stony Mountain to Stonewall, Man., 7.50 miles, built by the subsidiary Winnipeg, Selkirk and Lake Winnipeg Ry., was officially opened Dec. 12, 1914, and that a regular car service was put in operation Dec. 14. There was a public celebration in connection with the opening of the extension. (Dec., 1914, pg. 554.)

Bloor St. Viaduct, Toronto.—The contract for the erection of a viaduct across the Don River Valley at Bloor St. has been let by the Toronto City Council to Quinlan and Robertson, Montreal, who have ordered the structural steel work from the Hamilton Bridge Co. The viaduct will be 1,539 ft. long and 86 ft. wide. The plans provide for the laying of a double track for an electric railway to be built by the city council, and provision is made for the addition at a subsequent date of a second deck to be utilized in connection with the working out of the rapid transit and radial electric railway problems.

The Toronto civic railway has ordered 3 single truck cars for its Bloor St. west line, from the Preston Car and Coach Co., and a snow plough of U. S. manufacture from the C. E. A. Carr Co.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry.—A London, Eng., cable, Dec. 12, says:—"The B.C. E. Ry. records depressing conditions in that province, all new work having been postponed and also a big reduction in the population noted. Stockholders are told they must be prepared for a drastic reduction in future dividends owing to the war."

British Columbia Electric Ry. and Allied Companies. — Gross earnings for October, $661,000; operating expenses, maintenance, etc., $511,877; net earnings, $149,123, against $743,501 gross earnings, $561,902 operating expenses, maintenance, etc., $191,599 net earnings for October, 1913. Aggregate gross earnings for four months ended Oct. 31, $2,676,351; net earnings, $615,670, against $3,014,355 aggregate gross earnings, $775,077 net earnings for the same period 1913.

Calgary Municipal Ry.—The Calgary, Alberta, City Council is considering the question of the deficit in the operation of the municipal railway. In the course of a recent discussion it was stated that there was a deficit of about $50 a day on the line to the C.P.R. Ogden shops, including all fixed and overhead charges, maintenance, depreciation, etc. Commissioner Graves stated that nothing could be done to reduce the deficit on this line. In regard to the other routes, traffic was being checked, and alterations were being made in the schedules as appeared necessary, in order to effect savings in operating expenses.

Cape Breton Electric Co.—Gross earnings for October, $30,751.49; operating expenses, taxes, etc., $18,524.03; net earnings, $12,227.46; interest charges, $5,239.41; balance, $6,988.05; bond sinking and improvement funds, $1,273.34; balance for reserves depreciation, etc., $5,714.71, against $36,793.71 gross earnings, $18,7 51.52 oiperating expenses, taxes, etc., $18,042.19 net earnings, $4,891.67 interest charges, $13,150.52 balance, $1,190 bond sinking and improvement funds, $11,950.62 balance for reserves depreciation, etc., for October, 1913. Aggregate gross earnings for 10 months ended Oct. 31, $291,466.40; net earnings, $117,806.70; interest charges, bond sinking, and improvement funds, $64,939.15; net balance, $54,229.53, against $308,522.13 aggregate gross earnings, $133,449.75 net earnings, $60,897.82 interest charges, bond sinking, and improvement funds, $72,551.83 net balance for reserves depreciation, etc., for same period 1913.

The Dominion Power and Transmission Co., Hamilton, Ont., has declared the regular half yearly dividend of 3½% on the preferred stock, payable Jan. 15.

The Guelph Radial Ry. during 1914 paid the City of Guelph, Ont., $1,742 taxes and a dividend of $8,350, being 5% on $169,000 of stock held by the city. About $3,200 was paid on capital account out of earnings and about $2,800 in track replacements, which are not really chargeable to capital.

Lacombe and Blindman Valley Electric Ry.—W. L. McKinnon & Co., Toronto, advise that they have sold the $206,700 of this company's first mortgage bonds. (Dec., pg. 553.)

London St. Ry.—Gross earnings for October, $30,722.19; expenses, $22,718 63; net earnings, $8,003.56; deductions, $2,760.55; net income, $5,243.01. Aggregate gross earnings for ten months ended Oct. 31, $312,914.65; expenses, $222,752.47; net earnings, $90,192.18.

Gross earnings for November, $26,347.73; expenses, $18,692.06; net earnings, $7,655.67, against $29,057.59 gross earnings, $21,089.50 expenses, $7,968.09 net earnings, for November, 1913.

The company's franchise has 10 years to

run, but an intimation is said to have been conveyed recently to the London, Ont., City Council, that the company is willing to sell out, and that city debentures might be accepted in payment. The matter came before the City Council incidentally, Dec. 7, when F. A. Gaby, Chief Engineer, Hydro-Electric Power Commission of Ontario, was asked to make a report upon the value of the company's property. Nothing definite will be before the Council until the company's proposition and the report are received.

Regina Municipal Ry.—A report presented to the City Council for the ten months ended Oct. 31, 1914, gives the following figures relating to the operations of the municipal railway:—Deficit on operation, $4,566.65; add capital charges, $74,765.24; total, $79,331.89.

Sherbrooke Ry. and Power Co.—Aggregate gross earnings for four months ended Oct. 31, $51,561.42; operating expenses, $30,-011.36; net earnings, $21,550.06, against $50,001.63 aggregate gross earnings; $29,-794.16 operating expenses; $20,207.47 net earnings for same period 1913.

The Toronto Railway has sold in New York $1,500,000 in 6% notes, $750,000 due on December 1, 1915, and the balance on December 1, 1916, the former being disposed o fat 104¼ and the latter at par. The last annual report showed cash on hand and in bank of $532,140, but the company had a $600,000 outstanding debenture issue redeemable this year.

Receipts for November, $465,035.02 against $501,254 for Nov., 1913. The percentage paid to the city was $46,503.50 against $51,533.15 for Nov., 1913. The aggregate gross receipts for 11 months ended Nov. 30 were $5,537,058, against $5,502,555 for the same period 1913.

Toronto Ry., Toronto and York Radial Ry. and Allied Companies.—Gross earnings for October, $849,636; operating expenses, maintenance, etc., $426,536; net earnings, $423,-100, against $861,235 gross earnings; $415,-021 operating expenses, maintenance, etc., $446,214 net earnings for October, 1913. Aggregate gross earnings for 10 months ended Oct. 31, $8,471,743; net earnings, $4,137,753, against $8,044,705 aggregate gross earnings, $3,999,218 net earnings for same period 1913.

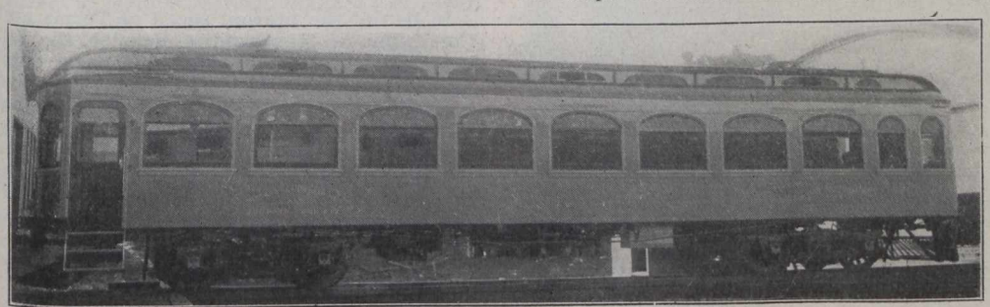
Winnipeg Electric Ry. — Gross earnings for October, $330,562; operating expenses, $197,465; net earnings, $133,097, against $357,313 gross earnings, $196,703 operating expenses, $160,610 net earnings for October, 1913. Aggregate gross earnings for 10 months ended Oct. 31, $3,402,502; net earnings, $1,423,407, against $3,338,748 aggregate gross earnings, $1,496,985 net earnings for same period 1913.

Electric Railway Notes.

The Calgary Municipal Ry. has put a new schedule in operation for the winter.

The Toronto Suburban Ry. has bought a snow sweeper, of U.S. manufacture, through the C. E. A. Carr Co., Toronto.

The Brantford Municipal Ry. has dismissed three conductors, charged with stealing fares.



Suburban Car for Niagara, St. Catharines and Toronto Ry.

The Toronto Board of Control has decided to permit advertising in the civil railway cars.

The Manitoba Public Utilities Commission is conducting an investigation into the street car service given by the Winnipeg Electric Ry. R. R. Knox, the company's Traffic Superintendent, gave evidence at the sittings held Dec. 12 and 14.

The Quebec City Council requested the Quebec Ry., Light, Heat, and Power Co. recently to issue transfers from certain of its city cars to cars operated over its Sillery line, within the city limits. The company has replied that the Sillery line is owned by a separate company.

The Saskatoon, Sask., City Council has made arrangements with the local branch of the St. John's Ambulance Association for a course of instruction in first aid work to be given to the employes of the municipal railway. The classes are being held twice a week.

The Port Arthur, Ont., City Council finance committee has recommended that the present electric railway charges be closely examined with a view to their reduction, and that an effort be made to realize on what is now carried in the accounts as "dead stock," estimated to be worth $17,000.

The Calgary, Alberta, City Council has directed that all persons over 14 years of age who are classed as scholars, must carry with them identification cards, signed by the superintendent of schools, to enable them to take advantage of the reduced fare for scholars on the municipal railway.

The Mayor of Saskatoon, Sask., expressed the opinion at a Council meeting recently, during a discussion on a proposition to issue tickets at six and eight for 25 cents, that the increase of fares on the municipal railway had been a failure. The Council decided to have a special report on the matter.

The Brandon Municipal Railway has reduced its car hours from 18 to 17 hours a day. Motormen have been paid 8½ hours each, not allowing for reporting time, which is 10 minutes, and they have sent in a request to the city council to be paid for reporting and they also ask 9 hours' pay.

The Port Arthur, Ont., City Council, on Dec. 1 ratified a new agreement with its street railway and other employes, under which there is a certain reduction of pay, dating from Nov. 15, thus bringing the employes of the corporation's electric department into line with those of other departments.

The electrical equipment for the six single truck cars which the Brantford Municipal Ry. ordered recently from the Preston Car and Coach Co., has been supplied by the Canadian Westinghouse Co. It consists of 5 double equipments, single end, 101-B-2 railway motors, including one K-10 controller, and one complete equipment, double end, double equipment, 101-B-2, including two K-10 controllers.

The Mannheim Insurance Co. has been nonsuited in an action against the Sandwich, Windsor, and Amherstburg Ry., in a claim for damage arising out of a collision between a street car and an automobile insured with the company, on the ground that the company is organized in Germany by German capitalists, alien enemies of the British Empire, and had no standing in British courts.

The British Columbia Electric Ry. has rerouted the cars on a number of its lines in Vancouver, to allow of more economical operation, while still meeting traffic conditions. The employes have adopted an arrangement amongst themselves whereby certain of them lay off each week, thus enabling a larger number of men to be kept employed than would otherwise be the case during the present slackness.

An application was before the Ontario Railway and Municipal Board, Dec. 10, to compel the Toronto and York Radial Ry. to provide a passenger shelter station at Sunnyside, where the Mimico line passengers transfer to the city lines. The company stated that it had no objection to providing an efficient shelter, but pointed out that construction difficulties prevented its erection until the spring. In the meantime a large heated and lighted car has been provided as a substitute.

The County Court Judge at Ottawa, Dec. 3, gave judgment for $94 against the Ottawa Electric Ry. for damages sustained by a motor car belonging to the Major Hill Taxi Co. The motor car, in order to pass a standing car, moved out on to the street car tracks, the driver signalling an approaching electric car what he was going to do. The street car failed to stop, and the motor car was damaged. The jury which heard the action found the O.E. Ry. Co.'s motorman to blame.

The Ontario committee of the Trades Congress has petitioned the Ontario Legislature for legislation establishing a 9 hour day for street railway employes, to be worked within 12 consecutive hours, that vestibules of street cars be heated in the winter. That new employes on street railways be given 30 days training before being allowed to take charge of a car, and that private detective agencies in the Province be abolished, it being alleged that they are a "menace to the lives and liberties of Canadian workmen."

