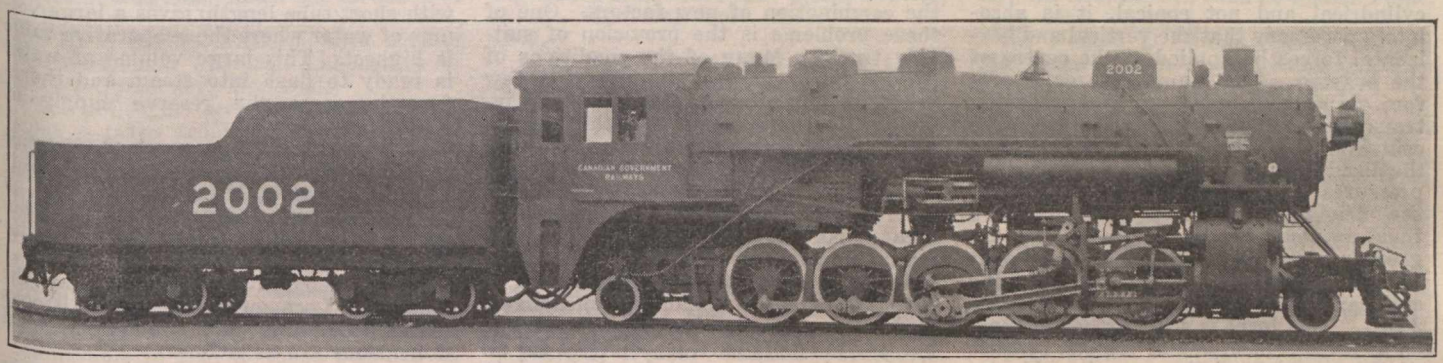
Canadian Railway and Marine World

March, 1917.

2-10-2 Locomotives for Intercolonial Railway.

The Intercolonial Division, Canadian Government Railways, has received recently ten 2-10-2 type locomotives, one of which is illustrated herewith.

As train loads outgrow the capacity of the mikado type, the 2-10-2 type becomes its logical successor in the same way as the mikado type succeeded the consolidation. The 2-10-2 type has formerly been handicapped by its long rigid wheel base. The application of lateral motion driving axles and boxes to the first pair of drivers was made for the purpose of reducing the rigid wheel base to that which is in common use on locomotives of smaller capacity and at the same time securing the advantages of the 10 coupled wheel arrangement, with the resulting increased capacity of the locomotive.



2—10—2 Locomotive, Intercolonial Division, Canadian Government Railways.

The lateral box arrangement consists of two independent driving boxes, whose transverse lateral centres are about on a line with the inside of the main engine frames. These two driving boxes are held in a fixed relation to each other by a bridge or spacing member, which engages the inner flanges of the boxes. The weight which is transmitted through this bridge member is applied to the boxes on their transverse centres. The lugs on the spacing member, which engage the inner flanges of the boxes, are for the sole purpose of maintaining the proper spacing of the boxes, and do not transfer any vertical load. The driving springs are in about the normal position, and are carried upon a cross member, which has a vertical movement only between the engine frames, a wearing shoe being placed upon the inner side of the main frames to prevent side motion. Between this cross member and the bridge or spacing member above mentioned, are interposed 2 inverted rockers, designed so that a lateral force equal to 20% of the vertical weight transmitted is required to deflect them from their normal position. When the boxes are deflected by a side movement of the first pair of driving wheels from their normal centre position, the boxes and the bridge casting are moved laterally in reference to the member carrying the springs. This movement deflects the inverted rockers, which offer a definite resistance against the motion. The spring and equalizer work is not shifted from its normal position when the boxes are deflected laterally. One side of the bridge member is carried down below the driving axle with a bolting flange. This is provided for the attachment of a finger, to guide the brake beam, and ensure that the brake heads register properly with tires on no. 1 driver.

The rod connections between the first and second drivers are arranged with a ball knuckle joint ahead of the pin on no. 2 driver, which allows for lateral deflection of the side rods. The crank pin and rod bearing at no. 1 driver consist of an ordinary design of cylindrical crank pin, on which is placed a hard bronze bushing, the interior being bored cylindrical and the outside turned to a spherical surface. Encasing this bushing are two half pieces of hard steel, which are held in place in a rod end with a wedge, in the same manner as two ordinary half brasses. The bushing can revolve either on the crank pin or within the two steel halves. When the rod is deflected from the normal position, the spherical bushing allows the parts to rotate sidewise around the centre of the front crank pin; at the same time the bushing can revolve on the cylindrical portion of the pin. Several oil holes are provided through the bronze bushing, which ensure lubrication of both the spherical and cylindrical surfaces of the bushing.

The operation of the lateral motion axle should be considered in connection with the engine truck. The driving springs of the first and second axles are equalized in the usual manner to the engine truck; therefore, the weight upon the engine truck centre pin and the lateral motion boxes on the first axle is divided in proportion to the arms of the front equalizer. The engine truck on this engine is of the inverted rocker type, having a resistance of 50% against the initial movement, and, as stated, the resistance of the lateral device at the first driver is 20%. These resistances are so chosen in relation to the weight coming upon each centring device that the lateral resultants at the engine truck and the first driver are just about the same in amount. It will thus be seen that in effect, the engine truck and the first driver act in practically the same way as a 4-wheel engine truck, in guiding the front of the locomotive, except that the lateral resistance is applied in the plane of each wheel, instead of being applied midway between the wheels and divided between them as in the case of a 4-wheel truck. As far as guiding the engine in concerned, therefore, the arrangement is very similar to a 4-wheel truck application with the rear wheel of the truck acting as a driving wheel.

The resistance of the lateral motion box is proportioned with the idea of providing enough initial resistance so that for any ordinary road service on tangent track or road curves, the first driver will remain in normal position and deflect only when passing through turnouts and yard curves. The operation of the device in service has clearly demonstrated the correctness of the design in this particular. A close inspection of the locomotives in operation discloses the fact that the lateral motion first driver very rarely deflects when they are upon the road. When the locomotive passes through sharp turnouts or is operating around yards, the lateral motion driver will deflect, thus preventing the cramping of the driving wheel base in the curve and excess pressure upon the driving wheel flanges.

The action of the rockers provides a limit to the lateral pressure which can be placed upon the first driving wheel flange. When this lateral resistance exceeds 20% of the weight carried upon the lateral motion rockers, the boxes will deflect, the excess lateral pressure being then transferred to the second driver, thus dividing the work of guiding the engine through curves between the truck, first and second drivers, instead of truck and first driver only as in the ordinary 10-coupled arrangement.

Driving boxes for locomotives have generally been designed only for the weight which they are required to support, so that the size has been in direct proportion to the load borne by each journal and driving wheel. This method has been satisfactory so far as the weights are concerned, but unsatisfactory for horizontal forces, resulting in too rapid wear. This is especially true of large locomotives built in recent years, in which it has been necessary to increase, on account of their dimensions, the transverse spacing from centre to centre of cylinders. At the same time the distance apart of the frame centres has been actually decreasing, on account of the necessity of longer bearings and maintaining frames in the centre of the bearings.

The standard gauge of 4 ft. 8½ in. imposes certain limitations on locomotive

construction. Among them is the distance between hubs of driving wheels, and because of this gauge limitation, 55 in. is probably the standard distance between driving wheel hubs at present. Therefore, with driving boxes of increased length in recent high powered locomotives, it has been necessary to decrease the distance between frame centres. This decrease, in combination with the wide cylinder centres, has caused the horizontal forces to increase in greater proportion than the load borne on the journals, so that while the vertical pressure per square inch of bearing surface, due to weight, has been maintained at a fairly constant figure by increasing the diameter and length of the present boxes, yet the bearing pressure due to the horizontal forces has increased in much greater proportion, so that the pressures per square inch due to thees horizontal forces have produced excessive wear on the driving boxes, permitting lost motion to accumulate very rapidly, causing a knock and pound which requires the renewal of the driving box bearings after much less mileage than heretofore.

In order that the driving boxes may wear uniformly, and the journals wear cylindrical and not conical, it is absolutely necessary that the vertical and horizontal forces be applied at the centre of the bearing. The frame centres, therefore, must be made of such spacing transversely so as to coincide with the centre of the boxes. This, however, has the disadvantage of largely increasing the pressures due to the horizontal forces of the driving box. The normal piston thust is very largely increased by the greater lever ratio produced on account of the narrow frame centres and wide cylinder centres, the ration being roughly 2 to 1. This force is still further increased at certain positions of cranks, because of the reaction of the opposite side increasing the normal piston thrust.

The wear of the driving boxes and the pedestal shoes and wedges, with the relatively small bearing surface usually obtained, has been very rapid, and for this reason some efforts have been made to increase this width and to provide more wearing surface by making the legs of the pedestals wider than the body of the frame. The disadvantage of this is that no increase in the length of the box is possible without resorting to lop-sided construction, which experience has shown results in uneven wear of the bearing and conical wear on the journal.

In the long main driving box, the normal width of the frame is increased by bolting on additional pieces for supplementary or auxiliary pedestals on the inside. These may be in the form of separate pieces or combined so as to form a cross brace and at the same time make the additional pedestal for the frame on the opposite side. They are preferably united together at the top and bottom by a cap secured with bolts. The shoes and wedges are increased in width equal to the amount the supplementary pedestals are wide. It is more convenient to retain the spring rigging in its normal central position in the middle of the frame, and for this reason a combination spring saddle has been devised, extending transversely across the engine, by which the spring load is transferred equally to the centre of the box. This arrangement of overhanging integral spring saddle for 2 boxes on one axle can be made in a variety of forms, but the basic principle consists in a rigid member, extending across the engine frames, provided with spring seats on its upper portion for the driving springs, and with means for transferring the load to the centre of the driving box, either by the use of an integral casting having the feet extending down, or by making this in two or more pieces and having the rigid overhanging beams separate and merely bearing on the portion forming the feet.

The idea in this application is the broad principle of a driving box of increased length (probably 50 to 66½%) unequally spaced in relation to the frame and spring rigging, but provided with means for transferring the spring supported load equally to all portions of the driving box and arranged with pedestals of increased width for the shoes and wedges, the frames being retained at about their normal transverse centres.

The increase in the size of locomotives during the past few years has introduced a number of new conditions and problems which the designer has been called upon to consider and for which it has been necessary for him to provide solution. These problems extend to almost all parts of the locomotive, and range from comparatively simple provisions to take care of the increased stresses and loads, to more complex problems resulting from the combination of new factors. One of these problems is the provision of suitable trucks. Many of the conditions of service have changed in the past few years. Limiting clearances have been increased in some extent and the permissible length over all has almost doubled. Very considerable increases in wheel loads have been allowed. Appliances have been devised to develop greatly increased horse power. But the degree of maximum curvature which the locomotive must be designed to pass has, except in rare instances, remained unchanged. Main line curvature has been decreased, but, for the most part, locomotives for all classes of service must be designed to pass certain maximum curves, such as turnouts and crossovers, and this at once imposes limitations and problems in the design of the trucks.

These conditions have led to the development of a lateral motion bolster device, known as the Woodard truck, which, it is claimed, will meet these exacting requirements more fully than the 3 point link suspension which heretofore has been almost universally used. In principle it provides a constant resistance, regardless of the lateral displacement of a bolster, instead of a low initial resistance increasing with the lateral displacement, as is obtained with the 3 point suspension links. Variations, such as high initial resistance, with a constant resistance following a predetermined bolster movement, can be obtained by slight modification of the surfaces in contact. The swing bolster bears directly on the heart shaped rockers, which are connected to it by links to ensure their remaining in the proper position. Service results with this truck are said to show a marked reduction in the flange wear on leading drivers, a steadying action while running on straight track, an absence of jerking motion on curves and withal a better riding locomotive under all track conditions.

The Foulder main rod back end deserves special mention. With this solid end, 4 bolts have been eliminated, the stub has been shortened, and a saving in weight was obtained which also saves in the counterbalance. Only one pattern is required for the bearings, as the same brass is used front and back of pin, the taper being on the two adjustable wedges. The heavy wedge, immediately in front of the bearing, extending to the full depth of the rod opening, and being of greater depth than the bearing itself, provides a fine support for the brass and prevents it from cocking or becoming distorted. Other features of this solid end are its simplicity and the time saved in taking it o ffthe engine, and there are no bolts to renew or holes to reream.

An interesting feature is the combination of the Gaines combustion chamber and the Security brick arch. With this arrangement it is claimed that a very complete deflection of the gases is secured, whereby better combustion is obtained and the back end of the firebox more fully utilized, with a resulting increase in the generation of steam. This arrangement, it is claimed, also gives an increased firebox volume and also tends to improve combustion. In addition, all the usual disadvantages of a shallow throat sheet are eliminated. This combustion chamber, it is claimed, also allows the added advantage of a short tube length and large diameter of boiler. A short tube length not only gives greater evaporative value per square foot of heating surface, but also reduces back pressure, and consequently increases the power of the engine. A large diameter, combined with short tube length, gives a large volume of water where the evaporative value is highest. This large volume of water is ready to flash into steam and therefore increases the reserve supply of steam.

These engines have a short distance from the rear wheel to the draw bar. This not only makes them ride easier on curves, but it also reduces the friction between flange of wheel and rail, which increases the draw bar pull.

These locomotives were built by the American Locomotive Co. at its Brooks works, Dunkirk, N.Y. Their general dimensions are as follows:

Cylinder, type, piston valve, diam. 26 in., stroke 32 in.
Tractive power, simple, 64500.
Factor of adhesion, simple, 3.96.
Wheel base, driving 20½ ft., rigid 15 ft., total 37 ft. 10 in.
Wheel base total, engine and tender, 70 ft. 2¾ in.
Weight in working order, 320,000 lb., on drivers, 256,000 lb.
Weight on trailer 31,000 lb., on engine truck 33,000 lb.
Weight engine and tender 512,200 lb.
Boiler type, extended wagon top, c.d. first ring 79-9/16 in.
Boiler, working pressure, 200 lb.
Firebox, type, wide; length, 144⅛ in., width 84¼ in.
Firebox, thickness of crown ⅜ in., tube ½ in., side ⅜ in., back ⅜ in.
Firebox, water space, front 5½ in., sides 5in., back 5 in.
Firebox, depth (top of grate to centre of lowest tube) 14 in.
Crown staying, radial.
Tubes, material, charcoal iron, no. 270, diam. 2 in.
Flues, material, cold drawn seamless steel, no. 43, diam. 5⅜ in.
Tube, length, 17 ft. spacing 13/16 in.
Heating surface, tubes and flues, 3,413 sq. ft.
Heating surface, firebox, 245 sq. ft.
Heating surface, arch tubes, 41 sq. ft.
Heating surface, total, 3,699 sq. ft.
Superheater surface, 850 sq. ft.
Grate area, 66.7 sq. ft.
Wheels, driv. diam., outside tire, 57 in., centre diam., 50 in.
Wheels, driv., material, cast steel.
Wheels, engine truck, diam., 31 in., kind, cast iron spoke.
Wheels, trailing truck, diam., 31 in., kind, cast iron spoke.
Wheels, tender truck, diam., 34 in., kind, cast iron spoke.
Axles, driv. journals, main, 11½ x 22 in., front, 10 x 20 in., other, 10 x 12 in.
Axles, engine truck journals, 7 x 12 in.
Axles, trailing truck journals, 7 x 12 in.
Axles, tender truck journals, 6 x 11 in.
Boxes, driving, cast steel.
Brake, driver, American.
Brake, tender, Westinghouse, air signal, Westinghouse.
Brake, pump, 1 8½ in. C.C., reservoir, 1 18⅛ x 120 in., 1 22½ x 72 in., 1 26½ x 42 in.

Engine truck, Woodard.
Trailing truck, Woodard.
Exhaust pipe, single, nozzles, 5¾ in., 5⅞ in., 6 in.
Grate, style, rocking.
Piston rod diam, 4½ in., piston packing, snap rings.
Smoke stack, diam., 17 in., top above rail 15 ft. 2 5/16 in.
Whistle, top above rail, 15 ft. 2½ in.
Tender frame, channel.
Tank, style, water bottom.
Tank, capacity, 10,000 gal.
Tank, capacity, fuel, 17 tons.
Valves, type, 14 in., piston travel, 6½ in., steam lap 1 1/16 in.
Valves, setting, lead, ⅛ in.

Wireless Telegraph Communication With Trains.

In connection with the elaborate tests which have been conducted by some railways in America and the progress made in the development of wireless telgraphy in so far as communication with running trains is concerned, it is claimed that the first experiment made by any railway in America, and probably the world, to demonstrate the possibility of wireless communication with a fast running train was on the G.T.R. on Oct. 13, 1902. The experiment was made under the direction of E. Rutherford, F.R.S.C. (now Sir Ernest), and H. T. Barnes, F.R.S.C., then both of the MacDonald Physical Laboratory of McGill University, Montreal.

The following account of the experiment is taken from Mr. Barnes' report: "During the passage of the special train on the G.T.R. between Toronto and Montreal, bearing the American Association of General Passenger and Ticket Agents from Chicago to Portland, it was demonstrated that communication could be maintained between a station and a fast moving train by means of electric waves. No attempt was made to cover distances comparable in size to those attained by Marconi and others, but with comparatively simple laboratory apparatus it was possible to keep the train in touch with the station for from 8 to 10 miles. St. Dominique was selected as the transmitting station, where two large metal plate vibrators 10 x 12 ft., connected with an induction coil of the usual pattern, were situated. On the train the waves were received by collecting wires connected to a coherer of nickel and silver powder. The relay operated electric bells in three cars. The collecting wires were run through the guides for the train signal cord, and extended on both sides of the coherer for about a car length. To obtain the maximum effect it would have been better to have had a long vertical wire, but since such was impossible, the horizontal wire was used. Although these were placed inside the steel frame cars, strong and definite signals were obtained over the distance named. Another difficulty militated against obtaining the maximum sensitiveness, as, owing to the natural vibration of the train resulting from its great speed, it was impossible to have the relay adjusted to its most sensitive point. In spite of these difficulties, the distance to which signals could be sent to the train was eminently satisfactory, and with more refined apparatus greater distances could without doubt be obtained. The success of this form of wireless telegraphy, of which this was but a pioneer experiment, opens up yet another method of providing for the safety of the travelling public.

The Paris, Lyons & Mediterranean Ry. is reported to have ordered 100 locomotives from the Baldwin Locomotive Works.

Birthdays of Transportation Men in March.

Many happy returns of the day to:—

W. G. Annable, General Passenger Agent, Canadian Pacific Ocean Services, Ltd., Montreal, born at Ottawa, Mar. 3, 1875.

John Archibald, Locomotive Foreman, C.P.R., Coquitlam, B.C., born at Edinburgh, Scotland, Mar. 13, 1872.

Jas. Balkwill, Division Superintendent, Canadian Division, Michigan Central Rd., St. Thomas, Ont., born in Southwold Tp., Ont., Mar. 8, 1870.

George Bury, Vice President, C.P.R., Montreal, born there, Mar. 6, 1866.

Allan Cameron, Superintendent, Land Branch, Department of Natural Resources, C.P.R., Calgary, Alta., born near Owen Sound, Ont., Mar. 14, 1864.

H. S. Carmichael, Passenger and Freight Manager, Canadian Pacific Ocean Services, Ltd., London, Eng., born at Glasgow, Scotland, Mar. 7, 1874.

F. G. J. Comeau, District Freight Agent, C.P.R., Halifax, N.S., born at Meteghan River, N.S., Mar. 10, 1859.

W. A. Cooper, Manager, Sleeping, Dining and Parlor Cars and News Service, C.P.R., Montreal, born there, Mar. 22, 1871.

A. E. Cox, General Storekeeper, Canadian Northern Ry., Winnipeg, born at Huddersfield, Eng., Mar. 12, 1863.

Hon. N. Curry, President, Canadian Car & Foundry Co., Montreal, born in King's County, N.S., Mar. 26, 1851.

C. T. Delamere, acting Engineer of Construction, Eastern Lines, C.P.R., Montreal, born at Brainerd, Minn., Mar. 18, 1881.

H. G. Dring, General Passenger Agent, C.P.R., London, Eng., born at Easton, Northamptonshire, Eng., Mar. 8, 1881.

Patrick Dubee, Secretary-Treasurer, Montreal Tramways Co., Montreal, born there, Mar. 4, 1876.

Frederick Elliott, President, Victoria Navigation Co., Ltd., Thurso, Que., born at Montreal, Mar. 8, 1858.

W. R. Fitzmaurice, Superintendent, District 2, Intercolonial Division, Canadian Government Railways, Campbellton, N.B., born at Bedford, N.S., Mar. 19, 1870.

C. Forrester, Superintendent, London Division, Ontario Lines, G.T.R., London, born at Wanstead, Ont., Mar. 5, 1876.

Jas. D. Fraser, Director and Secretary Treasurer, Ottawa Electric Ry., Ottawa, Ont., and President, Canadian Electric Railway Association, born at St. Andrews, Que., Mar. 26, 1851.

R. A. Gamble, General Yardmaster, Winnipeg Terminals, C.P.R., born at Dublin, Ireland, Mar. 1, 1876.

E. P. Goodwin, ex-Inspecting Engineer, National Transcontinental Ry., Baie Verte, N.B., born there, Mar. 17, 1865.

J. Halstead, Division Freight Agent, C.P.R., Calgary, Alta., born at Bracebridge, Ont., Mar. 2, 1877.

R. M. Hannaford, M.Can.Soc.C.E., Assistant Chief Engineer, Montreal Tramways Co., Montreal, born there, Mar. 22, 1865.

C. A. Hayes, General Traffic Manager, Canadian Government Railways, Moncton, N.B., born at West Springfield, Mass., Mar. 10, 1865.

H. T. Hazen, M.Can.Soc.C.E., Chief Engineer, Toronto Suburban Ry., Toronto, born at Truro, N.S., Mar. 14, 1870.

Joseph Hobson, M.Can.Soc.C.E., Consulting Engineer, G.T.R., Hamilton, Ont., born at Guelph, Ont., Mar., 1834.

J. I. Hobson, Treasurer, Canada Steamship Lines, Ltd., Montreal, born at Guelph, Ont., Mar. 30, 1872.

N. J. Holden, President, The Holden Co., Ltd., Montreal, born at Nobleton, Ont., Mar. 22, 1866.

A. R. Holtby, Master of Bridges and Buildings, Mountain Division, Grand Trunk Pacific Ry., Prince Rupert, B.C., born at Rawdon, Que., Mar. 23, 1859.

Frank Lee, M.Can.Soc.C.E., Principal Assistant Engineer, C.P.R., Winnipeg, born at Chicago, Ill., Mar. 7, 1873.

R. W. Long, Division Freight Agent, G.T.R., Hamilton, Ont., born at Appin, Ont., Mar. 20, 1873.

J. M. McKay, Superintendent, Saskatoon Division, Saskatchewan District, C.P.R., Saskatoon, born at Tiverton, Ont., Mar. 13, 1868.

Owen McKay, M.Can.Soc.C.E., Chief Engineer, Essex Terminal Ry., Walkerville, Ont., born in Ross Tp., Renfrew Co., Ont., Mar. 13, 1848.

Col. H. H. McLean, K.C., M.P., President, St. John Ry., St. John, N.B., born at Fredericton, N.B., Mar. 22, 1855.

M. Magiff, Superintendent of Car Service and Telegraphs, Central Vermont Ry., St. Albans, Vt., born at Planks Point, N.Y., Mar. 24, 1852.

Sir Donald D. Mann, Vice President, Mackenzie, Mann & Co., Ltd., and Vice President, Canadian Northern Ry., Toronto, born at Acton, Ont., Mar. 23, 1853.

H. H. Melanson, General Passenger Agent, Canadian Government Railways, Moncton, N.B., born at Scadouc, N.B., Mar. 9, 1872.

T. Milne, Locomotive Foreman, C.P.R., Windsor, Ont., born at Arbroath, Scotland, Mar. 3, 1856.

J. V. Murphy, General Agent, C.P.R., Portland, Ore., born at Bowmanville, Ont., Mar. 5, 1885.

Peter Paton, Purchasing Agent, Canada Steamship Lines, Ltd., Montreal, born at New Lovell, Ont., Mar. 13, 1869.

F. W. Peters, General Superintendent, British Columbia District, C.P.R., Vancouver, born at St. John, N.B., Mar. 25, 1860.

J. W. Pugsley, Secretary, Department of Railways and Canals, Ottawa, Ont., born at Amherst, N.S., Mar. 12, 1861.

C. J. Smith, Manager and Secretary, Montreal Warehousing Co., Montreal, born at Hamilton, Ont., Mar. 10, 1862.

W. Y. Soper, Vice President, Ottawa Electric Ry. Co., Ottawa, Ont., born at Oldtown, Me.. Mar. 9, 1854.

E. F. L. Sturdee, General Agent, Passenger Department, C.P.R., Boston, Mass., born at St. John, N.B., Mar. 29, 1876.

A. A. Tisdale, Assistant to Vice President and General Manager, and Purchasing Agent, Grand Trunk Pacific Ry., Winnipeg, born at Mount Vernon, Ont., Mar. 8, 1874.

G. W. Vaux, General Agent, Passenger Department, Union Pacific Rd., Chicago, born at Montreal, Mar. 21, 1866.

A. D. Watt, District Locomotive Foreman, Grand Trunk Pacific Ry., Prince Rupert, B.C., born at St. Louis, Que., Mar. 5, 1874.

A. T. Weldon, Assistant General Freight Agent, Canadian Government Railways, Moncton, N.B., born at Dorchester, N.B., Mar. 6, 1876.

D. O. Wood, Asistant Export and Import Agent, C.P.R., Toronto, born at Kleinburg, Ont., Mar. 16, 1864.

R. Wright, Division Agent, Ontario Lines, G.T.R., Toronto, born at London, Ont., Mar. 15, 1885.

H. K. York, Car Foreman, C.P.R., North Transcona, Man., born at Victoria Corner, Carleton Co., N.B., Mar. 20, 1881.

Railway Mechanical Methods and Devices.

Machining Bell, Stand and Hanger.

An interesting set of jigs for machining the component parts of a locomotive bell and supporting frame is in use in the G.T.R. shops at Stratford, Ont. The jig for machining the bell is shown in Fig. 1. It consists of a shank, a, carrying a casting, b, the outer face of which conforms closely to that of the interior of the bell at its larger end. To the opposite end of the shank, a, there is a small stem, c, the whole jig revolving on centres in a and c. A collar, d, makes a sliding fit on a, and is forced along the latter by the nut, e, a short stretch of the shank, a, being threaded to receive it. The left side of the collar, d, fits into the recessed body of b, and is tapered, four pins, f, in body, b, bearing radially against this taper.

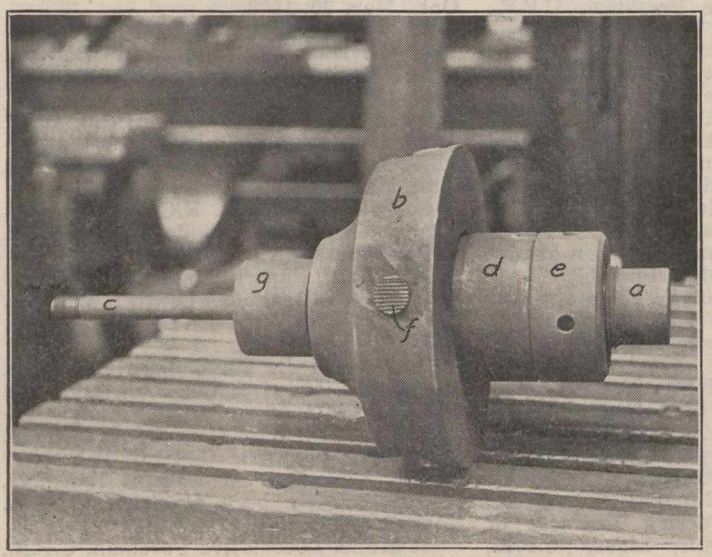


Fig. 1. Jig for Turning Locomotive Bells.

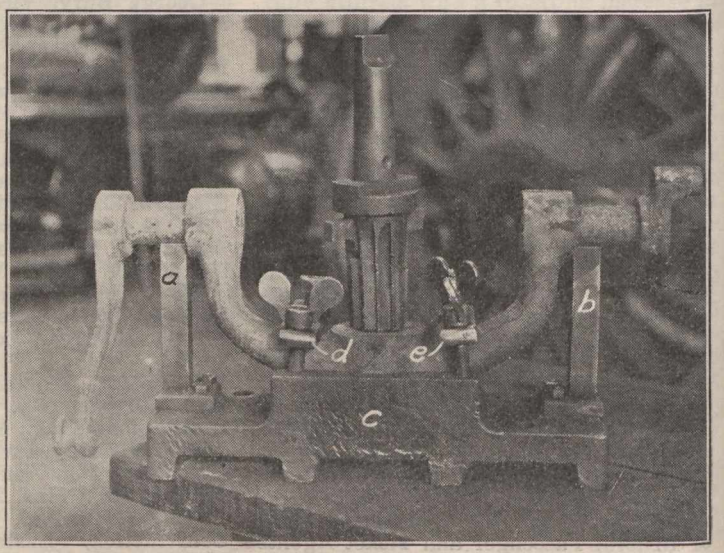


Fig. 2. First Drilling Operation in Bell Hanger Boss.

The hole for the suspending bolt for the bell is first drilled, and this jig is slipped inside, the spindle, c, passing through the bolt hole. The collar, g, bears up against the inner top of the bell, and the whole is clamped by a nut on the end of the spindle, c. The collar, d, is forced to the left of the nut, e, forcing out the pins, f, against the inner face of the bell, securing it solidly for turning, which is performed by swinging the bell between the two jig centres in the lathe.

The bell hanger, which is shown in fig. 2, is first centred, and the journals at either end turned down to size. It is then placed in the jig shown, the turned journals resting on the supports, a and b. The hanger shown has not had the journals turned, and has only been placed in the jig to show the operation. The base of the jig, c, is recessed to receive the hanger boss, which is rough cored. The casting is held in place by two clips, d and e, each of which have two wing nuts.

For boring the cored hole, a tapered reamer of the form shown is used at the top of which there is a facing cutter. The reamer is forced down through the cored hole, and seemingly performs the work satisfactorily without initial drilling out to remove the sand and rough skin. The centre of the base, c, is drilled larger than the reamer, to let the latter pass down to the proper depth.

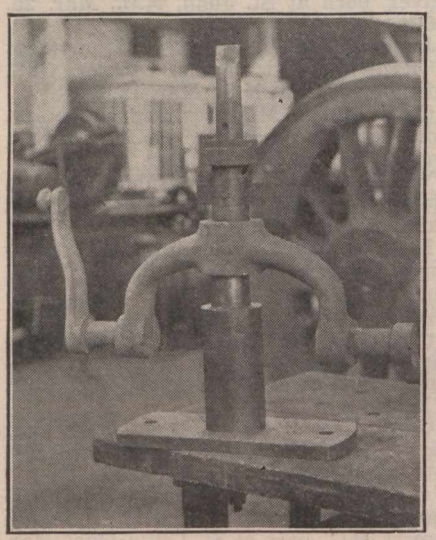


Fig. 3. Final Operation on Bell Hanger Boss.

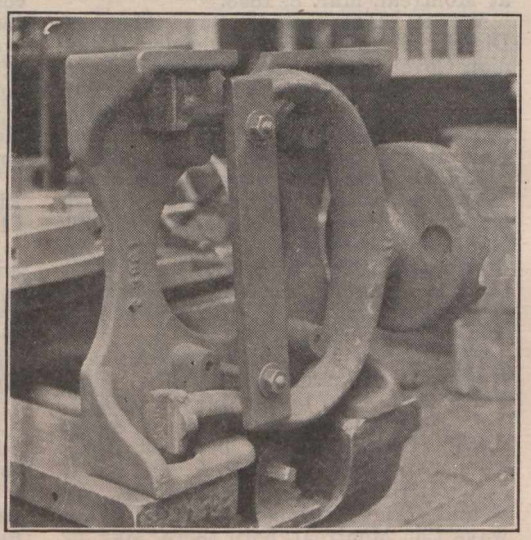


Fig. 4. Drilling Bearings in Bell Frame.