The Imperial Privy Council has reserved its judgment in the appeal of the Toronto Suburban Ry. against a judgment of the Supreme Court of Canada on an order of the Ontario Railway and Municipal Board, relative to the paving and upkeep of the roadway used for railway purposes and 18 ins. on each side, on Upper Bathurst St. and Davenport Road. In the Supreme Court it was held that the Board had jurisdiction to make an order to pave, but could not delegate the power to determine the character of pavement to its engineer, but must itself direct what material should be used in paving.

The London St. Ry. has received 4 single end, single truck, p.a.y.e. cars mounted on 21-E trucks with 8 ft. wheel base, from the Preston Car and Coach Co. They are practically duplicates of the 6 cars which the company received from the same source in 1913, and which were described and illustrated in Canadian Railway and Marine

World for Dec., 1913, and Jan., 1914. Some slight changes were made in the interior seating, by having longitudinal seats on one side and cross seats on the other, and instead of having hand pole straps, as is usual in longitudinal seat cars, there is a hand pole hung on brackets, 5½ ft. from the floor, and 5 ins. back from the face of the cushion.

The Niagara, St. Catharines and Toronto Ry. has received four 55 ft. suburban cars, from the Preston Car and Coach Co. They are divided into two compartments, the smoker at one end being separated by a partition which allows a passage way on one side of the car, enabling passengers to go into the other compartment without having to pass through the smoker. The seats are upholstered in green plush, the backs being especially high with head roll. The trimmings throughout are statuary bronze. The cars are finished in polished quartered oak inlaid with white holly, agastoe headlinings and empire decks. The framing is entirely of steel covered with wood. The cars are painted steel grey with black and gold lettering, and are geared to run at 60 miles an hour. The wheels are steel tired with cast iron centres, M.C.B. journals, Keystone sign boxes and Tomlinson radial automatic couplers. The electrical equipment consists of 4 G.E. 214 motors with type M.K. simplified control, the master controller having dead man release handle. The cars are equipped with straight air and Westinghouse automatic brakes.

Mainly About Electric Railway People.

A. GABOURY, Superintendent, Montreal Tramways Co., read a paper on the safety first movement before the Montreal Electrical Society, Dec. 7.

W. F. GRAVES, Chief Engineer, Montreal Tramways Co., is one of a committee of three to make a valuation of the Detroit United Ry's. Co.'s track property for the Michigan Railroad Commission.

D. S. MARTIN, who died from wounds received in the fighting at Messines, France, was an electric engineer, and at one time was on the British Columbia Electric Ry.'s engineering staff.

A. W. WESTMAN, Superintendent, Windsor, Essex and Lake Shore Rapid Ry., was electrocuted at the car barns at Kingsville, Ont., Dec. 21, while preparing to put a snow plough at work. He leaves a wife and 6 children.

ADOLPHE ALFRED DION, General Superintendent of the Ottawa Gas Co., who has been elected a director of Ottawa Electric and also of Ottawa Gas, is a well known sportsman and for many years has been vice commodore of the Ottawa Canoe Club. He is President of the Moose Jaw Electric Ry.

SIR ADAM BECK, Chairman, Hydro Electric Power Commission of Ontario, has been appointed Chief Remount Commissioner for Eastern Canada, with the title of Colonel and attached to the headquarters staff. Sir Adam has been in charge of the purchasing of remounts for the British Army, in Ontario, since the outbreak of war.

PATRICK DUBEE, Secretary-Treasurer, Montreal Tramways Co., and a member of the Canadian Electric Railway Association's executive committee, has been appointed on three of the American Electric Railway Association's committees, viz., on taxation matters, on relations with other associations, and on transportation for the next annual convention at San Francisco.

T. E. MITTEN, who has been elected President of the Philadelphia Rapid Transit Co., Philadelphia, Pa., was from 1901 to 1905 General Superintendent of the International Ry., Buffalo, N. Y. In 1905 he was appointed President of the Chicago City Ry. Co. and also Vice President of the International Ry., Buffalo. His association with the Philadelphia properties egan early in 1911.

F. S. BARNARD, who has been appointed Lieutenant-Governor of British Columbia, was born at Toronto, May 16, 1856, and has been associated with the British Columbia Electric Ry., for many years, acting latterly as local adviser to the directors, all of whom are located in London, Eng. He is a son of the late F. J. Barnard, who established an express company in British Columbia some years ago, which was originally known as Barnard's Express, and which later developed into the British Columbia Express Co., of which he was Manager from 1880 to 1888.

Electric Railway Track Laid in 1914.

Below is a preliminary table showing track laid on electric railways in Canada during 1914. It is not published as a complete one, owing to the fact that some of the companies have not replied to the circular sent, but it is believed to be approximately correct. The * mark indicates that the figures given are estimated.

	Miles.	Miles.
* **British Columbia Electric Ry.**		
Various extensions	.....	5.00
* **Fort William Electric Ry.**		
Extensions	.....	2.00
Hamilton St. Ry.		
Extensions, Kenilworth Ave., etc.	.....	2.30
* **Montreal Tramways Co.**		
Various extensions	.....	5.00
Moose Jaw Electric Ry.		
Boulevard Heights extension	1.00	
Extension on Hall St.	1.00	
		2.00
* **Port Arthur Electric Ry.**		
Extensions	.....	2.00
* **St. John Ry.**		
Kanes Corner extension ...	.....	1.50
Saskatoon Municipal Ry.		
Extension on Ave 26	.....	0.50
Suburban Rapid Transit Co.		
Extensions near Winnipeg ..	.....	1.37
Winnipeg Electric Ry.		
Various extensions	.....	7.56
Winnipeg, Selkirk and Lake Winnipeg Ry.		
Stony Mountain to Stonewall.	.....	7.50
Total		36.73

The Montreal and Southern Counties Ry. put in operation during 1914 nine miles of track between Marieville and St. Cesaire. This mileage was taken over from the Central Vermont Ry., the M. & S.C. Ry. rebaling the track, bonding the rails, and putting up the catenary overhead construction.

Telegraph, Telephone and Cable Matters.

James Bayliss, Chief Engineer, Bell Telephone Co., died, Dec. 7, at Montreal, aged 45.

F. C. Robertson, Inspector, C. P. R. Telegraphs, Toronto, died at Port Hope, Ont., Nov. 29. He entered C. P. R. Telegraph service in 1886 as chief operator at Toronto, prior to which he had been with the Western Union and Baltimore and Ohio Telegraph Companies, at various points in the U. S.

The Marconi Wireless Telegraph Co. has obtained an injunction, in a U. S. District Court, restraining the DeForest Wireless Telegraph and Telephone Co., the Standard Oil Co., and Lee DeForest, from continuing to install a wireless device on Standard Oil Co.'s vessels, which is alleged to be an infringement of patents held by the Marconi company.

The present war is responsible for the creation of many precedents in the conducting of warfare, and although war on the cables cannot be included in these, there is, to a certain extent, a precedent, as in no previous war has the inconvenience been so general, nor has it interfered so much with neutral countries, as now. The recent raids on isolated British stations, and the Pacific cable at isolated points, caused considerable damage, and some inconvenience, but all has now been repaired, but it is reported that Germany is practically isolated so far as cable communication is concerned, any communication with that country having to be carried on over certain British cables and land lines of neutral countries or of the allies. Where German cables have been severed, no attempt is being made to effect repairs, for the simple reason that it is impossible to do so. One of the latest cables to be cut is that of the German Atlantic Cable Co., Cologne, which is carried via Azores and Emden.

Among the Express Companies.

The Canadian Ex. Co. has placed its service in effect over the portion of the Grand Trunk Pacific Ry., recently opened between Hazelton and Prince Rupert, B. C., and has opened offices at Terrace and Prince Rupert.

Changes in Express Merchandise Receipt.

The Board of Railway Commissioners passed order 22973, Dec. 7, 1914, directing that in lieu of notice contained in the Express Merchandise Receipt reading, "Liability limited to $50 unless higher value is declared by shipper and inserted herein," the following be substituted,—"Liability limited to $50, unless higher value is declared by shipper and inserted herein, in which case an extra charge is made depending upon value declared. No extra charge if value is below $50."

In lieu of the present sec. 4 of Terms and Conditions of Merchandise Receipt, the following be substituted,—"Money, specie, completely signed and executed bonds, coupons, bank notes and negotiable paper, or incompletely executed legal tender and bank notes, jewellery and precious stones shall not be packed or included with shipments of ordinary freight, and if so packed, company shall not be liable for loss of, or damage to, such goods.

Effect shall be given to the foregoing not later than July 1, 1915.

Express companies are to add the following notice to the face of Merchandise Receipt,—"The Post Office Act gives the Postmaster General exclusive right of conveyance of letters within Canada. This includes circulars, etc., enclosed in envelopes, sealed or ready to be sealed at point of destination. Heavy penalties are imposed for violation of the act. The company does not accept for transportation packages containing such letters or circulars."

Vancouver Elevator.—A press dispatch from Ottawa, Dec. 2, stated that the contract for the erection of the Dominion Government terminal elevator at Vancouver, B.C., had been awarded to Barnett, McQueen and Co., Fort William, Ont. The elevator will have capacity for about 1,250,000 bush., and the estimated cost is $1,000,000.

The C.P.R. has manufactured at its Angus shops, Montreal, a special hay press for baling hay bought in Canada by the British and French governments. It turns out a bale a minute, 14 by 17 by 22 ins., and averaging 100 lbs. in weight.

A press dispatch states that the German Government has laid an eight track system between Berlin and Cologne, about 300 miles, for strategic purposes.

Marine Department

Ontario No. 2, Another Car Ferry for the Ontario Car Ferry Company.

An all steel car ferry, Ontario No. 2, a sister ship to Ontario No. 1, which is being operated between Cobourg, Ont., and Charlotte, N.Y., by the Ontario Car Ferry Co., under construction by the Polson Iron Works, Toronto, will probably be launched this month. The Ontario Car Ferry Co. is a combination of the G.T.R. and Buffalo, Rochester and Pittsburg Ry. interests, formed some years ago to handle the coal traffic originating on the latter company's lines, destined to points in Eastern Ontario on G.T.R. lines, the object being to eliminate the long haul around the west end of Lake Ontario. The business handled by the company has increased to such a degree that the addition of another vessel became necessary. The new one is almost identical with the one at present in service, which was described in Canadian Railway and Marine World, May, 1907.

It is of the shelter deck type, with four tracks for cars on the main deck, and will be propelled by twin screws. The main deck is of steel throughout, without wood covering; the shelter deck is of steel laid flush, with a deck house running throughout its greatest length, and containing accommodation for passengers, officers and crew. It has a wooden pilot house and bridge on top of the deck house forward, and a pilot house at the after end of the deck house. It is divided into six transverse watertight bulkheads, extending from the keel to the main deck, with a longitudinal bulkhead along the centre line in three watertight ballast tanks 13 ft. deep. Two of the these ballast tanks are immediately forward of the boiler room, and the third immediately aft of the engine room. The steel lower deck, laid throughout the forward and aft holds and both peaks, forms the top of the deep water ballast tanks. There are two shaft alleys, leading back from the engine room, one on each side, extending into the stuffing box bulkhead. The boiler room contains four single ended Scotch marine boilers placed amidships, with one firehold athwartships and one wing coal bunker on each side of the boiler room. The hull is bossed out on each side to enclose the propeller shafts. There are two steel pole spars without masts or sails.

The vessel has a capacity for 28 standard coal cars of 68 tons gross weight each, and 200 tons of coal in the bunkers. The draught will be about 16¼ ft. when fully loaded, and the vessel will have a normal working speed of 13 miles an hour, with reserve power to make 15 miles an hour under emergency conditions. Following are the principal general dimensions:

Length overall	318	ft.
Length between perpendiculars	307½	ft.
Beam moulded	54	ft.
Beam on main deck	56	ft.
Depth at centre, main deck to promenade deck	17	ft.
Depth at side, main deck to promenade deck	17	ft.
Draught of water full loaded	16¼	ft.
Camber of main and promenade decks.	9	ins.
Depth to promenade deck	20½	ft.
Rise of floor	2	ft.

The vessel is built on the transfer system, with solid plate floors and bulb angle frames, with the steel plate extra heavy for working in ice, and not reduced forward. It is built to pass the inspection of the Great Lakes Register, and to receive its highest rating. The plates and shapes are of mild open hearth steel; the stem, stern frame and rudder of hammered scrap iron; and the spectacle frame of cast steel in two parts.

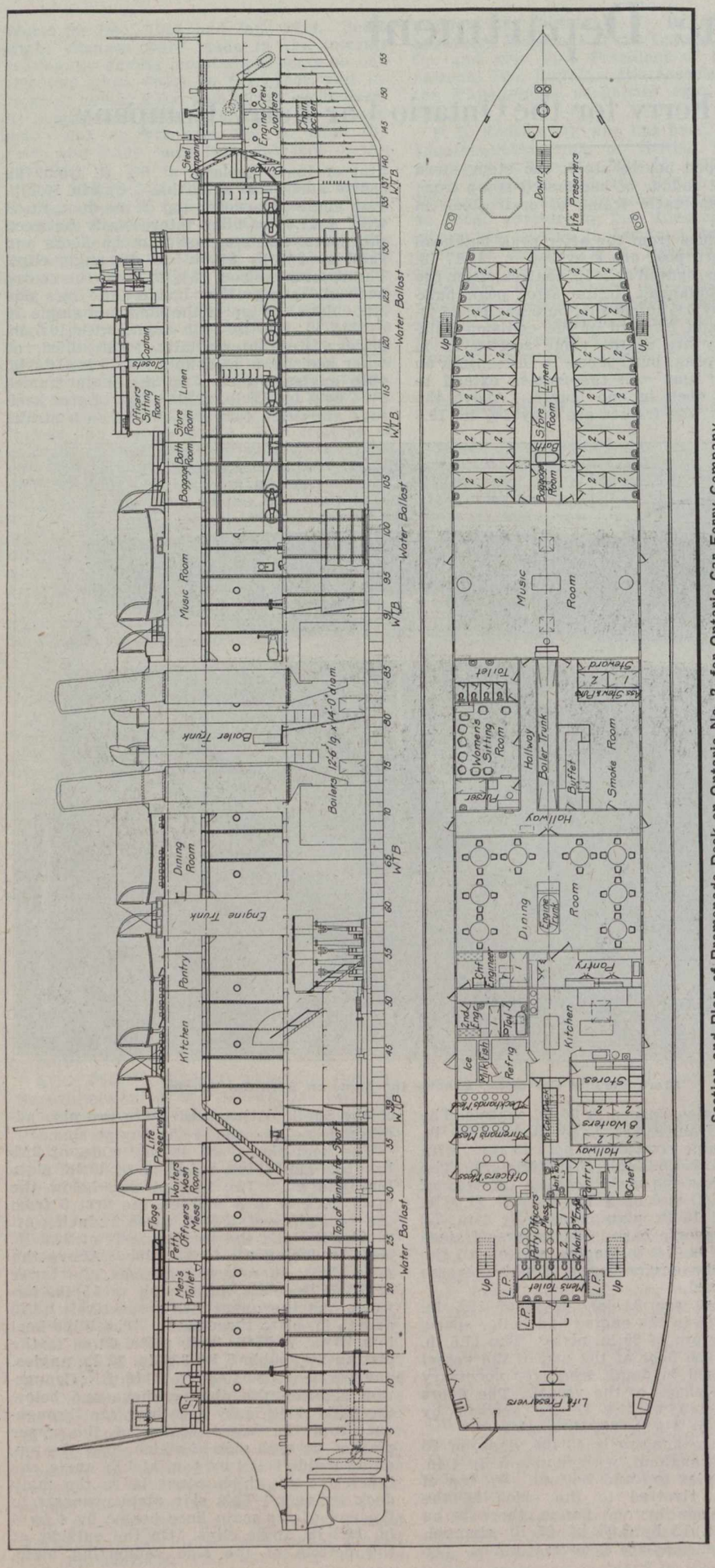
The frames from the after peak bulkhead to the stern post are 8 by 3½ in., 19.17 lb. bulb angles, spaced at 24 in. centres; from the collision bulkhead to the after peak bulkhead, 10 by 3½ in. 26.6 lb. bulb angles, 24 in. centres; and forward of the collision bulkhead, they are of the same section as in the after peak, but spaced 18 in. centres on the water line. All the frames extend to the main deck in one length. Above the main deck, the frames are 8 by 3½ in. 19.3 lb. bulb angles, spaced at 36 in. centres. The bulkhead frames are 5 by 5 in. 16.2 lb. angles, double rivetted on both flanges, with 6 by 3½ in. 15 lb. angles for stiffeners. The frames below the main deck, in the way of the bossing, are of 4 by 3½ in. 11.9 lb. angles and 15 lb. plate, with 3 by 3 in. 7.2 lb. angle reverse bars. The reverse frames are 3 by 3 in. 7.2 lb. angles, and on all the floors in the engine space, double reverse bars are used.

Stern View of Car Deck, Exactly the Same on Both Car Ferries.

The floors are 33 ins. deep, of 17.5 lb. plate, except in the engine and boiler space, where they are of 20 lb. plate. The 17.5 lb. plates for the floor at the end of the vessel are increased in depth wherever necessary to suit the shape of the vessel. The floors are connected to the centre keelson by double 3½ by 3½ in. 8½ lb. angles.

The centre keelson is 45 ins. deep, of 25 lb. plate throughout, with double 5 by 4 in. 14.5 lb. angles top and bottom. On top of the floors, rivetted to the sides of the centre keelson by one flange, there is on each side a 12 by 3.05 in. 25 lb. channel. The side keelsons are of several kinds. The first or inner keelson, at 6¾ ft. from the centre keelson is of double 7 by 3 in. 16.1 lb. bulb angles, placed on top of the floor, fitted with a 17.5 lb. filler intercostally between the floors, and connected to the floors and shell by 3½ by 3½ in. 9.8 lb. angle clips. The second keelson, 13½ ft. from the centre keelson, along the inside of the side stanchions, on top of the floor is a single 10 by 3½ in. 26.6 lb. bulb angle, with 17.5 lb. plates fitted intercostally. The third, or outer keelson, is of double 7 by 3 in. 16.1 lb. bulb angles, attached to the main frames by 4 by 3 in. 8.5 lb. angle clips. Extra keelsons are fitted forward, one in each strake of the shell plating, and there are also additional keelsons under the engine space.

The keel plates are 48 ins. wide, of 32.5 lb. plate amidships, reducing to 30 lb. plate fore and aft. The hull plating below the main deck is in 8 courses, the first 5 from the keel plate of 25.5 lb. plate, reducing aft to 21.5 lb., and the remaining 3, of 30.6 lb. plate, reducing aft to 25.5 lb. Above the main deck, there are 3 courses, the lower of 12.75 lb. plate, increasing to 15 lb. forward, and the upper two respectively 12.75 and 15 lb. plate throughout. The bilge keel is a 13 in. 27.95 lb. bulb plate, fitted to the plating by double 5 by 3½ in. 12 lb. angles, and carried amidships for 110 ft. Connection between the plating above and below the main deck is by a 20 lb. plate throughout from the lower strake of the upper plating, on each side of which, near the top, on each side is a 4 by 4 in. 14.3 lb. angle, the inner one of which connects to the main deck stringer. This side plate connects to the end of the main floor beams by 4 by 4 in. 11.3 lb. angle clips. On the outside, at the bottom of the side connecting plate,



Section and Plan of Promenade Deck on Ontario No. 2, for Ontario Car Ferry Company.

there is a 5 by 4 in. 14.5 lb. angle connecting this plate to a horizontal 22.5 lb. plate, which is connected to the upper strake of the hull plating below the main deck, by a 5 by 5 in. 14.3 lb. angle, narrowing the lower part of the hull 2 ft. in beam less than the upper portion. Between the outwardly projecting flanges of the two angles on the outside of the side connecting plate, there is a 13½ by 10 in. oak beam throughout, protected on the outside by a 10 by ¾ in. face plate.

The main deck stringer is a 30 lb. plate, 65 ins. wide for two thirds the length, tapering at the ends to 22.5 lb. plate 36 ins. wide, and rivetted to the connecting strip between the upper and lower part of the hull by the 4 by 4 in. 14.3 lb. angle mentioned before. The hold stringer is of double 7 by 3 in. 16.1 lb. bulb angles, with a 17.5 lb. plate fitted intercostally, and connected to the shell by 3½ by 3½ in. 9.8 lb. angles, and to the main frames by 4 by 3 in. 8.5 lb. angle clips. The lower deck stringer is a 14.75 lb. plate, 48 ins. wide for three quarters the length, reduced to a 15 lb. plate 36 ins. wide, fore and aft, and is connected to the shell and frame by a 3½ by 3½ in. 9.8 lb. angle. The upper hold stringer is 17.85 lb. plate, 39 ins. wide for three quarters the length, reducing to 15 lb. plate, 30 ins. wide, and connected to hull and frame by 3½ by 3½ in. 9.8 lb. angles. The promenade deck stringer is a 17.85 lb. plate, 72 ins. wide for two thirds the length, reducing to 15 lb. plate 42 ins. wide, and connected to the shell by 3½ by 3½ in. 11.1 lb. gunwale angles. The web plate is 17.85 lb. plate, with a 9 in. hole in each, midway between the stringers.

The deck plating for the main deck is 18 lb.; windlass deck, 12.5 lb. except under the windlass, where it is 20 lb.; lower deck, 12.5 lb.; and promenade deck, 10.2 lb. The deck beams for the main deck are 13 by 4 in. 32 lb. channels at 4 ft. centres; windlass deck, 10 by 3 in. 20 lb. bulb angles at 3 ft. centres; lower deck, 10 by 3.5 in. 26.6 lb. bulb angles at 4 ft. centres.

The six transverse bulkheads are watertight, with the collision bulkhead 32 ft. abaft the stem. The central stanchions in the hold and from lower to main deck are double 6 in. 13.3 lb. channels, spaced at 4 ft. centres. From the main to promenade deck, the central stanchions are the same size, only at 6 ft. centres. The side stanchions are also the same size, at 4 ft. centres, but are only carried up to the main deck. The upper ends of all the stanchions are braced by 17.5 lb. plate brackets. The coal pockets have 10 by 2.74 in. 20 lb. stiffener stanchions at 4 ft. centres, 16 ft. from the centre line. The coal pockets are formed by 12.5 lb. plating on the inner face of these stiffeners. The decking of the coal pocket consists of a double layer of 1½ by 8 in. pine planking, laid on 4½ by 3 in. 9.1 lb. beams at 24 in. centres.

The propelling machinery consists of two triple expansion, 20½ by 33 by 54 by 36 in. jet condensing engines, operating normally at about 110 revolutions per minute, both engines turning outward. The four boilers are fitted with forced draught, and they carry 180 lbs. pressure. Each boiler has three furnaces, 42 ins. diam. and 42 ins. long. The auxiliary machinery consists of two 12 by 16 by 18 in. duplex piston type ballast pumps, connected so as to individually fill or empty the ballast tanks; a 12 in. centrifugal pump, direct connected to an engine in the engine room and so arranged as to act as an air pump in emergencies; a fire pump; a 6 by 5 by 7 in. sanitary pump; a 4½ by 4 by 5 in. fresh water pump; and a 4½ by 4 by 5 in. cooler pump. There is also a 2 ton ice machine, working

on the carbon anhydride principle. The electric lighting plant consists of one 15 k.w and one 20 k.w. generator. There will be a 16 in. searchlight.

There is accommodation on the main deck for 6 coal passers and 6 firemen on the port side, and 2 oilers, 2 watchmen, 4 deckhands and 2 water tenders on the starboard side, all situated forward. The windlass deck is directly over these quarters, from which lead the anchoring chains, which are normally stored in the chain locker on the hold deck, an enclosed pipe connecting the windlass deck with the chain locker, through the crew's quarters.