The hanger is then removed to the jig shown in fig. 3, and placed thereon the other way up. This jig consists of a base with a vertical pin, the upper end of which is turned to the taper reamed out in the last operation. This holds the hanger true to the machined surfaces, and a facing reamer forced down on top, to face off the other face of the boss, completing the bell hanger machining.

The bell frame is first taken to the planer, and the faces for the bearing caps planed and the bolt holes drilled. The caps, similarly planed, are bolted in place, and the frame removed to the jig shown in fig. 4, which is used in the drill press. The frame shown in the jig has not had the caps applied and is only placed in position to show the operation. The jig consists of box shaped castings finished on the top and bottom faces, and with bosses on the inside so located as to fit the frame as shown, the frame being clamped in place by a clamp plate and two bolts. In both top and bottom finished faces there is a hole, somewhat larger than that of the hole for the bearing, but in line with the latter. A drill bushing fits in either of these holes. In the upper hole the drill bushing is dropped and the upper hole drilled. The bushing is then removed and the whole jig turned upside down, the bushing placed in the other whole jig whole and drilling operation repeated.

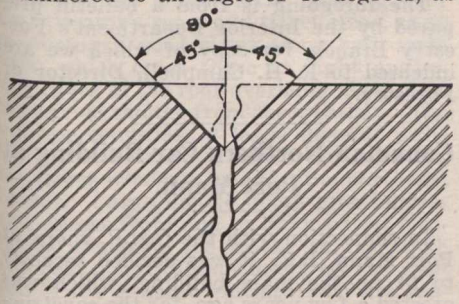
Babbiting Driving Wheel Faces.

A handy device was evolved in the G.T.P.R. shops at Prince Rupert, B.C., some little time ago by G. Carpenter, who was the Locomotive Foreman there, for the babbiting of the faces of driving wheels, and thus avoiding the necessity of placing them in a lathe for turning up, which makes the arrangement of particular use in small shops and roundhouses where a lathe of sufficient capacity is not always on hand. A circular disc about 15 in. diam., made of ⅝ in. boiler plate, turned to ½ in. on one side so that the turned face is perfectly true, is divided into two parts to fit around the axle. The two parts are bolted together with two plates of the same material, 3 x 5 in., which are fastened solid to one half of the disc, so that it is held rigid. The disc has a circular groove 3/16 in. deep and ⅝ in. wide cut in the finished face about an inch from the outside edge, into which may be fitted split rings of different thicknesses according to the amount of metal desired on the wheel. The rings differ in thickness by ⅛ in., and the more metal it is

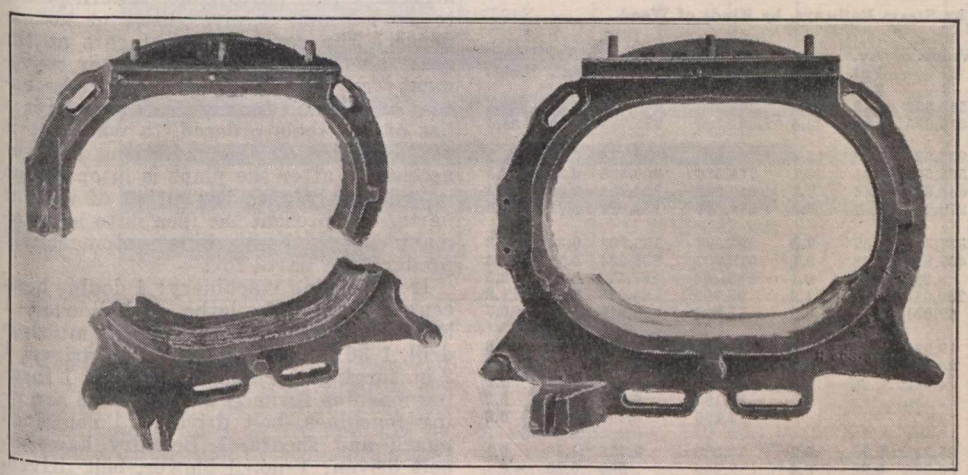
desired to mould on to the wheel, the thicker the ring to be fitted into the groove. The disc is attached to the wheel by clamps around the spokes and drawn up tight to the face, when the babbit is poured through a lipped hole ½ in. diam. at the top.

Welding Fire Hole Door Frame.

The accompanying illustrations from photographs show a pneumatic fire door frame before and after the welding at G.T.R. shops, Point St. Charles, Montreal. The edges of the broken parts were first chamfered to an angle of 45 degrees, as



shown in the accompanying sketch, the metal adjacent to them was cleaned, and then set up in a position to weld. The whole frame was then preheated in a charcoal fire until it assumed a cherry red heat all over; it was then ready to weld,



Fire Door Frame Before Welding.

Fire Door Frame After Welding.

which was done by two operators, one man on each side of the frame. As soon as the welding was finished, the casting was covered, with charcoal ashes, and allowed to cool as slowly as possible, as when cooled off this way the casting does not shrink and is easily machined. The cost of making this weld was as follows:

1 man chipping and setting up; 1 hr.	40c	$0.44
2 men welding; 40 mins. at 40c. an hr.	54c	1.58
72 cu. ft. acetylene gas at $2.75 per 450 cu. ft.		.44
90 cu. ft. oxygen gas at $1.75 per 100 cu. ft.		1.58
Iron, flux and charcoal		.65
	94c	$2.67
		.94
Total		$3.61

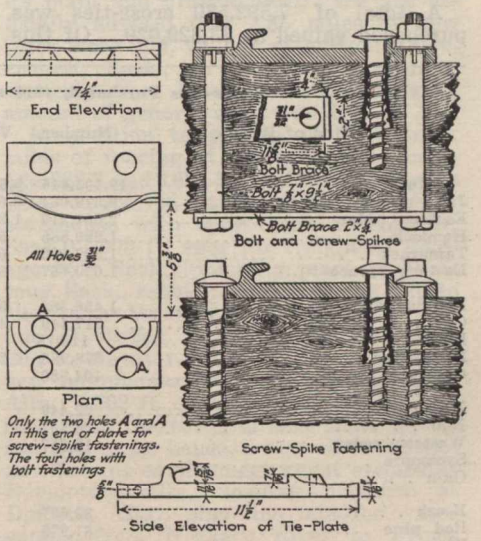
Rack for Holding Triple Valves.

As an instance of the value of matter published in Canadian Railway and Marine World, under "Railway Mechanical Methods and Devices," may be mentioned an article in the October issue describing a rack for holding triple valves built in the C.P.R. passenger car shop, air brake department, at Vancouver, which was furnished by T. Spence, General Car Foreman there. This attracted the attention of N. Marple, General Car Foreman, Michigan Central Rd., St. Thomas, Ont., who advises us that as a result of the publication of the article a similar rack has been built in the St. Thomas shops.

Experimental Rail Fastenings.

The use of hooked tie plates with screw spike and through bolt fastenings is being tried on the Delaware, Lackawanna & Western Rd. as a development in track for heavy traffic. The two types of construction are laid on certain test pieces of track, and are shown in the accompanying drawing. The tie plate has a shoulder on each side of the rail seat, and one of these shoulders is formed as a hook or lip to engage the edge of the rail base. The plate is laid with this hook on the inner or gauge side of the rail. With spike fastenings, each plate is held to the tie by screw spikes, and the rail is held by one drive spike ⅛x6 in. on the outer side. With bolt fastenings, each plate is secured to the tie by two ⅞ in. through bolts (at diagonally opposite corners), the heads being beneath the tie and prevented from turning by means of a channel shaped washer or brace which engages both bolts. The rail is held on the inner side by the hook of the tie plate and on the outer side by the head of a screw spike. This screw spike is held in the tie by means of a Tenax split sleeve. Bolt fastenings for rails and rail chairs have been used for many years in Europe, and this present design of through bolt fastenings for tie plates has been developed by A. J. Neafie, Principal Assistant Engineer of the railway, who has great hopes for its use in permanent construction. He believes that as railways are now using treated ties and expensive tie plates under heavy traffic, especially on curves, they can well afford to go into the question of bolted fastenings. This should be an ideal construction also for subways and tunnels, where it is difficult to apply new material in maintenance work. The modern construction consists of treated materials, heavy tie plates, screw spikes, etc., which material should have a minimum life of at least 14 years, according to Mr. Neafie's estimate. He considers that the question of applying bolts is not a serious one, and they need be applied only in new work and renewals.

One serious condition in track is that of corrosion of rails and metal fastenings, and prior to the design of this bolted construction the engineering department had gone into the matter carefully, spraying the fittings with oil once or more per year if necessary in order to prevent any trouble from corrosion. On the test location of the new fastenings, all bolts have been greased and the bolt holes filled with grease. The bolts are fitted with special nut locks, each of which represents a compression of 2,000 lb., making a total compression of 8,000 lb. on the tie plate, and thereby reducing the mechanical wear that takes place when tie plates are loose on the ties. It is believed that fastenings of this type will be adopted on heavy permanent track construction.



Experimental Track with Hooked Tie Plates and Bolt and Screw-Spike Fastenings.

The hook shoulder tie plate with screw spike rail fastenings has not developed any great amount of noise due to contact between the rail and hook. The tie plates fit the rail base very tightly, but there is no wedging of the rail under the hook. Even where there is a loose fit between the tie plate and base of rail there is no apparent rattling or noise.

American Wood Preservers' Association.—Following are the officers for the current year, elected at the recent annual convention at New York: John Foley, Pennsylvania Rd., Philadelphia, Pa., President; M. K. Trumbull, Kansas City, Mo., First Vice President; J. B. Card, Chicago, Ill., Second Vice President; F. J. Angier, Baltimore and Ohio Rd., Baltimore, Md., Secretary-Treasurer; V. K. Hendricks, C. M. Taylor, members of the executive committee. It was decided to hold the next meeting in Chicago.

Passenger Shelters at Double Track Stations.—The Board of Railway Commissioners has before it for consideration the matter of requiring railway companies to provide a shelter opposite a passenger station at busy points where trains may be going in opposite directions on different tracks at the same time, and has asked the railway companies to submit their views. The matter was brought to the board's attention by a resident of Perth, Ont., where there are six passenger trains each way daily.

House of Commons Committees.—The following have been elected chairmen of the committees named: Railways, R. Blain, M.P. for Peel, Ont.; Marine and Fisheries, C. Jameson, M.P. for Digby, N.S.; Forests and Waterways, G. Brabazon, M.P. for Pontiac, Que.

Cross-Ties Bought by Railways in 1915.

This information is based on reports received from 44 steam railways and 27 electric railways purchasing ties in 1915.

A total of 7,592,530 cross-ties was purchased valued at $3,329,029. Of this more than 66%, or 11,811,116, as compared with 1914.

The number of cross-ties imported in 1915 was 1,219,594 valued at $749,407. About half of these were composed of

Cross-Ties Purchased, 1914 and 1915, by Kinds of Wood.

Kind of Wood.	1914. Number.	Value.	Av. Val.	Per Cent.	1915. Number.	Value.	Av. Val.	Per Cent.
		$	$ cts.			$	$ cts.	
Total	**19,403,646**	**8,664,914**	**0.45**	**100.0**	**7,592,530**	**3,329,029**	**0.44**	**100.0**
Jack pine	8,379,064	3,624.151	0.43	43.2	2,463,999	986,139	0.40	32.4
Eastern cedar	2,651,319	1,279,100	0.48	13.7	1,957,149	901,623	0.46	25.8
Hemlock	1,390,885	576,440	0.41	7.2	844,160	336,223	0.40	11.1
Tamarack	1,507,902	661,717	0.44	7.8	628,897	228,317	0.36	8.3
Eastern spruce	1,020,667	379,841	0.37	5.2	508,321	138,287	0.27	6.7
Douglas fir	1,456,388	539,249	0.37	7.5	402,020	156,917	0.39	5.3
Oak	617,449	483,496	0.78	3.2	328,120	235,306	0.72	4.3
Birch	11,018	5,293	0.48	*	189,153	187,572	0.99	2.5
Hard pine	378,983	263,215	0.69	1.9	96,637	66,765	0.69	1.3
Chestnut	104,980	69,091	0.66	0.5	53,924	26,898	0.50	0.7
Maple	22,449	19,995	0.89	0.1	42,915	29,195	0.68	0.6
Elm	33,307	27,030	0.81	0.2	21,178	9,735	0.46	0.3
Western cedar	13,817	4,554	0.33	0.1	14,129	5,063	0.36	0.2
Sycamore					13,195	6,209	0.47	0.2
Gum					13,195	6,209	0.47	0.2
Beech	32,637	25,331	0.78	0.2	12,388	7,776	0.63	0.1
Red pine	81,979	30,923	0.38	0.4	2,000	500	0.25	*
Western spruce	547,919	202,234	0.37	2.8	1,086	269	0.25	*
Ash	106	46	0.43	*	64	26	0.41	*
Western larch	1,121,347	459,643	0.41	5.8				
White pine	14,165	6,446	0.46	0.1				
Cypress	13,246	5,873	0.44	0.1				
Western hemlock	4,019	1,246	0.31	*				

*Less than one-tenth of 1 per cent.

Cross-Ties Purchased, 1914 and 1915, by Steam Railways, by Kinds of Wood.

Kind of Wood.	1914. Number.	Value.	Av. Val.	Per Cent.	1915. Number.	Value.	Av. Val.	Per Cent.
		$	$ cts.			$	$ cts.	
Total	**19,196,208**	**8,545,057**	**0.45**	**100.0**	**7,399,753**	**3,229,000**	**0.44**	**100.0**
Jack pine	8,355,518	3,610,885	0.43	43.5	2,462,733	985,706	0.40	33.3
Eastern cedar	2,574,920	1,232,925	0.48	13.4	1,864,398	856,584	0.46	25.2
Hemlock	1,369,376	566,502	0.41	7.1	776,586	300,335	0.39	10.5
Tamarack	1,478,512	646,674	0.44	7.7	619,923	224,331	0.36	8.4
Eastern spruce	1,019,249	378,989	0.37	5.3	508,321	138,287	0.27	6.9
Douglas fir	1,452,238	537,374	0.37	7.6	393,097	152,902	0.39	5.3
Oak	602,291	469,828	0.78	3.1	315,907	225,284	0.71	4.3
Birch	11,018	5,293	0.48	0.1	189,153	187,572	0.99	2.5
Hard pine	356,473	250,614	0.70	1.9	95,783	66,238	0.69	1.3
Chestnut	104,980	69,091	0.66	0.5	53,802	26,819	0.50	0.7
Maple	22,449	19,995	0.89	0.1	42,915	29,195	0.68	0.6
Elm	28,973	24,627	0.85	0.2	21,078	9,695	0.46	0.3
Western cedar	12,609	4,035	0.32	0.1	14,129	5,063	0.36	0.2
Sycamore					13,195	6,209	0.47	0.2
Gum					13,195	6,209	0.47	0.2
Beech	32,637	25,331	0.78	0.2	12,388	7,776	0.63	0.1
Red pine	81,979	30,923	0.38	0.4	2,000	500	0.25	*
Western spruce	547,919	202,234	0.37	2.9	1,086	269	0.25	*
Ash	106	46	0.43	*	64	26	0.41	*
Western larch	1,121,347	459,643	0.41	5.8				
White pine	14,165	6,446	0.46	0.1				
Cypress	5,430	2,356	0.43	*				
Western hemlock	4,019	1,246	0.31	*				

*Less than one-tenth of 1 per cent.

Cross-Ties Purchased, 1914 and 1915, by Electric Railways, by Kinds of Wood.

Kind of Wood.	1914. Number.	Value.	Av. Val.	Per Cent.	1915. Number.	Value.	Av. Val.	Per Cent.
		$	$ cts.			$	$ cts.	
Total	**207,438**	**119,857**	**0.58**	**100.00**	**192,777**	**100,029**	**0.52**	**100.0**
Eastern cedar	76,399	46,175	0.60	36.8	92,751	45,039	0.49	48.1
Hemlock	21,509	9,538	0.46	10.4	67,574	35,888	0.53	35.1
Oak	15,158	13,668	0.90	7.3	12,213	10,022	0.82	6.3
Tamarack	29,390	15,043	0.51	14.2	8,974	3,986	0.44	4.7
Douglas fir	4,150	1,875	0.45	2.0	8,923	4.015	0.45	4.6
Jack pine	23,546	13,266	0.56	11.3	1,266	433	0.34	0.7
Hard pine	22,510	12,601	0.56	10.8	854	527	0.69	0.4
Chestnut					122	79	0.65	0.1
Elm	4,334	2,403	0.55	2.1	100	40	0.40	*
Cypress	7,816	3,517	0.45	3.8				
Eastern spruce	1,418	852	0.60	0.7				
Western cedar	1,208	519	0.43	0.6				

*Less than one-tenth of 1 per cent.

total 318,991 were treated with preservative to withstand decay. This is about 5% of the total, compared with 7% in 1914 and 10% in 1913. The cross-ties purchased in 1915 show a decrease of kinds of wood which are not abundant in Canada, such as oak, hard pine, chestnut, sycamore and gum. Jack pine still heads the list in quantity cut, a place it has held since 1911, when it took the place of white cedar.

The average price paid for cross-ties in 1915 showed a slight decrease as compared with 1914. The average prices in the accompanying tables are based on the cost at the point of purchase, and may or may not include long haul transportation charges. Only in the cases of those woods which are used in large quantities can value given be taken to represent the relative value of the wood.

The electric railways paid an average of 52c each for their ties, compared with 44c by the steam railways. The electric railways purchased 2.5% of the total in 1915, compared with 1.1% in 1914.

The foregoing is from a bulletin prepared by the Interior Department's Forestry Branch, for copy of which we are indebted to R. H. Campbell, Director of Forestry.

Canadian Northern Car Building at Port Mann.

In connection with the C.N.R. shops at Port Mann, B.C., it was decided recently to fit up the main building, which was erected a few years ago, for the construction of wooden frame cars. The lumber from which such cars are usually built is generally obtained from the adjacent territory, and as the freight tonnage from the coast eastward considerably exceeds that going west, the movement of the necessary iron parts from eastern points to Port Mann, involves little or no expense. The construction of cars at the coast also reduces the empty car movement westward by providing for the excess east bound tonnage. Following is a list of the tools ordered, to which, it is possible, that certain additions may be necessary, after the plant is in operation in order to balance the output of various parts. At present the idea is to build as many cars as the machine equipment will produce the parts for:—

Iron working machinery: 1 double head centre drive axle lathe, 1 bulldozer, 1 bulldozer oil furnace, 1 6-spindle multiple drill, 1 36 in. upright drill, belt driven, 1 2 in. forging machine, belt driven, 1 forging machine furnace, 2 triple head screwing machines, belt driven, 1 combined punch and shears, 1 Beaudry hammer, belt driven, 1 no. 9 blower, belt driven.

Wood working machinery: 1 butting saw, 1 mortise and boring machine, 1 horizontal tenon machine, 1 vertical tenon machine, 1 automatic gaining machine, 1 4-spindle boring machine, 1 band saw, tilting table, 1 large rip saw, 1 small rip saw,1 universal saw, 1 6 x 14 sticker, 1 hand jointer, 1 automatic knife grinder, 1 automatic rip and circular saw grinder.

Dominion Government Elevator at Port Arthur.—Contracts are reported to have been awarded to Barnett McQueen Co., for the foundations, revetment work, pile driving and docks, for the Dominion Government grain elevator of 2,000,000 bush. capacity, on the water front at Port Arthur. It is stated that preliminary work, which will cost about $300,000, will be started immediately, and that the superstructure will be taken in hand early in the summer.

Canadian Transfer Co., Ltd.—The board for the current year, elected at the recent annual meeting of shareholders, is as follows: C. Cassils, Hugh Paton, G. R. Starke, Sir H. Montagu Allan and F. W. Morson. F. M. McRobie is General Manager and Secretary.

Grand Trunk Railway Betterments, Etc.

Port Colborne Station, etc.—A new passenger station is being built at Port Colborne, Ont., at the intersection of the Buffalo-Goderich and the Port Colborne-Port Dalhousie lines, the front of the building facing the former as being the more important line of travel. The foundation is of concerte, the elevations are finished in matt faced brick of a moss green color, and the roof covered with grey asbestos shingles. The exterior is dominated by a turret, with a fleche roof placed at the angle of the building over the operator's room and ticket office, so as to command good views along both main lines which cross there at right angles. The eaves of the roof overhang about 6 ft. to provide shelter from the weather. The interior comprises a large general waiting room, 36 x 25 ft., with terazzo floor, the ticket windows being in the northeast corner. Large double doors give ingress and egress from and to brick paved platforms alongside the tracks on the north and east sides. Immediately off the west end of the general waiting room are separate waiting rooms for men and women, each 18½ x 12 ft., with lavatory accommodations. The space immediately to the west of the small waiting rooms is allotted to the handling of baggage and express business, the respective sizes being 25 x 17 ft. and 26 x 25 ft. The entire building is 101 x 27 ft., and will be equipped with heating system and lighted throughout by electricity.

The new freight shed is 30 x 144 ft., and is constructed of heavy timber according to G.T.R. standard plans.

Western Lines.—At Detroit, Mich., during last year the company authorized 38,440 sq. yds. of brick paving on concerte foundation, of which about 25,000 yds. are completed, on team ways adjoining team tracks and freight houses.

A second track is being built on the 27th District, from Milwaukee Jct. to Royal Oak, Mich., 9.19 miles. The work is completed except through the limits of an interlocking plant where the G.T.R. crosses the Detroit Terminal Rd.

A new second track is being built easterly for 7 miles from Milwaukee Jct. The track work is completed and two interlocking plants with other signal work are under construction. Near the easterly end of the second track there is under construction a new receiving, departure and classification yard, which will have a total capacity of 2,040 cars. The grading is practically completed and track work to the extent of 600 cars has been completed.

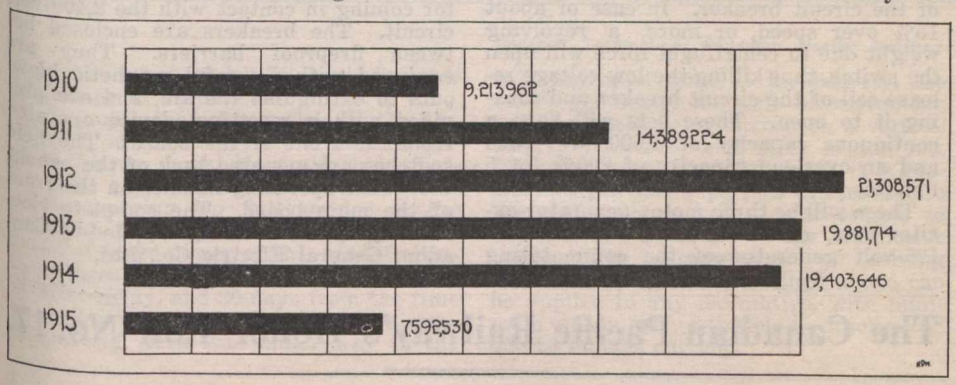
The above mentioned improvements form part of the company's plans for the extension and improvement of the Detroit Terminals, the total estimated expenditure being $824,359.

At Pontiac, Mich., a new classifiication yard, with capacity for 456 cars, is practically completed. A new second track of 2.8 miles is also being built in the city. This includes the erection of standard double track steel bridges, with concrete abutments and piers, over Lawrence St., Clinton River and Pike St., also a three track standard bridge with concrete abutments and piers over Orchard Lake Ave. All masonry and track work is completed, and the steel work is expected to be completed at an early date.

A new combination passenger and freight station has been built at Kingsbury, Ind.

Dominion Government War Savings Certificates.

The new war savings certificates which have been created by the Dominion Government to encourage thrift and economy, and to give everyone an opportunity to assist in financing the war expenditure, are on sale at every bank and money order post office in Canada. The $25 certificate sells for $21.50, the $50 one for $43, and the $100 one for $86. As an investment the certificates offer many attractive features, chief of which are the absolute security and the excellent interest return. For every $21.50 lent to the government now, $25 will be returned at the end of three years. There are other features which are especially interesting to small investors. The certificates may be surrendered at any time, if the buyer should need his money; each certificate is registered at Ottawa in the buyer's name and, if lost or stolen, is therefore valueless to anyone else. While they are excellent from an investment standpoint, the certificates should appeal strongly to Canadians, because they offer to those who must serve at home a splendid opportunity for a most important patriotic service. The person who honestly saves to the extent of his ability and places his savings at the government's disposal by purchasing these certificates, may feel that he is having a direct share in feeding, equipping and munitioning Canadian soldiers, who are so nobly doing their part.



Cross Ties Bought by Railways in 1915.—See page 88.

Western Dominion Ry.—The Dominion Parliament is being asked to extend the time for the construction of this projected railway from near Cardston, Alta., via Pincher Creek, to the C.P.R. Crowsnest Branch at Lundbreck, thence northerly to Calgary and Edmonton, Alta, and Fort St. John, B.C., with a branch from Pincher Creek to the Old Man River. J. O. Carss, Ottawa, is solicitor for applicants. (Apr., 1915, pg. 137.)

Grand Trunk Pacific Railway Betterments in 1916.

The Grand Trunk Pacific Ry. during 1916 centred its betterment work along its main and branch lines. We are officially advised that 2.88 miles of new track were laid, viz., an extension to Riverhurst, Sask., on the branch running westerly from Moose Jaw, and a large amount of general work was done.

In addition to pulling up 68.9 track miles of fencing at points between mileage 882.2 and 1656.5, the following works were completed on the main line: New storehouse with spur track at Melville, Sask.; 1,000 ft. spur for freight at mileage 389, Sask.; pumping plant at Watrous, Sask., rebuilt; 1,280 ft. track laid to elevator at Wooster, Sask.; elevator track laid at Birtze, Sask.; 444 ft. extension laid to elevator track at Egerton, Alta.; new pumphouse erected at Wainwright, Alta.; 1,502 ft. elevator track laid at Jarrow, Alta.; partition in locomotive house, addition to ice house, a new oil house and an office for employment agent erected at Edmonton, Alta.; loading platform at Duffield, Alta.; pipe line laid for water supply from Nechaco River to Prince George, B.C.; new water supply provided at Bednesti, B.C.; passenger station erected at Nichol, B.C.; loading platform erected and stock yard provided at Vanderhoof, B.C.; passenger station erected at Fort Fraser, B.C.; passenger shelter erected, spur track laid and driveway provided at Skeena Crossing, B.C.; extension to ice house built at Prince Rupert, B. C.

As previously stated, the branch line from Moose Jaw westerly was extended into Riverhurst, Sask., 2.88 miles, where a yard was laid out and the following buildings erected: passenger station, bunk house, freight shed and coaling platform.

On the Prince Albert Branch, which leaves the main line at Young, Sask., the roadbed between mileage 87.5 and Prince Albert, mileage 111.5, was repaired and prepared for track laying. A station building and freight house are being built in Prince Albert. A loading platform has been built at mileage 9.2 from Young; the loading platform at Meacham has been extended; a coal and oil house has been built at Totzke; and at St. Louis, near the present track end, an elevator track has been laid.

On the Biggar-Calgary Branch, at Lydden, mileage 13.4, a passenger station has been built and the loading platform extended; and at Loverna, mileage 104.5, the elevator track has been extended 198 ft.

On the Cutknife Branch a stock yard has been built at Carruthers, Sask., mileage 46.5.

On the Calgary Branch stock yards have been built at Ferintosh, mileage 46.6 from Tofield, and at Delburne, mileage 92.5. At Calgary interchange billing office, storehouse, car inspector's office and scale track have been built.

On the Alberta Coal Branch a commercial spur track, 1,035 ft. long, has been built at mileage 40.

Suggested Aerial Route in Canada.—It is reported that a company may be organized shortly with a capital of $50,000, to operate an aerial service between the main land and Prince Edward Island.

The Madrid, Saragossa & Alicante Ry. and the Northern Ry. of Spain are stated to be negotiating in the U.S. for freight cars, the former for 600 gondola cars, and the latter for 1,500 hopper cars.

Electric Substation for Mount Royal Tunnel.

The Canadian Northern Ry. will have finished at an early date a substation at the Mount Royal tunnel's west portal, near the top of the 0.6% grade, for supplying power to the locomotives for operation on the electrified zone, extending from the terminal station in Montreal to Cartierville. The building is 88 x 70 ft. x 34 ft. high, and consists of a machinery section and a switching and auxiliary section. The machinery room contains two 1,500 k.w. synchronous motor generator sets, with the foundation for a third set, and 3 exciter sets with space for a fourth. It also contains the switchboard. A 25 ton travelling crane is provided in this room to handle the heaviest pieces of machinery. Under this room there is a basement, where rheostats are located beneath the switchboard, and where there are also storage and locker rooms. The switching and auxiliary section is divided from the machinery section by a heavy fire wall. Underneath half of this is a basement containing rooms for oil storage and for the furnace which will heat the building. This section is divided into a busbar room, oil switch room, lightning arrester room, power transformer room, battery room and feeder entry room. Fire walls and doors fully guard against the possibility of any fire spreading. The machinery room has a glazed brick dado extending 10 ft. above the floor. Above this the room is lined with a light cream colored brick. Ample windows are provided for light and ventilation. Revolving ventilators are located in the roof over the machinery. The exterior of the building is finished with a dark red tapestry brick, with parapet, cornice and other trimming of moulded concrete imitating dressed sandstone. Three-phase 60-cycle 11,000-volt power will be delivered at the substation by the Montreal Light, Heat & Power Co., which distributes electric power from 6 water power stations, aggregating 170,000 h.p. All of these are connected to a central distributing station, which is only a short distance from the east end of the tunnel in Montreal. Two sets of cables, one set a spare, will be installed from the central distributing station through the tunnel in ducts and underground all the way to the substation. In addition to these underground lines, an overhead transmission line will connect the power company's Montana St. transformer station, just north of Mount Royal, with the substation. The switches on these incoming lines will be so arranged that the 11,000-volt busbars can be quickly changed from one to the other. Besides the water power generating stations the power company has 2 steam generating stations with a total output of 32,000 h.p. These act as a reserve only, and are connected to the central distributing station by underground feeders. Continuity of power supply is thus amply provided for.

The alternating current power will be converted into 2,400-volt direct current power for the trolley circuits by 1,500-k.w. motor-generator sets. Two of these sets are being installed at present, one of them being a spare. There will be space provided in the station for a third motor-generator set, which will be installed when the load increases beyond the capacity of one set. Each of these sets consist of two 750-k.w., compound wound, commutating pole generators wound for 1,200 volts, insulated for 2,400 volts, and direct connected to an 11,000-volt synchronous motor operating at a speed of 600 r.p.m. These generators are permanently connected in series. The shunt fields are separately excited. The pole face winding, series and commutating filed windings are all connected on the ground side of the generators, so that the armatures are only parts subjected to the full potential of 2,400 volts. Separately exciting the shunt fields would ordinarily be objectionable, for the reason that if the commutator should arc over, due to a short circuit on the line, the generator voltage would tend to hold up and maintain the arc. To overcome this objectionable feature, a limiting resistance is placed in series with each of the shunt fields. This resistance is cut into the circuit by means of a contactor, operated by current coils excited from the 125-volt bus, and connected in series with the auxiliary switch attached to the main direct-current circuit breaker. When this circuit-breaker opens the auxiliary switch will also be opened, thereby allowing the contactor to open and cut in the additional resistance, thus reducing the voltage of the generators. A speed limit device is also used. The contacts of this device are connected in series with the trip coil of the circuit breaker. In case of about 15% over speed, or more, a revolving weight due to centrifugal force will open the switch, thus killing the low voltage release coil of the circuit breaker and causing it to open. These sets will have a continuous capacity of 1,500 k.w. each and an overload capacity of 200% for 5 minutes.

There will be three motor-generator exciter sets, each consisting of a 50-k.w. 125-volt generator of the commutating pole type, direct connected to a 550-volt 1,200 r.p.m. induction motor. Normally one exicted will furnish exciting current to the fields of the synchronous motors, and another the current to excite 4 generators, the third exciter being a spare. Two banks of transformers, one a spare, each consisting of three 100-k.w. 60-cycle 11,000/550-volt single-phase transformers will be installed to furnish low voltage alternating current for operating the exciters and various motors. Other small transformers will step down from 550 volts to 110 volts for lighting the station. Emergency lighting will be taken care of by means of a storage battery, which will also furnish current for operating the oil switches in case of a complete shut down, when current from the exciter will not be available.