The promenade deck has accommodation for the ship's officers and passengers, with a promenade extending nearly the full length of the vessel. Forward on this deck are the passenger staterooms, 12 on each side of a double hallway leading forward from the music room. Each stateroom has two berths, giving accommodation for 48 altogether. Between the double hallway, there are the linen room, storeroom, bath room and baggage room. The music room extends the full width, and has a piano. Leading back from the music room, there is a hallway alongside the boiler trunk, connecting into which are the women's sitting room and toilet, and the purser's office and room. The other side of the boiler trunk contains the smoking room, with a buffet in one corner, and the steward's, assistant steward's and assistant purser's quarters. Back of this, there is a cross hall, leading out at either end to the deck, and in the centre leading into the dining room, which has 8 tables, with a seating capacity of 32. The engine trunk passes up through this room.

The kitchen, messes, and quarters for most of the officers are located back of the dining room. On the starboard side, connecting with the dining room, is the pantry, back of which is the kitchen, containing a full equipment. Connecting into the kitchen on that side, are the stores, back of which there is accommodation for 8 waiters, the cook's room, small pantry, and waiters' washing room. The port side, immediately back of the dining room, has the quarters for the chief engineer and 2nd engineer either side of a hall leading in from the deck. Back of this is the refrigerator, with separate compartments for the milk and fish. Back of this again there are three messes, deckhands', firemen's and officers', while at the end of a hall along the front of these messes, is the petty officers' mess. Adjoining, are the 3rd engineer's quarters, and accommodation for 2 waiters. The men's lavatory is in rear of these quarters.

On the forward end of the boat deck, there are located the navigating officers' quarters, with the pilot house in front, back of which is the captain's room, extending the full width, behind which, centrally placed, is a sitting room, on one side of which is the 1st mate's quarters, and on the other, the 2nd mate's, and accommodation for 2 wheelmen. The flying bridge deck is atop of the navigating officers' quarters.

Grand Trunk Pacific Coast Steamship Company's Dock at Seattle.

We were officially advised, Nov. 26, that plans and specifications were being prepared for the rebuilding of the company's dock at Seattle, Wash., which was destroyed by fire, and that tenders would be invited for the dock itself on Nov. 30, and for the warehouse and building about three weeks later.

The dock will be 680 by 116 ft., extending out into the harbor to the outer harbor line. It will be provided with a depressed track for its entire length, with a landing berth on the outside and with numerous adjustable cargo slips, and with a flush driveway the entire length made of Australian blue gum. The piling, as well as the bracing and capping, which will be submerged, will be creosoted. The general arrangement of the dock will be materially different from the former dock as dictated by the experience in the traffic of the port for the past five years. About 85,000 yards of gravel and rock were placed underneath the dock just previous to the fire, so that it will be very substantial and first-class in every respect.

The warehouse and office building to be placed on the dock will be three stories high at the street end, the design of the original building being restored. There will be six stores on the ground floor, 26 offices and stores on the second floor, and 20 on the third floor. The waiting room and other passenger accommodation will be as near to the street end as possible. The waiting room will be about 60 ft. square, extending from the north side of the building to the main corridor leading to the steamboats, and will be finished in stained Douglas fir, with an artistic domed roof the entire width of the building. There will be a roomy balcony over the corridor and offices on the south side of the building, reached by an ornamental staircase from the waiting room. Ticket offices, baggage check room, ladies' rest room and other conveniences will be provided, and the illumination will be by indirect method from the dome of the waiting room. The ends of the waiting room will be worked out into a transept in the building proper, which will make a very agreeable break and an ornamental feature. Other than this the balance of the shed extending to the outer end of the dock will be quite plain, and offices will only be built in on the second floor near the street end sufficient to accommodate the lines doing business on the dock.

The warehouse will be of slow burning wood construction, covered on the outside with galvanized iron and roofed with asbestos, to make it as nearly fireproof as possible. An expensive monitor will be built the full length of the shed with openings on the side for ventilation purposes. There will also be drop curtains and fire walls at frequent intervals sufficient to give the protection required by the city fire ordinances.

The company's steamboats will be berthed on the south side, as usual, but well up the slip against the street end, and the landing stage and inclined walk leading to the waiting room floor will be entirely enclosed in the building itself, so that passengers going to and from the boats will be quite under cover all the year around. This arrangement has been decided on because of the convenience in getting passengers to and from the boats, and as a result of the experience with the fire, and all passenger accommodation is, therefore, arranged as near to the street end as possible, and in addition to that to make access to and from the boats as convenient as possible, thereby avoiding the long and unnecessary walk from the street to the outer end of the dock, which is still the present practice on all of the other docks in Seattle.

On Dec. 8 we were officially advised that a contract for reconstructing the dock had been given to Nettleton-Bruce-Eschbach Co. of Seattle, the work to be completed in three months. The total cost will be about $75,000.

Vancouver Dry Dock Projects.

Some information on this subject was published in Canadian Railway and Marine World for Oct., pg. 481, and Dec., pg. 555. Enquiry of Dominion Shipbuilding, and Drydock Co. elicited the following information on Nov. 25: "The clearing of our site has been completed, and last week the foundations were finished for the six buildings, as outlined in the prospectus, viz., machine shop, boiler shop, forging shop, foundry, pattern shop, stores, and general offices. Each of these buildings will be 250 by 68½ ft. in width. The contract for the dredging of the fresh water canal at the mouth of Lynn Creek, and also for the construction of the 4,000 ton marine railway and 1,000 ton railway have been awarded to the B. C. Granitoid Co., and the dredges are now in position and expect to be operating in the course of the next few days. We fully expect to have the first unit of our plant operating by spring, which will comprise the buildings above enumerated, together with the two marine railways and the fresh water canal."

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during November, 1914.

Articles			Canadian Canal	U. S. Canal	Total
Copper	Eastbound	Short tons	456	23,998	24,454
Grain	"	Bushels	4,681,233	10,254,786	14,936,019
Building stone	"	Short tons	.....	.....	.....
Flour	"	Barrels	338,022	883,819	1,221,841
Iron ore	"	Short tons	114,612	1,001,167	1,115,779
Pig iron	"	"	.....	2,666	2,666
Lumber	"	M. ft b.m.	3,120	34,940	38,060
Silver ore	"	Short tons	.....	.....	.....
Wheat	"	Bushels	13,955,285	18,814,968	32,770,253
General merchandise	"	Short tons	3,585	12,995	16,580
Passengers	"	Number	274	18	292
Coal, hard	Westbound	Short tons	20,500	318,844	339,344
Coal, soft	"	"	62,619	805,763	868,382
Flour	"	Barrels	.....	.....	.....
Grain	"	Bushels	.....	.....	.....
Manufactured iron	"	Short tons	7,970	14,565	22,535
Iron ore	"	"	.....	.....	.....
Salt	"	Barrels	13,993	86,369	100,362
General merchandise	"	Short tons	51,862	69,606	121,468
Passengers	"	Number	132	4	136
Summary.					
Vessel passages		Number	405	950	1,355
Registered tonnage		Net	659,637	2,138,779	2,798,416
Freight—Eastbound		Short tons	670,235	2,007,450	2,677,685
" —Westbound		"	144,950	1,221,733	1,366,683
Total freight		"	815,185	3,229,183	4,044,368

Mainly About Marine People.

The late ROBERT THOMSON, shipowner, St. John, N.B., left an estate of $343,000 in addition to life insurance.

CAPT. WILLIAM McCLAIN, who died at Toronto, Dec. 7, aged 92, had been engaged in navigation on the Great Lakes since the early days of sailing vessels. He retired from active service some years ago.

Col. J. B. MILLER, President and General Manager, Polson Iron Works, Toronto, was presented with a gold headed cane, Mrs. Miller with a gold headed parasol, and Miss Margaret Miller with a necklace and locket, by the staff and employees of the company, Dec. 2, prior to leaving for a southern trip.

CAPT. W. H. FEATHERSTONHAUGH, Superintendent of Hulls, Canada Steamship Lines, Ltd., Toronto, died suddenly at Midland, Ont., Dec. 4. Prior to entering Canada Steamship Lines service he was Shore Superintendent, Inland Lines, Ltd., at Midland.

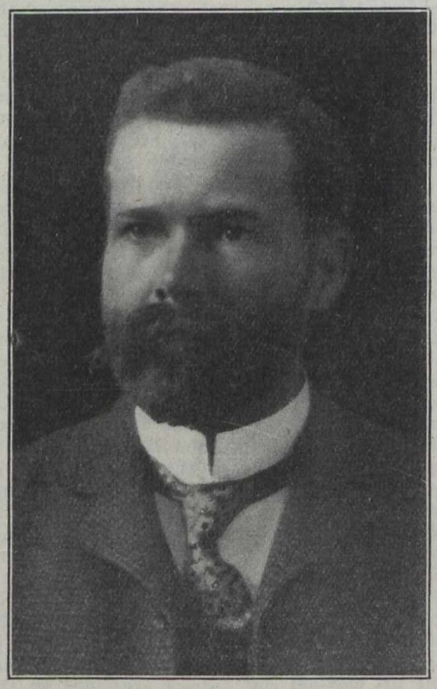
Commander C. D. ROPER, who was loaned by the British Admiralty to the Dominion Government, and acted for some time as chief of staff of the Department of Naval Service, has been given the command of the recently built destroyer Broke, one of the vessels which, at the outbreak of war, was under construction in British yards for the Chilian Government.

Capt. FRANK SCOTT of the Farrar Transportation Co.'s s.s. Collingwood, died in the Collingwood Hospital, Dec. 17, after a few days' illness, the direct cause of death being an abscess in the head near the right ear. He was for many years engaged in the operation of tugs in Collingwood harbor and on the Upper Lakes, but for the past ten years had been with the Farrar Transportation Co.

PETER PATON, who has been appointed Purchasing Agent, Canada Steamship Lines. Limited, Montreal, was born at New Lowell, Ont., Mar. 13, 1869, and entered transportation service May 1, 1911, since when he has been, to May 1, 1912, Western Travelling Agent, Northern Navigation Co., Winipeg; May 1, 1912, to Mar. 1, 1913, Assistant to President, Northern Navigation Co., Sarnia, Ont.; Mar. 1, 1913, to Feb. 1, 1914, Manager, Northern Navigation Co., Sarnia, Ont.; Feb. 1 to December, 1914, Assistant Operating Superintendent, Passen- Ltd., Toronto.

Capt. OLIVER GILLESPIE, who died at Cornwall, Ont., Nov. 29, aged 87, was for nearly 60 years connected with navigation interests in that neighborhood. In his early days he was joint owner of the steamboats Manitoba and F. B. Maxwell, and was later interested in the American Line, operating steamboats between Clayton, N. Y., and Montreal. He subsequently owned the steamboat Garnet and ran it between Valleyfield and Montreal, and from this beginning was developed the Montreal and Cornwall Navigation Co., of which he was Managing Director for several years. He retired from active work about five years ago.

THOMAS HENRY, whose appointment as Passenger Traffic Manager, Canada Steamship Lines, Ltd., Montreal, was announced in our last issue, was born in Montreal, May 29, 1865, and entered transportation service in 1879, since when he has been, to 1881, ticket agent, Ottawa River Navigation Co., Montreal; 1881, local freight agent, same company, Montreal; 1881 to 1882, clerk in Audit Office, G.T.R., Montreal; 1882 to 1884, ticket clerk, City Ticket Office, G.T.R., Montreal; 1884 to 1887, clerk, Northern Pacific Ry.; 1887 to 1900, District Freight and Passenger Agent, same road, Montreal; 1900 to Feb. 27, 1913, Traffic Manager, Richelieu and Ontario Navigation Co., Montreal; Feb. 27, 1913, to Dec. 1, 1914, Operating Superintendent of Passenger Steamers, Canada Steamship Lines, Ltd., Montreal.



Thomas Henry,
Passenger Traffic Manager, Canada Steamship Lines, Ltd.

Peter Paton,
Purchasing Agent, Canada Steamship Lines, Ltd.

JOHN FRANKLIN PIERCE, who has been appointed General Passenger Agent, Canada Steamship Lines, Ltd., Montreal, was born at Chatham, Ont., Sept. 6, 1877, and entered transportation service, Oct. 14, 1896, since when he has been, to Oct., 1904, clerk, Richelieu and Ontario Navigation Co., Montreal; Oct., 1904, to Oct., 1910, chief clerk, same company, Montreal; 1910 to 1912, Travelling Passenger Agent, same company, Boston, Mass.; 1912 to 1913, District Passenger Agent, same company, Boston, Mass.; 1913 to Dec. 1, 1914, Assistant General Passenger Agent, Canada Steamship Lines, Montreal.