The switchboard is composed of 32 panels of natural black slate. These will control various outgoing circuits for signals, tunnel lighting and miscellaneous power, as well as the substation machinery. Nine of these panels comprise the 2,400-volt direct current board. The 2,400-volt circuit breakers and lever switches are mounted on panels, back of and above the main switchboard. They are operated by means of insulated handles on the front of the main board so as to eliminate any possibility of the operator coming in contact with the 2,400-volt circuit. The breakers are enclosed between fireproof barriers. They are equipped with powerful magnetic blowouts to extinguish the arc, and are provided with a resetting device operated from the front of the board. The field switches are mounted back of the panels, with their operating handles on the front of the main board. The complete electrical equipment is being supplied by Canadian General Electric Co., Ltd.

The Canadian Pacific Railway's Honor Roll No. 17.

Adamson, Richard L.	Draughtsman	Strathmore	Wounded
Bland, William G.	Asst. baggage master	Medicine Hat	Killed in action
Buckingham, E. H.	Assistant agent	Claresholm	Wounded
Chapman, Andrew G.	Stower	Winnipeg	Died of wounds
Clarkson, Lorne	Conductor	Calgary	Killed in action
Connors, William P.	Carpenter	Fort William	Died of wounds
Craik, William	Laborer	Ogden Shops	Killed in action
Douney, Thomas E.	Fire inspector	Cranbrook	Wounded
Drybrough, David	Clerk	Vancouver	Died of wounds
Eaton, Judson W.	Trainman	B. C. Dist.	Killed in action
Ferguson, James D.	Comptometer operator	Winnipeg	Killed in action
Fraser, John S.	Stower	Winnipeg	Died of wounds
Grant, Fred C.	Trimmer	Angus	Killed in action
Green, Robert H.	Clerk	Toronto	Gassed and prisoner
Hacking, William S.	Stenographer	Montreal	Wounded
Horwill, William B.	Boilermaker's app.	Ogden Shops	Wounded
Howell, Harry	Miner	Lethbridge	Suffering from shock
Hughson, Henry E.	Wireman	Calgary	Killed in action
Keating, Harold G.	Wiper	Kamloops	Wounded
Kidd, George	Waiter	Winnipeg	Killed in action
Landstrome, G. A.	Locomotive man	Brandon	Killed in action
Long, William H.	Sleeping car cleaner	Toronto	Killed in action
McArthur, Thomas	Machinist	McAdam	Killed in action
Macdonell, Hugh W.	Assistant Solicitor	Toronto	Wounded and prisoner
McLean, Norman	Locomotive fireman	Winnipeg	Wounded
McNaught, James	Solicitor	Montreal	Killed in action
McReynolds, John	Telegraph operator	Toronto	Wounded
Maunsell, J. Q.	Law student	Toronto	Wounded
Montanelli, John	Tire setter	Angus	Killed in action
Morris, Glendon E.	Clerk	Montreal	Wounded
Nixon, John	Steamfitter's helper	Angus	Suffering from shock
Price, Herbert	Iron machinist	Angus	Suffering from shock
Reader, Charles P.	Ticket clerk	Medicine Hat	Wounded
Rogers, Henry G.	Bridge inspector	Montreal	Wounded
Rushworth, George	Car oiler	Winnipeg	Died of wounds
Taylor William A.	Operator	London Div.	Killed in action
Thompson, Harry M.	Clerk	Winnipeg	Wounded
Walrond George W.	Solicitor	Toronto	Wounded

Decapod Locomotives, Canadian Pacific Railway.

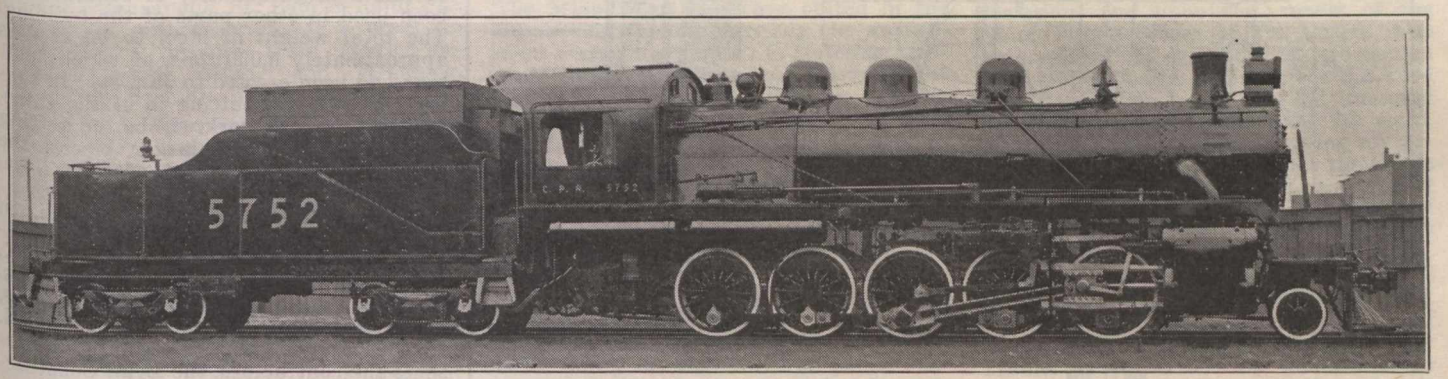
By J. W. Buckland, Chief Draughtsman, Angus Shops, Montreal.

The question of economic and efficient locomotives is one which claims the attention of motive power officials and railway executives probably more at present than at any time in the history of railroading, and what is desired is an engine with maximum tractive effort that can be got over its division with the least possible delay. With this end in view it is imperative that a locomotive should be as simple as possible, both to operate and repair, and that its details should be made as fool proof as possible.

The subject of this article is the Decapod type of locomotives rebuilt recently at Angus shops, Montreal, from Mallet 0660 type, which had been until recently working on hill service in the Rockies. It was necessary, owing to demand of large power of this kind, to convert these locomotives with the least possible delay, and 30 days from the time the order was given, sketches were completed and work was under way in the shops. The first locomotive was turned out in another 20 days.

In a design of locomotive such as a decapod, with long driving wheel base it is necessary to introduce flexibility in order to insure proper tracking and minimize flange wear. For this reason the leading driving wheels on this locomotive were arranged to give 1 in. side play between shoes and driving box flange. See fig. 1. Incline planes have been applied over the leading driving wheels, in order to centre them when running on straight track, and the resistance due to weight applied to incline planes, provides guiding power when the locomotive is entering a curve.

With the application of the above to a pair of driving wheels it is necessary to provide flexibility to the side rods, in order to eliminate any undue strain to crack pins and rods. The design of flexible side rod connection is illustrated by fig. 2, from which it will be noted that it is a universal joint in its entirety, the crank pin being one axis of movement, and the brass, being turned on a vertical axis, provides for side sway of the rod. With this arrangement of joint, it is possible to provide a perfect lubrication to the crank pin and it is also simple to machine and maintain in the locomotive house. The arrangement of driving wheel and side rods described above can be applied to any locomotive, with minimum outlay, where trouble is experienced due to flanges cutting.



Decapod Locomotive, Canadian Pacific Railway.

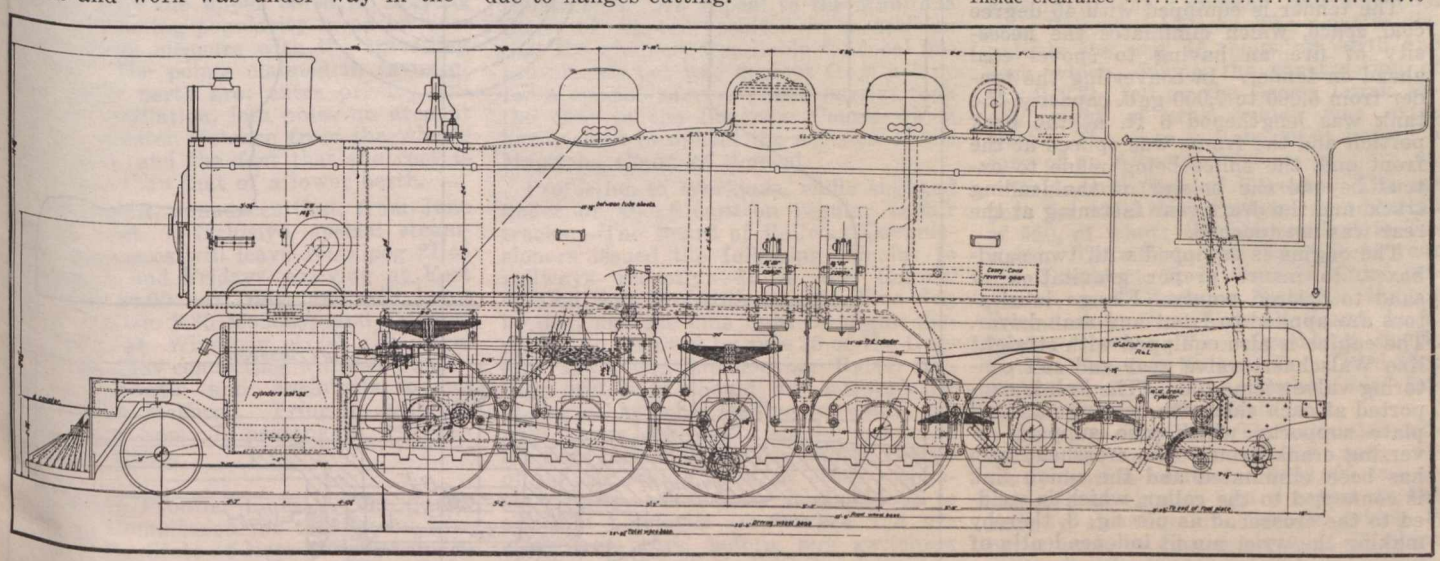


Fig. 2—Decapod Locomotive, Canadian Pacific Ry. Erecting Plan.

Another important feature of this design of locomotive, "which of necessity has long overhang beyond trailing driving wheel," is the location of the drawbar pin on the engine. It will be noted from the general arrangement in fig. 2, that this pin is located as close to rear driver as possible. This was done to reduce to a minimum the flange pressure of rear wheels when backing into curves.

GENERAL DATA.

Tractive effort	61,500 lb.
Weight in working order	243,000 lb.
Weight on drivers	220,000 lb.
Weight on engine truck	23,000 lb.
Weight of engine and tender in working order	403,000 lb.
Total engine wheel base	29 ft. 9½ in.
Driving wheel base	20 ft. 8 in.
Rigid wheel base	15 ft. 6 in.
Wheel base, engine and tender	66 ft. 10⅝ in.

RATIOS.

Weight on drivers, tractive effort	4.26
Weight on drivers÷tractive effort	4.26
Total weight÷tractive effort	4.7.
Tractive effort x dia. drivers÷heat surface	973.
Evaporating heating surface÷grate area	43.56
Firebox heating surface÷tube and flue heating surface per cent.	7.6
Weight on drivers÷heating surface	71.7
Cylinder volume, cubic feet	16.04.
Heat surface÷cylinder volume	191
Grate area÷cylinder volume	3.68

CYLINDERS.

Kind.	Simple.
Diameter and Stroke	23½ x 32

VALVES.

Kind.	Piston.
Diameter	14 in.
Greatest travel	6½ in.
Steam lap	1 in.
Lead	¼ in.
Inside clearance	0

WHEELS.

Driving over tires	58 in.
Thickness of tire	3½ in.
Driving journals, main	10 x 14 in.
Driving journals, others	9½ x 12 in.
Engine truck wheels, diameter	31 in.
Engine truck axles, diameter	6 x 10 in.

BOILER.

Style, Radial stayed firebox, with cross stays, and conical course.	
Steam pressure	200 lb.
Outside diameter of first ring	64⅛ in.
Firebox length and width	10 ft. x 5 ft. 10⅞ in.
Firebox plates, thickness	⅜ in. crown, 5/16 in. sides

Firebox water space at ring .....
side 4½ in., throat 5 in., back 3½ in.
Tubes, number and outside diameter .....
154-2 in., 14-2¼ in.
Superheater flues, number, diameter and thickness . . .. 22-5¼ in. No. 8 I W G
Superheater pipes, number, diameter and thickness .....88-1 in. 00 5/32 thick
Tubes and flues, length .....18 ft. 7⅛ in.
Heating surface, tubes and flues .....2390 sq. ft.

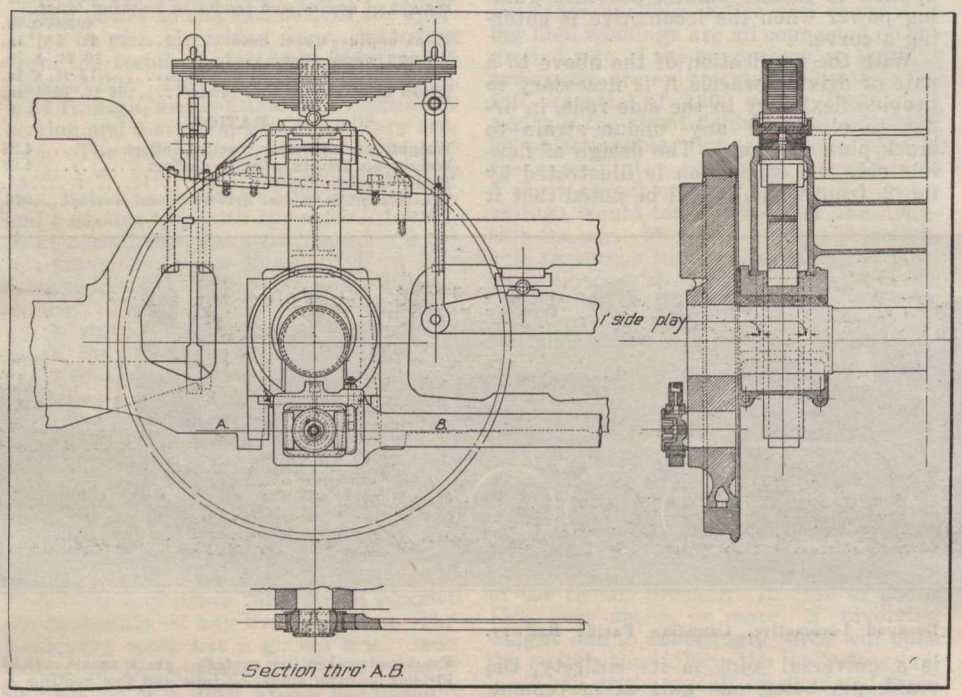


Fig. 1—Decapod Locomotive, C.P.R. Arrangement of Leading Driving Wheels.

Heating surface, firebox .....180 sq. ft.
Heating surface, total, including superheater
3076 sq. ft.
Superheating surface .....506 sq. ft.
Grate area .....59 sq. ft.
Smoke stack diameter .....16½ sq. ft.

TENDER.

Wheels, diameter .....36 in.
Journals, diameter and length .....5½ x 10
Water, capacity .....7,000 gals.
Coal capacity .....10 tons

The tender is equipped with 45 degree coal space, which eliminates the necessity of fireman having to shovel coal ahead on tender. In converting the tender from 5,000 to 7,000 gall. capacity, the tank was lengthened 6 ft. at the back portion and the frame was spliced at the front end, the splice being made to extend beyond the bolster of the leading truck, and the draft gear fastening at the rear was not touched.

The engine is equipped with two sandboxes, to insure proper gravitation of sand to desired points. Flange lubricators are applied to front and rear driver. The engine is also equipped with straight line Walschaert valve gear and self centering valve stem guide. The link is supported at each side with bearings on mill plate supports, which also support reversing crank arms. The crosshead arm has been eliminated and the union link is connected to the collar, which is welded to the crosshead as per fig. 3, thereby making the wrist pin fit independently of union link bearing.

The specialties include:—Casey-Cavin reverse gear; McCord force feed lubritor; Franklin butterfly type 8 fire door; Security brick arch.

Indian Railways Curtail Service.—A Delhi press dispatch says that among the new war measures adopted by the Indian Government is the severe curtailment of railway services.

A Bill Consolidating the Railway Act was read a second time in the House of Commons recently, and referred to a special committee.

Toronto Union Station Construction Progress.

Sufficient progress has been made on the new Toronto union station, being built on the Front St. site by the Toronto Terminals Ry. Co. to enable a definite idea to be obtained of its general size and form, and to gauge its effect upon the district. A complete description of the building, with perspective, main floor and other plans were given in Canadian Railway and Marine World for June, 1914.

The foundation work, including the tunnels, spaces for mechanical equipment, etc., is fully completed. The steel framework in both wings is completed, and that for the central portion of the building is well advanced. The floors are all completed in the west wing, and the outside walls in the west wing are completed to the second story. The stone for the remaining portion of the walls is practically all cut and on the site, so that when spring opens, it will be possible to proceed at a rapid a rate with getting it into position as the conditions of the labor market will allow. The work at present being gone on with is largely in the interior, but there is a shortage of labor, and progress is being made to it not as rapid as it otherwise would be.

The total quantity of concrete poured in the foundation work to the end of January was 4,511 cu. yds. In addition to this a large quantity of concrete has been used in other parts of the building. The total weight of steel to be used is approximately 5,000 tons, of which 4,601 tons had been erected to Jan. 30. In connection with the putting in of the stone, some interesting work will be the getting into position of the larger pieces, the largest of which, a part of the frieze, weighs 27 tons.

The carrying out of the work is in charge of R. W. Ambrose, Chief Engineer, Toronto Terminals Co.; H. K. Ferguson, representing the architects, Ross & Macdonald, and H. G. Jones, Montreal, with whom is associated J. M. Lyle, Toronto. W. T. Griffiths, represents the contractors, the Lyall Construction Co., Montreal.

C.P.R. Ontario District employes have made their 17th contribution, $500, to the Toronto and York County Patriotic Fund Association. The total contributed since Sept., 1915, is $12,850.

Agricultural Course Trains. — The C.P.R. put on a special train, starting from Medicine Hat, Jan. 29, and arriving at Lougheed, Alta., Feb. 24, visiting Retlaw, Travers, Black Falls, Stettler and Veteran, for the purpose of providing short courses in agriculture in those districts. During March and April the Canadian Northern will operate a special train for similar purposes over its Alberta lines.

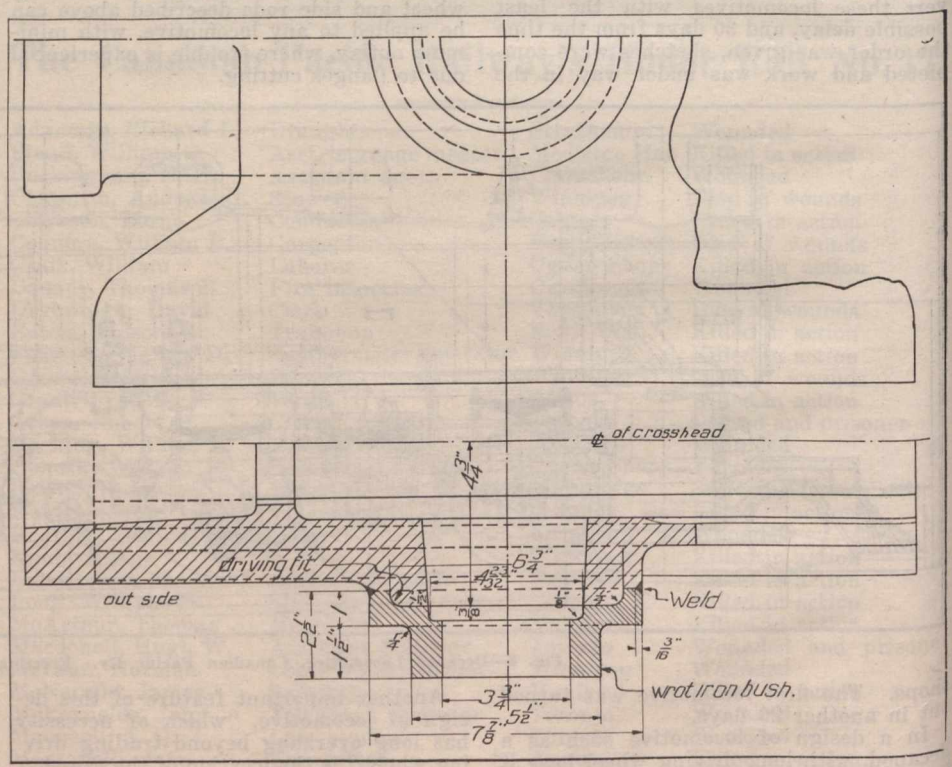


Fig. 3—Decapod Locomotive, C.P.R. Crosshead, Wrist Pin Bearing Bush.

Freight and Passenger Traffic Notes.

The G.T.R. put into effect, Feb. 11, a further reduction of its passenger train service in order to facilitate freight traffic.

The G.T.R. has restored the Hamilton-Allandale mail train, leaving Hamilton at 6.40 a.m., which was cut off in the general reduction of passenger train service in January.

It is reported that the C.P.R. will open its Banff Springs Hotel earlier than usual this year, and that it is not unlikely it will be kept open in future during the entire year.

The Minneapolis, St. Paul & Sault Ste. Marie Ry. will, according to a press report, run a through train service between Duluth, Minn., and Winnipeg, Man., via Bernidji, Man.

The Pere Marquette Rd. has cancelled temporarily two trains between Sarnia and Blenheim, Ont. The only trains on that section of line now running are one reaching Sarnia at 11.45 a.m., and one leaving Sarnia at 4.05 p.m.

R. Creelman, General Passenger Agent, Canadian Northern Ry., Winnipeg, is reported to have said in Vancouver, B.C., Feb. 12, that the company proposed to open passenger agencies in Seattle, Wash., and other cities along the Pacific coast, with a view of directing United States tourist traffic towards British Columbia points.

The Minister of Railways stated in the House of Commons recently that he would look into the withdrawal of trains to and from St. John, N.B., making a direct connection with the I.R.C. Maritime Express at Moncton. There was such a connection until the recent reduction of trains and it is claimed that the present schedule is causing great inconvenience to travellers.

The G.T.R. Passenger Department claims that the upper berth in sleeping cars is winning popularity in an increasingly large measure with the travelling public. The points claimed in favor of the upper berth are: extra privacy, superior ventilation, less noise on account of the greater distance from the wheels and rails, and the fact that the cost is 20% less than that of a lower berth.

The C.P.R. announces that, from June 19 to Sept. 7, inclusive, special steamship expresses will leave Winnipeg 21.45 Tuesdays and Fridays, arriving at Fort William 10.00 next day, and will leave Fort William 8.30 Mondays and Fridays, arriving at Winnipeg 21.00 the same evening, thus connecting with the steamships Keewatin and Assiniboia to and from Port McNicoll. Prior to June 19, and after Sept. 7, passengers will use regular trains.

Niagara Frontier Lines. — The Public Service Commission for the Second District of the State of New York has under consideration an application to revoke a certificate of convenience and necessity granted to the Frontier Electric Ry. A U. S. publications says: "The case developed into a struggle between the Pennsylvania Rd. and the Delaware, Lackawanna & Western Rd. on the one hand, and the Erie Rd. on the other, for the business of the rich industrial territory at Niagara Falls and possibly future connections with the proposed extension of the Canadian Northern Ry. from Toronto. The Pennsylvania Rd. representatives informed the commissioners that it certainly was to be a local freight line with the possibility of later making part of a through freight line to Canada. The chairman of the commission said the commission had never entered into any enquiry as to the necessity of another freight line, and one of the other commissioners said: 'Irrespective of this controversy over business between the railways, I do not permit these railways to extend a new freight trunk line to the Canadian border without full notice to the people of the territory.' The commission decided not to dispose of the matter as between the companies until it was satisfied of the necessity for a new trunk freight line."

Pay of Enlisted C.G.R. Employes.— The Minister of Railways stated in the House of Commons recently the government was aware that F. P. Gutelius, General Manager, Canadian Government Railways, had issued a circular, Oct. 30, 1914, promising all officials and employes of those railways who enlisted or who would enlist in the active militia for overseas service their full salary or pay while in the military service, and that the government had approved and authorized the promise. Salary or wages will be paid to those having enlisted prior to Nov. 1, 1915, in accordance with circular 16, dated Oct. 30, 1914, and to those who enlisted subsequent to Nov. 1, 1915, salary or wages will be paid in accordance with circular 26, dated Nov. 8, 1915.

C.N.R. Taxes in Winnipeg. — The Supreme Court of Canada has thrown out both appeals in the case of the City of Winnipeg against the Canadian Northern Ry. The case arose out of the city levying taxes for $140 in 1914, which the company refused to pay, and the city purported to sell the land for taxes. To prevent the title being issued the C.N.R. paid the taxes under protest. In Dec., 1915, Judge Macdonald held in a Manitoba court that the city was acting ultra vires in assessing the land for local improvements. An appeal to the Manitoba Court of Appeal resulted in a decision that the company was liable for local improvements but was exempt from a levy for a special survey. Both parties took the case to the Supreme Court, which has decided to uphold the decision of the Manitoba Court of Appeal.

Protection to Workmen, while engaged under or about cars on regular repair tracks:—The Board of Railway Commissioners issued the following circular to railways recently:—It is the Boards' opinion that in addition to the blue flag by day, and the blue light by night, displayed as required by rule 26 of the General Train and Interlocking Rules, further protection should be adopted, by having all switches leading to regular repaid tracks locked with special locks, and the keys carried by the foreman in charge of the car repair work, or other responsible party, whose duty it should be to see that employes are warned and are clear from cars before any switching movement is made on such track, and to see that switches are relocked after switching movement is completed.

Exclusive Use of Sleeping Car Drawing Rooms.—The Interstate Commerce Commission has decided, in the case of Carter vs. Minneapolis, St. Paul & Sault Ste. Marie Ry., that it was not unreasonable for the railway to require a passenger, desiring the exclusive use of a sleeping car drawing room from St. Paul to Chicago, to purchase two railway tickets. This followed the decision in the case of the Nevada Railroad Commission vs. Southern Pacific Co.

Amendments to Baggage Regulations.

The Board of Railway Commissioners for Canada passed general order 179, Jan. 29, as follows:—General order 151, Nov. 8, 1915, prescribing regulations governing baggage car traffic, for the observance of every railway company within the legislative authority of the Dominion Parliament, other than government railways; and the application of M. J. Gorman, K.C., of Ottawa, for an order amending Rule 26 (d) of the said regulations. Upon reading what is filed in support of the application and on behalf of the Eastern Canadian Passenger Association; and upon the report of the Chief Traffic Officer of the Board, it is ordered that the said Rule 26, sub-section (d) be amended by adding after the word "the," the 7th word in the 2nd line, and before the word "carrier," the 8th word, the following words, "originating or terminating"; and by striking out the words "at destination," which are respectively the 9th and 10th words of the 2nd line of the sub-section: the railway companies to publish order in The Canada Gazette.

General order 181 was passed Feb. 3 as follows:—Re general order 179, Jan. 29, amending Rule 26, sub-section (d) of Regulations Governing Baggage Car Traffic, as prescribed by general order 151, Nov. 8, 1915. Upon reading what is filed on behalf of the Eastern Canadian Passenger Association, it is ordered that general order 179 be amended by adding after the word "sub-section," in the 7th line of the operative part of the order, the words, "and by striking out the word 'thereat,' the 4th word in the 3rd line of the said sub-section, and substituting therefor the words 'at destination.'"

S. D. Hogan, Contractor, is Suing the Northern Construction Co. and Mackenzie, Mann & Co., Ltd., for $115,898.29 for work done and materials supplied on a section of the Canadian Northern Ry. near Yellowhead Pass. The point in dispute is the cost of removing earth and rock which, during the construction of the C.N.R., fell on the Grand Trunk Pacific right of way, which was extra work. The case will be tried before a jury of an Alberta court.

Engineers' Club of Toronto.—The report for 1916 shows a total membership of 550, of whom 400 are resident in Toronto. The officers for the current year are: President, E. L. Cousins, Chief Engineer, and Manager Toronto Harbor Commission; First Vice President, L. V. Rorke; Second Vice President, C. W. Power, Canadian Stewart Co.; Third Vice President, J. R. W. Ambrose, Chief Engineer, Toronto Terminals Co.

Railways Enquiry.—The estimates submitted to the House of Commons recently contain an item of $120,000 to provide for an enquiry and a report on the railway situation of Canada, which is being made by the commission, of which A. H. Smith, President, New York Central Rd., is Chairman. One-quarter of the sum was voted by the House of Commons, Feb. 1.

Members of the Western Canadian Live Stock Union, B.C., and of the United Farmers of Alberta, met the traffic officials of the C.P.R. Western Lines at Winnipeg, Feb. 3, to discuss rates to summer pastures, etc.

The Missouri Pacific Ry. was sold by auction at St. Louis, Mo., Feb. 21, for $16,151,000 to R. H. Nielson and J. W. Holmes, representing a reorganization committee.

Canadian Transportation Men, Engineers, Etc. in the War.

The Dominion Power & Transmission Co., of Hamilton, Ont., has had 126 employes enlist for overseas service.

The C.P.R. Has Given six Red Cross cars to the Canadian Military Hospitals Commission, to be used for wounded and invalided soldiers.

Private H. Howard, of the King's Liverpool Regiment, killed in action, was engaged in the Freight Department, G.T.R., Liverpool, Eng., from July, 1914.

Corporal R. C. Murrow, who has been awarded the military medal for a deed of great gallantry, was, for four years prior to enlisting, in the Passenger Department, C.P.R., Liverpool, Eng.

Gunner John Callaghan, of Montreal, who has been wounded in the face, hands and thigh, is 30 years old and has been overseas for two years. He was employed in the Montreal Tramways Co.'s shops at Youville, Montreal, before enlistment.

Lt. Col. B. R. Hepburn, M.P., of Picton, Ont., formerly President, Ontario & Quebec Navigation Co., who is second in command of one of the Canadian forestry battalions overseas, was one of a party of members of the Canadian House of Commons which visited the British Grand Fleet recently.

Lieut. A. E. Spendlove, formerly Manager, Lake Shippers Clearance Association, Winnipeg, has returned on leave. While in charge of a machine gun section on the Somme last September, he was severely wounded, and was in a hospital for some time, during which he was given the Military Cross.

Hector K. Morrison, Jr. Can.Soc.C.E., was was Resident Engineer, Canadian Northern Ry., Pembroke, Ont., and went overseas in the Canadian Engineer, from which he was transferred to the Royal Engineers Railway Corps, as lieutenant, has returned to Toronto recently, on a short leave of absence. He is a son in law of H. K. Wicksteed, M.Can.Soc.C.E., Chief Engineer of Surveys, Mackenzie, Mann & Co., Ltd.

Lt. Col. G. S. Cantlie, formerly General Superintendent of Car Service, C.P.R.,who really gave up those duties in Oct., 1914, although he was not officially given leave of absence until Jan. 8, 1915, has been connected with the 5th Regiment, Royal Highlanders of Canada, for a number of years, having risen to the lieutenant-colonelcy. He sailed from Montreal June 10, 1915, with the 42nd Battalion, C.E.F., Royal Highlanders of Canada. He was slightly wounded in the arm Sept. 15, 1916, but did not have to give up duty. He is at present in Montreal on a short leave of absence.

Gerald Hiam was District Passenger Agent, C.P.R., at Fort William, Ont., until the summer of 1915, when he went into the 73rd Battalion, Montreal, as a lieutenant, and then transferred to the 198th Battalion (Buffs), Toronto, as captain. In order to get overseas quickly he reverted to lieutenant, went to England in Sept., 1916, and to France in Oct., 1916, with the 14th Battalion (Royal Montreal), in which he has now been promoted to second in command of A. Company. His brother, F. A. Hiam, formerly private secretary to Sir Donald Mann, is Captain and Adjutant of the 198th Battalion.