JAMES THOM, Canadian Manager, International Mercantile Marine Co., died at Westmount, Que., Nov. 26. During the early part of the year he had been in ill health, and in August he went to England and Wales for a holiday, returning to Canada in October, when his health had considerably improved. He later spent some time in Ottawa on business, where it is stated he contracted a chill, from which he did not recover. He had been intimately connected with the steamship business in Montreal for many years, and took a great and active interest in all improvements calculated to develop the business of the port, and to better conditions of navigation over the St. Lawrence route. He was born in Montreal, and at an early age entered the service of Thompson and Murray, merchants and shipping agents, there. This firm formed the Canada Steamship Co., of which he became Manager, remaining such until May 1893, when he was appointed Manager of the Hamburg American Line. In 1899 he was appointed Manager, Furness, Withy and Co., and on the resignation of John Torrance, Jan. 1, 1906, he was appointed Manager of the White Star Line. He held many public positions in Montreal, including the vice presidency of the Montreal Board of Trade, and the chairmanship of the executive council of the Shipping Federation of Canada. The funeral at Mount Royal Cemetery, Nov. 29, was attended by a large number of representatives of the transportation, shipping and mercantile companies.

Changes in Organization, Canada Steamship Lines, Ltd.

W. E. Burke, Assistant Manager, and T. Henry, Passenger Traffic Manager, will remove their offices from Montreal to Toronto, Mar. 1.

J. F. Pierce, heretofore Assistant Generai Passenger Agent and General Baggage Agent, has been appointed General Passenger Agent, and will continue to perform the duties of General Baggage Agent. Office, Montreal.

Peter Paton, heretofore Assistant Operating Superintendent, Passenger Steamboats, Toronto, has been appointed Purchasing Agent, vice J. J. Phelan, assigned to other duties. Office, Montreal.

J. J. Phelan, heretofore Purchasing Agent, Montreal, has been appointed Assistant to Mechanical Superintendent. Office, Montreal.

Halifax Dry Dock.—An Ottawa press dispatch says that plans are being prepared in the Public Works Department for a dry dock at Halifax, N.S. This year's estimates voted by Parliament contained an appropriation of $250,000 towards the construction of a first class dry dock at Halifax, of the same dimensions as the one now being built at Lauzon, Que., viz., 1,150 ft. long, 120 ft. wide at entrance, and 40 ft. deep at ordinary high water spring tides. The cost of such a dock would probably be about $3,000,000. No site has yet been acquired, and it is not decided when work will be gone on with.

International Waterways Commission, Canadian Section.—C. A. Magrath, heretofore a commissioner, has been appointed Chairman of the Canadian Section, vice Hon. J. P. B. Casgrain, appointed Postmaster General. P. B. Mignault, K. C., has been appointed a commissioner.

Additional Wharf Accommodation at St. John, N.B.

The formal opening of the additional wharf accommodation at Beacon Bar, West St. John, took place Dec. 10, and was celebrated by a luncheon at the Union Club, the guests including Hon. J. D. Hazen, Minister of Marine; Hon. R. Rogers, Minister of Public Works; G. M. Bosworth, Vice President, C.P.R.; C. A. Hayes, General Traffic Manager, Canadian Government Railways, and a number of other representatives of general transportation and shipping interests.

The contract for the work, involving 3,750 lin. ft. of wharfage, was awared to the Maritime Dredging and Construction Co. about a year ago, and was divided into two sections, the first consisting of 1,190 lin. ft. of wharfage with back filling, and a temporary shed, all of which was required to be ready for operation by the opening of winter navigation, 1914; and the second section consisting of a wharf extension extending from the first section for 1,770 ft.

Of the first section of the work, which has been placed in service, the cribwork structure is on a stone foundation 5 ft. thick, and is 43 ft. high and 48 ft. wide at the base. The outer faces are double sheathed and sloping at the rate of 6 in 70 ft., and the rear faces are benched. On this cribwork there is a concrete superstructure 27 ft. high, 18 ft. wide at the base and 7 ft. wide at the top. The total height of the structure is 70 ft., the depth of water along the face of the wharf, at low water level, being 35 ft. This section is practically completed, the approximate cost being $760,000. The second section of 1,770 ft. will be of the same width and height as the first section, except that the stone foundation will be 2 ft. high. It will cost $575,000.

To provide access to the wharves, and as a site for trackage and warehouses, considerable filling in was required behind the wharves, and about 1,500,000 cub. yds, of material will require to be handled. About half of this work will be completed before the spring, and the balance during next season.

A temporary freight shed, which has been erected on berth 15, is a wooden structure 505 ft. long and 80 ft. wide, the outer wall being 25 ft. from the face of the wharf. The cost of the shed is $16,000.

The dredging for the sites and berths of the Beacon Bar wharves has all been completed, and the remainder of the dredging on the bar will be finished by Mar. 31, except the removal of some ledge rock there and at the foul ground in the main channel, which will be dealt with next season.

This work is a part of a comprehensive scheme of development at West St. John, covering the conversion of the whole west front from these new wharves, practically to Partridge Island, into modern docks and terminal facilities; the extension of the breakwater to Partridge Island, and other works. It is also intendtd, in the near future, to replace the temporary shed on berth 15 with a structural steel building having grain conveyors, etc., and the St. John Board of Trade is urging on the Government that this work be undertaken and completed by next winter.

During the luncheon M. W. Doherty, Manager, Maritime Dredging and Construction Co., presented silver cigar boxes to the Ministers of Marine and of Public Works, and a silver cigar case to G. M. Bosworth, Vice President, C.P.R., as souvenirs.

Rehearing of the Cases of the Stranding of the Steamships Saturnia and Montford.

At a rehearing, authorized at the request of Senator Choquette, which was held in Quebec, Nov. 18, 1914, when four additional witnesses were heard, the court consisted of Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. Lapierre and C. Koenig, nautical assessors.

The court found, after weighing the evidence adduced at the formal investigation regarding the Saturnia and at the rehearing, at which no evidence of material interest or importance was produced, that the pilot Jules Lachance committed an error of judgment in not making some endeavor to localize the spar buoy marking the sunken block prior to entering the traverse, as such should have been done, especially in view of the fact that the usual marks on shore were indistinct owing to the land being covered with snow. He was notified that the spar buoy was in its position, and it was proved that it was there; but owing to the stage of the tide and its rapidity he must have known that the buoy would be almost covered owing to the pressure of the tide against it, and it was therefore his duty to wait and definitely assure himself of its location. In view of the various adverse conditions existing on the morning, April 28, 1914, the court severely reprimands him and warns him to adopt every precaution in the future to ensure safety to the vessels he may pilot.

With regard to the Montfort case the court finds that the pilot, Francois Gaudreau, committed a grave error of judgment, and apparently got confused, indicating indecision and uncertainty. He had seen the west end of the Island of Orleans, estimated his distance off and shaped a course accordingly. He saw the fog banks rolling from the St. Charles River, and must also have seen the ice coming down, yet when he became enveloped in the fog he heard the sound of rivetting on the south shore, and he immediately ported his helm, offering the port side of his vessel to the force and influence of tide and ice, with the consequences which have already been given. In this instance he has given unmistakable proofs of unreliability, therefore the court adjudges that he be severely censured and fined $100; but owing to the fact that he has already been penalized, the collection of the fine will not be enforced.

Insurance Losses on the Great Lakes.—A Detroit, Mich., press dispatch says:—"The Lakes Protective Association made a very good showing in 1914, which means underwriters had a profitable season, as the association carries 25% of the insurance on the bulk of freighters that are insured. Not one of the 19 vessels lost last season was enrolled in the association, members of which operate about 200 vessels. Only one boat in 100 was in an accident in which there was a total loss. The Caldera sunk the W. H. Gilbert in Lake Huron. The heaviest loss to the underwriters was the Benjamin Noble, which was insured for about $120,000. Her cargo of steel rails was also insured."

Fenders for British Battleships. The Dominion Naval Department is dealing with enquiries relative to the supply of hazlewood or willow boughs to be used as fenders for British battleships. Prior to the war, Great Britain obtained supplies of this material chiefly from Scandinavian territory, but owing to the North Sea being closed to navigation, other sources of supply must be discovered.

War Rates for Vessels Requisitioned by the British Admiralty.

A committee of steamship owners formed recently to suggest rates of payment for steamships which have been, or may be, requisitioned by the British Admiralty for various purposes during the war, has reported, and the following rates have been fixed by the Director of Transportation. They are stated to be generally less than those suggested by the committee.

For steamships of the first class cargo type, of from 3,000 to 4,000 gross tons, and having a speed of 13 knots an hour, 15s. 9d. a ton; 12 knots, 14s. 9d a ton; 11 knots, 13s. 3d. a ton; 10 knots, 12s. 9d. a ton. Vessels over 4,000 gross tons, 6d. a ton less; vessels under 3,000 gross tons, 6d. a ton more. For the large fast passenger steamships, the figures run from 16s. 6d a ton for 15 knot vessels to 25s. a ton for 25 knot vessels, each type requiring to be specially considered. Regulations providing for arbitration in any matters in dispute relating to such requisitioning, were given in Canadian Railway and Marine World for Dec., 1914.

A Slide in the Welland Canal.

A slide, which was 600 ft. long, and on the westerly bank of the Welland Canal, about half a mile north of the Air Line Ry. bridge, occurred sometime in the night of Dec. 3, owing to continued low water in the canal, caused by north easterly winds, lowing Lake Erie level. Two slides in the bank had previously taken place at this point, one about 12 years ago and the other 6 years ago, and had been dredged out. These, with the present one, form a continuous slide some 2,000 ft. long. The bank, the upper part of which is soil soil deposited when the canal was constructed, is about 52 ft. above the canal bottom. The material moved is clay and the bank sank with practically a perpendicular fault and the underlying material was pushed out into the canal channel in the shape of a fan, narrowing the regular channel bottom of 100 ft. to one but 30 ft. wide at the middle of the slide.

Navigation for loaded full canal size boats was interrupted for about four days until a dredging plant, which was fortunately available at Thorold, removed enough material to permit of safe passage. The total quantity of material to be dredged from the canal prism to restore it to its former section will be in the neighborhood of 18,000 cu. yds. The portion remaining to be removed will be dredged out next spring before the opening of navigation.

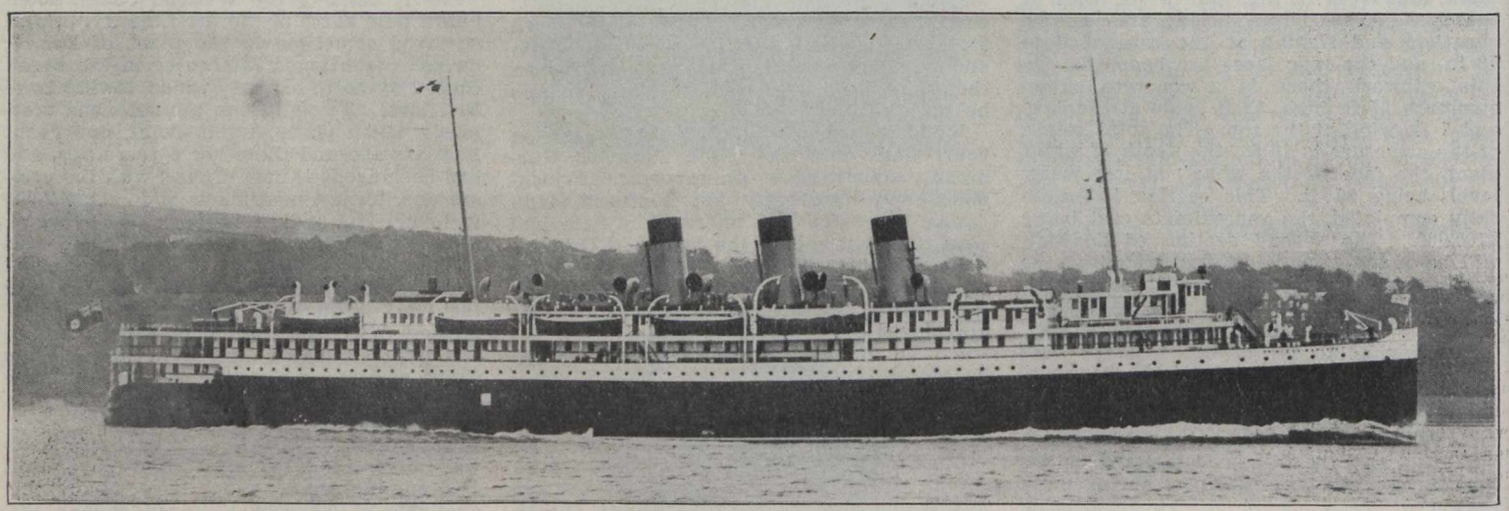
We are indebted to L. D. Hara, acting Superintending Engineer, for the foregoing particulars.

Panama Canal Traffic.—A report on the commercial operation of the Panama Canal, from Aug. 15 to Nov. 18, 1914, the first three months, shows the passage of 212 vessels, carrying 1,079,521 tons. The charge of $1.20 a net ton on the vessels is equivalent to approximately 75c. a ton on the cargo. In the classification of the traffic, over 95% is grouped under four heads:— U.S. coastwise trade; traffic between the Pacific coast and the U.S. and Europe; the trade of the west coast of South America with the U.S. Atlantic seaboard, and the U.S. trade with the far East.

The Fisheries Branch of the Department of Marine and Fisheries has been placed under the Department of Naval Service, which has hitherto had charge of the fisheries protection cruisers. The change is merely an administrative one, as both departments are under the Minister of Marine.

Steamship Princess Margaret for British Columbia Coast Service, Canadian Pacific Railway.

The Princess Margaret, which was launched recently at Dumbarton, Scotland, and christened by Mrs. Rene Redmond, the youngest daughter of Sir Thos. Shaughnessy, is the first of two passenger steamships which are being built for the C. P. R., by Kenny Bros. They will be used in the British Columbia service between Vancouver, Victoria and Seattle. The principal dimensions are length 395 ft., breadth moulded 54 ft., depth to promenade deck 28¼ ft. Above the promenade deck is the boat deck, having at its forward end the wheelhouse and accommodation for the officers and the navigating appliances. In the midship portion there will be 42 staterooms, and a vestibule, panelled in white and lit by a very large dome skylight, having softly tinted glass. The forward panelling will be enriched with tapestry. The first class smoking room will be in Old English style, and the framing in antique oak, with white panels. At the forward end will be an old English fireplace, with brickwork panels. The boat equipment will be specially complete, and in addition to a motor boat, there will be complete accommodation, not only for all persons for whom there will be berths, but also a considerable margin provided to deal with deck passengers, who might be carried for short voyages. On the promenade deck there will be 77 first class staterooms and 8 special rooms en suite. These special staterooms will be furnished in different styles, such as Adams, Sheraton, Chippendale, etc. At the forward end will be the observation room, which is a feature in the company's Pacific steamships. This will be white, with green treillage, having a domed ceiling overhead, with plastic ornament. the windows will be very large, with elliptic tops. The upper deck will be devoted to passenger accommodation, and will include a ladies' lounge in Georgian style, finished in white, with mahogany furniture, and provided with large mirrors, flanked by jardiniers. The tea room and writing room will be framed in mahogany and have French windows opening into the vestibules, the circular top design being carried completely round the apartments. There will also be several suites de luxe. At the forward end there will be a large vestibule framed in polished oak, with an enquiry bureau, a barber's shop, boot brushing department, and hand baggage room. The main deck aft will be fitted up as a dining saloon for first class passengers, with accommodation for 160 persons. The dining saloon will be in the Georgian style, framed in mahogany, painted white and relieved with delicate tints, the furniture being of polished mahogany. Immediately adjacent to this will be a range of pantries and galleys. Alongside the machinery space on the port side will be a range of refrigerating chambers, while on the starboard side will be accommodation for the engineers. The lower deck aft will be fitted with accommodation for the cooks, stewards, and junior engineers, while forward there will be rooms for second class passengers, seamen and firemen. All exposed promenades will be covered with awnings, and an elaborate system of electric fan ventilation will be fitted throughout the vessel, and will be provided with hot and cold water, the hot water system being kept in continuous circulation so that hot water will always be available. The ship will be lighted throughout by electricity. A powerful windlass will be fitted forward and steam capstan aft for prompt manoeuvring in port. Steering will be effected by steam tiller acting on a balanced rudder, and controlled by telemotor from flying bridge. The vessel will be fitted with Marconi wireless telegraphy, and a special petrol driven generating set will be installed on the boat deck capable of working the wireless system, as well as lighting the decks, even if there be no steam in the boilers. The vessel will be propelled by geared turbines, with steam by oil fired water tube boilers.



Steamship Princess Margaret, for C.P.R. British Columbia coast service.

A press dispatch from Vancouver, Dec. 27, states that C.P.R. officials there have been notified that the British Admiralty has requisitioned the company's steamships Princess Margaret and Princess Irene for war purposes. The first named was completed a few weeks ago, and was expected to sail for the Pacific coast shortly, while the latter has just been finished. They are of the latest type of vessel, specially constructed for the Pacific coast service, and are equipped with turbine engines using oil as fuel. They have a speed of 23 knots an hour.

Loss of the s.s. Sharon.—We have been officially advised that the Dominion Government steamship Sharon had been lost at some point in the Atlantic Ocean, presumably near Ireland, where she is stated to have struck a mine. The Sharon was bought by the Government last year from the Ottoman Line, Ltd., Newport, Eng., for use in the Hudson Bay service. The Hudson Bay season having expired, this vessel, with others from the Government service, was chartered to the Dominion Iron and Steel Co. and the Dominion Coal Co. for the winter. The Sharon sailed from Sydney, N.S., for Newport, Eng., and after reporting from Newfoundland by wireless, was not heard from. She was about a month overdue, Dec. 15, and all hope for her safety had been abandoned. She was a new vessel and cost about $150,000.

Hudson Bay Navigation.—F. Anderson, in charge of the Hudson Bay Survey, refers in his report to the loss of the s.s. Ceareux and Allete. He speaks of extremely and unusually adverse conditions, and says that "if the navigation into Hudson Bay and Straits warrants the expense, by operating a powerful tug equipped with wireless, in connection with a wireless station on the north end of Mansell Island, masters of ships could be kept informed of ice conditions."

The C.P.R. s.s. Metagama, launched recently on the Clyde, was the fourth C.P.R. steamship to be launched in 1914. She is a sister vessel of the s.s. Missanabie, a full description of which was given in Canadian Railway and Marine World for August, 1914. Among the number of up to date life saving and other appliances with which she is being equipped are the Babcock and Wilcox patent davits, which enable the lifeboats to be launched from either side of the vessel, and the Murray patent nested lifeboats, providing sufficient accommodation for all passengers and crews. There are no collapsible boats. The Metagama will carry one class cabin passengers, with accommodation for 520, and for 1,200 third class passengers.

Ice in Hudson Bay.—In the Naval Service Department's report for the year ended Mar. 31, 1914, issued recently, F. Anderson, in charge of the Hudson Bay survey, refers to the unusually adverse ice conditions, and states that if the navigation into Hudson Bay and Strait warrants the expense of operating a powerful tug equipped with wireless telegraphy on the north end of Mansell Island masters of vessels could be kept informed of ice conditions.

Quebec Corporation of Pilots.—At the annual meeting of the Corporation of Pilots for and below the Quebec harbor, at Quebec, Dec. 10, directors for the current year were elected as follows:—A. Lachance, J. B. Bernier, O. Noel, P. X. Lachance, A. Raymond and E. Lachance.

Atlantic and Pacific Ocean Marine.

The s. s. Royal Edward, owned by the Canadian Northern Steamships, Ltd., is being used as a prison ship at Southend, Eng., for interned alien enemies.

The C.P.R. announces that it has chartered the Allan Line s.s. Grampian to operate with the s.s. Missanabie on the winter service between St. John, Halifax and Liverpool.

The Donaldson Line s.s. Cassandra, from Halifax to Glasgow, which was reported aground in the Clyde towards the end of November, was released with comparatively little damage, Nov. 27.

Ocean navigation on the St. Lawrence River was closed Dec. 4, the Manchester Liners s.s. Manchester Spinner being the last ocean vessel to leave Montreal for a port in Great Britain.

A press dispatch from Rotterdam, Holland, states that the Hamburg-American Line has issued a statement to the effect that the company has no intention of selling its vessels, which are tied up at United States ports during the war.

The Royal Mail Steam Packet Co.'s s.s. Glengyle has been placed in service between the British Isles and Pacific ports, including Vancouver, and she will be followed shortly by a sister vessel to be named Gleneffer.

The trial of the action of the C. P. R. against the owners of the s. s. Storstadt, for damage suffered in connection with the loss of the s. s. Empress of Ireland, has been set for Jan. 11, before Justice Dunlop in the Admiralty Court, Montreal.

The s.s. Alsatian, of the Allan Line, newly fitted and armed with eight 6-inch guns and a number of quick firers, has been chosen as the flagship of the Mercantile Cruiser Squadron, under command of Admiral De Chair, according to a recent press dispatch.

Canadian Steamship Lines s.s. Bermudian, which has for some years been operated on the route between New York and Bermuda, and which was recently requisitioned for transporting Canadian troops to England, is being completely overhauled and renovated, chiefly in the berthing accomodation.

Furness Withy and Co.'s s. s. Algeriana from South Shields, Eng., for Boston, Mass., arrived at Halifax, N. S., Dec. 21, 26 days out. Some fears were entertained as to her safety, but on her arrival it was learned that she had had a mishap to her propeller, which was repaired before she proceeded to Boston.

The steamships Campanello and Principello, owned by Canadian Northern Steamships, Ltd., are being utilized in conveying horses, for war purposes, from Newport News, Va., to St. Nazaire, France. R. C. Vaughan, Assistant to Second Vice President, was in Newport News, recently in connection with the matter.

The C. P. R. s. s. Empress of Japan, under requisition by the British Admiralty as an auxiliary cruiser in the south Pacific, captured the collier Exford recently, with a number of the crew of the German cruiser Emden, which was sunk recently by the Australian cruiser Sydney, off Cocos Island. Some of the crew who had escaped from the Emden, had commandeered the collier, and were presumably on a raiding expedition.

Furness Withy and Co., who operate a number of steamships to Canadian ports, have removed their headquarters, for operating purposes, from Hartlepool, to Liverpool, Eng., where they have taken offices in the Royal Liver Building. It is not stated whether the removal is to be permanent, or is merely for general convenience, owing to the unsettled condition of affairs on the North Sea coast. In connection with the recent bombardment of Hartlepool, by German vessels, it is possible a portion of the company's docks and plant may have been damaged, but no information on that point is available.

The C. P. R. s. s. Empress of India, which was utilized for some years in the company's Transpacific service, and which was requistioned by the British Admiralty at the commencement of the war, has been sold to the Maharajah of Scindia for a hospital ship for Indian troops. She is to be renamed Loyalty. She was built at Barrow in Furness, Eng., in 1891, her dimensions being, length 455.6 ft., breadth 51.2 ft., depth 33.1 ft.; tonnage, 5,905, gross, 3,003 register. She is equipped with two triple expansion engines with cylinders 32, 51 and 82 ins. diar. x 54 ins. stroke, 1,167 n.h.p., driving twin screws.

Maritime Provinces and Newfoundland.

The Dominion Government s. s. Speedy, which was overhauled recently at Polson Iron Works, Toronto, has been assigned to the patrol and examination service, under the Naval Service Department at Halifax, N. S.

The Charlottetown Steam Navigation Co.'s s.s. Empress having ceased running between Point du Chene, N.B., and Summerville, P.E.I., for the winter, the Dominion Government steamship will operate between Cape Tormentine, N.S., and Summerville until further notice.

The Marine Department has placed a temporary light on the south point of St. Paul Island, Cabot Strait, in place of the lighthouse destroyed by fire recently. The temporary light has the same characteristics as that of the old lighthouse light, but of less power.