Lieutenant James McNaught, 2nd Battalion, 18th Royal Scots, who was killed in action recently, was born at Walkerton, Scotland, Apr. 23, 1883, and was educated for the legal profession, qualifying as a solicitor in Edinburgh. He came to Canada in 1906, and on Apr. 23, 1906, entered the C.P.R. legal service at Montreal as assistant to Solicitor. He was appointed Assistant Solicitor, Jan. 1, 1912, and Solicitor, Aug. 1, 1914. In the early part of 1915, he undertook a course of military training with the McGill Battalion, and on Nov. 17, 1915, he left Montreal for Scotland, where he joined the 18th Royal Scots as a private. He continued his training until June, 1916, when he was selected for an officer's course, qualified in October, and was drafted to the Somme front early in December. He was killed Jan. 7.

Albert Henry Kendall, who was announced in our last issue as having been appointed Captain, No. 1 Section, Skilled Railway Employes, was born at Aspatria, Cumberland, Eng., Apr. 4., 1878, and

A. H. Kendall,
formerly Master Mechanic, Ontario District, C. P. R., Toronto, now Captain, No. 1 Section, Skilled Railway Employes.

served his apprenticeship with the Canada Atlantic Ry. at Ottawa. From June, 1901, to Mar., 1902, he was machinist, C.P.R., Revelstoke, B.C.; Mar., 1902, to Jan., 1903, Locomotive Foreman, C.P.R., Nakusp, B.C.; Jan. to Dec., 1903, General Foreman, C.P.R., Revelstoke, B.C.; Dec., 1903, to Dec., 1904, Locomotive Foreman, G.T.R., London, Ont.; Dec., 1904, to Dec., 1913, leading hand, General Erecting Foreman, Angus shops, C.P.R., Montreal; Dec., 1913, to Apr., 1915, General Foreman, C.P.R., North Bay, Ont.; Apr., 1915, to Aug., 1916, Assistant Works Manager, Locomotive Department, Angus shops, C.P.R., Montreal; Aug., 1916, to Jan., 1917, Master Mechanic, Ontario District, C.P.R., Toronto.

E. W. DuVal, who is taking an officer's training course at Regina, Sask., with a view to active service overseas, was born at Toledo, Ohio, June 5, 1885, and entered railway service, July 1, 1902, since when he has been, to June 1, 1905, in Superintendent's office, Canadian Northern Ry., Winnipeg, and at Port Arthur, Ont.; June 1, 1905, to Jan. 2, 1911, successively, secretary to General Superintendent, Central Division, C.P.R., Winnipeg; chief clerk to Superintendent, District 2, Central Division, C.P.R., Winnipeg; assistant chief clerk to General Superintendent, Central Division, C.P.R., Winnipeg; chief clerk to General Superintendent, Western Division, C.P.R., Calgary, Alta.; chief clerk to Assistant General Manager, and, later, to General Manager, Western Lines, C.P.R., Winnipeg; Trainmaster. C.P.R. Terminals, Calgary, Alta.; Jan. 2, 1911, to Apr. 6, 1912, Superintendent, District 1, Saskatchewan Division, C.P.R., Moose Jaw; Apr. 6, 1912, to May, 1913, Superintendent, District 4, Manitoba Division, C.P.R., Souris; May, 1913, to Feb., 1917, Superintendent, Saskatoon Division, Saskatchewan District, C.P.R., Saskatoon.

Major Edmond H. Drury, M.Can.Soc. C.E., Assistant Director General of Engineering Service, Militia Department, attached to the headquarters staff, died suddenly in his apartments at Ottawa, Feb. 1, aged 66. He was born at St. John, N.B., and graduated with honors at the Royal Military College, Kingston, Ont., specializing in civil engineering. He was on the staff of the late Jas. Ross on C.P.R. construction in the British Columbia mountains in the early eighties. He was engaged on the construction of the C.P.R. short line to St. John, N.B., and later on had charge of the first survey for a Dominion Government railway to Hudson Bay. He was also engaged on the construction of the Cuba Rd. for the late Sir William Van Horne, and subsequently. He was at one time Resident Engineer for the Mexican Light & Power Co., at Mexico City, and subsequently had charge of the Dominion Government surveys for the Hudson Bay Ry. Afterwards he became Chief Engineer for the Chilean Rd. at Antafagasta, but illness compelled him to go to England for treatment, and it is said that he never fully recovered. On the outbreak of war he offered his services to the Dominion Government and became Assistant Director General of Engineering Services.

C.P.R. Hotel Rates.—As stated in Canadian Railway and Marine World recently, the Hotel Palliser, Calgary, started operating on the European plan on Jan. 1, and the Chateau Frontenac, Quebec, will adopt the same plan on May 1. During the coming summer, Banff Springs Hotel and Chateau Lake Louise will also be operated exclusively on the European plan, the rates for rooms being $2 a day and upwards.

George Bury in Russia.—A London, Eng., cablegram of Feb. 12 said:—Messages from Petrograd announce that receptions were given to the allies' delegates under Lord Milner at Moscow. One of the members of the party is George Bury, the Canadian Pacific Railway Vice President, who is advising the Russian Government on railway matters.

The Roberval-Saguenay Ry. advised the Quebec Public Utilities Commission recently that it intended suspending, temporarily, the train service on the Laterriere Branch, owing to shortage of coal, but it was ordered to continue the service unless it could show a more satisfactory reason for its discontinuance.

Grand Trunk Railway Car Shops at Port Huron.

The car shops which the G.T.R. is erecting at Port Huron, Mich., to replace those destroyed by fire are located on a site acquired in 1915 by the citizens from the Port Huron Engine & Thresher Co., which had erected a new plant on another site. The site has two frontages, one on Griswold St., and the other on Twenty-eighth St. The layout shows nine blocks of buildings laid out round the power house, which is located in the centre of the block. Following is a list of the buildings with their dimensions:—Large passenger car shop, 304 x 135 ft.; small passenger car shop, 235 x 135 ft., to which will be joined up a cabinet shop, 250 x 73 ft. These two buildings will be served by a transfer table 60 ft. wide. The office, 63 x 59 ft., will be combined with the store building, 153 x 59 ft. The other buildings are: Paint shop, 50 x 25 ft.; power house, 96½ x 70 ft.; wood mill, 210 x 90 ft.; dry lumber store, 146 x 46 ft.; dry kilns, 80 x 41 ft; machine shop and blacksmith shop, each 30 x 75 ft., but combined in one building; freight car shop, divided into two parts, each 361 x 79 ft.

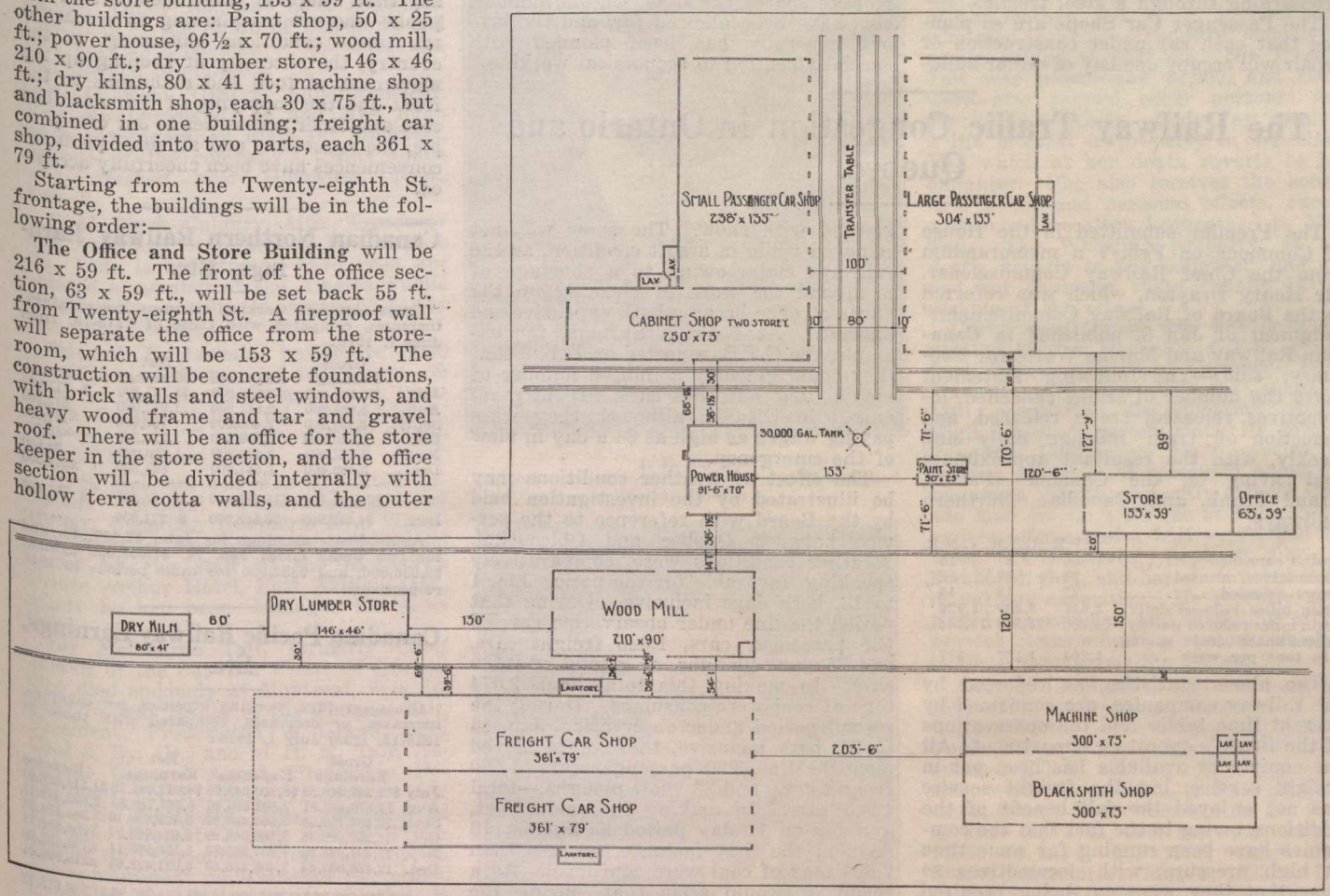
Starting from the Twenty-eighth St. frontage, the buildings will be in the following order:—

The Office and Store Building will be 216 x 59 ft. The front of the office section, 63 x 59 ft., will be set back 55 ft. from Twenty-eighth St. A fireproof wall will separate the office from the storeroom, which will be 153 x 59 ft. The construction will be concrete foundations, with brick walls and steel windows, and heavy wood frame and tar and gravel roof. There will be an office for the store keeper in the store section, and the office section will be divided internally with hollow terra cotta walls, and the outer walls will be lined inside with the same material, all surfaces of walls and ceilings being plastered and painted.

Machine and Blacksmith Shops.—The block in which these shops will be situated lies next, and will be 95 ft. from the Twenty-eighth St. frontage. It will be 300 x 150 ft., and will be divided into two parts lengthwise, each being 300 x 75 ft. The foundations are to be concrete, with brick walls, wood interior posts and roof, steel window sashes and wood doors; roof to be covered with 4-ply roofing felt, with tar and gravel; monitors to be wood with similar roofing. The partition wall between the two shops will be of fireproof construction.

Freight Car Shops.—Just over 200 ft. to the rear of the machine and blacksmith shops will be the double freight car shop. It is to be 361 x 158 ft., and will be divided into two parts, each 361 x 79 ft., by a fireproof wall. These shops, in which steel and wood cars will be built, are planned for the material to enter at one end and the finished cars to leave at the other. The construction will be concrete foundation; brick walls; with steel windows; interior posts and roof; roof to be covered with 4-ply roofing felt, tar and gravel. The monitors, which will run from end to end of the building, are to be of wood with similar roofing material.

The Wood Mill, 210 x 90 ft., will be midway between the freight car shop and the power house. It will be entirely wood framed on a concrete foundation. The wood framing will be of a substantial type, and the walls will be formed with 2 in. of concrete, reinforced with expanded metal, thus making a permanent finish which will be fireproof. The roof will be tar and gravel. All windows will have steel sash.



Grand Trunk Railway Car Shops at Port Huron.

The Dry Lumber Store will be an old wood building, 146 x 46 ft., removed from the Thresher Co.'s plant, and adapted to the railway requirements.

The Dry Kiln will be 80 ft. behind the dry lumber store. It will be a specially designed building 80 x 41 ft., in two sections, with sliding doors at each end, thus enabling a car load of timber to enter at one end and be removed when dried at the other, no delay or inconvenience being occasioned through having to remove one car to get at or remove another, and each section will be separate from the other and capable of being used independently. The heat will be supplied by steam pipes located below rail level, and a special system of air ducts will provide ample air changes, which will be capable of regulation, and provision will also be made for the introduction of steam as required. The walls will be insulated by air cavity and also the roof, so that even temperature may be maintained.

The Paint House, 50 x 25 ft., will be about midway between the store building and the power house. It is to be of fireproof construction throughout, concrete foundations, brick walls, concrete floor, reinforced concrete roof, slab-covered, with 4-ply roofing material, tar and gravel, steel sashes and wood door.

The Power House, 91½ x 80 ft., will be about 150 ft. to the rear. Between the power house and the paint shop will be a 30,000 gall. tank. This will be of wood, erected on a steel trestle 50 ft. high. This power house will be built on concrete foundations, brick walls, wood roof on steel trusses, steel window sashes and wood doors. The roofing material will be similar to that of the car shops.

The Power Plant will consist of 6 return tubular boilers totalling 900 boiler h.p. The boiler pressure will be 150 lbs. per sq. in., and 4 of the boilers will be fitted with superheat, giving 150 degrees of superheat when coal is used, and 200 degrees when wood refuse is used. The boilers will be adapted for hand firing, as this arrangement would appear to be best, on account of the large amount of refuse, varied in character, which will be burned.

Other units for developing power for lighting and operating will be: Two impulse turbo-generators of 300 k.w. each, to be used for generating 3-phase electrical energy at 440 volts, the usual low power factor being raised to a high figure

by the use of a synchronous motor-generator, supplying the necessary direct current power. Two air compressors of 1,500 cu. ft. capacity, of the cross compound type, specially adapted for use with superheated steam. The superheat of the air compressors may be controlled by proportioning their supply of wet steam. Boiler feed and vacuum pumps and open type feed water heater of 1,000 h.p. capacity will also be installed. The boilers will be provided with a steel stack 150 ft. above grade and 6½ ft. diameter.

The heating requirements for the shops will be considerable, due to the large amount of special work in the nature of painting and varnishing, and altogether about 50,000 sq. ft. of radiation will be necessary. This will be supplied by exhaust steam from the power house, in cast iron radiators of the wall type. Coal will be directly delivered to bunkers inside the power house, by hopper cars, discharging through a steel trestle.

The Passenger Car Shops are so planned that each car under construction or repair will occupy one bay of either building, with a liberal allowance between the cars for working. These two buildings will be parallel to one another, with a space of 100 ft. between occupied by a transfer table which will serve both. The construction will be of concrete foundations, brick walls with steel windows. The roofs are designed with monitors, which will run across the length of the building and so light and ventilate each individual bay. The large shop, which will be 325 ft. from the Twenty-eighth St. frontage, and 295½ ft. from the Griswold St. frontage, will be 304 x 135 ft. The smaller shop will be 238 x 135 ft.

The Cabinet Shop, 250 x 73 ft., will be at the end of the smaller car shop and facing the power house. It will be 2 stories, and of similar construction to the passenger car shops.

Sanitary accommodation and lockers will be provided in each building, for a full complement of workmen. Ample storage spaces for steel, wheels, lumber, etc., have been allowed for, and the layout generally has been planned with special attention to economical working.

The Railway Traffic Congestion in Ontario and Quebec.

The Premier submitted in the House of Commons on Feb. 7 a memorandum from the Chief Railway Commissioner, Sir Henry Drayton, which was referred to the Board of Railway Commissioners' judgment of Jan 8, published in Canadian Railway and Marine World for February, said:—The following statement gives the number of trains cancelled, locomotives released, crews released, and reduction of train mileage daily and weekly, with the resultant approximate coal saving on the Canadian Pacific, Grand Trunk, and Canadian Northern Railways:

	C.P.R.	G.T.R.	C.N.R.
Trains cancelled	59	57	18
Locomotives released	24	28	12
Crews released	27	19	15
Train miles reduced daily	3,611	3,409	1,924
Train miles reduced weekly	25,280	23,866	11,544
Approximate coal saving in tons per week	1,204	1,137	577

The above statistics, as reported by the railway companies, are confirmed by present time tables and the observations of the Board's operating department. All the equipment available has been put in freight service, but the freight service has not enjoyed the full benefit of the additions, owing to the fact that the companies have been running for some time at high pressure, with locomotives so busy that they were not being repaired as and when they should, with the result that a comparatively large number of locomotives are now under repair.

The weather conditions have been such that the anticipated movement has not been obtained. Effective steps were taken to increase the supply of coal, coke, and raw materials for munition works by the car ferries over Lake Erie. The sudden piling up of ice entirely prevented this movement. For the first time in some 30 years even passenger ferries at Detroit were either unable to run or were impeded in their work, and for some time the car ferries running between Windsor and Detroit had to cease operation.

Coincident with the reduction of passenger service, weather conditions became and have continued bad and transportation rendered difficult. These difficulties have been the more acute owing to the shortage of labor. The different yards at terminal and transfer points were blocked with snow. The snow was not removed while in a soft condition, as the railways claim owing to a shortage of men, and the work of cleaning up the yards at once became both expensive and difficult. At Messina Springs, for example, the G.T.R. reported on Feb. 6 that they could get only a limited number of men to dig out coal cars, urgently required in Ottawa, although they were paying wages as high as $4 a day in view of the emergency.

The effect of weather conditions may be illustrated by the investigation held by the Board with reference to the service between Quebec and Chicoutimi. Weather conditions were, comparatively speaking, favorable for the period Jan. 1 to 13, both days inclusive. During that period the line under observation carried 538 passenger cars, 1,626 freight cars, and 25 snow ploughs, or a total of 2,189 cars. In making this total haul, 2,074 tons of coal were consumed. During the second period under observation, Jan. 14 to 24, both inclusive, there were moved over the line, 290 passenger cars, 1,620 freight cars, and 33 snow ploughs,—total 1,943 cars. In making this movement, and for an 11 day period as against 13 days in the first instance, no less than 2,626 tons of coal were consumed. As a result, it would seem that, during the second period, with 2 days less operation, 552 tons of coal were burned in excess of that consumed in the former period, although 246 less cars were carried.

The conditions today leave very much to be desired. The movement is not what it ought to be. Beyond all question it would have been a great deal worse had the passenger service not been reduced. The approximate amount of coal saved by reducing the service is 2,918 tons a week. These figures are not based upon extraordinary conditions, but upon ordinary operating conditions. If it had been at all possible to have maintained the old passenger service and carry on freight business, which I very much doubt, a much larger amount than this tonnage would have been required.

With the coal shortage common both to United States and Canadian points, differing only in degree at different centres, and with the railways, disappointed in their own coal movement, commandeering coal for the purpose of keeping their trains running, if the result of the decreased passenger service has merely enabled munition works and coal dealers to obtain the coal formerly consumed in the passenger service, rendering unnecessary, as the reduction does, confiscation of coal at least to that extent, on this ground alone the reduction of passenger service, in my view, was entirely justified. The reduction, however, has done more than this. It has enabled the railways, even under the present trying conditions, to continue the coal movement, to continue hauling a sufficient quantity of grain to be turned into flour for the overseas forces, and to continue the service to the munition plants, with the result that, although impeded, these most necessary activities have been carried on.

Objections have naturally been made to the reduced service, but I think I may say that wherever those members of the public who are complaining have learned the traffic conditions obtaining in the country, the necessity of keeping up the movement of food and munitions to the front and the supplying of coal and feed corn and other necessities to our own people, the reductions and all consequent inconveniences have been cheerfully accepted.

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, compared with those of 1915-16, from July 1, 1916:

	Gross Earnings	Expenses	Net Earnings	Increase
July	$3,834,200	$2,636,800	$1,197,400	$ 711,000
Aug.	3,684,900	2,612,900	1,072,000	614,300
Sept.	3,187,900	2,455,300	732,600	x177,300
Oct.	3,716,800	2,496,500	1,220,300	x36,700
Nov.	3,722,300	2,472,300	1,250,000	38,600
Dec.	3,485,400	2,661,600	823,800	x378,300
	$21,631,500	$15,335,400	$6,296,100	$ 771,600
Incr	$4,279,900	$3,508,300	$ 771,600	.....

Approximate earnings for Jan., $2,832,600, and for two weeks ended Feb. 14, $1,095,600 against $2,086,800, and $882,500 for same periods in 1916 respectively.

Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1915-16, from July 1, 1916:

	Gross Earnings	Expenses	Net Earnings	Increase
July	$12,247,440.39	$8,230,348.66	$4,017,091.73	$1,216,688.61
Aug.	13,570,467.31	8,102,680.46	5,467,786.85	2,025,472.13
Sept.	12,134,159.96	7,004,400.80	5,129,759.16	384,458.52
Oct.	13,237,086.36	7,562,346.99	5,674,739.37	x904,694.78
Nov.	13,401,943.90	7,837,983.76	5,563,960.14	x790,452.89
Dec.	12,426,867.44	7,405,438.83	5,021,428.61	x278,806.01
	$76,717,965.36	$45,843,199.50	$30,874,765.86	$1,250,578.72
Inc.	$10,247,801.52	$8,997,222.80	$1,250,578.72	.....

Approximate earnings for January, $9,941,000, and for two weeks ended Feb. 14, $4,070,000, against $8,380,000, and $3,788,000 for same periods 1916, respectively.

Grand Trunk Railway Earnings.

The aggregate traffic receipts of the system from Jan. 1 to Jan. 21, are:

	1917	1916	Inc.	Dec.
G.T.R. . ..	$2,502,040	$2,179,719	$322,321	.....
G.T.W.R. . .	461,573	467,418	.....	$5,845
D.G.H. & M.R.	151,204	152,694	.....	1,490
Totals . .	$3,114,817	$2,799,831	$314,986	.....

Approximate earnings for two weeks ended Feb. 14, $1,757,133, against $1,895,132 for same period, 1916.

Grand Trunk Pacific Ry. Earnings.

The approximate earnings of the Prairie Section, 916 miles for three weeks ended Jan. 21, were $223,104 against $228,958, for same period, 1916.

Mainly About Railway People Throughout Canada.

J. B. O'Brien, railway contractor, Renfrew, Ont., has been elected a director of the Dominion Permanent Loan Co., Toronto.

J. H. Tremblay, who died at Winnipeg, Feb. 8, was the contractor for the construction of the Canadian Northern freight sheds there.

Mrs. J. A. Phippen, mother of F. H. Phippen, K.C., General Counsel, Canadian Northern Ry., died at Belleville, Ont., Feb. 20, aged 81.

D. B. Hanna, Third Vice President, Canadian Northern Ry., has sold his house, Thornliebank, Castle Frank Road, Toronto, to G. H. Wood, of Wood, Gundy & Co., bond brokers, etc.

E. B. Thomas, heretofore President, Lehigh Valley Rd., has been appointed Chairman of the Board of Directors, and also acts as Chairman of the executive and finance committees.

R. G. Reid, General Superintendent, Reid Newfoundland Co., and Mrs. Reid, were passengers, en route for Montreal, on one of the company's trains which was wrecked near Glenwood, Nfld., Feb. 5.

F. M. Black, Calgary, Alta., Treasurer and Assistant Secretary of P. Burns & Co., Ltd., is reported to have been appointed a member of the Alberta Public Utilities Commission, in succession to the late John Stocks.

Edward E. Loomis, heretofore Vice President, Delaware, Lackawanna & Western Rd., has been appointed President, Lehigh Valley Rd., Philadelphia, Pa., vice E. B. Thomas, appointed Chairman of the Board.

A. S. McLean, who was appointed Assistant General Superintendent of Hotels, Canadian Northern Ry., Winnipeg, recently, was presented with a gold watch by the staff of the company's Prince Arthur Hotel, Port Arthur, Ont., where he had been Manager for some time.

Sir Melbourne Tait, formerly Chief Justice of the Superior Court of Quebec, who died suddenly at Montreal, Feb. 10, aged 75, was father of Sir Thomas Tait, President, Fredericton & Grand Lake Coal & Ry. Co., and of H. M. Tait, Assistant General Agent, Steamship Department, C.P.R., Calgary, Alta.

A. E. McMaster, who resigned as Division Freight Agent, Grand Trunk Pacific Ry., Edmonton, Alta., recently, on his appointment as Assistant Secretary, Canadian Manufacturers' Association, is spending some time in Ontario before going to British Columbia, where his office will be located. Early in February he was sent to Detroit to assist in the movement of coke and help generally in relieving congestion of traffic at the border.

Archie R. Kenyon, who has been appointed Travelling Passenger Agent, C.P.R., Boston, Maine, was born at Hyde Park, Mass., Mar. 31, 1891, and entered railway service, June 1, 1908, since when he has been, to June 1, 1909, ticket stock clerk, Boston & Maine Rd., Boston, Mass.; June 1, 1909, to Jan. 10, 1915, clerk and chief clerk, Advertising Department, same road; Jan. 10, 1915, to Jan. 1, 1917, excursion and rate clerk, same road.

Arthur John Hills, who has been appointed Assistant to the Executive, Canadian Northern Ry., Toronto, was born there, Feb. 15, 1879, and entered C.N.R. service in Apr., 1899, since when he has been, to June, 1901, Stores and Material Agent, Construction Department, in Manitoba; June, 1901, to Dec., 1903, clerk, General Superintendent's office, Winnipeg; Dec., 1903, to Jan., 1908, in Third Vice President's office, Toronto; Jan., 1908, to July, 1914, Superintendent, C.N. Ontario Ry., Toronto; July, 1914, to Aug., 1916, General Superintendent, Eastern Lines, Toronto; Aug., 1916, to Feb. 10, 1917, in Third Vice President's office, Toronto.

J. E. Duval,
General Superintendent of Transportation, Grand Trunk Railway.

C. Kelso,
Master Mechanic, Grand Trunk Railway, Stratford, Ont.

J. E. Duval, who has been appointed General Superintendent of Transportation, G.T.R., Montreal, entered transportation service, Nov., 1884, as agent and operator, Canada Atlantic Ry., now part of the G.T.R., Coteau Landing, Que., and from May, 1885, to 1902, was train dispatcher; 1902 to 1904, Chief Inspector, Board of Railway Commissioners; and in 1906 he organized the Canadian Car Service Bureau, of which he was appointed Manager, and held that position until Aug. 1, 1913, when he was appointed General Superintendent of Car Service, G.T.R., Montreal.

Lady Tait, wife of Sir Thomas Tait, is the principal beneficiary under the will of her mother, Mrs. G. R. R. Cockburn, who died in Toronto recently, leaving an estate valued at $345,826. Sir Thomas Tait was bequeathed $1,000, and there were also several other personal and charitable bequests. Lady Tait receives a life interest in property in Wheeling, Va., which at her death reverts to her daughter. She also receives the household goods and personal effects, except a diamond necklace bequeathed to Miss Tait. The Wheeling property, at her death, reverts to her daughter, and she and her daughter share equally in the residue of the estate.

Christopher Kelso, who has been appointed Master Mechanic, G.T.R., Stratford, Ont., was born at Liverpool, Eng., Mar. 17, 1876, and came to Canada in 1891, completing his education at the High School, Kingston, Ont. He entered Canadian Locomotive Co.'s service, on leaving school, and remained there for ten years. He subsequently entered Canada Foundry Co.'s service at Toronto, remaining three and a half years, and entered G.T.R. service Sept. 2, 1909, at Stratford, Ont., and has since acted there in various capacities. He recently completed the revising and installing of the present bonus efficiency system, which is in force throughout the system.

John B. Livingston, who has been appointed Storekeeper, Western Lines, G.T.R., Battle Creek, Mich., was born at Point Edward, Ont., Apr. 9, 1873, and entered G.T.R. service, Nov. 10, 1887, since when he has been, to Feb. 16, 1891, clerk, Stores Department; Feb. 17, 1891, to June 30, 1896, fuel foreman; July 1, 1896, to Apr. 30, 1897, chief clerk Stores Department; May 1, 1897, to Oct. 31, 1898, clerk, Motive Power Department; Nov. 1, 1898, to Jan. 31, 1906, Storekeeper; Feb. 1, 1906, to Oct. 31, 1908, chief clerk, Motive Power Department, all at Fort Gratiot, Mich; Nov. 1, 1908, to Jan. 31, 1917, chief clerk, Motive Power Department, Battle Creek, Mich.

William J. Sturges, whose appointment as acting Assistant Purchasing Agent, Grand Trunk Pacific Ry., Winnipeg, was announced in our last issue, was born at Fairfield, Vt., Aug. 28, 1877, and entered transportation service in Apr., 1897, since when he has been, to Apr., 1898, clerk, Master Mechanic's office, Ogdensburg & Lake Champlain Ry., Malone, N.Y.; Apr., 1898, to Dec., 1899, billing clerk, Canada Atlantic Transit Co., Depot Harbor, Ont.; Jan., 1900, to Nov., 1907, accountant, Stores Department, Central Vermont Ry., St. Albans, Vt.; Nov., 1907, to Apr., 1914, storekeeper, Grand Trunk Pacific Ry., Portage

la Prairie, Man.; Apr., 1914, to Jan. 11, 1917, storekeeper, same road, Transcona, Man.

John E. Long, who has been appointed Secretary, Canadian Government Railway's Centre, St. John's Ambulance Association, Moncton, N.B., was born at New Scotland, N.Y., Oct. 28, 1883, and entered railway service, Aug. 15, 1901, since when he has been, to Jan. 7, 1907, telegraph operator and station agent, New York Central Rd., at various points on the Mohawk Division; Jan. 1, 1907, to Apr. 1, 1909, Travelling Car Agent, same road, Rochester, N.Y.; Apr. 1, 1909, to Dec. 31, 1913, engaged in personal injury accident work in the Law Department, same road, Utica, Syracuse and New York; Jan. 1, 1914, to Feb. 1, 1917, Safety Engineer, Canadian Government Railways, Moncton, N.B.

Arthur T. Smith, whose appointment as Travelling Freight and Passenger Agent, Canadian Northern Ry., Halifax, N.S., was announced in our last issue, was born at Burlington, N.S., June 13, 1888, and entered railway service, Mar. 21, 1907, since when he has been, to Mar., 1908, clerk and stenographer, Halifax & Southwestern Ry., Bridgewater, N.S.; Mar., 1908, to 1909, claim clerk, same road, Halifax, N.S.; 1909 to 1911, clerk and secretary to General Manager, same road, and Eastern Lines, Canadian Northern Ry., Halifax, N.S.; 1911 to 1913, chief claim clerk and coal sales clerk, H. & S.W.R., and Inverness Ry. & Coal Co., Halifax, N.S.; 1913 to Jan., 1917, chief clerk, Traffic Department, H. & S.W.R., Halifax, N.S.

Reginald William Douglas Harris, who has been appointed Trainmaster, Moose Jaw Division, Saskatchewan District, C.P.R., Moose Jaw, was born at Victoria, B.C., Dec. 12, 1879. He was from 1897 to 1904, with the Bank of British North America in Victoria and Vancouver, and from 1904 to June, 1905, was engaged in civil engineering, as assistant to F. J. Ritchie, D.L.S., in British Columbia. He entered C.P.R. service in June, 1905, since when he has been, to June, 1906, wiper, Field, B.C.; June, 1906, to June, 1911, fireman, Revelstoke, B.C.; June, 1911, to Apr., 1914, locomotive man, Revelstoke, B.C.; Apr., 1914, to May, 1916, Trainmaster, Wilkie, Sask.; May, 1916, to Feb. 2, 1917, Trainmaster, Kenora Division, Manitoba District, Ignace, Ont.