The C. P. R. s. s. St. George, which has been operating for some time in the Bay of Fundy service, is stated to have been equipped with guns and other armaments, and to have been generally remodelled internally, for patrol work at the mouth of the Bay of Fundy.

The Mayor of St. John, N.B., returned there from Ottawa, Dec. 7, after interviewing members of the Government relative to arrangements for the winter mail service. He stated that all the Atlantic mail steamships will go on to St. John after calling at Halifax, and will also call at Halifax on the outward voyage.

There was a considerable increase of shipping at Bathurst, N.B., during 1914, as compared with 1913. During 1913, 12 vessels, exclusive of tugs and dredges, and with a total tonnage of 6,474, entered the harbor, while in 1914, 26 vessels, totalling

List of Steam Vessels Registered in Canada During November, 1914.

No.	Name	Port of Registry	Where and When Built		Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc.	Owner or Managing Owner
134386	CharlesHalliday	Sault Ste. Marie, Ont	Saugatuck, Mich.	1881	60 0	16 0	9 4	47	23	10 n h.p.sc.	A. B. McLean, Sault Ste. Marie, Ont.
134452	Donald Mac	Toronto	Toronto	1914	71 0	17 0	8 1	70	47	13 " "	A Quinn, Port Stanley, Ont.
130439	E. M. Peck	Sarnia, Ont	Detroit, Mich	1888	252 0	40 2	18 5	1644	974	103 " "	Reid Wrecking Co., Sarnia, Ont.
134265	Elsie Mac	Midland, Ont.	Midland, Ont.	1914	51 5	15 0	7 0	55	14	16 " "	French River Boom Co., Toronto
131308	Gopher	Quebec, Que.	Garston, Eng.	1910	100 3	23 1	12 0	198	4	89 " "	Quebec Salvage & Wrecking Co., Montreal
131307	Musquash	Quebec, Que.	Garston, Eng.	1910	100 2	23 1	12 0	198	4	89 " "	Quebec Salvage & Wrecking Co., Montreal

List of Sailing Vessels and Barges Registered in Canada During November, 1914.

No.	Name	Port of Registry	Rig	Where and When Built		Length	Breadth	Depth	Reg. Tons	Owner or Managing Owner
134493	Bruxelles XXXX	Quebec, Que.	Dredge	Leyden, Holland	1907	158 1	27 2	8 8	198	La Cie Generale d'Entreprises Publiques, Levis, Que
134451	Cyclone	Toronto	"	Toronto	1914	170 0	42 1	12 0	824	G. Oler and G. H. Cassels, J. O., Toronto
134383	L.S. No. 9	Sault Ste. Marie, Ont.	Scow	South Chicago, Ill.	1909	49 6	24 0	6 0	104	S.L. Penhorwood, Sault Ste. Marie, Ont.
134384	L.S. No. 11	Vancouver, B.C.	"	South Chicago, Ill.	1907	98 0	27 0	7 5	198	" "
134419	P.S.B 3	Ottawa	"	Vancouver, B.C.	1910	76 4	30 0	7 3	147	Progressive Steamboat Co., Vancouver, B.C.
133950	P.W.D. No. 13	"	Dredge	Ottawa	1914	90 0	35 0	7 8	404	Minister of Public Works, Ottawa
134531	" " 51.	"	Scow	St. Joseph de Levis Que	1914	106 0	30 0	9 0	260	" "
134532	" " 52.	"	"	"	1914	106 0	30 0	9 0	260	" "
134533	" " 53.	"	"	"	1914	106 0	30 0	9 0	260	" "
134534	" " 54.	"	"	"	1914	106 0	30 0	9 0	260	" "
134535	" " 55.	"	"	"	1914	106 0	30 0	9 0	260	" "
134536	" " 56.	"	"	Buckingham, Que.	1906	60 6	22 1	3 6	104	" "
134537	" " 102.	"	Dredge	Ottawa	1909	60 6	22 1	3 6	104	" "
134538	" " 103.	"	"	Kingston	1913	144 0	32 9	8 7	398	" "
134539	" Scow No.117	"	Scow	"	1913	144 0	32 9	8 7	398	" "
134540	" " " 118	"	"	Ottawa	1906	60 6	22 1	3 6	104	" "
134541	" No. 121	"	Dredge	Toronto	1914	70 0	23 8	5 5	89	Roger Miller & Sons, Toronto
134453	R.M. & S. No. 9	Toronto	Scow	Midland	1914	124 0	38 0	11 5	542	S. L. Penhorwood, Sault Ste. Marie, Ont
133485	S.L. Penhorwood	Sault Ste. Marie, Ont.	"							

10,844 tons, used the port. Of the 26 vessels, 4 were steamboats, the balance being sailing vessels, and all the traffic was for U.S. and Cuban ports.

Since the opening of winter navigation the new pilotage regulations for the port of Sydney, N.S., have been put into operation, providing that steamships employed in trading between any one or more of the provinces of Quebec, New Brunswick, Nova Scotia and Prince Edward Island, and any other or others of them, or employed between any port or ports in these provinces and the port of New York or any port of the U.S. on the Atlantic north of New York, will not hereafter be either wholly or partially exempt from the compulsory payment of pilotage dues, except steamships registered in Canada of not more than 120 tons register.

The Insular Steamship Co. announced recently that it had withdrawn its s. s. Westport III from service between St. John, N. B., and Yarmouth, N. S., and way ports, as the subsidy paid by the Dominion Government was not sufficient. The agreement with the Government provides for a service of 44 trips between Apr. 1, 1914 and Mar. 31, 1915, between St. John, N. B., Westport and Yarmouth, N. S., calling each trip both ways at Freeport, Tiverton, Little River, Mink Cove, Sandy Cove, Weymouth and Meteghan, unless ice prevents. The vessel is not to be taken off the route during December, January, February or March, unless for necessary repairs, in which case the contractors must supply a substitute vessel of about equal capacity, provided that such substitute be employed at a gross expense of not more than $1,000 a month. The amount of the subsidy is $5,500, payable in four equal instalments. This is an increase of $500 more than was paid for the previous year.

Province of Quebec Marine.

The Gaspe and Baie des Chaleurs Steamship has increased the number of its directors to five, and has changed its head office from Fraserville, Que., to Quebec, Que.

During the 1914 season 615 vessels of 229,255 tons passed through the Lachine Canal, against 664 vessels of 239,377 tons during the 1913 season. There were 9,049 vessel passages, 1,148 less than in 1913, but 4,989,972 tons of freight were handled, an increase of 12,413 tons over the previous year. The decrease in the number of vessels passing through the canal was caused by the lack of U.S. vessels, as there was an increase in the number of Canadian vessels.

Reports are current to the effect that the Bethlehem Steel Co., of the United States, is negotiating for the acquirement of the Canadian Vickers, Ltd., plant at Montreal, to enable it to execute orders stated to have been received from the British Government for submarine and other war vessels, for delivery during 1915. It is stated that the consent of the parent company in England has been obtained for the sale, subject to the concurrence of the Canadian directors. Conflicting statements have been made on the subject, both as to such orders having been placed, and as to any negotiations for the Vickers plant. A United States official statement was issued recently to the effect that the building of any such craft for belligerent powers by U.S. concerns was not consistent with that country's neutral position, and it was not believed that any such vessels were under consruction in the U.S. for any of the powers. Press reports in the U.S. state that a number of light war vessels and submarines are being built for Great Britain in Massachusetts.

Ontario and the Great Lakes.

The Welland Canal was closed for the winter, Dec. 18, the last vessel to pass through being the s. s. Carleton, owned by F. E. Hall and Co., Montreal.

The Montreal, Georgian Bay and Ottawa Canal Co. is applying to the Dominion Parliament for an extension of time for the commencement and completion of canals, etc., which it is authorized to construct, and for other purposes.

The whole of the Montreal Transportation Co.'s vessels with the exception of the Stormont, comprising 10 steamboats, 7 steam tugs and 30 barges, have been berthed for the winter at Kingston. The Stormont is wintering at Midland.

The lightship at Corsica Shoal has been removed from her position and taken to Port Huron for the winter. On the reopening of navigation she will be replaced by a new steel vessel, which is being fitted out at Detroit, Mich.

The St. Lawrence and Chicago Steam Navigation Co. has declared a dividend of 3%, payable Jan. 2, to shareholders of record Dec. 18, 1914. Some of the previous dividends were: 1904, 8%; 1905 to 1907, 10% a year; 1908, 7%; 1909, 8%; 1910, 3%; 1911, 5%; 1912 and 1913, 8% a year.

The Canadian canal at Sault Ste. Marie was closed to navigation for the winter, Dec. 14, and the U.S. canals, Dec. 16. One of the locks was kept open for a few days longer to permit the passing of some Government tugs to be used in certain works in progress.

The Marine Department has awarded a contract for the breaking of ice in the harbors of Port Arthur and Fort William, to the Canadian Towing and Wrecking Co., Port Arthur, for three years. The vessels to be used are the icebreaker St. Ignace, and the icebreaking tugs James Whalen, E. C. Whalen, A. F. Bowman, J. D. Morrison, Sarnia, Salvor and Gorman.

The contract for the erection of the steel superstructure of the St. Paul St. high level bridge over the old Welland canal at St. Catharines, Ont., has been awarded to the Canadian Bridge Co., for $91,000, which is stated to be nearly $20,000 below the local engineers' estimate. According to present plans, the projected hydro-electric railway will run over this bridge.

J. L. Weller, Engineer in Charge, Welland Ship Canal who was in Ottawa, early in December, for a conference with the Minister of Railways and Canals stated that good progress was being made in the construction of the new canal. Five sections are under contract and nearly 3,000 men are engaged. An article descriptive of the progress being made was given in Canadian Railway and Marine World for Dec. 1914.

The U.S. Lake Survey reports the levels of the Great Lakes in feet above tidewater, for November, as follows:—Superior, 602.45; Michigan and Huron, 579.92; Erie, 571.44; Ontario, 245.25. As compared with the average November levels for the past ten years Superior was 0.09 ft. below; Michigan and Huron, 0.47 ft. below; Erie, 0.43 ft. below, and Ontario, 0.49 ft. below. It was anticipated that Superior, Michigan and Huron would be 0.2 ft. lower, and Erie and Ontario 0.1 ft. lower during December.

A press report from Sarnia, Nov. 18, stated that the Northern Navigation Co.'s s.s. Noronic had been drydocked at Lorain, Ohio, for extensive changes in her hull. It is stated that 2 ft. is being added to each side of the hull below the water line, thus giving her an extra width of 4 ft. below the water line. It is also stated that the reason for this alteration is that she is somewhat top heavy and she has to carry a large quantity of pig iron ballast to keep her steady.

The Ottawa and Hull town planning commission is recommending to the Government that the headway for vessels on the Rideau canal be reduced to 12 ft., and that large vessels which require greater headway be required to dock at Dows Lake at the foot of Bronson Ave., where an extension of the Ottawa Electric Ry. be made to take care of people travelling to and from the passenger vessels; that fixed bridges be permitted, giving a clearance of 12 ft., between Bronson Ave. and the Ottawa River, and that above Bronson Ave., if any bridges are built that they be movable, or high level.

Manitoba, Saskatchewan and Alberta.

The Northern Alberta Steamship Co., Grouard, Alta., has assigned to J. A. MacKinnon, Edmonton, Alta., for the benefit of creditors.

The Dominion Public Works Department did a considerable amount of work during 1914 in surveying and charting the Red River, between Selkirk and Lake Winnipeg, and this, in conjunction with that already done in the neighborhood of St. Andrew's locks, etc., will give a complete chart for navigation between the International Boundary and the lake.

It was announced in Winnipeg, Dec. 4, that the Dominion Public Works Department would commence work almost immediately on the construction of one of the three wharves on the Red River, which were recommended by the Winnipeg Harbor Commission recently. The one which will be taken in hand first is known as the Rover St. wharf, located between Annabella and Macfarlane Sts. It will be 400 ft. long and about 30 ft. wide, and built on piles. It will cost about $90,000, which includes the necessary dredging, etc.

British Columbia and Pacific Coast Marine.

The Dominion Government has changed the German name of the dredge Fruhling, to number 303.