Woodville N. Ingram, whose appointment as Master Mechanic, District 4, Intercolonial Division, Canadian Government Railways, Stellarton, N.S., was announced in our last issue, was born at Harcourt, N.B., Mar. 15, 1877, and entered the Government Railways service, Oct. 8, 1899, since when he has been, to Jan. 27, 1900, wiper, Moncton, N.B.; Jan. 27, 1900, to Apr. 4, 1905, fireman, Moncton, N.B.; Apr. 4, 1905, to May 1, 1906, locomotive man, Moncton, N.B.; May 1 to Nov. 1, 1906, instructor of firemen, Riviere du Loup, Que.; Nov. 1, 1906, to Jan. 1, 1908, instructor of firemen, Moncton, N.B.; Jan. 1, 1908, to Jan. 1, 1915, locomotive man, Moncton, N.B.; Jan. 1, 1915, to July, 1916, travelling locomotive man, Montreal; July to Dec. 14, 1916, Master Mechanic, District 5, Intercolonial Division, Edmundston, N.B.

F. D. Fitzmaurice, who was appointed Assistant General Superintendent, Eastern Grand Division, New York, New Haven & Hartford Rd., recently, was born at Bedford, N.S., Aug. 2, 1865, and entered railway service in 1881, with the Intercolonial Ry., remaining with that road until 1884; May, 1884, to July 1, 1891, operator, New York & New England Rd., Boston, Mass.; July 1, 1891, to 1903, dispatcher, same road; 1903, Chief Dispatcher, same road; 1903 to 1907, Assistant Superintendent, Norwich Division, New York, New Haven & Hartford Rd.; 1907 to Aug., 1912, Trainmaster, same road, New Haven, New York, Harlem River and other points; Aug., 1912, to May 25, 1914, Superintendent, Western Division, same road, Waterbury, Conn.; May 25, 1914, to Jan. 8, 1917, Superintendent, Providence Division, same road.

A. R. Macgowan, A.M.Can.Soc.C.E., who has been appointed Superintendent, District 5, Intercolonial Division, Canadian Government Railways, Edmundston, N.B., was born at Moncton, N.B., Jan. 16, 1883, and entered railway service in 1899, since when he has been, to June, 1902, clerk in Accountant and Treasurer's office, Intercolonial Ry., Moncton, N.B.; June, 1902, to Mar., 1905, rod man and transit man, I.R.C., Moncton, N.B.; Mar., 1905, to Jan., 1906, contractor's engineer, North Maine Seaport Ry., Bangor Me.; Jan. to Nov., 1906, Resident Engineer, Somerset Ry., Moosehead, Me.; Nov., 1906, to May, 1915, Assistant Engineer, I.R.C., Moncton, N.B.; May, 1915, to Jan., 1916, Division Engineer, I.R.C. and Prince Edward Island Ry., Moncton, N.B.; Jan. to July, 1916, Principal Assistant Engineer, Canadian Government Railways, Moncton, N.B.

J. M. McKay, who has been appointed Superintendent, Saskatoon Division, Saskatchewan District, C.P.R., Saskatoon, was born at Tiverton, Ont., Mar. 13, 1868, and entered railway service in Sept., 1895, since when he has been, to May, 1897, brakeman, Northern Pacific Ry., Winnipeg; May, 1897, to Sept., 1899, brakeman, C.P.R., Winnipeg; Sept., 1899, to Mar., 1906, conductor, C.P.R., Winnipeg; Mar., 1906, to June 10, 1911, Trainmaster, District 2, Central Division, C.P.R., Winnipeg; June 10, 1911, to June 10, 1912, acting Superintendent of Terminals, C.P.R., Winnipeg; June 10 to Aug. 1, 1912, Trainmaster, District 2, Manitoba Division, C. P.R., Wininpeg; Aug. 1 to Dec. 14, 1912, Trainmaster, District 1, British Columbia Division, C.P.R., Revelstoke; Dec. 14, 1912, to Feb. 2, 1917, Superintendent, Revelstoke Division, British Columbia District, C.P.R., Revelstoke.

William C. Paul, whose appointment as Assistant Trainmaster, Algoma Central & Hudson Bay Ry., Steelton, Ont., was announced in our last issue, was born at Coldstream, Ont., Dec. 22, 1889, and entered railway service Feb. 1, 1907, since when he has been, to Sept., 1908, car checker, Algoma Central & Hudson Bay Ry., Tagona, Ont.; Sept., 1908, to May, 1910, clerk, General Superintendent's office, same road, Sault Ste. Marie, Ont.; May, 1910, to Feb., 1911, accountant, same office, same road, Sault Ste. Marie, Ont.; Feb., 1911, to Oct. 1914, chief clerk, Superintendent's office, same road, Sault Ste. Marie, Ont.; Oct., 1914, to May, 1916, chief clerk, General Superintendent's office, same road, and Algoma Eastern Ry., Sault Ste. Marie, Ont.; May to Dec., 1916, chief clerk, General Manager's office, A.C. & H.B.R., Sault Ste. Marie, Ont.; Dec., 1916, to Jan. 15, 1917, chief clerk, General Superintendent and Chief Engineer's office, same road, Sault Ste. Marie, Ont.

H. B. Fleming, who has been appointed Chief Dispatcher, District 5, Intercolonial Division, Canadian Government Railways, Edmundston, N.B., was born at Moncton, N.B., in 1858, and entered railway service in 1873, since when he has been, to 1874, in stationery stores department, Intercolonial Ry.; 1874 to 1878, relieving operator and station agent, I.R.C.; 1878 to 1879, relieving dispatcher, I.R.C., at Truro, N.S., Moncton and Campbellton, N.B.; 1879 to 1898, dispatcher, Halifax and St. John Division, I.R.C., Moncton, N.B.; 1898 to Nov. 7, 1912, Chief Dispatcher, Springhill and St. John Division, I.R.C.; Nov. 7, 1912, to Sept., 1913, Assistant Superintendent, Halifax and St. John Division, I.R.C., Moncton, N.B.; Sept., 1913, to Nov., 1914, Superintendent, National Transcontinental Ry., between Moncton and Edmundston, N.B.; Nov., 1914, to July, 1916, Superintendent, District 5, Intercolonial Division, Canadian Government Railways, Edmundston, N.B.

John Stocks, one of the Public Utility Commissioners for Alberta, died suddenly at Edmonton, Alta., Feb. 9. He was born at Sherrington, Que., in 1858, and spent his younger days in the vicinity of Sherbrooke, Que. In 1881, he entered the employ of a construction company, which subsequently merged with C.P.R. interests, and went to the west in that service. After a couple of years as foreman of construction, he was promoted, and subsequently became Superintendent of Construction and Maintentenance on the C.P.R., from Swift Current, Sask., to Laggan, B.C. In 1901, he was appointed Chief Engineer for the old Northwest Territorial Government, and subsequently became Deputy Minister of Public Works, which position he held until the formation of the Province of Alberta, in 1905, when he was appointed Deputy Minister of Public Works for the province. He resigned that position in Oct., 1915, on his appointment as one of the members of the Alberta Public Utility Comission, just then formed.

H. J. Humphrey, who has been appointed acting Superintendent, Laurentian Division, Quebec District, C.P.R., Montreal, was born at Berry's Mills, N.B., Jan. 26, 1879, and entered railway service in June, 1896, since when he has been, to Aug., 1897, telegraph operator at various points, Intercolonial Ry.; Aug., 1897, to Aug., 1901, telegraph operator, Boston & Maine Rd.; Aug., 1901, to Apr., 1902, telegraph operator, Intercolonial Ry.; May 9, 1902, to Sept. 6, 1903, telegraph operator, C.P.R., Calgary, Alta.; Sept. 6, 1903, to June 1, 1907, dispatcher, C.P.R., Calgary, Alta.; June 1, 1907, to Nov. 1, 1909, dispatcher, C.P.R., Medicine Hat, Alta.; Nov. 1, 1909, to Apr. 10, 1911, dispatcher, C.P.R., Calgary, Alta.; Apr. 10, 1911, to July 1, 1912, Chief Dispatcher, C.P.R., Macleod, Alta.; July 1, 1912, to Jan. 8, 1915, Car Service and Fuel Agent, Saskatchewan Division, C.P.R., Moose Jaw; Jan. 8, 1915, to Jan. 1, 1916, Superintendent of Car Service, Western Lines, C.P.R., Winnipeg; Jan. 1 to Nov. 6, 1916, Superintendent of Car Service, Eastern Lines, C.P.R., Montreal; Nov. 6, 1916, to Feb., 1917, Superintendent, Farnham Division, Quebec District, C.P.R., Farnham.

J. G. Taylor, who died at Moose Jaw, Sask., recently, was General Superintendent, Saskatchewan Division, C.P.R., Moose Jaw, until he retired, May 1, 1916, on account of ill health. He was born at Ottawa, Ont., Aug. 1, 1860, and spent several years in Northern Pacific Ry. service at Wilmer, Missoula and Spokane. He entered C.P.R. service in May, 1878, as operator and dispatcher at Ottawa, and resigned in 1882. He re-entered C. P. R. service in May, 1899, as agent at Elko, B.C., and from Aug., 1889, to May,

1900, was dispatcher at Cranbrook, B.C. From May, 1900, to Sept. 1, 1902, he was Inspector in connection with train miles, and later was acting Superintendent, Brandon, Man.; Apr. 1, 1903, to Aug. 8, 1904, Superintendent, Cranbrook, B.C.; Aug. 8, 1904, to Mar. 1, 1907, Assistant Superintendent, Brandon, Man., and Fort William, Ont.; Mar. 1, 1907, to Feb. 17, 1908, Superintendent, Fort William Terminals; Feb. 17, 1908, to Nov. 1, 1909, Superintendent, Moose Jaw, Sask.; Nov. 1, 1909, to Jan. 1, 1911, Superintendent, Medicine Hat, Alta.; Jan. 1, 1911, to Apr. 20, 1912, General Superintendent, Lake Superior Division, North Bay, Ont.; Apr. 20, 1912, to May 1, 1916, General Superintendent, Moose Jaw, Sask.

William Lyon Mackenzie, Bridge Engineer, Western Lines, Canadian Northern Ry., Wininpeg, died suddenly at his home there, Feb. 6. He had been engaged in his customary duties during the day, and there was no indication of ill health. He was born at Galt, Ont., Apr. 2, 1860, and commenced railway service in May, 1879, since when he was, to Dec., 1879, rod man on construction, Credit Valley Ry.; Jan., 1881, to Feb., 1882, rod man and transit man on location, Toronto & Ottawa Ry.; Apr., 1882, to July, 1884, Assistant Engineer on construction, Northern & Pacific Jct. Ry.; May, 1887, to Jan., 1889, Assistant Engineer on Construction, International Ry. of Maine (C.P.R. Short Line); May, 1889, to Jan., 1890, transit man on location, Toronto, Hamilton & Buffalo Ry.; Feb., 1890, to Apr., 1891, Assistant Engineer on construction, Charleston, Cincinnati & Chicago Ry., in Tennessee; 1892 to 1897, Assistant Engineer on construction, C.P.R. Branch Lines in Ontario; Jan., 1898, to June, 1900, Assistant Engineer on construction, British Columbia Southern Ry.; July, 1900, to Feb., 1903, Assistant Engineer and Locating Engineer, Canadian Northern Ry.; Mar., 1903, to the time of his death, Bridge Engineer, Western Lines, Canadian Northern Ry., Wininpeg. He was educated at the Galt Collegiate Institute, Galt, Ont., and the University of Toronton, whence he graduated as a civil engineer. He was a member of the Canadian Society of Civil Engineers from 19108, and was President elect of the Manitoba Branch of that society for the current year. The funeral at Winnipeg, Feb. 9, was attended by numerous representatives of the various railway companies there.

M. B. Murphy, who has been appointed Manager, Winnipeg Joint Terminals, Canadian Northern, Canadian Government and Grand Trunk Pacific Railways, was born at Napa, Cal., Sept. 11, 1866, and entered railway service, Jan. 24, 1880, since when he has been, to Jan., 1895, successively, operator, agent, brakeman, conductor, yardmaster, dispatcher, chief dispatcher, and connected with the construction department in charge of construction of the Nantaskett Branch, Union Pacific Rd.; Jan., 1895, to Mar., 1898, county clerk, Carbon County, Wyo.; and subsequently enrolling and engrossing clerk in charge of compilation of session laws of fourth Legislature of Wyoming; Mar. to July, 1898, dispatcher, Union Pacific Rd.; July to Nov., 1898, in charge of locomotive performance statistics, Chicago, St. Paul, Minneapolis & Omaha Ry., Itasca, Wis.; Nov., 1898, to Jan. 16, 1899, operator and dispatcher, Eastern Minnesota Ry., West Superior, Wis.; Jan. 16, 1899, to July 31, 1900, dispatcher and Chief Dispatcher, Northern Pacific Ry., Staples, Minn., and Glendive, Mont.; July 31, to Nov., 1900, Chief Dispatcher, Union Pacific Rd., Green River, Wyo.; Nov., 1900, to Jan., 1903, Chief Dispatcher, Denver & 1903, Rio Grande Rd., Minturn, Col.; Jan. 1903, to Sept. 30, 1906, Chief Dispatcher and Trainmaster, El Paso & Northeastern Rd., Alamogordo, New Mexico; Sept. 20, 1906, to Jan. 1, 1910, Trainmaster, Mexican Central Ry., Chihuahua, Mexico; Jan. 1 to Apr., 1910, General Yardmaster, Omaha, South Omaha and Council Bluffs terminals, Chicago & Great Western Ry.; May 1, 1910, to Feb. 27, 1911, Trainmaster, District 2, Central Division, Canadian Northern Ry., Winnipeg; and during Aug. and Sept., 1910, acting Superintendent, C.N.R., Winnipeg; Feb. 27 to Nov., 1911, Superintendent, Duluth, Winnipeg & Pacific Ry., Virgina, Minn.; Nov., 1911 to Sept., 1915, Superintendent, District 2, Central Division, Canadian Northern Ry., Winnipeg; Sept., 1915, to Jan., 1917, Superintendent, District 4, Western Division, same road, Calgary, Alta.

Traffic Orders by Board of Railway Commissioners.

Interchange Track at Calgary.

25837, Jan. 29. Re order 24191, Sept. 17, 1915, directing the C.P.R. to give up possession of the land necessary to enable the Grand Pacific Ry. to build interchange track and make connection with C.P.R. track near the Globe elevator, Calgary, Alta., as shown on plan approved by order 24085, Aug. 19, 1915; and the application of the G.T.R. for an order apportioning the cost of the maintenance of the interchange track: It is ordered that the cost of maintaining the said change track, constructed under orders 24085 and 24191, be borne and paid by the G.T.P.R. Co.

Freight Rate on Feldspar.

25846, Feb. 2. Re complaint of A. E. Hanna, M.P., of Perth, Ont., against rate quoted by C.P.R. on feldspar from Maberly or Mud Lake to East Liverpool, Ohio: It is ordered that the rate to be charged by the C.P.R. on feldspar, in carloads of the minimum weight of 25 net tons, from Maberly, Ont., to East Liverpoor, Ohio, be $3.04 per net ton; and that the schedule to give effect to this order be published and filed not later than Feb. 10.

Minimum Weight for Logs.

25847. Re complaints of Hay & Co., of Woodstock, Ont., and of J. H. Still Manufacturing Co. of St. Thomas, Ont., that they are unable to load a 36- ft. flat car with logs to a minimum of 50,000 lbs.: It is ordered that the complaints be dismissed.

Shingle Rates from British Columbia.

25852. Re application of Shingle Agency of British Columbia, on behalf of shingle manufacturers of British Columbia for an order requiring railway companies to furnish a milling and sorting-in-transit rate: Upon hearing the application at Vancouver, June 26, 1916, the applicants and the Canadian Pacific, Canadian Northern and Great Northern Railway Companies being represented, it is ordered that the application be refused.

Timber Rates from Midland.

25861. Re application of Allegheny Lumber Co. of Pittsburg, Pa., for an order directing the G.T.R. to put into effect a through rate of freight on lumber from Midland, Ont., to Cleveland, Ohio, and to authorize reparation to the same basis on past ships. Upon hearing the application at Toronto, Oct. 5, 1916, the G.T.R. being represented, no one appearing for the applicant, and what was alleged; and upon reading what has been filed in support of the application and on behalf of the G.T.R., and the report of the Chief Traffic Officer of the Board, and its appearing that the rate from Midland to Cleveland, complained of, is unjustly discriminatory against Midland and in favor of Penetang, Ont., it is ordered that the application for a refund be dismissed, that the G.T.R. desist from charging a greater rate on lumber, in carloads, from Midland to Cleveland, Ohio, than it publishes and charges to the same point from Penetang.

Rates on Canned Goods and Hardware.

25872, Feb. 20. Re application of Vancouver and Victoria Boards of Trade, Dominion Canners, Limited, Glasco, Limited, Oakville, Ont., and the City of Victoria, for an order postponing the proposed increase in the commodity freight rates on canned goods and hardware from Eastern Canada to points on the Pacific coast of British Columbia, as set out in Supplement 3 to Canadian Freight Association Westbound Tariff 1, effective Feb. 12, 1917. Upon reading what is filed in support of the applications and on behalf of the Canadian Freight Association, it is ordered that the application be refused.

Revised Express Classification.

General Order 180, Jan. 30. Re application of Express Traffic Association of Canada, on behalf of the express companies subject to the Board's jurisdiction, for approval of revised Supplement 10 to Express Classification for Canada, C.R.C. 3 (first submitted as no. 8); also including therein Supplement 11 (first submitted as no. 10), omitting the proposed conditions of carriage relating to carload waggon service and pick-up and delivery service, and Supplement 12 (first submitted as no. 11), omitting items relating to cigars, cigarettes and tobacco. Upon its appearing that objections to certain of the proposed changes in rules and ratings were, by consent of the parties represented at the hearings in Winnipeg, June 12, 1916, Saskatoon, June 14, 1916, and Edmonton, June 15, 1916, left to be settled between the interested parties in Eastern Canada, and those affected by the proposed changes, as they now appear in the said revised Supplement 10, having notified the Board of their consent thereto, it is ordered that the said revised Supplement, submitted to the Board by C. N. Ham, Secretary, Express Traffic Association of Canada, with his letter of Jan. 16, 1917, attached hereto and marked A, be approved.

Excursion Rates Prohibited. — The Chief Railway Commissioner for Canada, Sir Henry Drayton, wrote the Canadian Northern, Canadian Pacific and Grand Trunk Railways recently as follows: "I am writing to remind you of the fact that, during the period of congestion and reduced passenger service, it was clearly understood and directions given that no excursion or reduced rates were to be put into effect. On the other hand, passenger traffic was to be discouraged instead of encouraged, so that the freight congestion might be relieved. I assume that your company is not contemplating any reduced or excursion rates whatever either now or prior to April 30."

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

Alberta & Great Waterways Ry.—A press report, dated Jan. 30, stated that the track laying going ahead reached mileage 231, or 59 miles from McMurray, Alta. It was expected to complete the track laying to that point before the end of the winter. (Feb., p. 50.)

Alberta-Hudson Bay Ry.—The High River and Hudson Bay Ry. is applying to the Alberta Legislature to change its name to the Alberta-Hudson Bay Ry., to extend the time for the building of its projected railway from High River to the Alberta-Saskatchewan boundary, and for authority to build the following extensions or branches: From near Black Diamond, in Tp. 20, Range 2, west 4th Meridian, southerly to Lundbreck, or Cowley or the Crows Nest Southern Ry., thence to the Alberta-British Columbia boundary at the South Kootenay or Kishenchna Pass; from Lundbreck or Cowley southerly to the International Boundary near Waterton Lakes; from Lundbreck or Cowley southeasterly to Pincher Creek, Cardston and Coutts, thence easterly through Tps. 1, 2 and 3 to the Alberta-Saskatchewan boundary; from Cardston to Lethbridge; from Tps. 1 or 2, between Ranges 3 and 10, to Medicine Hat, thence northerly to Tp. 17 or 18 in Ranges 1, 2, 3 or 4, west of the fourth meridian. Power is also asked to increase the capital stock to $8,000,000. F. Crandell, Calgary, is General Manager. (See High River & Hudson Bay Ry.

British Columbia & White River Ry.—The Dominion Parliament is being asked to extend the time for construction for this projected railway from Bear Creek, where it is to cross the International Boundary between Alaska and British Columbia, to the Chilkat River, thence northwesterly to the Alsete River, through the Shakwak valley to Lake Kluane, along the Donjek valley to the White River, thence to the International Boundary between the Yukon Territory and Alaska between the 62nd and the 64th parallels of latitude. The provisional directors named in the act of incorporation, passed 1911, are: C. M. Marpole, G. E. MacDonald, Angus McDonnell, Jas. Ironside, Vancouver, B.C., and J. Rosene, Seattle, Wash. (May, 1915, pg. 170.)

Bonanza Coal & Coke Co.—The Alberta Legislature is being asked to incorporate a company with this title with power, among other things, to build a railway from Crowsnest station on the C.P.R., through the south half of Section 13, Tp. 7, Range 6, west of the 5th Meridian. MacKay, McDonald & Co., Edmonton, Alta., are solicitors for applicants.

Cascade Scenic Ry.—The provisional directors named in the bill before the Dominion Parliament for the incorporation of a company with this title are: T. R. Deacon, E. J. Burleigh, J. A. McCullough, E. Anderson, Winnipeg. The offices are to be at Winnipeg, and the capital is fixed at $250,000. The company is formed for the purpose of acquiring from T. R. Deacon the rights granted him by the Dominion Government of a conditional license for the occupation of lands for right of way, station and rest house on Cascade Mountain, at Banff, Alta.; to build the railway and to operate the same. (Jan., pg. 19.)

The Central Canada Rd. & Power Co. is asking the Manitoba Legislature to extend the time within which it may build its projected electric railway from the northern or eastern boundary of Winnipeg to Selkirk, and from either Winnipeg or Selkirk to points on the Winnipeg River, and to Lake Winnipeg via Selkirk or otherwise by a route outside the city of Winnipeg. This was the line as laid out by chap. 56 of the statutes of 1905, which also gave the company power to acquire running rights over other companies' lines. In 1911 the act was amended by authorizing the company to build a railway from Winnipeg to St. Boniface northeasterly to the Winnipeg River in Typs. 17, 18 or 19, thence to the northern boundary of the province, with branch lines to Lake Winnipeg, subject to the approval of the Lieut.-Governor in council. The provisional directors named in the original act are: J. D. McArthur, Jas. Tees, J. S. Gray, W. A. Ducker, H. E. Carstens, W. W. McLeod, I. Pitblado, G. C. Mills, A. N. McPherson, Winnipeg.

The bill now before the Manitoba Legislature asks for the confirmation of the powers conferred by the original and the amending acts, and for the extension of time for the construction of the railway authorized by the amending act of 1911. It would seem therefore that the power to build the electric railway has lapsed, and that the company seeks only power to extend the time for building the steam railway except for the provisions of sec. 3 of the bill, which says:—"The corporate existence of and all the powers and privileges granted to the company by its act of incorporation, 4-5 Edward VII, chap. 56, and by the act amending the same, 1 George V, chap. 80, are hereby re-enacted, and the same are hereby declared, notwithstanding anything contained in the said act of incorporation and amendment, or in The Manitoba Railway Act, to be in full force and effect." The second reading of the bill was debated in the Legislature, after a division, Feb. 8. (April, 1911, pg, 365.)

Central Canada Saskatchewan Ry. — The Saskatchewan Legislature is being asked to incorporate a company with this title to build a railway from the western boundary of the province in Tps. 61, 62 or 63 easterly to Tps. 61 or 62, Range 8 west of the 3rd Meridian, thence southeasterly to Prince Albert, and any extension of the said line, or other lines as the company may be authorized to build, as may be designated by the Lieutenant Governor in council. The capital of the company is fixed at $1,000,000, with bonding powers for $20,000 a mile; its office is to be at Regina, and the provisional directors are: J. D. McArthur, W. P. McDougall, D. W. Campbell, R. A. Hazelwood and J. K. McLennan. This company is an offshoot of the Central Canada Ry., which is being built in Alberta, by the same interests, which company is applying to the Alberta Legislature for power to build a line to the Alberta-Saskatchewan boundary. (Feb., pg. 50.)

Dominion Government Railway to Hudson Bay.—$3,000,000 has been placed in the Dominion estimates for expenditure during the current year on the construction of the railway, now building from Pas to Port Nelson, the terminals and a grain elevator. Of that sum $750,000 was voted on account Feb. 1 by the House of Commons.

R. McArthur, one of the contractors on the line, is reported to have said, Jan. 30, that the railway will be completed this year. There is about 9 miles of grading to be completed, about 90 miles of track yet to lay, and 2 single span bridges to be built in addition to the one under construction at Kettle Rapids on the Nelson River. (Jan., pg. 19.)

Edmonton, Dunvegan & British Columbia Ry.—The material for the big bridge at Peace River is being hauled in and work is reported to be in progress on the river banks, getting ready for starting work on putting in the substructure. It is reported that arrangements have been completed between the company and the government for the provision of facilities for general traffic over the bridges. An announcement of the terms upon which this will be done will be made when the government's railway legislation is brought down. (Feb., pg. 50.)

Esquimalt & Nanaimo Ry.—The City of Victoria, B.C., is applying to the Board of Railway Commissioners for vehicular rights over the E. & N.R. bridge, in connection with what is known as the new Johnson St. bridge, and the Attorney General of the province has consented to intervene in order that a question of public right may be settled. The bridge was originally built in 1887, and it is claimed that it was then understood that the public were to have vehicular rights over it. These rights do not seem to have been exercised, or the circumstances under which they were to have been exercised do not appear to have arisen. With the opening up of the Songhees Indian reserve for railway and public purposes, a new condition arose, and the Johnson St. bridge was planned as a general traffic and railway bridge. The adjustment of matters as to the bridge has been under discussion between the city council and the C.P.R., which owns the E. & N.R., for nearly a couple of years. (Jan., pg. 19.)

Essex Terminal Ry.—We are officially advised that it is not thought probable there will be any work done on the proposed extension from Ojibway to Pelton, Ont., this year, but the matter is not yet finally settled. The extension into Ojibway, completed in 1916, has been passed by the Board of Railway Commissioners for operation. (Feb., pg. 50.)

Grand Trunk Ry.—A press report states that construction on the Southern New England Ry., a subsidiary of the Central Vermont Ry., itself a subsidiary of the G.T.R., will be resumed at an early date, and that the line from Palmer, Mass., to Providence, R.I., will be completed.

A suggestion has been made in Hamilton, Ont., that the company should abolish its cross town line, on Ferguson Ave., or build a subway on King St.

The Brantford, Ont., City Council has passed a resolution directing its Railway Committee to make formal application to the Board of Railway Commissioners for the construction of a subway under the tracks at St. Paul's Ave.

A press report states that the company will instal a mechanical interlocking plant at Frazier, Mich., to consist of a 20-lever frame interlocking machine, having 4 levers for 4 home signals, 2 levers for 2 dwarf signals, 5 levers for 6 derails, and 4 levers for 4 facing point locks. The layout will include 2 one-arm, two-position, lower quadrant mechanical signals, 2 two-arm, two-position upper quadrant mechanical home signals, 2 one-arm, two-position, mechanical dwarf signals, and 2 one-arm, three-position, distant signals. Four disc and 2 semaphore type indicators will be installed in the tower. (Feb., pg. 50.)

Great Northern Ry.—It is expected that the new station at the False Creek flats, Vancouver, will be completed and ready for occupancy in May.

The locomotive house under construction will have accommodation for 10 locomotives, and the building is so arranged that accommodation for an additional locomotive can be added. In connection with this building a repair shop is being built. (Feb., pg. 50.)

Intercolonial Ry.—The Minister of Railways stated in the House of Commons recently that $96,360.26 had been expended since Jan. 1, 1915, for improving grades and alignment, and $677,791.08 had been expended for building heavier bridges and culverts and strengthening the old ones.

The Minister of Railways stated in the House of Commons, Feb. 1, that the elimination of level crossings at Trenton, N.S., had been given consideration and a sum had been placed in the estimates for the year to provide funds for the building of a subway north of the Eastern Car Co.'s works there.

Tenders are under consideration for putting in the substructure of a new bridge across the Gaspereaux River, N.B. (Dec., 1916, pg. 484.)

Kitsault River.—Application has been made to the B. C. Government by L. W. Patmure, et al, Prince Rupert, for permission to build a narrow gauge line in the Alice Arm district, from the coast about 18 miles up the valley of the Kitsault River, to the Dolly Varden claims. The applicants desire to lay the line along a roadway which they had built. The government is favorable to the building of the line, which will carry ore and freight, but not passengers, and has authorized an investigation, and if this is favorable to the project, will grant the necessary permission.

Maine Central Rd.—Application has been made to the Maine Legislature to authorize the company to build a branch line from near Bancroft, on the European & North American Ry., which the M.C.R. leases, northerly and northeasterly through Haynesville, Weston and Orient, Aroostook County, to the easterly boundary of the state, and to connect there with a line to be built by the Dominion Government. A U.S. press report states that the Canadian Government Railways has been looking for a route for a connection with New England points, and has made tentative surveys.

Michigan Central Rd.—We are officially advised that the company has a force of men engaged at Niagara Falls, Ont., making surveys, plans and production tests in the vicinity of the cantilever bridge across Niagara River. When the preliminary work and estimates are completed the company will determine what will be done, either in the way of strengthening or rebuilding the present bridge, or the construction an entirely new one. A press report states that the rebuilding of the bridge had been started and that the work would be completed in eight months. (Jan., pg. 20.)

Minneapolis, St. Paul & Sault Ste. Marie Ry.—A press report says the company has under consideration tenders for the building of an extension from the termination of the present line at Whitetail, Sheridan County, Mont., to the International Boundary, opposite Coutts, Alta., 200 miles, the line to cut across Montana about 10 miles south of the International Boundary line and pass about 17 miles north of Havre, a divisional point on the Great Northern Ry. The report is that the line will connect up with the C.P.R. Weyburn-Lethbridge line at Pakowki, or Fremont, Alta. (Jan., pg. 20.)

National Transcontinental Ry.—The Minister of Railways stated in the House of Commons recently that the cost of clearing the line and removing stones falling into cuts between Hervey Jct. and Fitzpatrick, from Apr. 1 to Dec. 1, 1916, was $819.83; and for the same work for the same period between Fitzpatrick and Parent, $12,131.83. Nothing was paid for similar work during the same period between Parent and Doucet. (Sept., 1916, pg. 364.)

North Vancouver, B.C.—The ratepayers are being asked to vote on a bylaw granting the Capitans Timber Co. the right to build a logging railway over certain of the streets in the municipality.

Northern Pacific Ry.—Arrangements are reported to have been made for building a freight shed, 200 x 50 ft., on a site adjoining the Great Northern Ry. wharf at New Westminster, B.C. The building will, it is said, be of frame, sheeted with corrugated galvanized iron, and roofed felt, tar and gravel. The estimated cost is reported at $11,500, and it is said a contract will be let at an early date and that the work will be completed within two months thereafter.

Pacific Great Eastern Ry.—P. A. McIntyre, of the Provincial Engineering Department, has been appointed engineer on behalf of the British Columbia Government to supervise and certify the expenditures made by the company out of the loan of $6,000,000 authorized at the Legislature's last sitting. Payment of $74,145 for work done on the line during Nov., 1916, was authorized at a meeting of the executive council, Jan. 20.

Residents of North Vancouver are urging the Government to take steps to see that the section of the line from the present end of track out of North Vancouver, to Squamish, is built so as to be completed by the time the other section of the line to Fort George is finished. A train service is being operated from Squamish to Clinton ,and track is being laid from Clinton towards Fort George. (Feb., pg. 51.)

Peace River to Fort Vermillion, Alta.—A press report states that an engineering party, under G. Murray, is in the field making surveys for a railway from Peace River to Fort Vermillion, and that the preliminary surveys for the line show a route northwesterly from Peace River to the big plateau, thence northerly to Battle River. There are several charters in existence under which such a line might be built, notably the Central Canada Ry., the Athabasca & Fort Vermillion Ry., and the Pacific, Peace River & Eastern Ry., but the report gives no indication as to which, if any, of them is interested.

St. Martins Ry.—The Board of Railway Commissioners has ordered the company to repair 10 bridges on the line, the work to be commenced by Apr. 1, and to be completed within 60 days thereafter. This line runs from Hampton, N.B., where connection is made with the Canadian Government Railways, Intercolonial Division, to St. Martins, 30 miles.

St. John & Quebec Ry.—A press report states that a contract has been let to the Nova Scotia Construction Co. for a section of this railway under construction from St. John to Andover, N.B., between Centreville, the present northerly terminus, and Andover, 26 miles. (Feb., pg. 51.)

Saskatchewan.—Replying to questions in the Saskatchewan Legislature, Feb. 7, the Premier said that "The government had no assurance that any of the railway companies will proceed with new construction work this year. It is likely a short mileage of rails will be laid where grade already exists, and it is possible some new grading will be undertaken during the forthcoming summer season."

Toronto Industrial Sidings.—Track laying is reported practically completed upon the industrial spur line being built in the Ashbridge Bay district by the Toronto Harbor Commissioners. It is 1.50 miles long and at present extends to the new steel plant site.

Railway Finance, Meetings, Etc.

Canadian Northern Western Ry.—Lazard Bros. & Co., London, Eng., announced recently that they would buy £200,000 of C.N.W.R. 4½% (Alberta) guaranteed 1st mortgage debenture stock, 1942, at 30½.

Canadian Northern Ry.—There has been filed with the Secretary of State at Ottawa a satisfaction of trust agreement, date Jan. 16, 1916, made between the C.N.R.Co. and the Central Trust Co. of New York, as trustee, securing an issue of 5% gold notes of the C.N.R.

New York Central Rd.—There has been deposited with the Secretary of State at Ottawa an agreement, dated Jan. 1, entered into between John Carstensen, A. T. Hardin and E. T. Rossiter, vendors, the Guaranty Trust Co., New York, and the N.Y.C.R., and a lease pursuant thereto, dated Jan. 20, Guaranty Trust Co., trustee, to the N.Y.C.R.

Atlantic, Quebec & Western Ry.—There has been deposited with the Secretary of State at Ottawa duplicate of an agreement dated at London, Eng., Dec. 20, 1916, between the company and E. B. Read and F. H. Jones, providing for the appointment of the latter as trustee for the bondholders under the trust deed of June 26, 1905, and all deeds supplemental to the same, in succession to the late G. Elliott.

Diamond Coal Co.—The Alberta Supreme Court has signed an order granting to the Trusts and Guarantee Co., provisional liquidators, the right to execute an option in favor of H. V. Hudson, Winnipeg, Man., upon the company's property and franchises. The price fixed in the option is $500,000. The company's property includes a 6 mile railway from Kipp, Alta., on the C.P.R., to Diamond City, and several miles of mine sidings.

Guelph Jct. Ry.—The statement for 1916 shows receipts from all sources of $42,961.20, an increase of $846 over the previous year. Four quarterly dividends of 6¼, 5¾, 5½ and 6⅝%, totalling 24⅛%, were paid during the year, which absorbed $41,012. The taxes were $800, and $1,000 was contributed to the Patriotic Fund. The receipts for the current quarter show considerable increase as compared with the same period last year. The line is owned by the City of Guelph, Ont., and is operated under agreement by the C.P.R. The board of management for the current year consists of: J. W. Lyon, President; Mayor Newstead, Vice President; A. H. MacDonald, Secretary; J. M. Taylor, H. C. Westby and D. H. Barlow, directors. T. F. Savage, heretofore in C.P.R. service, has been engaged as special agent, G.J.R., effective Mar. 1.

Railway Rolling Stock Notes.

The C.P.R. has ordered 75 automobile furniture cars to be built at its Angus shops, Montreal.

Canadian Government Railways have received 9 mikado locomotives from Canadian Locomotive Co.

The French Government is reported to have increased a recent order for 3,000 freight cars in the United States to 5,000.

The Eastern Car Co. has delivered 600 box cars and 100 coal cars to the Paris & Orleans Ry., completing the order of 2,000 cars. Descriptions of them have appeared in previous issues.

Canadian Car & Foundry Co. is reported to be figuring on an order for 44,000 steel cars for the French Government. It is said they will cost about $3,000 each.

Canadian Government Railways have received 118 box cars, 50 tons capacity, 1 steel snow plough, from Canadian Car & Foundry Co., and 10 mikado (2-8-2) locomotives from Canadian Locomotive Co.

The Midi Ry. of France is reported to have ordered 40 consolidation locomotives from American Locomotive Co. It is said they will be 161,000 lbs. total weight in working order, with 56 in. driving wheels and 23 by 26 in. cylinders.

The C.P.R. is reported to have offered to convert six of its standard sleeping cars into hospital cars on similar lines to those recently converted by Canadian Government Railways for the Military Hospitals Commission, for the transportation of wounded soldiers from the seaboard to their destinations.

With reference to the report that the Algoma Eastern Ry. was in the market for a number of steel hopper or gondola cars, mentioned in our last issue, we are officially advised that the type of car to be ordered has not been settled, and that until a decision has been reached as to a different method of handling ore than has obtained hitherto, they will not be ordered.

The Russian Government has ordered from the Eastern Car Co. 3,000 box cars of 1,200 poods capacity (approximately 43,200 lbs.). Of these 600 will have air brake and hand brake operated from the platform at one end of the car, and 2,400 will have air brake, but no hand brake or platform. Following are the chief details:

Length inside	22 ft. 9 ins.
Width inside	9 ft.
Height inside	7 ft. 8½ ins.
Gauge of track	5 ft.
Axles	2-5½ ins. by 10 ins.
Journal boxes arranged for pedestals	5½ ins. by 10 ins.
Journal bearings and wedges	M.C.B.
Wheels	Chilled cast iron
Brake beams and shoes	M.C.B.
Screw couplings, hooks and buffers	Russian standard
Door fixtures	Top hung type
Air brake, Russian Westinghouse type 8 by 12 ins.	
Roof, Russian type—Galvanized iron, 22 s gauge	

The Minister of Railways stated in the House of Commons, Feb. 7, that rolling stock was being moved from the Intercolonial Ry. to the National Transcontinental Ry. and returned as traffic required. At the time of replying, there were 32 Intercolonial locomotives on the N.T.R. between Moncton and Winnipeg, and 4 N.T.R. locomotives on the I.R.C. The I.R.C. had sold 74 locomotives to the N.T.R. The N.T.R. east of Levis is equipped with 11 I.R.C. passenger cars. All passenger cars west of Quebec are owned by the N.T.R. There are 1,510 I.R.C. freight cars on the N.T.R. between Moncton and Winnipeg, and 1,085 N.T.R. freight cars on the I.R.C. The I.R.C. has sold 33 passenger cars and 174 freight cars to the N.T.R.

The chief details of the 40 consolidation locomotives, which the British Government has ordered through the Imperial Munitions Board, from Canadian Locomotive Co., for service in France, as mentioned in our last issue, are as follows:

Weight in working order on drivers	151,550 lbs.
Weight in working order, total	166,000 lbs
Wheel base of engine, rigid	15 ft. 3 ins.
Wheel base of engine, total	23 ft. 6 ins.
Wheel base, engine and tender	54 ft. 4 ins.
Heating surface, firebox	162 sq. ft.
Heating surface, tubes	1960 sq. ft.
Heating surface, total	2,122 sq. ft.
Driving wheels, diar.	56 ins.
Driving wheel centres	Main, cast steel; others, cast iron
Driving journals, diar. and length	Main 8½, others 8 by 12 ins.
Cylinders, diar. and stroke	21 by 28 ins.
Boiler, type	Straight top radial stay
Boiler pressure	200 lbs.
Tubes, no. and diar.	269-2 ins.
Tubes, length	14 ft.
Injectors	Locomotive type
Safety valves	Locomotive pop
Brakes	Westinghouse American with European couplings
Packing	Metallic
Weight of tender loaded	121,000 lbs.
Tank capacity	5,000 Imp. gals.
Coal capacity	10 tons
Tank, type	U shape
Truck, type	4 wheel arch bar
Truck wheel, diar.	33 ins.
Truck wheel, type	Steel tired, cast steel centres
Journal, diar. and length	5½ by 10 ins.
Brake beam	Steel trussed type

Canadian Government Railways have ordered 20 mikado (2-8-2) locomotives from Canadian Locomotive Co. They will be similar to the 30 ordered in May, 1916, which have been delivered. Following are the chief details:

Weight on drivers, in working order	213,500 lbs.
Weight in working order, total	283,000 lbs.
Wheel base, rigid	16 ft. 3 ins.
Wheel base, total	35 ft. 1 in.
Wheel base, engine and tender	68 ft.
Heating surface, firebox	242 sq. ft.
Heating surface, tubes	3,398 sq. ft.
Heating surface, total	3,640 sq. ft.
Grate area	56.6 sq. ft.
Driving wheels, diam.	63 ins.
Driving wheel centres	Cast steel
Driving journals	Main, 11 x 20 ins.; others 10 x 12 ins.
Cylinders, diar. and stroke	27 by 30 ins.
Boiler, type	Extended wagon top, radial stay
Boiler pressure	180 lbs.
Tubes, no. and diar.	240 2 ins.; 32 5¾ ins.
Tubes, length	20 ft.
Brakes	Westinghouse American
Superheater	Locomotive Superheater Co., Type A
Rear frame	Cradle type
Trailing truck	Radial type with side bearings
Cab	Steel with vestibule
Weight of tender loaded	166,000 lbs.
Tank capacity	9,000 U.S. gals.
Tank, type	Water bottom with vestibule connection
Coal capacity	12 tons
Truck, type	Pedestal, equalized
Truck wheels, diar.	34 ins.
Wheel, type	Steel tired, retaining ring, cast steel centres
Journals	M.C.B. 6 by 11 ins.
Brake beam	High speed with M.C.B. heads

The Persian Gulf & Mesopotamia Development Co. is asking prices, etc., for delivery in instalments between Sept., 1917, and 1921, for the following rolling stock and equipment: 313 passenger locomotives, 863 freight locomotives, 78 locomotives for mixed service, 4 saloon and state cars, 85 reserved carriages, 11 dining cars, 75 first class cars, 145 composite first and second class cars, 152 composite first, second and third class cars, 45 other cars, 57 second class cars, 126 intermediate class cars, 221 composite, intermediate and third class cars, 50 0third class cars, without brakes, 653 third class ambulance cars, 17 third class ambulance cars with brakes, 80 third class and postal cars, 318 passenger brake vans, 19 brake vans with postal compartment, 4 postal vans, 54 car brakes, 150 horse boxes, 44 baggage vans, 164 miscellaneous cars, 18 stores vans, 12,282 covered freight cars, 2,578 high sided freight cars, 553 low side freight cars, 8 cattle cars, 12 platform cars, 64 powder cars, 242 timber cars, 267 bolster trucks, 240 ballast cars, 399 brake vans (all uses), 92 oil tanks, 79 water tanks, 35 gas holders, 68 cranes, 232,000 tons of 65 lb. steel rail, 4,000,000 creosoted pine ties. The line for which this equipment is required is being surveyed from Bagdad southeasterly, and the equipment is for use in India westerly to meet the line from Bagdad.

The Quebec and Saguenay Railway Purchase.

The Minister of Railways stated in the House of Commons Jan. 31 that an agreement had been entered into on July 25, 1916, pursuant to chap. 22, statutes of 1916, between the Government and the Quebec & Saguenay Ry. Co., and it had already been laid on the table. The price to be paid for the railway is to be fixed by the Court of Exchequer in accordance with the terms of the statute. The railway is being completed by the company under the conditions set out by order in council.

The Hon. R. Lemieux, M.P. for Rouville, asked in the House of Commons, Feb. 5, whether in view of the Exchequer Court's judgment, given a few days previously, the government intended to implement the legislation of 1915 concerning the Q. & S.R. The Minister of Railways replied in the affirmative.

It was reported from Ottawa Feb. 7 that shortly after the reassembling of Parliament in April the government will introduce a bill supplementary to chap. 22 of 1916 respecting the purchase of the railway. It is stated that the measure will make it clear that the subsidies paid by the Dominion Government will be deducted from the purchase price, and that the basis of purchase will be definitely outlined in connection with certain issues which have been raised on the judgment given in the Court of Exchequer recently.

A Railway's Liability for Accident on a Privilege Pass.—The C.P.R. appealed recently against the Supreme Court judgment affirming a Court of King's Bench decision in connection with the death of a stockman through accident on the C.P.R., while he was travelling on a reduced fare ticket, with cattle. Lord Haldane held that the man had, by signing a railway pass at reduced rates, bound himself to renounce what would otherwise have been his rights, and thus relieved the railway company effectually from all liability for damages; and also that the C.P.R. did enough to discharge the obligation to enable the man to know what he signed the pass for. The appeal was upheld, the judgment of the Canadian courts reversed, and the action dismissed.

National Transcontinental Ry. Yard at Fitzpatrick.—The Minister of Railways stated in the House of Commons recently that the land for the railway yard at Fitzpatrick, Que., was expropriated from the Quebec & Lake St. John Ry., and that the price agreed to be paid is $100 an acre. The yard was located at Fitzpatrick, instead of La Tuque, on account of the grade.

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PRINCIPAL CONTENTS.

Change in Rules for Inspection, Etc. of Locomotive Boilers.

The Board of Railway Commissioners passed general order 178, Jan. 23, as follows:—The Rules and Instruction for Inspection and Testing of Locomotive Boilers and their Appurtenances, as set out in general order 78, July 14, 1911, and Circular 140, Jan. 22, 1915, and re the C.P.R.'s application for an extension of time for the external inspection of locomotive boilers. Upon reading what is filed in support of the application, and the report of the Chief Operating Officer of the Board; and it appearing desirable to consolidate the supplemental regulations in the above mentioned matter issued since the issue of general order 78, it is ordered that, in the case of locomotives which are out of service in good condition for one or more full months, the times for making the following inspections and tests, namely, (a) removal of flues and interior inspection of boiler, (b) removal of lagging and exterior inspection of boiler, (c) hydrostatic test, and (d) removal of caps and inspection of flexible staybolts, as provided by paragraphs 5, 11, 12 and 18 of general order 78, may be extended by the railway companies, without making application therefor, for a number of months equivalent to the number of continuous months during which any such locomotive shall be out of service; provided that such inspections and tests shall in no case be performed less frequently than as hereinafter set forth:

(a) Removal of flues and inspection of interior of boiler once at least in every 48 consecutive months. (b) Removal of jacket and lagging and inspection of exterior of boiler once at least in every 69 consecutive months. (c) Hydrostatic tests once at least in every 24 consecutive months. (d) Removal of caps and inspection of flexible staybolts once at least in every 30 consecutive months. And it is further ordered that the time during which any such locomotive is out of service be properly covered by "out of service" reports and a notation made on the back of inspection reports and cab cards showing the months out of service on account of which time has been extended, that no extension of time be permitted for any period less than a full month, and that if a locomotive be out of service when any of the above inspections and tests become due, such inspection and test need not be performed until just prior to the time when such locomotive shall be returned to service.

A New Russian Line.—A press report says that M. Albert, of Prince Rupert, B.C., had arranged the financing in Vancouver and western cities for the building of a large mileage of railways in Russia for the government. He left for Vladivostock, Siberia, at the end of January. In an interview before he left, he is reported to have said that 700,000,000 ft. of timber would be required for ties, bridges and other work on the lines, all of which would be secured in Russian territory. This report should not be taken seriously unless confirmed.

Coal for Canadian Governmen t Railways.—The Minister of Railways stated in the House of Commons recently that 553,856 tons of coal had been purchased in the United States for the Canadian Government Railways during the current financial year. The price per ton varied from $2.51 for slack coal, delivered at Fort William, Ont., to $10.23 a ton, delivered at Halifax, N.S.

C.P.R. Floral Department's Work.

The C. P. R.'s Floral Committee has issued a circular to station agents, section foremen and others concerned as follows:—"With the object of establishing permanent gardens throughout the system, it has been decided to supply perrenial plants on request. These flowering plants remain alive in the ground through severe winters, and most of them bloom early in spring. As these plants do not flower much the first year after planting, the company will also furnish annual seeds this spring as usual. Directions for planting will accompany each shipment and the stock should be planted immediately it is received. At many points gardens do not exist, and it is suggested that a piece of ground be prepared and planted this spring. A plot 30 to 40 ft. long, and 4 to 5 ft. wide, is nearly always available. Many agents already have flower beds immediately adjoining stations, and section foremen have them on each side of the path from section houses to track, while others have very nice beds alongside section and tool houses. The earth for planting should be deeply spaded, and, if soil is sandy or poor, well rotted manure should be dug in. In addition to the plants mentioned, a perrenial native hop for planting around outdoor closets can be supplied. Six of these should be enough for any one place. As perennial plants are now to be used, it will no longer be necessary to provide bulbs for fall planting, with possible exceptions. Bulbs that are in the ground at present should be dug up after the plants have died, sorted over, and the good ones used in the fall of 1917 and possibly 1918, by which time the perennials should have made a good display. Bulbs that are kept over for future planting should be packed in paper bags and kept in a dry cool place. Please state your requirements on the perforated leaflet attached, and send as quickly as possible to your superintendent.

"PERENNIAL PLANTS.—A suitable collection for the average garden should include approximately five of each of the following plants:—Achillea, Campanula, Sweet William, Larkspur, Columbine, Icelandic Poppy, Pinks or Dianthus, Gaillardia, Bleeding Heart, Paeony, Phlox, Golden Glow, Native Hop.

"ANNUAL SEEDS.—Standard packet containing Sweet Peas, Nasturtiums, Zinnias, Mignonette and Candy Tuft."

The sheet containing the list of plants gives the colors, height and other characteristics.

G.T.R. Taxation in Michigan.—An amendment to the constitution of the State of Michigan has been introduced into the Legislature to permit it to own and operate railways. The reason for this is said to be a question of taxes between the government and the G.T.R. The dispute is said to date back to 1834, when the Detroit & Pontiac Ry., now part of the G.T.R., was built. The capital stock of the company was $2,500,000, on which the annual tax of $25,000 has been paid. The capital stock has never been increased, while the basis of taxation for other railways is valuation.

C.N.R. and G.T.P.R. Audits.—To provide for the making of a continuous audit of the revenues and expenditures of the Canadian Northern and Grand Trunk Pacific Railways, $10,000 has been placed in the Dominion estimates for the current year. A vote of one-quarter of this amount was agreed to in the House of Commons, Feb. 1.

Canadian Northern Railway Construction, Betterments, Etc.

Mount Royal Tunnel & Terminal Co.—Work is reported to have been started upon the temporary station at Lagauchchere St., Montreal, by Norcross Bros., who expect to have it ready for occupation within six months.

Toronto-Hamilton-Niagara Line. — Sir Wm. Mackenzie is reported as stating that construction work will be started at an early date on the line from Toronto, via Hamilton to Niagara Falls, Ont. Sir Donald Mann is also reported as saying that financial arrangements have been completed ready for an immediate commencement of construction following official approval of the route plans.

Canadian Northern Ontario Ry.—The residents of Norway Bay, near Ottawa, have asked the Board of Railway Commissioners to settle the question of the location of a station there. Three sites have been suggested, each of which is strongly advocated by special interests.

Port Arthur Entrance.—The question of the C.N.R. entrance into Port Arthur, Ont., from the east, is being discussed, L. C. Fritch, General Manager, Eastern Lines, having met the city council recently to see if a settlement can be reached. At present the company connects with its Western Lines over C.P.R. tracks.

Canadian Northern Ry.—A contract is reported to have been let for building a new locomotive house at Rainy River, Ont.

The Alberta Minister of Railways reports that during 1916 the branch line from Oliver towards St. Paul de Metis was graded for 100 miles, and 8 miles of steel had been laid up to Dec. 31. The C.N.R. advised Canadian Railway and Marine World in January that no new track had been laid on its Western Lines during that year. A press report from Edmonton, Jan. 30, said 4 miles of steel had been laid out of Oliver towards St. Paul de Metis up to Jan. 27. The first break in the track laying on the line will occur at the crossing of Sturgeon River, mileage 17.06 from Oliver, where a bridge 200 ft. long will have to be erected. The central span will be of steel, 57 ft. long and 55 ft. above high water mark, the approaches being of trestle work. It is expected the bridge will take about six weeks to put up. It is the largest bridge structure on the hundred miles of line, which is expected to be completed this season.

Canadian Northern Pacific Ry.—All the machinery for the company's car plant at Port Mann, was reported to have been delivered Feb. 6, and rapid progress was being made with its installation. It is expected that the plant will be ready for operation by Mar. 31.

The British Columbia Minister of Railways stated Feb. 1 that the company would shortly operate a train service on the Steveston Branch, which starts from the B. C. Electric Ry., about two miles from New Westminster, or C.N.P.R. mileage 5.41 from New Westminster bridge, and runs to Steveston, about 12 miles. To connect this line with the rest of the C.N.P.R. involves the building of a bridge across the North Arm of the Fraser River. The line has never been operated. M. H. MacLeod, General Manager and Chief Engineer, inspected it Jan. 30, and made arrangements for putting it in order, and for the operation of one train a day each way.

Plans for the location of the company's tracks through New Westminster have been officially approved by the company's officers, and were sent to the Mayor, Feb. 5. The plans have to be approved by the C.P.R., and the work to be done to carry them out includes the moving of the C.P.R. tracks and locomotive house at Columbia St. The B. C. Electric Ry. is also interested, as its tracks are to be moved to a new location. The C.N.P.R. station will be located on the site of the old Royal City Hotel.

R. B. Pratt, architect for the C.N.R. terminal station on the False Creek flats, Vancouver, is reported as stating that good progress has been made with the piling for the foundation of the station, a start has been made with the concrete work, and a considerable quantity of cut stone for the base course has been delivered. Under the agreement with the city, the building has to be completed by the end of the year.

There appear to be considerable differences between the company and the Vancouver City Council as to the progress being made on the False Creek reclamation and other works, and a good deal of speculation as to whether they will be carried out on time or not. On a recent visit to the city, M. H. MacLeod, General Manager and Chief Engineer, is reported to have said: "I do not mind criticism, but I do dislike unfair criticism. We have 300 men working steadily; the other day by actual count there were 281, and another gang was subsequently put on. I sometimes wonder if the members of the city council realize just what work we are doing, and if they give us credit for what we are really trying to do. We ought to know our business, and I want to tell you that we have made a contract with all the contractors working for us that the various works be completed on time, according to our agreement. There need be no fear that the freight terminals will not be finished by June nor the station by Jan. 1. We are just as anxious as anyone else to live up to our agreement and are straining every effort to do so. I sometimes wonder if the people who appear so anxious to criticize the company ever get right down to it and see what work we are really doing in Vancouver. It means more to us than anyone else to have all the work here completed on contract time and we hope to be able to accomplish this despite the many adverse conditions that have confronted us."

At a meeting of the City Council, held Jan. 31, the following resolution was passed:—"That the City Solicitor, with the assistance of the City Engineer and the chairman of the railways and bridges committee, be instructed to prepare and present a petition to the Minister of Railways of British Columbia, requesting that the City of Vancouver be given an opportunity to lay before the Lientenant-Governor-in-council, in accordance with clause 41 of the agreement, its various complaints as regards the conduct of the C.N.R. in connection with the agreement existing between the company and the city; the petition to clearly point out that the city's main object is to obviate the possibility of any further delay in commencing the various works included in the agreement, and to guarantee the completion of said works on or before the date set out in the agreement."

Vancouver Island.—The subway on Burnside Ave., Victoria, on the line to Patricia Bay, is well advanced to completion. When this is finished it will be possible to operate the line into Victoria, and enable material to be brought in for track laying and general construction purposes on the line to Alberni. The company has 10 miles of track laying on the mainland for this purpose, but it has no more in sight. The roadbed is completed from near Victoria to within a few miles of Alberni, about 136.5 miles. (Feb., pg. 64.)

City Bridges and Subways.

Following are extracts from the Toronto City Commissioner of Works' interim report for the 11 months ended Nov. 30, 1916:

Mount Pleasant Road Bridge.—The construction of a 3 span reinforced concrete bridge over the old belt line, G.T.R., was begun in Mar., 1916, by C. J. Townsend, contractor. The piers and abutments are nearly complete and the substructure portion of the wooden trestle forming a part of the north approach is complete with the exception of 2 bents.

Strachan Ave. Bridge, over C.P.R. — The contract for the construction of the concrete abutments awarded in 1915 to Roderick Campbell was cancelled and a new contract was awarded to C. J. Townsend in May, 1916. Work was begun on May 20, 1916, and 980 cu. yds. of concrete have been placed in the south abutment and 109 in the north abutment.

Ashdale Ave. Subway. — Complete plans and specification have been prepared for the construction of a pedestrian subway under the G.T.R. on the line of Ashdale Ave. This subway is intended to provide a means of communication between Monarch Park and the area located north and south of the G.T.R. right of way.

Free Transportation for Legislators.—The Revised Statutes of Canada, chap. 37, sec. 343, provides that railway companies shall furnish free transportation upon any of their trains for members of the Senate and House of Commons, with their baggage, and also for the Board of Railway Commissioners and such of the board's officers and staff as the board may determine, with their baggage and equipment, and shall also, when required, haul free of charge any car provided for the board's use. G. E. McCraney, M.P. for Saskatoon, introduced recently in the House of Commons a bill providing that similar free transportation shall be given to the members of the executive councils of the various provinces, and, within the provinces in which they reside respectively, to members of the legislative councils and legislative assemblies.

Canadian Society of Civil Engineers, Saskatchewan Branch.—Following the organization meetings mentioned in our last issue, this branch of the Canadian Society of Civil Engineers has been formed at Regina, to include all members of the society residing in the province. Nominations for the various offices have been made, for submission to letter ballot, as follows: L. A. Thornton, Regina, Chairman; G. D. Mackie, Moose Jaw, Vice Chairman; H. S. Carpenter, E. G. Montgomery, Regina; T. C. McNabb, Moose Jaw; Prof. A. R. Greig, C. J. Yorath, Saskatoon, executive committee; and J. N. deStein, Regina, Secretary Treasurer.

Transportation Appointments Throughout Canada.

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

Buffalo, Rochester & Pittsburg Ry.—P. A. BOLOPUE, heretofore chief clerk, local freight agent's office, Pittsburg, Pa., has been appointed Canadian Agent, in charge of Freight and Passenger Departments. Office, Toronto.

Canada Steamship Lines, Ltd.—H. J. DICK, heretofore accountant, has been appointed acting General Agent, Kingston, Ont., vice E. E. Horsey, resigned.

Canadian Government Railways.—R. H. SMITH, Resident Engineer, Halifax Ocean Terminals, Halifax, N.S., has had his jurisdiction extended to include District 3, Intercolonial Division, L. S. LANDERS, heretofore Resident Engineer, District 3, having been appointed Assistant Engineer, Levis, Que., as announced in our last issue.

R. MONTGOMERIE, heretofore transit man, Halifax Ocean Terminals, Halifax, N.S., has been appointed Resident Engineer, District 4, Intercolonial Division, New Glasgow, N.S., vice A. H. Jones, promoted.

JOHN GALLIVAN, heretofore locomotive man, Stellarton, N.S., has been appointed travelling fireman, District 4, Intercolonial Division. Headquarters, Stellarton, N.S. This is a new position.

A. H. JONES, heretofore Resident Engineer, District 4, Intercolonial Division, New Glasgow, N.S., has been appointed Assistant Engineer, Moncton, N.B.

J. E. LONG, Safety Engineer, has also assumed the duties of Secretary, C.G.R. Centre, St. John Ambulance Association, vice W. C. Paver, who has been relieved of the duties of that office on account of ill health. Office, Moncton, N.B.

W. H. TOUT has been appointed First Aid Instructor and Safety Inspector, lines east of Campbellton and Edmundston, N.B. Headquarters, Moncton, N.B.

T. W. McBEATH, heretofore locomotive man, Moncton, N.B., has been appointed travelling fireman, District 3, Intercolonial Division. Headquarters, Moncton, N.B. This is a new position.

A. R. MACGOWAN, A.M.Can.Soc.C.E., heretofore Principal Assistant Engineer, Moncton, N.B., has been appointed Superintendent, District 5, Intercolonial Division, vice H. B. Fleming, assigned to other duties. Office, Edmundston, N.B.

H. B. FLEMING, heretofore Superintendent, District 5, Intercolonial Division, Edmundston, N.B., has been appointed Chief Dispatcher there.

JOHN FRASER, heretofore charge hand, Sydney, N.S., has been appointed Locomotive Foreman, Edmundston, N.B., vice C. White, transferred.

C. WHITE, heretofore Locomotive Foreman, Edmundston, N.B., has been appointed Locomotive Foreman, Napadogan, N.B., vice W. C. Williams, who has been given work as a stationary boiler fireman.

P. P. BEGIN has been appointed First Aid Instructor and Safety Inspector, lines from Campbellton, N.B., to Montreal, and from Edmundston, N.B., to O'Brien Que. Headquarters, Riviere du Loup, Que.

H. A. IRVING, heretofore acting Trainmaster, District 3, Transcontinental Division, Graham, Ont., has been appointed Trainmaster, Cochrane, Ont.

H. MITCHINSON has been appointed First Aid Instructor and Safety Inspector, lines from O'Brien, Que., to Winnipeg, and from Superior Jct. to Fort William, Ont. Headquarters, Transcona, Man.

Canadian Northern Ry.—A. J. HILLS, formerly General Superintendent, Eastern Lines, and latterly attached to the Third Vice President's office, has been appointed Assistant to the Executive. Office, Toronto.

GUY TOMBS, heretofore General Freight Agent, Lines east of Port Arthur, Ont., Montreal, has been appointed Assistant Freight Traffic Manager, Lines east of Port Arthur. Office, Montreal.

Guy Tombs,
Assistant Freight Traffic Manager, Lines east of Port Arthur, Ont., Canadian Northern Railway.

JAMES ORR, heretofore Assistant to the General Traffic Manager, Toronto, has been appointed General Freight Agent, Lines east of Port Arthur, Ont., vice Guy Tombs, promoted. Office, Montreal.

In anticipation of the industrial reorganization and development which will follow the conclusion of peace, and in view of the great number of industrial opportunities on the company's system, its operations in that regard have been extended by the creation of a Department of Resources. D. F. COYLE, heretofore Secretary to R. J. Mackenzie, of Mackenzie, Mann & Co., Ltd., at Winnipeg, has been appointed administrator of this work, with the title of Industrial Commissioner. As the aim of the department is to locate industries and to develop natural resources along the company's lines, it is confidently expected that the municipal authorities will cooperate with him in his work. Office, Winnipeg.

E. LANGHAM, heretofore Purchasing Agent, Lines West of Port Arthur, Winnipeg, has been appointed General Purchasing Agent for the system, and the position hitherto held by him, and that of Purchasing Agent, Eastern Lines, Toronto, hitherto held by L. W. MITCHELL, have been abolished, Mr. Mitchell retaining his other position as Treasurer. Office, Toronto.

P. MOONEY, heretofore Division Freight and Passenger Agent, Halifax & Southwestern Ry., Halifax, N.S., has been appointed Assistant General Freight Agent, Lines east of Port Arthur, Ont. Office, Toronto.

R. J. KELLY, heretofore Trainmaster, Hornepayne, Ont., has been appointed Trainmaster, Capreol, Ont.

J. B. SMITH, heretofore Trainmaster, Capreol, Ont., has been appointed Trainmaster, Hornepayne, Ont., vice R. J. Kelly, transferred.

M. B. HELSTON, heretofore Superintendent, Duluth, Winnipeg & Pacific Ry., Virginia, Minn., has been appointed Superintendent, District 4, Western Division, Quebec District, Farnham.

ed Manager, Winnipeg Joint Terminals. Office, Calgary, Alta.

A. AVERY, heretofore station agent, Arcola, Sask., has been appointed Livestock Agent, Winnipeg, vice J. T. Whitlaw, whose appointment as station agent, Calgary, Alta., was announced in our last issue.

O. A. THOMAS, heretofore Station Ticket Agent, Calgary, Alta., has been appointed Local Freight Agent, Calgary, Alta.

A. R. McDOUGALL, heretofore ticket clerk, Calgary, Alta., has been appointed Station Ticket Agent there, vice, O. A. Thomas, transferred.