The Yukon River was closed Dec. 4, which is said to be the latest date for closing on record, except in 1905, when it was closed Dec. 17.

The Dominion Marine Department is arranging to have obstructions in the Fraser River, caused by blasting in connection with the construction of the Canadian Northern Ry., near Yale, removed. It is stated that the Government intends to try and hold the company responsible for the cost.

J. S. MacLachlan, Resident Engineer, Department of Public Works, Victoria, B. C., read a paper before the Canadian Society of Civil Engineers, Victoria and Vancouver branches, at Victoria, Dec. 11, on harbors generally, with special reference to Victoria harbor and the works now in progress there.

The Marine Department has issued a new edition of tide tables for the Pacific coast for 1915, with an abridged edition giving tables for Vancouver and the Sandheads, with slack water for the First Narrows and Active Pass. The complete edition includes a record of the results obtained in determining the time of slack water in the more important passes.

The Marine Department has issued a notice providing that every vessel entering the

eastern channel of Barkley Sound must call at Banfield and obtain a pass from the senior naval officer to enable her to proceed. Every vessel desiring to fish in the eastern channel must also obtain a pass, which will only be valid for the time indicated on it. All vessels in Barkley Sound must obey the instructions of the officers of the patrol vessels stationed there. No vessel will be permitted to pass through Satellite Pass. Vessels are free to pass to the westward of the eastern channel and through Junction Passage to the Alberni Canal without obtaining passes.

The first war prize court ever held in the Dominion was constituted at Ottawa, Dec. 15, when Justice Cassels of the Exchequer Court deal with the question of the s.s. Bellas, which was seized by the customs officers at Quebec after the outbreak of war. The vessel's papers disclosed that she was a German vessel, built in 1875, and owned by J. Wimmer & Co., Hamburg. The Dominion Government claimed her condemnation, together with cargo, as "good and lawful prize and droits of the Admiralty." An appearance was entered by a Portuguese subject, who claimed that she had been purchased from the German owners prior to the war, but it transpired that the transfer had not been completed, and it was ordered that the vessel and cargo be detained until the conclusion of the war.

Grain Shipments from Montreal.—A report prepared in Montreal regarding the shipments of grain from the port in 1914 shows that there was a very large increase in quantity over 1913. It is stated that the large increase is partly due to the lateness of the 1913 crop, much of which was shipped early in 1914, and that a large quantity of U. S. grain was forwarded through Montreal. The war also caused some increase in the amount handled. The following table gives the approximate amounts shipped during 1914, compared with the figures for 1913:

	1914.	1913.
Wheat	60,839,376	33,187,474
Flax	181,908	7,808,342
Oats	8,492,983	7,279,880
Barley	4,588,945	5,087,489
Rye	125,746	210,808
	74,228,958	53,573,993
Flour	2,751,934	2,504,565

The U.S. Steamboat Inspection Service in the year ended June 30, 1914, inspected 7,930 vessels, with a gross tonnage of nearly 10,000,000. There were 232 accidents during the year on vessels subject to inspection, resulting in a loss of 105 passengers and 477 members of the crew. One passenger was lost for each 3,029,000 passengers carried. The report recommends legislation to require fireproof construction on all excursion steamers hereafter built, and that the designs for the hulls and boilers of all vessels hereafter built should be first examined and approved by a corps of inspectors in the office of the supervising inspector general.

New Pilotage Stations in Great Britain.—The British Admiralty has issued a notice to mariners providing that, in view of the extension of the system of mine defence, pilotage has been made compulsory for the Rivers Humber and Tyne, in England, and Firth of Forth, Moray Firth, and Scapa Flow, in Scotland. Pilotage stations have been provided at convenient points, where vessels must call for and drop pilots. All the places named front on the North Sea.

Life Saving Appliances.—An order in council has been passed providing rules for life saving appliances on foreign going steamships and for coasting and inland steamships, and cancelling part 8 of the rules for the inspection of steamboats. The new rules are the same as have been adopted by the British Board of Trade, and are of the same standard as those required by other governments.

During the war, in order to meet the conditions prevalent owing to the dislocation of shipping on the east coast of Great Britain, the Government railway executive committee, responsible for the operation of British railways, has made certain preferential rates, and it is anticipated that further preferences will be granted later on.

Brass furnace linings are said to have their life doubled by the use of oil fuel instead of coke.

Transportation Conventions in 1915.

Jan. 19-21.—American Wood Preservers' Association, Chicago, Ill.
Mar. 16-18.—American Railway Engineering Association, Chicago, Ill.
April.—American Association of Demurrage Officers, Boston, Mass.
Apr. 28.—Association of American Railway Accounting Officers, Atlanta, Ga.
May.—Association of Railway Claim Agents, Galveston, Tex.
May.—Railroad Master Tinners', Coppersmiths' and Pipefitters' Association.
May 4-7.—Air Brake Association, Chicago, Ill.
May 17-19.—Railway Storekeepers' Association, Chicago, Ill.
May 17-20.—International Railway Fuel Association, Chicago, Ill.
May 20-21.—American Association of Railroad Superintendents, San Francisco, Cal.
May 21-24.—American Association of Freight Agents, Richmond, Va.
May 26-28.—Master Boiler Makers' Association, Chicago, Ill.
June 9-11.—American Railway Master Mechanics' Association, Atlantic City, N.J.
June 14-16.—Master Car Builders' Association, Atlantic City, N.J.
June 15.—Train Dispatchers' Association of America, Minneapolis, Minn.
June 16.—Freight Claim Association, Chicago, Ill.
June 22-25.—Association of Railway Telegraph Superintendents, Rochester, N.Y.
July.—American Railway Tool Foremen's Association.
July 14-17.—International Railway General Foremen's Association, Chicago, Ill.
Aug. 17.—International Railroad Master Blacksmiths' Association, Philadelphia, Pa.
September.—Roadmasters' and Maintenance of Way Association.
Sept. 14-17.—Master Car and Locomotive Painters' Association of the United States and Canada, Detroit, Mich.
Sept. 21-24.—Railway Signal Association, Salt Lake City, Utah.
October.—American Association of Dining Car Superintendents.
October.—American Railway Bridge and Building Association.
Oct. 4-8.—American Electric Railway Association, San Francisco, Cal.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated.

Canadian Car Service Bureau. J. Reilly, Manager, 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, F. King, Counsel, 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, A. F. Dion, Quebec.
Ship Masters' Association of Canada, Capt. E. Wells, 45 St. John St., Halifax, N.S.
Toronto Transportation Club, W. A. Gray, 143 Yonge St., Toronto.
Western Canada Railway Club, Louis Kon, Box 1707, Winnipeg. Meetings at Winnipeg, 2nd Monday each month, except June, July and August.

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.

Canadian Locomotive Co. has paid the usual 1¾% quarterly dividend, due Jan. 1 on its preferred shares.

Independent Pneumatic Tool Co., Chicago and Montreal, has issued circular E, describing and illustrating a new line of Thor portable electric drills.

Canadian General Electric Co.—The Lieutenant Governor of Ontario, J. S. Hendrie, has been elected a director of the Canadian General Electric Co., vice Senator Jaffray, deceased.

Edison Storage Battery Co.—F. V. McGinness, Sales Engineer of the Edison Storage Battery Co., Orange, N.J., has been appointed Assistant Manager of the Railway Department, taking the position of W. F. Bauer, who was recently made manager of the company's Chicago office.

Steel Co. of Canada.—One of the executive officers says: "Our General Manager, Robt. Hobson, is in London but he is not there in connection with any new financing of the company. We hope that he will be successful in securing orders from the various Governments in connection with their present requirements for the war."

Safety Car Heating and Lighting Co.—Harry Bayne, who has been connected with electrical and manufacturing interests in Canada for a number of years, has been appointed General Agent for Canada and Newfoundland for the Safety Car Heating & Lighting Co., of New York. He will have offices in Montreal and Toronto. R. H. Harvey remains with the company in Montreal, as heretofore.

Edison Storage Battery Co.—The fire that destroyed part of the Edison phonograph works at Orange, N.J., on Dec. 9, did not in any way affect the Edison Storage Battery Co. One end the large concrete buildings of the battery works is across the street from Mr. Edison's private laboratory which was saved, and this, as well as the rest of the plant, escaped unscorched.

Standard Underground Cable Co. of Canada Ltd.—H. C. Barber, who has been appointed on the sales force of the Standard Underground Cable Co. of Canada, Ltd., Hamilton, Ont., which manufactures electric wires and cables, cable terminals, junction boxes and other cable accessories, is a graduate of the Faculty of Applied Science, Toronto University, and has occupied positions on the engineering and executive staffs of the Toronto and Hamilton hydro electric departments, also on the Packard Electric Co.'s sales force at St. Catharines, Ont. He will advise customers in regard to installation problems.

L'Air Liquide Society, Montreal, has issued Oxy-Acetylene Welding and Cutting and its Applications, 60 pgs., 6 by 9 ins., thoroughly illustrated. Among the illustrations of special interest to Canadian Railway and Marine World readers are: part of water tube boiler made by welding; cutting iron bridge at Toronto; cutting bridge to pieces and burning off rivet heads; welding a rudder; adding metal to worn out dredge bucket; part of bow of s. s. Empress of Britain removed by the cutting blow pipe following a collision in the St. Lawrence; building up a worn out electric railway rail with the oxy-acetylene blow pipe; welded rail connection on electric railway; locomotive wheel reclaimed by welding; patch cut out of locomotive boiler and patch welded in; locomotive cylinder welded; cracks welded on locomotive dome; oxy-gasoline cutting outfit for railway yards, wrecking equipment, etc.

KETTLE VALLEY RAILWAY COMPANY.

NOTICE.—The Kettle Valley Railway Company will apply to the Parliament of Canada, at its next session, for an Act—

1. Extending the time within which it may construct the following lines of railway, all in British Columbia, previously authorized:—

(a) From Summer Creek or One Mile Creek to Copper Mountain and Voiget Mining Camps.

(b) From Vernon to Penticton via Kelowna.

(c) From the terminus of the branch authorized by paragraphs (b) of section 2 of chapter 101 of the Statutes of 1911, to Otter Summit.

(d) From a point on the line described in paragraph (c) at or near Tulameen up the Tulameen River, a distance of about 50 miles.

(e) From Penticton to Osoyoos Lake.

(f) From Summer Creek to Allison or Princeton and thence to Granite Creek Coal Areas.

(g) From Grand Forks to point 50 miles up North Fork of Kettle River.

(h) From Midway to Hedley.

(i) From Penticton to Nicola.

2. Ratifying and confirming an agreement between the company and the Vancouver, Victoria & Eastern Railway and Navigation Company respecting joint section between a point near Princeton and Otter Summit.

And for other purposes.

Dated at Toronto, this 15th day of December, 1914.

C. B. GORDON, Secretary.

Pringle, Thompson, Burgess & Cote,
Ottawa agents.

CANADIAN NORTHERN ONTARIO RAILWAY COMPANY.

NOTICE is hereby given that the Canadian Northern Ontario Railway Company will apply to the Parliament of Canada, at its next session, for an Act confirming and ratifying an agreement between the Campbellford, Lake Ontario and Western Railway Company respecting the terminals at Belleville, also confirming and ratifying an agreement between the Georgian Bay and Seaboard Railway Company and the Canadian Northern Ontario Railway Company respecting joint tracks and terminals at Orillia.

GERALD RUEL,
Chief Solicitor.

Toronto, 2nd December, 1914.

CANADIAN PACIFIC RAILWAY COMPANY.

NOTICE—The Canadian Pacific Railway Company will apply to the Parliament of Canada, at its next session, for an Act (1) extending the time within which it may construct and complete the following lines of railway (a) from a point on its Kleinberg-Sudbury Branch between Bolton Junction and Palgrave to a point at or near Campbellville (Ontario); (b) from Asquith northerly and northwesterly about 20 miles (Saskatchewan). (2) Ratifying and confirming an agreement between the company and the Canadian Northern Ontario Railway Company respecting terminals at North Toronto, and for other purposes.

Dated at Montreal the 25th November, 1914.

W. R. BAKER,
Secretary.

Pringle, Thompson, Burgess & Cote,
Ottawa agents.