J. S. DONAL has been appointed Travelling Agent, New York, vice J. L. Lounsbery, resigned.

Canadian Pacific Ry.—ALLAN PURVIS, General Superintendent, Quebec District, Montreal, having resumed duty, after having been temporarily acting as General Superintendent, Ontario District, Toronto, J. H. BOYLE, who was acting in his absence, has resumed his duties as Superintendent, Farnham Division, Quebec District, Farnahm.

H. J. HUMPHREY, heretofore Superintendent, Farnham Division, Quebec District, Farnham, has been appointed acting Superintendent, Laurentian Division, Quebec District, vice R. McKillop, who has enlisted for overseas service. Office, Montreal.

G. BOWLER, heretofore Night Yardmaster, Sortin Yard, has been appointed Trainmaster, Montreal Terminal Division, Quebec District.

J. WOODMAN, heretofore Superintendent, Winnipeg Terminal Division, Manitoba District, has been appointed Superintendent, Montreal Terminals Division, Quebec District, vice C. J. Kavanagh, transferred. Office, Outremont, Quebec.

J. T. ARUNDEL, General Superintendent, Ontario District, Toronto, having resumed duty after leave of absence due to illness, ALLAN PURVIS, General Superintendent, Quebec District, who was acting in his absence, has resumed his duties at Montreal.

T. H. HAMILTON, heretofore Master Mechanic, Trenton Division, Ontario District, Trenton, has been appointed Assistant Superintendent, Trenton Division, Ontario District, vice E. J. Melrose, transferred. Office, Havelock.

A. H. BINNS has been appointed acting Master Mechanic, Trenton Division,

Ontario District, vice T. H. Hamilton, transferred temporarily. Office, Trenton.

W. GARLAND, heretofore Yardmaster, Montreal, has been appointed Assistant Superintendent, Toronto Terminals Division, Ontario District, in charge of day operation. Office, Toronto.

J. MILES, heretofore Yardmaster, Toronto, has been appointed Assistant Superintendent, Toronto Terminal Division, Ontario District, in charge of night operation. Office, Toronto.

E. J. MELROSE, heretofore Assistant Superintendent, Trenton Division, Ontario District, Trenton, has been appointed acting Assistant Superintendent, London Division, Ontario District, vice W. Tansley, whose appointment as acting Superintendent of that division was announced in our last issue.

J. L. JAMIESON, heretofore Road Foreman of Locomotives, Medicine Hat, Alta., has been appointed Trainmaster, Kenora Division, Manitoba District, vice R. W. D. Harris, transferred. Office, Ignace, Ont.

A. F. HAWKINS has been appointed Superintendent, Fort William Terminal Division, Manitoba District, vice R. C. Morgan, transferred. Office, Fort William, Ont.

R. C. MORGAN, heretofore Superintendent, Fort William Terminal Division, Manitoba District, Fort William, Ont., has been appointed Superintendent, Winnipeg Terminal Division, Manitoba District.

J. H. CHOWN, heretofore Trainmaster, Moose Jaw Division, Saskatchewan District, Moose Jaw, has been appointed Superintendent, Regina Division, Saskatchewan District, vice J. K. Savage, whose appointment as Superintendent, Smiths Falls Division, Quebec District, Smiths Falls, Ont., was announced in our last issue. Office, Regina.

J. M. McKAY, heretofore Superintendent, Revelstoke Division, British Columbia District, Revelstoke, has been appointed Superintendent, Saskatoon Division, Saskatchewan District, vice E. W. DuVal, who is taking an officer's training course for overseas service.

R. W. D. HARRIS, heretofore Trainmaster, Kenora Division, Manitoba District, Ignace, Ont., has been appointed Trainmaster, Moose Jaw Division, Saskatchewan District, vice J. H. Chown, promoted. Office, Moose Jaw.

D. J. ENGLAND, heretofore Trainmaster, Calgary, Alta., has been appointed Terminal Trainmaster, Moose Jaw, vice A. F. Hawkins, promoted.

M. E. COLLINS, heretofore accountant, Lethbridge, Alta., has been appointed chief clerk to Superintendent, Lethbridge Division, Alberta District, Lethbridge.

E. GIBBONS, heretofore at Calgary, Alta., has been appointed accountant, Lethbridge, Alta., vice M. E. Collins promoted.

G. PRATT, heretofore Locomotive Foreman, Strathcona, Alta., has been appointed Locomotive Foreman, Medicine Hat, Alta., vice J. Perry assigned to other duties.

J. McGOWAN, heretofore Locomotive Foreman, Rogers Pass, B.C., has been appointed Locomotive Foreman, Strathcona, Alta., vice G. Pratt transferred. The position of Locomotive Foreman at Rogers Pass has been abolished, owing to the placing in operation of the Connaught Tunnel.

T. C. McNAB, heretofore Division Engineer, Saskatchewan District, Moose Jaw, has been appointed Superintendent, Revelstoke Division, British Columbia District, vice J. M. McKay, transferred. Office, Revelstoke.

G. DELACHEROIS, heretofore Resident Engineer, Regina, Sask., has been appointed Roadmaster, Shuswap East and Okanagan Subdivisions, British Columbia District. Office, Revelstoke.

DOUGLAS BROWN, heretofore master of the s.s. Princess Mary, British Columbia Coast Service, C.P.R., has been appointed Superintendent, British Columbia Lake and River Service, vice J. C. Gore, deceased. Office, Nelson, B.C.

J. D. MUIR, heretofore Locomotive Foreman, Winnipeg, has been appointed General Foreman, Locomotive Shops, Vancouver, B.C., vice G. H. Reed superannuated.

A. R. KENYON, heretofore excursion and rate clerk, Boston and Maine Rd., Boston, Mass., has been appointed Travelling Passenger Agent, Boston District, C.P.R. Office, 332 Washington St., Boston, Mass.

W. E. ELLIS, heretofore ticket clerk, New York Central Rd., New York, has been appointed Travelling Passenger Agent, C.P.R., in New York territory, vice E. G. Chesbrough promoted. Office, New York.

E. G. CHESBROUGH, heretofore Travelling Passenger Agent, New York, has been appointed General Agent, Passenger Department, Atlanta, Ga. Office, Healey Building.

Delaware and Hudson Co.—J. T. LOREE has been appointed General Manager. Office, Albany, N.Y.

The position of Assistant General Superintendent of Transportation having been abolished, J. A. McGREW has resumed his former position as Superintendent, Saratoga and Champlain Divisions, Albany, N.Y.

M. F. LEAMY, heretofore acting Superintendent, Saratoga and Champlain Divisions, has resumed his former duties as Trainmaster, Saratoga Division, and F. R. GRIFFIN, heretofore acting Trainmaster, has resumed his former duties as Assistant Trainmaster, Saratoga Division.

Grand Trunk Ry.—J. E. DUVAL, heretofore General Superintendent of Car Service, has been appointed General Superintendent of Transportation. Office, Montreal. This is a new position.

G. HICKEY, heretofore Foreman, Boiler Shop, Toronto, has been appointed General Foreman there, vice E. Logan, resigned.

J. T. DEWSBURY has been appointed acting Locomotive Foreman, Niagara Falls, Ont., vice W. H. Wensley, on leave of absence through illness.

C. KELSO, heretofore Contract Inspector, Motive Power Department, Stratford, Ont., has been appointed Master Mechanic, Stratford Shops, vice R. Patterson resigned. Office, Stratford, Ont.

JOHN B. LIVINGSTON, heretofore Chief Clerk, Motive Power Department, Battle Creek, Mich., has been appointed Storekeeper, Western Lines, vice J. R. Crowell deceased. Office, Battle Creek, Mich.

Grand Trunk Pacific Ry.—The position of Travelling Freight and Passenger Agent at Juneau, Alaska, hitherto held by J. D. McAULEY, now Commercial Agent, Prince Rupert, B.C., has been abolished.

Halifax and South Western Ry.—HUGH DUNBRACK has been appointed City Passenger Agent, Halifax, N.S., vice A. Hector.

W. A. CUNNINGHAM has been appointed Division Freight and Passenger Agent, vice P. Mooney, transferred to C. N. R. service. Office, 123 Hollis St., Halifax, N.S.

Pere Marquette Rd.—G. B. BIRD has been appointed Auditor of Disbursements, vice H. G. Meyers, assigned to other duties. Office, Detroit, Mich.

W. L. KELLOG, heretofore Superintendent of Motive Power, Missouri, Kansas and Texas Rd., Dennison, Tex., has been appointed Superintendent of Motive Power, P.M.R., vice J. J. Walters, resigned to enter another company's service. Office, Detroit, Mich.

Reid Newfoundland Co.—J. P POWELL, heretofore chief of the Engineering Department, has been appointed Assistant General Superintendent. Office, St. John's, Nfld.

Wabash Ry.—T. J. JONES, heretofore Superintendent Transportation, has been appointed General Superintendent in charge of station, yard and train service, St. Louis, Mo.

M. B. CASEY has been appointed Superintendent Transportation, vice T. J. Jones, promoted. He reports to the General Manager, and has charge of all matters pertaining to freight and passenger car handling and movements, including per diem, demurrage, passenger and freight train schedules, and makes and distributes to the proper officers, morning reports relating to train movements, yard and car situations. Office, St. Louis, Mo.

Winnipeg Joint Terminals.—M. B. MURPHY, heretofore Superintendent, District 4, Western Division, Canadian Northern Ry., Calgary, Alta., has been appointed Manager, Winnipeg Joint Terminals, C.N.R., Canadian Government Railways, and Grand Trunk Pacific Ry. Railways, and Grand Trunk Pacific Ry., vice R. J. Hunt, resigned.

Engineers' Residences on National Transcontinental Ry.—The Minister of Railways stated in the House of Commons recently that the average cost of each set of civil engineer's residences, during the construction of the N.T.R., between La Tuque and Parent, was $1,450.

A conference of city managers of the Grand Trunk Pacific Telegraph Co. was held at Edmonton, Alta., Feb. 12 and 13, at which many matters pertaining to increasing efficiency of the service were discussed. Those present were: H. Hulatt, Manager of Telegraphs, Montreal; W. J. Rooney, Division Superintendent of Telegraphs, Edmonton; F. T. Caldwell, Division Superintendent of Telegraphs, Winnipeg; S. Hutchinson, Circuit Manager, Winnipeg; S. Robertson, Electrical Engineer, Edmonton; E. H. Hiscock, Electrical Engineer, Winnipeg; R. M. MacMillan, City Manager, Edmonton; R. M. Hicks, City Manager, Winnipeg; Geo. Jackson, City Manager, Regina; J. E. Grace, City Manager, Saskatoon; Geo. Moore, City Manager, Calgary; G. B. Brien, City Manager, Prince Rupert; J. E. Lalonde, City Manager, Prince George; C. A. Radford, Chief Operator, Edmonton; J. O. Pilon, accountant, Edmonton; N. B. Walton, Superintendent, Operating Department, G.T.P.R., and L. V. Druce, Division Freight Agent, G. T. P. R., were present as guests and addressed the meeting. On the first evening the officials attended a theatre as guests of Division Superintendent Rooney and the following evening they were entertained at dinner by H. Hulatt, Manager of Telegraphs.

Extension of C.P.R. Dock Facilities at Vancouver.

The steady growth of coastwise and trans-Pacific freight and passenger traffic has made necessary an increase in the C.P.R. dock facilities at Vancouver.

In accordance with a carefully considered plan to meet the needs of the present traffic and to provide for a development which will serve the interests of the port to the best advantage, an extension to Pier D, at the foot of Granville St., has been undertaken.

The present Pier D was built in 1913, and is approximately 400 ft. long and 150 ft. wide. The proposed extension will carry the pier to the harbor line, and will be approximately 600 ft. long on the east side, 500 ft. long on the west side, and about 160 ft. wide. The dimensions of the completed pier will therefore be about 950 ft. long by 160 ft. wide.

A fill has been made on the site of the extension, aggregating about 250,000 cu. yds. of material. This has been obtained from dredging in and around the harbor. It was made necessary by the extreme depths of mud and water.

The substructure of the pier will be built of creosoted wooden piles, treated by the boiling process, under strict specifications, to assure sound piles and uniform depth of penetration, 15 lbs. creosote to the cu. ft. to be used. The piling will be long and heavy, involving about 3,000 piles, some of which may run to 125 ft. long. These will be furnished by the Vancouver Creosoting Co., whose new plant at North Vancouver was started about Jan. 1. The creosoted piles are assembled at that plant, sorted and towed to a receiving boom located conveniently to the work. The boom will store approximately 200 piles.

Pile driving will be done by steam hammer. A subcontract for the driving has been given to S. Doe, of Victoria. Owing to the pile lengths the driver leads will be approximately 125 ft. high, making the driver one of the largest, if not the largest, in the world.

The caps, bracing, stringers and flooring of the pier will be creosoted lumber, furnished by local mills and creosoted by the Dominion Creosoting Co., Vancouver. The decking will be a 2 x 4 laminated structure, surfaced with a flooring of Australian hardwood.

A one-story shed will be built on the new portion, connecting with the shed on the existing pier. The shed construction will be wooden frame, with wooden roof trusses and a built up roof laid on laminated roof timbers. The trusses will be spaced 20 ft. on centres, with columns dividing the pier into 2 side bays, each 27 ft. wide, and 2 centre bays, 36 and 46 ft. wide respectively. The sides will be provided with sliding doors, those on the east side being continuous.

A depressed railway track will be continued down the centre of the pier to about 100 ft. from the end and another track will be laid along the outside edge of the east side of the pier. This will necessitate adding approximately 10 ft. to the width of the present structure.

Elevators will be installed for the rapid handling of freight, and an oil line for the fuel supply of some of the steamships.

An electrically driven car-haul will be put in to move cars while on the pier and so dispense with steam locomotive operation and its attendant fire risks. To minimize further the fire hazard, a fire protection system will be installed, as also such power and light circuits as may be needed.

An outside promenade will be built on both sides of the roof, for the handling of passenger traffic to and from the end of the pier.

The contractors for the construction of the pier are Sydney E. Junkins & Co., of Vancouver. The work is being done under the direction of J. G. Sullivan, Chief Engineer, and Frank Lee, Principal Assistant Engineer, Western Lines, C.P.R., and H. Rindal, Division Engineer, C.P.R., Vancouver.

Canadian Pacific Railway Construction, Betterments, Etc.

Eastern Lines.—A contract is reported to have been let to the Deakin Construction Co., Montreal, for the erection of an employes building at St. Andrews, N.B., to be of frame and stucco construction, 32 x 125 ft., 2 stories high, and estimated to cost $25,000.

Plans for building a second track from Summerhill Ave., Toronto, to Leaside Jct., were laid before the York Tp. Council, Feb. 5, by A. McMurchy, Solicitor, and A. L. Hertzberg, District Engineer. The council asked that a safety device be provided at the crossing of the Todmorden Road. The building of this line will give the company a double track line from West Toronto to Leaside Jct.

Western Lines.—We are officially advised that the principal works to be undertaken during this year, and for which expenditures have been approved, include the following:—20 new stations—one of these, at Field, B.C., is to be specially designed; 2 new section houses; 41 new stock yards; new systems of water supply at Reeder and Neudorf, Man.; Holdfast, Rufus, Sinis and Springside, Sask.; and new dams at Govanlock and Eastend, Sask.; new grain loading platforms at several points and extensions to many existing platforms; new coaling plants at Brandon, Man., and Calgary, Alta.; new ice houses at Revelstoke and Okanagan Landing, B.C.; a new outward freight shed at Regina, Sask.; the freight sheds at Swift Current, Cabri and Prussia, Sask., are to be extended; a new building is to be erected at Regina, Sask., for the Dominion Express Co.; several existing waterpipe lines are to be relaid; about 27 miles of new woven wire fencing is to be placed; some tree planting is to be done on the Swift Current, Maple Creek and Brooks Divisions; systems of automatic signals for the convenience of operators are to be installed at Fort William terminals, Brandon yard, Kemray, and at the Connaught tunnel. At Vancouver some dredging work is to be carried on, a rubble wall erected and the work of extending pier D is to be completed.

On the Western Lines generally a large number of wooden culverts are to be replaced with reinforced concrete culvert pipe; several wooden trestles are to be filled, the waterways to be provided with concrete pipes or other permanent structures; wooden trestle near Minnedosa is to be replaced by a reinforced concrete trstle. An extensive concrete retaining wall is to be built east of Kenora, to hold the main track embankment. A Howe truss bridge on the Kimberly subdivision is to be replaced with steel spans on concrete piers; ten tunnels on the Shuswap subdivision are to be provided with concrete portals and one of them is to be partially lined with concrete. A very large amount of ballasting, ditching, resupporting, etc., is to be done on the present main tracks, many new tie plates and rail anchors are to be installed; a number of new side tracks and passing track extensions are to be laid.

No new lines are to be put under construction, but the line from Vantage to Assiniboia, which will give a through connection from Assiniboia to Moose Jaw, is to be completed.

Application has been made to the Western Lines management to take up the construction of building a semi-circular branch line from Govanlock to either Kincaid or Averock, on the Weyburn-Lethbridge line. It is not likely that anything will be done about this line this year, in view of the statement made by Grant Hall, Vice President and General Manager, Western Lines, quoted elsewhere, or of the reported statement of J. M. Cameron, General Superintendent, Alberta District, that the company had great difficulty in getting sufficient rails for its ordinary maintenance work.

Tenders were invited recently to be put in by Mar. 1 by J. M. Cameron, General Superintendent, Calgary, Alta., for the following works: Seven no. 4 section houses, to be built at Navarre, Superb, Fusiliar, Compeer, Kirremuir, Fincastle and Pakawki; six A 2 station buildings with 50 ft. freight sheds to be built at Major, Piopot, Halton, Leonard, Enchant and Jenner; drilling 8 in. well at Conrad, approximately 500 ft. deep; drilling 10 in. well at Burdette, approximately 300 ft. deep; excavation and backfillling for waterpipe lines as follows—Taber, 2½ miles; Dunmore, 1½ miles; Grannum 1½ miles, and Suffield, 3 miles.

Rails, Etc. from Canadian Railways for France.

In connection with the removal of rails from Canadian railways a return has been submitted to Parliament of the correspondence with the Imperial Government on the matter, together with copies of orders in council made in connection therewith, and of action taken thereon. The Minister of Railways, when the return was asked for in the House of Commons, said the first request that came from the British Government for rails was for about 1,080 miles, and it was thought then that the Canadian Government should do anything in its power to help the Imperial Government during the war. The intention in regard to the western part of Canada was to take rails up from stretches where the Grand Trunk Pacific and the Canadian Northern railways ran parallel to each other. It would certainly have been no hardship to take these rails up. When, owing to the difficulty of securing transportation overseas, the request was cut down to 300 miles, the government decided to take the rails up at divisional points on the National Transcontinental Ry, and that has been done.

On another occasion the Minister informed a questioner in the House of Commons that the weight of the rails being taken up, including fastenings, turnouts, etc., was approximately 45,000 gross tons.

The Alberta Board of Public Utilities report for 1916 states that it has under its jurisdiction the section of the Alberta & Great Waterways Ry. from Carbondale to Lac La Biche, 174 miles; and the Central Canada Ry., from McLennan to Peace River, 48 miles.

Sir John C. Eaton's New Private Car.

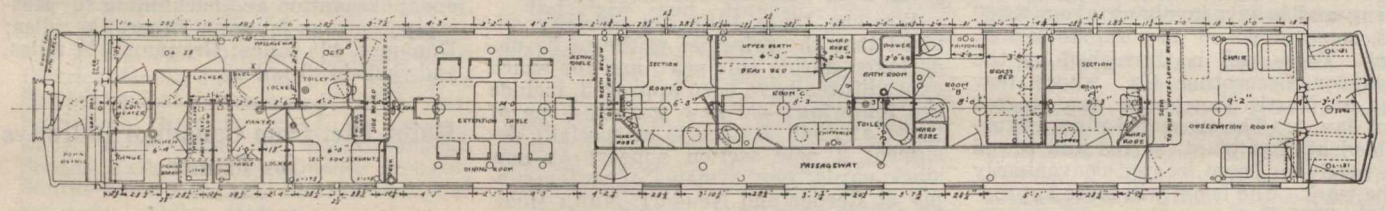
The private car Eatonia, which was used by Sir John C. Eaton, President of The T. Eaton Co., Ltd. departmental store owners, Toronto, for several years, but which was practically destroyed by fire in the Toronto railway yards some months ago, has been replaced by a new car of the same name, which is of the most modern type of steel construction. It is 78½ ft. long and weighs 87 tons, the trucks weighing 27 tons and the body 36 tons. The framing consists of a self-supporting centre sill and side construction, so built as to give a square elevation with continuous steel sash rest. The 1¼ in. thick composition floor material rests on 0.031 in. thick pressed steel flooring riveted to the main framework. The bolsters are of built up construction, formed from rolled sections and pressed shapes with centre bearings of cast steel. Westinghouse friction draft gear and double LN-1612 equipment is provided, the trucks being of 10½ ft. wheel base, cast steel frame single shoe type, with 36 in. diam. rolled steel wheels, and axles, having 5½ in. diam. 10 in. long journals.

As shown by the accompanying floor plan, it has accommodation for 12 occupants. The dining room seats 10 persons and the observation room 9. The rooms are in the following order, commencing from the kitchen end: Kitchen, pantry, servants' quarters, general lavatory, dining room, two compartments, two staterooms, bathroom and observation room, a total of 12 separate compartments providing for all the necessities of travel. The interior finish of the kitchen end of the car is of steel, white enamelled in the kitchen and pantry, but painted and grained quarter sawed oak in the passageways and servants' quarters. That in the vestibules is steel, painted body color. The observation room, dining room and main passageway finish consists of native walnut of natural finish, and the staterooms and compartments are finished in Cuban mahogany, the general lavatory and bathroom all being white enamelled. The observation room chairs and sofa are upholstered in velour. For the staterooms and compartments, tapestry is employed, except that the chairs in the staterooms are covered with printed linen. Blue leather is employed as a covering for the dining room chairs, and machine buffed leather for the servants' quarters. The kitchen floor covering is of sheet copper; the passageways, general lavatory and bathroom of 5/16 in. thick rubber tiling, carpet being used for the remainder of the car.

The windows are double, in two parts, throughout the car, except the high windows, which are single. Wooden blinds are provided in the kitchen, the remainder of the car having roller curtains of silk pantasote, supplemented by inner curtains of Holland material.

The heating system throughout consists of the Chicago Car Heating Co.'s standard vapor equipment, in conjunction with a 4-coil steel hot water circulation heater. Individual control is obtained for each room for the vapor system of piping only, it being impracticable to extend the plan to the hot water circulating system. Twenty ventilators are located in the upper deck. The lighting system includes the latest type 30-volt, body hung, 3 kilowatt axle device, with 2 ampere hour meter controls and 32 cells of 350 ampere hour type EP-15 Manchester positive plate, box negative batteries connected in parallel. The auxiliary lighting system consists of a double set of compressed gas tanks.

Some of the special features worthy of note are: The dressing tables in staterooms are fitted with bevelled edge plate glass. A speed recorder is installed in the observation room with a duplex air gauge adjoining. A child's small brass bed is located in the stateroom nearest the dining room and so located that when not in use it will slide under the larger bed in the room. Arrangement is made in the floor of the dining room, at table leg, for socket, so that the table can be wired for candelabra or such lights as it may be desired to use. The car is wired for telephones, with roll of wire for connection at stations, one telephone being placed in the observation room and another being an extension of the observation room telephone, located in the dining room, so that servants can answer calls without traversing the whole length of the car, but still the message can be received in the observation room. Vacuum cleaner with necessary receptacles is installed.



Plan of Sir John C. Eaton's Private Car.

Railway Constuction in Alberta in 1916.

The Alberta Railways Department report states that during 1916 there were 143 miles of new railways built in the province, making a total of 919 miles of new railways built within the past three years. The three McArthur lines were responsible for 129 miles of these new lines, their separate figures being: Alberta & Great Waterways Ry., 48 miles; Central Canada Ry., 1 mile, and Edmonton, Dunvegan and British Columbia Ry., 80 miles; while the C.P.R. built 11 miles, and the Canadian Northern Ry., 3 miles.

The length of railways in the province at Dec. 31, 1916, was: C.P.R., 1,920 miles; Canadian Northern, 1,250; Grand Trunk Pacific, 707; Edmonton, Dunvegan & British Columbia, 417; Alberta & Great Waterways, 49; total, 4,566 miles.

Ties for National Transcontinental Ry.—The Minister of Railways stated in the House of Commons recently that 93,121 ties were bought from the Rat Portage Lumber Co., Kenora, Ont., in 1907, as follows: 25% 1st class, delivered at St. Boniface, 80c.; 25% 2nd class, delivered at St. Boniface, 70c.; 25% 1st class, delivered at Rennie station, 78c.; 25% 1st class, delivered at Rennie station, 68c.

Enquiries About Hudson Bay Ry.

In answer to enquiries in the Senate recently, by Senator Casgrain, Sir James Lougheed gave the following information respecting the Hudson Bay Ry.: The total amount expended to Dec. 1, 1916, was $17,557,100.42, viz.: on the railway itself, $12,103,603.43, and on the Port Nelson terminals, including the port, wharves and excavation of channel, $5,453,496.99. The estimated cost of the railway when completed is $16,000,000, of the terminals $10,000,000, and of the grain elevators $1,000,000.

About 413 miles of the railway have been graded from Pas, Man., ready for track. Eleven miles remain to be graded. Rails have been laid for 332 miles from Pas.

The channel at Port Nelson, from turning basin at docks, to deep water of natural channel, will be about ¾ of a mile long, beyond which some improvements will be made at isolated points in the natural channel for a further distance of 1¼ miles. The depth of water at low tide in the excavated channel will be 20 ft., and the width of that channel will be 500 ft. No separate estimate of cost of dredging in the port and channel, when completed, has been made. The number of men employed on Government works at Port Nelson last summer varied from week to week. The maximum number on any monthly pay roll was 578. In Dec., 1916, there were 90 on the pay roll.

During the 1916 navigation season two steamships, Durley Chine and Sheba, were employed by the Government to transport men, materials and supplies to Port Nelson. Both vessels are owned by the Government, and the cost of operating them on the Hudson Bay route during 1916 was $31,355. There is no coal on sale at Port Nelson. The cost of each cargo varies with the class of vessel used to transport it.

Kettle Valley Ry. Suit.—The case of Grant, Smith & Co. against the Kettle Valley Ry. is set down for hearing at the current sittings of the British Columbia Supreme Court. The claim is for $699,608.99 and interest from Oct. 21, 1914. The plaintiffs were the contractors for building the company's line from Penticton to Hydraulic Summit. The amount of the construction accounts totalled $3,084,585.60, of which the company paid $2,384,976.61, leaving unpaid the amount claimed.

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

	Acres.
Calgary & Edmonton Ry.	5,040.00
Canadian Northern Ry.	320.00
Edmonton, Dunvegan & British Columbia Ry.	211.88
Grand Trunk Pacific Branch Lines Co...	6.24
Manitoba & Southeastern Ry.	295.32
Qu'Appelle, Long Lake & Saskatchewan Rd. & Steamboat Co.	4,060,588
	9,934.028

Orders by Board of Railway Commissioners for Canada.

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

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

General order 178, Jan. 27.—Consolidating supplementary regulations issued since general order 78 with respect to inspection and testing of locomotive boilers and their appurtenances.

General order 179, Jan. 29.—Ordering that rule 26, sub. sec. (d) of Regulations Governing Baggage Car Traffic be amended by adding after word, "the," seventh word in second line, and after word "carrier," eighth word, following words, "originating or terminating"; and by striking out words, "at destination," which are respectively ninth and tenth words of second line of sub. sec.

General order 180, Jan. 30.—Approving revised Supplement 10 to Express Classification for Canada C.R.C. 3, submitted by C. N. Ham, Sec., Express Traffic Association of Canada.

General order 181, Feb. 3.—Amending general order 179, Jan. 29, by adding after word "sub-section," in seventh line of operative part, words, "and by striking out word 'thereat,' the fourth word in third line of said sub-section, and substituting therefor words, "at destination."

25821. Jan. 23.—Approving C.P.R. clearances of cross section of chane frame on Mowat Ave., Toronto.

25822. Jan. 16.—Ordering that service furnished by G.T.R. during the summer by trains 70 and 75, between St. Johns and Iberville, Que., be continued during winter.

25823. Jan. 23.—Ordering Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) to build farm crossing for J. A. Harris and C. A. S. Atwood, of Grand Forks, B.C.

25824. Jan. 22.—Ordering Canadian Northern Ry. to appoint station agent at Englefield, Sask., by Mar. 1.

25825. Jan. 24.—Amending order 25812, Jan. 19, re Canadian Northern Ry. station agent at Aaron, Sask.

25826 to 25828. Jan. 24.—Approving Bell Telephone Co., agreements with Falkirk Telephone Co., Jan. 9; Tay Tp., Ont., Dec. 14, 1916; and Harvey Tp., Ont., Jan. 8.

25829. Jan. 26.—Amending order 15751, Dec. 14, 1911, re G.T.R. crossing just east of Grimsby Beach station, Ont.

25830. Jan. 25.—Authorizing Canadian Northern Ry. to build bridge over Valley River near Grandview, Sask.

25831. Jan. 31.—Authorizing C.P.R. to build spur for Ellison Milling and Elevator Co., Lethbridge, Alta.

25832. Jan. 26.—Authorizing G.T.R. to rebuild bridge 112 across Sauble River, Ont.

25833. Jan. 25.—Authorizing New York Central Rd. to rebuild bridge 16A, north of Pana, Ont.

25834. Jan. 27.—Authorizing G.T.R. to use bridge 61, carrying its track across C.P.R. sidings and roadway near Arnprior, Ont.

25835. Jan. 27.—Authorizing C.P.R. to build spur for the Saskatchewan Coal, Brick & Power Co., Shand, Sask.

25836. Jan. 29.—Ordering G.T.R. to provide suitable access for vehicles to station at Sturgeon St., Omemee, Ont.

25837. Jan. 29.—Ordering that cost of maintaining interchange track near Globe elevator, Calgary, Alta., built under orders 24085 and 24191, Aug. 19 and Sept. 17, 1915, be paid by Grand Trunk Pacific Ry.

25838. Jan. 26.—Amending order 5666, Nov. 10, 1908, providing that 20% of cost of installing gates at crossing of Thames St., Ingersoll, Ont., be paid out of railway grade crossing fund.

25839. Jan. 30.—Approving Y between Canadian Northern Ry. and Qu'Appelle, Long Lake & Saskatchewan Rd. & Steamboat Co.'s track in Hudson's Bay Co.'s reserve, Prince Albert, Sask.

25840. Jan. 31.—Ordering that all C.P.R. train movements over crossing of Hamilton St., Regina, Sask., be flagged.

25841. Jan. 30.—Approving plan showing proposed new location and clearances of car roof testing sprinkler at Angus shops, Montreal, subject to C.P.R. undertaking to keep employes off tops and sides of cars while operating there.

25842. Jan. 31.—Authorizing C.P.R. to rebuild bridges 24.1 and 24.2 over Otonabee River, at Peterborough, Ont.

25843. Jan. 31.—Authorizing C.P.R. to make connection 297 ft. long with Canadian Northern Ontario Ry. in Lot 7, Con. 2, Nipigon Tp., Ont.

25844. Jan. 20.—Extending to June 1, time within which Michigan Central Rd. may complete road diversion, etc., west of Brookfield, Ont., as authorized by order 25791, Jan. 8.

25845. Feb. 1.—Authorizing Canadian Northern Ry. to build bridge across Whitesand River, in s.w. ¼ Sec. 28-30-3, w. 2 m., Sask.

25846. Feb. 2.—Ordering that rate charged by C.P.R. on feldspar, in car loads of minimum weight of 25 net tons, from Maberly, Ont., to East Liverpool, Ohio, be $3.04 per net ton; schedule to give effect to this order to be published by Feb. 10.

25847. Feb. 3.—Dismissing complaints of Hay & Co., Woodstock, Ont., and J. H. Still Co. St. Thomas, Ont., that they are unable to load 36 ft. flat car with logs to minimum of 50,000 lbs.

25848. Feb. 3.—Authorizing Canadian Northern Ry. to cross and divert highway between Sec. 15-27-4 and Sec. 2-28-4, w.4 m., Alta.

25849. Feb. 2.—Authorizing C.P.R. to build spur 550 ft. long for Curtis's & Harvey (Canada) Ltd., in Lot 6, Rigaud Parish, Que.

25850. Jan. 30.—Authorizing International Nickel Co. of Canada, to lay conduit under G.T.R. at Erie St., or Fort Erie St., Port Colborne, Ont., and under Canada Furnace Co.'s works at Erie St.

25851. Jan. 30.—Amending order 25258, Aug. 11, 1916, to provide that G.T.R. freight shed authorized to be built at Mimico be located at New Toronto, approximately 1 mile west of approved location at Mimico; and that G.T.R. be at liberty to amend plan of layout at Mimico by eliminating facilities for l.c.l. freight, as shown on plan.

25852. Feb. 2.—Dismussing application of The Shingle Agency of British Columbia, on behalf of shingle manufacturers, for an order requiring railway companies to furnish a milling-and-sorting-in-transit rate.

25853. Jan. 31.—Relieving Canadian Northern Ry from providing further protection at highway one mile east of Lampman station, Sask.

25854. Feb. 2.—Ordering that 20% of cost of installing gates at crossing of Church St., Weston, Ont., by G.T.R. and C.P.R. be paid out of railway grade crossing fund; apportioning one-third of cost of operation and maintenance, and amending order 25703, Dec. 22, 1916.

25855. Jan. 31.—Extending for 30 days from Jan. 31 time within which C.P.R. may install gates at crossing of Main St., Farnham, Que.

25856. Jan. 29.—Approving Canadian Northern Quebec Ry. plan showing station to be erected at St. Alexis, Que.

25857. Feb. 8.—Authorizing Edmonton, Dunvegan and British Columbia Ry. to build highway crossing in n.w. ¼ Sec. 12, Tp. 62, R. 27, w.4 m., Alta., and to close road allowance on north boundary.

25858. Oct. 30, 1916.—Relieving C.P.R. from providing further protection at first public crossing east of Yamachiche station, Que.

25859. Feb. 6.—Approving agreement between Bell Telephone Co. and Cavan Rural Telephone Co., Durham County, Ont., Jan. 26.

25860. Feb. 13.—Authorizing G.T.R. to build spur and to extend existing siding for Montreal Water Works Department.

25861. Feb. 10.—Dismissing application of Alleghany Lumber Co., Pittsburg, Pa., for order directing G.T.R. to put into effect through rate on lumber from Midland, Ont., to Cleveland, Ohio, and to cease from charging a greater rate on lumber, in carloads between these points than it charges to Cleveland from Penetang, Out.

25862. Feb. 12.—Approving Canadian Northern Quebec Ry. revised location from Lot 1017, St. Theophilus Parish to Lot 87, St. Flore Parish, 3516.3 ft, and to rebuilt bridge over St. Maurice River at mileage 81.12.

25863. Feb. 14.—Authorizing C.P.R. to build two spurs for Canadian Aeroplanes, Ltd., Toronto.

25864. Feb. 21.—Approving agreement between Bell Telephone Co. and Beckwith & Montague Rural Telephone Co., Sept. 8. 1915.

25865. Feb. 14.—Ordering St. Martins Ry., running from Hampton to St. Martins, N.B., 30 miles, to make repairs to 10 bridges on its line; to be commenced by Apr. 1, and completed within 60 days.

25866. Feb. 15.—Relieving C.P.R. from providing further protection at highway crossing near Amazon station, Sask.

25867. Feb. 14.—Relieving G.T.R. from providing further protection at Bridge St., Richmond, Que.

25868. Feb. 14.—Authorizing Alberta Public Works Department to make highway crossing over C.P.R., in s.w. ¼ Sec. 28-2-16, w.4 m.

25869. Feb. 15.—Authorizing C.P.R. to remove station agent at Nevis, Alta., caretaker to be appointed.

25870. Feb. 15.—Authorizing Montreal & Southern Counties Ry. to operate signals on its track across Victoria Jubilee Bridge, Montreal.

25871. Feb. 15.—Authorizing C.P.R. to build spur for Fraser, Ltd., Fredericton, N.B.

25872. Feb. 13.—Dismissing complaints of Vancouver and Victoria Boards of Trade, Dominion Canners, Ltd., Glasco, Ltd., Oakville, Ont. and City of Victoria against proposed increase in rates on canned goods and hardware to points on Pacific Coast, as set out in Supplement 3 to Canadian Freight Association Westbound Tariff, no. 1, effective Feb. 12.

Telegraph, Telephone and Cable Matters.

The Dominion Government has extended its telegraph system on Vancouver Island, from Fisherman's Bay to Shushartie Bay.

The Marconi Wireless Telegraph Co. has declared a dividend, payable Feb. 1, on its cumulative participating preference shares at 7%, being 1s. 4.80d. per share, less income tax at 4s. 6d. in the pound sterling, net amount 1s. 2d. per share.

Recruiting officers have been warned not to enlist telegraph operators unless they are released by the companies by which they are employed, as the number of operators who have enlisted is likely to cause a serious handicap to efficient work by the companies.

The Governor in council has established certain orders and regulations regarding cable, radio-telegraph, telegraph and telephone companies, under the War Measures Act, providing that the Minister of Militia may take over such companies' offices, plant, etc., for use on His Majesty's service, as he may deem fit, and may assume entire or partial control of the transmission of all messages.

The Great North Western Telegraph Co. has opened offices at Norwood and Ruel, Ont., Forgan, Sask., and Hope and Port Kells, B.C.; and has closed its offices at Cape Rosier and Perthuis, Que.; Kashbaw and Muskoka Lakes, Ont.; Dropmore, Man., and Claybanks, Sask. Names of offices have been changed as follows: Chaudiere Curve, Que., to Charny; Deux Rivieres, Que., to St. Stanislas station; and Joly Siding, Que., to River Henry.

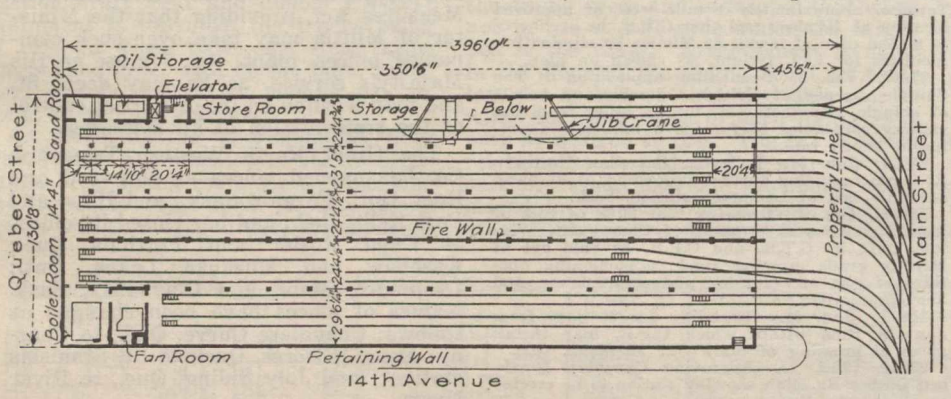
The Dominion Government estimates for the year 1917-18 provide for expenditure on telegraph and telephone lines and wireless telegraphy, as follows: repoling and general repairs to Cape Breton telegraph system, $4,600; half cost of construction of telegraph lines jointly owned by Anglo-American Telegraph Co. and Dominion Government, in Prince Edward Island, $17,000 (revote); repairs in Quebec, $3,000; renewal of poles on Moose Jaw-Wood Mountain Line, Sask., $5,000 (revote); offices and dwellings at Grande Prairie and Dunvegan, on Peace River Line, Alta., $6,525 (revote); repairs and improvements to office buildings in Saskatchewan and Alberta, $2,350; general repairs and improvements to main line telegraph and telephone lines in British Columbia, $22,400; to provide for build- and maintenance of wireless telegraph stations, $295,000.

At the Maritime Telegraph & Telephone Co.'s annual meeting at Halifax, N.S., recently, the report showed that there was an increase of 1,479 subscribers for telephone service, and a satisfactory increase in the net profits. After payment of all charges and 6% dividend on the perferred and common stocks, there was a surplus of $10,995, making, with the balance brought forward from the previous year, $19,035. S. M. Brookfield, President, stated that the Public Utilities Commission's recent award had reduced the company's valuation of its property from $3,121,533 to $2,571,219, thus making the valuation $764,000 less than the capital. The commission is now working on a new schedule of rate, and if this be so arranged as to enable 8% on the valuation amount to be earned, the 6% dividend would be maintained, but if only 7% could be earned, then not more than 3% would be available for common stock.

Electric Railway Department

British Columbia Electric Railway Co's Vancouver Car Barn.

Although the final completion of the structure as designed has been postponed on account of war conditions, the two-storey reinforced concrete car barn for the British Columbia Electric Ry. Co., Vancouver, will be unusual in the fact that car storage is provided on two levels, to which access is obtained by two entrances at opposite ends of the building. The elevations of the street tracks differ by about 20 ft. in the total distance of nearly 400 ft. between streets, and a counterfort retaining wall is used to provide the necessary resistance to earth pressure on one side and one end of the structure.



Plan of Vancouver Car Barn, British Columbia Electric Railway.

To save space and reduce the column spacing to a minimum, relatively slender built-up steel columns of the box type were used up to the second floor beams of reinforced concrete, using concrete fireproofing cast with the latter. Track pits under all cars on the first floor were provided by supporting the rails and concrete slab platforms on reinforced concrete piers. The new barn is located just south of a one-storey timber frame barn which was in operation, and it was required that the construction should proceed without encroaching on the existing yard on the south more than was absolutely necessary. This was accomplished by constructing the new concrete structure in two parts, the southern portion, including the fire wall which divides the building, being completed first.

The accompanying plan and part section show that the new concrete building will be 350 x 130 ft., and about 40 ft. high on Main St., and 20 ft. high on Quebec St. The difference in level of these streets at the ends of the building suggested the idea of doubling the storage space by making the barn of two-storey construction, running the cars to be stored on the upper level halfway around the block through Thirteenth Ave. on the north. This required a special design to support the heavy car loading on the second floor. Reinforced concrete beams and slab were used, as indicated on the cross-sections herewith, with the beams placed under the rails in all cases except at the north side, where a turnout beyond the lunchroom, elevator and foreman's room in the northwest corner is necessary to locate the north, or tenth, track.

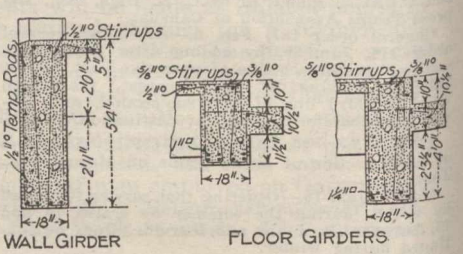
By spacing the tracks 11 ft. 8½ in. on centres and using steel core columns for the first floor, it is seen that the property width just accommodates 10 tracks, placed in 5 aisles of 2 tracks each. In the northwest corner the sand room, oil storage room and elevators are located, with a storeroom and general storage space below on the north side of the building, with jib cranes located as shown.

The design of the first floor track supports was made to accommodate either a 55 ft. interurban car weighing 82,000 lb. on 4 axles spaced 6.5, 25.5 and 6.5 ft. apart, or a 43 ft. line car weighing 73,000 lb. on 4 axles spaced 6, 23 and 6 ft. apart. The second floor design will accommodate the double end city car, over 42 ft. long, weighing 47,500 lb. on 4 axles spaced 4.5, 13.6 and 4.5 ft. apart. On the spaces between cars the regular specified live load of 75 lb. per square foot was provided for. The working unit stresses in steel and concrete complied with the building law. The concrete protected steel columns were designed without considering the concrete to carry any of the load.

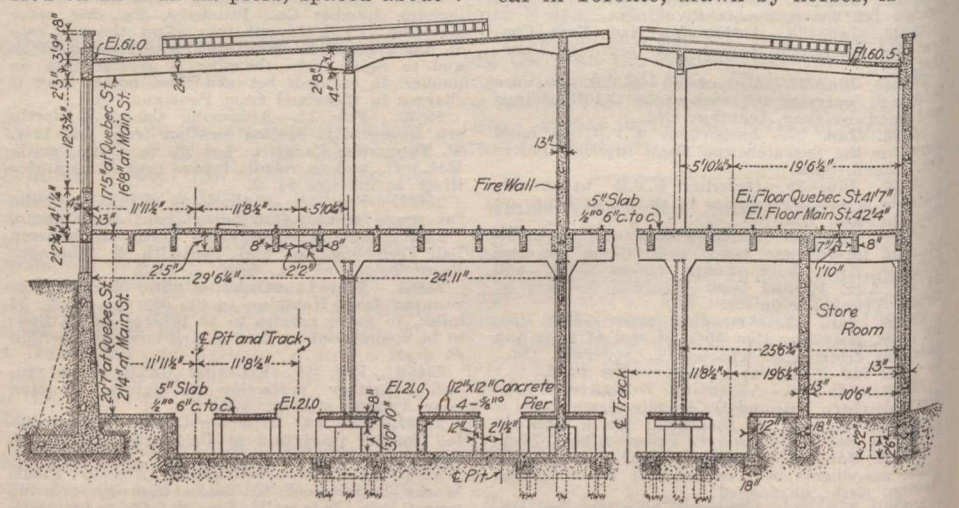
The first floor tracks and slabs are carried on 12 x 12 in. piers, spaced about 7 ft. apart, and 4½ ft. high, in order to give free access to the running gear of any car at any time. The steel rails, 7¼ in. deep, act as beams between the piers. The main piers supporting the interior columns are of concrete about 8 ft. square, reinforced by ¾ in. rods, and capping the 10 timber piles used to increase the bearing power of the foundation soil.

The second floor is supported by box columns of steel composed of two 9 in. or 10 in. channels with two 12 in. plates, protected on the outside by 4 in. of concrete and filled with concrete to prevent corrosion on the inside. This concrete, a 1:2:4 gravel mix, was poured with the beams and slab of the second floor, with brackets. The south part of the building was constructed first, up to the 13 in. fire wall, allowing the use of the storage yard on the south of the old barn until the first part of the new building could be used.

The retaining walls, of the reinforced concrete counterfort type, with counterforts spaced about 8 ft. apart, were constructed on the south and west, the height of the west wall decreasing with the grade of Fourteenth Ave., and surmounted by a wall containing windows as soon as the grade permitted sufficient clearance. The building is sprinkled by the dry pipe system. When completed, a 35,000 gal. water tank will be placed on the roof, supported on a steel tower over a bay near the centre of the building. The construction and design were carried out by Westinghouse Church Kerr & Co.



Details of Wall Construction, Vancouver Car Barn, British Columbia Electric Railway.



Section Elevation of Vancouver Car Barn, British Columbia Electric Railway.

Toronto Street Cars.—The first street car in Toronto, drawn by horses, is said to have been used in 1861, and the first electric car in 1891. The horse drawn cars did not disappear until 1893.

The Ottawa Electric Ry. issues 20 trip cards for the use of school children, which have to be signed for and by the children, and presented for punching to the conductor on each trip. Application has been made to the company to issue tickets as in Toronto, Montreal and other places in place of the cards.

Overcrowding on Toronto Railway Cars.

For several years past the City of Toronto has been attempting to deal with the overcrowding on the Toronto Ry. cars, but without achieving anything in the way of relief. The situation can certainly be described as unsatisfactory, but in the apportionment of the blame the city council and the public must bear their due share. The city has on several occasions proceeded against the company for maintaining a common nuisance, and has secured a conviction, which is at present under appeal to the Imperial Privy Council. Apart from this appeal on technicalities, the fact remains that the city has the right to proceed against the maintenance of a common nuisance, and this involves the duty of making and enforcing efficient regulations to prevent a public utility from deteriorating into a public nuisance. In not making bylaws defining overcrowding, fixing the number of passengers each car may carry, and enforcing such bylaws against the company and the public alike, the city has failed in its duty.

Just prior to the outbreak of war a comprehensive report was made on traffic conditions in the city, the gist of which was that traffic conditions could be improved by a considerable extension of track, additional cars, rerouting of cars, and passenger control, and certain recommendations along these lines were made. On account of the financial condition generally, it was decided to postpone any action on the report until normal conditions prevailed. The city, however, appears to think that the overcrowding condition can be eliminated simply by the addition of cars. This alone would not prevent overcrowding, but would possibly add to the trouble in another way. If the number of cars on any given route were multiplied by ten, passengers would still force their way on a car already loaded beyond capacity, unless prevented. The public requires to be educated in the matter, but it never will be so long as this subject is treated as a joke by the local press and as campaign material by would-be civic legislators. It is generally accepted that more lines are required and it follows that more cars are needed to operate on those lines, but in view of war conditions, it was not considered expedient to involve either the company or the public in any heavy expenditure. Therefore, in order to deal with overcrowding, there remained the possible rerouting of cars and the control of passengers. Practically nothing has been done in the first case, and nothing at all in the second. It is correct to say that there is overcrowding amounting to nuisance on certain routes, and also that there are other cars and routes operated far below capacity. This is a matter which might be taken up by the city and the company in a sympathetic manner, and by cooperation there is no doubt some means could be evolved whereby the nuisance could, to a very great extent, be alleviated. Neither side seems, however, to be able to approach the subject in the condition of mind to ensure success. The control of the passengers is, without doubt, the chief thing to consider in dealing with the overcrowding evil. The present system of collecting fares should be abolished and an up to date pay as you enter system should be installed, as it has been on the Toronto Civic Ry. cars, where the discomforts of overcrowding are considerably minimized by passengers depositing their fares as they enter the cars and not being jostled by the conductor having to force his way through a crowded car to collect the fares. Each car could be marked with the number of passengers to be carried, and the number to be allowed over seating capacity, and the cars could be so constructed that it would be comparatively easy to control the number of passengers getting on, and when the limit under bylaw was reached, the car could be closed in such a way that no other passengers could get on. Other cities with greater population than Toronto have grappled with, and successfully overcome, this trouble. There was a little difficulty at first in enforcing the rules, but well within a month the lesson had been learnt, and overcrowding ceased to exist, except in a few special cases, where a small fine generally had a salutary effect. The onus of keeping the number of passengers within the limit allowed by the bylaw would be placed on the conductor primarily, and the general responsibility for oversight on the company's inspectors. The number of fares missed by the conductor on an overcrowded car, must, in the course of a year or so, amount to the cost of a car, and to a certain extent, the knowledge that one can ride free on a car, because the conductor cannot collect the fare, causes a large number of persons to ride short distances who would otherwise walk.

The city is again making application to the Ontario Railway and Municipal Board for an order to compel the Toronto Ry. to place an additional 200 cars in service. Evidence was given on behalf of the company showing the difficulty there was in obtaining material for the construction of cars, also the difficulty of obtaining labor, both for building and operating cars, and this evidence was attempted to be refuted by witnesses on behalf of the city. At the time of writing the board had come to no decision.

The Mayor announced, Feb. 13, that he had instructed that an indictment be prepared for the forthcoming March assizes against the Toronto Ry. for maintaining a common nuisance by overcrowding its cars, and if he failed to get it past the grand jury he would proceed by other methods. Similar indictments, with resultant conviction and appeal, have now occurred at intervals during the past six or seven years. The company's franchise will expire by effluxion of time early in 1921, so it is quite conceivable that the Toronto Ry. overcrowding case will still be before some court or other at that date.

Regina Municipal Railway Earnings.

Following are the earnings, expenses, etc., for Dec., 1916, compared with those for Dec., 1915; and the totals for 12 months ended Dec. 31, 1916:

	Dec. 1916	Dec. 1915	12 months to Dec. 31,'16
Total revenue .	$23,724.35	$19,336.88	$212,790.19
Expenditure . .	19,850.87	14,933.31	191,359.68
Net earnings ..	3,873.48	4,403.57	21,430.51
Fixed charges .	8,239.64	8,022.96	97,575.54
Deficit	4,366.16	3,619.39	76,155.03
Aver. exp. per car mile without power . ..	19.45c	13.32c	15.47c
Aver. exp. per car mile with power	25.22c	18.62c	20.72c
Cost per k.w.h.	1.41c	2.02c	1.67c
Cost per car mile	5.91c	5.03c	5.25c
Platform wages per car hour.	72.40c	73.76c	72.10c
Expenses less fixed charges percentage of earnings			83.67%
Expenses with fixed charges percentage of earnings			118.40%

Nova Scotia Tramways and Power Co. Ltd., Prospectus.

Following are extracts from a prospectus of $2,250,000 of 1st mortgage gold bonds issued recently: The company was incorporated by the Nova Scotia Legislature in 1914, with authority, among other special powers, to purchase the Halifax Electric Tramway Co.'s properties and franchises, comprising all street railways, commercial electric light and power and gas properties in Halifax, and to acquire water powers, lands, etc., on the Gaspereaux River, 55 miles from Halifax, capable of a hydro-electric development of approximately 12,000 h.p. The capitalization is:

	Authorized	Outstanding
1st mortgage 5% gold bonds (this issue) ..	$10,000,000	$2,250,000
Preferred stock, 6% cumulative	2,500,000	1,500,000
Common stock	3,500,000	2,500,000

The proceeds of the sale of the stocks and bonds now outstanding as above will provide for the acquisition of the Halifax Electric Tramway Co.'s properties, and the water power rights, lands, etc., on the Gaspereaux River, also adequate working capital. The Nova Scotia Board of Comimssioners of Public Utilities has approved the issue of $3,000,000 of bonds, $2,500,000 of preferred stock, and $2,500,000 of common stock for these specific purposes and for the construction of a hydro electric plant, utilizing the Gaspereaux lands. The bonds and stocks now outstanding are a part of the issue thus approved.

The N. S. Board of Commissioners of Public Utilities, in 1916, decided that the fair and reasonable value of the properties of the Halifax Electric Tramways Co., as of June 15, 1915, was $3,450,000, and of the Gaspereaux lands, etc., $300,000, a total of $3,750,000, on which these $2,250,000 bonds are a first mortgage. Since June, 1915, substantial additions and improvements have been made to the company's property, including a 4,000 h.p. increase in power station capacity and an entirely new gas plant to replace the old one. The company's net earnings increased from $245,525 in 1906 to $342,897 for the 12 months ended Oct. 31, 1916. Net earnings for 1915 were nearly three times, and in each of the last six years were more than double, the $112,500 interest on these bonds. Net earnings, 12 months to Oct. 31, 1916, were more than three times these interest charges. Both gross and net earnings have shown increases each year for the last ten fiscal years.

The company operates under franchises which, in the counsels' opinion, are without limit of time. The physical property of the Halifax Electric Tramway includes a street railway system, with 21.2 miles of track, the greater part of which is double track. There are 62 passenger cars, the necessary car barns, a central power house, with 7,300 h.p. capacity, including a new 4,000 h.p. turbo generator now being installed, a lighting and power distribution system, a modern gas plant, with about 42 miles of pipe in the distributing system, etc.

The Sherbrooke Ry & Power Co., which it was reported recently might temporarily suspend its electric railway service, wholly or partially, in order to release power for pressing needs of munition manufacturers, has announced that as an additional source of power has been brought into Sherbrooke, it has been found unnecessary to further consider such suspension.

Toronto Civic and Other Street Railway Matters.

Following are extracts from an interim report by the Toronto Comimssioner of Works, R. C. Harris, for the 11 months ended Nov. 30, 1916:

Eastern Entrance to Exhibition.—The construction of an eastern entrance to the Canadian National Exhibition Grounds via Bathurst St. and Garrison Common was authorized by Council May 1, 1916, and commenced on May 2. As a whole the work to be done consisted of the reconstruction of the **Bathurst St. bridge** over the G.T.R. and C.P.R., including the raising of the north approaches to same on Bathurst and **Front Sts., and the construction** of a wooden trestle forming the south approach, together with a reconstruction of the roadway leading to Queen's Wharf; the construction of wooden trestles along the north parapet of the Old Fort and over the C.P.R. track leading to Queen's Wharf; and the construction of a double track street railway from the intersection of Bathurst and Front Sts. to the eastern entrance gates of the exhibition grounds. By reason of an agreement with the G.T.R., that company wrecked the old Bathurst St. bridge, erected the steel work, roadway slab and easterly half of the north abutment of the new bridge, and constructed the Bathurst-Front Sts. approach to same. All of the other bridge construction work was performed by city forces on a day labor basis. The street railway track construction work consisted of the grading, ballasting and laying of track materials upon a length equivalent to 10,100 lin. ft. of single track, and of the erection of trolley poles, transmission cables, trolley wires and other overhead work necessary to place the line in a condition ready to operate. In the track construction 6 in. gravel ballast; 6 in. x 8 in. x 8 ft. cedar ties; and 60 lb. A.S.C.E. section rails were used. The overhead construction consists of two 500,000 c.m. copper cables and 2-0 hard drawn round copper trolley wires. The latter work is of the open construction type throughout.

Yonge St. Subway was paved with granite sets and completed on Sept. 25. Street cars commenced running through it on Oct. 4.

Civic Railway Construction.—During 1916 there has been considerable extension work on the Civic Ry. Contracts have been awarded for 13 double truck cars required to strengthen the service on Danforth and St. Clair Aves. Contracts have also been awarded for one single truck car for the Bloor St. service.

At the opening of 1916 sidewalks on Lansdowne Ave. from the top of the hill north of Davenport Road to St. Clair Ave. had been moved to a new location for a 42 ft. pavement. This year all track, overhead and pavement work has been completed, except for a short portion just north of Davenport Road, which is being delayed by order of council.

A large amount of feeder cable was strung on the Eastern Division, being made necessary by a rearrangement of sub-stations by the **Hydro Electric.**

We have under construction a 9 car capacity addition to the St. Clair Ave. barn, the present barn also having capacity for 9 cars. It is expected that the new barn will be occupied about Jan. 1, 1917.

Traffic has increased on the Civic Ry. Comparing the first 10 months of 1916 with the same period of 1915, Gerrard St. has increased 6.5%, Danforth Ave. 11.8%, St. Clair Ave. 11.0%, Bloor St. 50%, from Mar. to Oct., inclusive, and the entire system, 13.1%. We are now carrying per day about 38,000 revenue passengers, and 1,370 soldiers, who ride free. No additional rolling stock was added during 1916, and the present equipment is working to its full capacity. There have been no serious accidents during 1916.

Street Railway Matters.—Much useful data on street railway traffic has been secured under this appropriation, as well as a small amount of data on vehicular and pedestrian traffic. Most of the work has consisted in securing information relative to overcrowding on the Toronto Ry. Co.'s routes.

Montreal Tramways Commission.

The commission named in the act passed by the Quebec Legislature last session to draw up a new franchise between the City of Montreal and the Montreal Tramways Co., consisted of Senator J. P. B. Casgrain, Montreal; Senator C. Baubien, Outremont, and F. J. Cockburn, of the Bank of Montreal. The latter resigned subsequently, as his engagements did not permit him to act, and the vacancy has been filled by the appointment of A. W. Stevenson, accountant, Montreal.

The commission were duly sworn in on Feb. 9, and subsequently elected Senator Casgrain as Chairman, and appointed R. Beaudry as Secretary. They have opened an office at 92 Notre Dame St., and have applied to the Board of Control for an appropriation of $5,000 to cover present expenditure, which was authorized Feb. 14.

The commissioners have announced that they will begin at once to study the whole of the conditions surrounding the present franchises, and the city's needs. They have also issued the following statement: "After a preliminary survey of the material already available and in possession of the city officials, the commissioners intend calling upon the public bodies, and the citizens at large, for information and suggestions. They are desirous that all possible light and help should be secured. in order to make the proposed franchise a fair and advantageous one for the city, present and future."

Jitney Traffic Notes.

It was reported that 160 jitneymen had taken out licenses under the new by-law in Vancouver, B.C., up to Jan. 30.

The Edmonton, Alta., City Council, which operates the Edmonton Radial Ry., is considering the question of turning the city ambulance into a jitney car and operating it on a section of Athabasca Ave., on which an electric car is being operated at a loss. It is also suggested that the city might operate a jitney car to the stock yards.

The Quebec Court of Review, sitting at Montreal, Feb. 9, confirmed a judgment of the Supreme Court of May 20, 1913, dismissing the petition of W. G. M. Shepherd, a ratepayer, who asked the court to set aside as illegal a franchise granted by the Montreal City Council to the Canadian Autobus Co., Aug. 22, 1912. The matter had been decided in the same way in another action, which had been carried to the Imperial Privy Council.

The jitney drivers of the Blue Funnel Line have protested against the new jitney regulations put in operation by the New Westminster, B.C., City Council, and propose to carry the matter to court. The principal objection is the license fee for interurban jitneys, which has been raised to $50. In addition to this fee the jitneymen say they have to pay a fee in every municipality through which they pass.

The Vancouver Jitney League has submitted to the Vancouver City Council a proposed new bylaw to amend the one passed recently. J. O. Kerr, President of the league, says the jitneymen want a bylaw that they can live up to, and that the short experience with the bylaw passed recently shows that in regard to routing and some other matters it could be improved, of course, from the jitneymen's standpoint.

The Edmonton, Alta., City Council is asking the Alberta Legislature to pass an act giving it, among other things, power "for prohibiting or licensing and regulating motor vehicles carrying passengers and used or plying for hire within the municipality, defining the routes or limits within which the same may operate, and compelling the owners or operators thereof to furnish bonds or other securities in such amount as the council may require as security for the payment of damages sustained by personal injury or otherwise through the operation or driving of such vehicles."

Kitchener and Waterloo Street Railway Report.

The Kitchener, Ont., Light Commissioner's report for the calendar year 1916 contains the following information about the street railway department.

	1916	1915
Receipts	$55,261.47	$48,628.03
Operating expenses	19,474.01	22,305.83
Maintenance and repairs .	7,308.09	5,409.24
Debenture interest	8,059.04	7,851.60
General expenses	7,413.46	6,334.76
Total operating expenses.	42,245.60	41,901.43
Gross profits	13,006.87	6,726.60
No. of passengers carried	1,236,650	1,059,480

Transportation of Posemen in Regina. As stated in Canadian Railway and Marine World some little time ago, the Regina Municipal Ry. management refused to continue carrying postmen for the Post Office Department at the ridiculously low rate of $25 a man per year and asked for $50 per man, which the department refused to pay, and as a consequence the postmen have since been travelling on tickets. The matter came before the city council recently, when one of the aldermen moved that the departmena's offer of $35 a man per year be accepted. The vote resulted in a tie, which under the rules defeated the motion.

Hydro Electric Radial Railway By-laws.—Referring to the figures given in our last issue regarding the voting of the various municipalities concerned in the proposed hydro electric radial railway from Port Credit to St. Catharines, Ont., we have since been supplied with the official figures, and find that there are slight discrepancies in those previously given. In Clinton Tp., the figures were: 275 219 for, and 29 against; Louth Tp., for, 7 against, thus making the total vote, 7,282 for, and 5,515 against, instead of 7,236 for, and 5,545 against, as previously mentioned.

Electric Railway Projects, Construction, Betterments, Etc.

Lake Erie & Northern Ry.—The value of the land taken for railway purposes by the company at Jubilee Terrace, Brantford, Ont., in 1913, has been fixed by the arbitrators at $2,000. (Nov., 1916, pg. 460.)

Moncton, Tramways, Electricity & Gas Co.—The Mayor of Moncton, N.B., in his inaugural address to the city council, Feb. 2, said the changing of the route of the street railway was an important matter which would have to be dealt with during the year and would require careful consideration. (Oct., 1916, pg. 425.)

Ontario Hydro Electric Railways.—Chief Engineer Gaby of Hydro Electric Power Commission of Ontario has completed estimates for electric railways through the various municipalities tapped by the St. Catharines and Niagara Falls, the St. Catharines and Welland, and the Hamilton and Port Dover hydro radial lines. These will be considered at a meeting of the representatives of these municipalities at a meeting to be held in Hamilton at an early date.

Timiskaming & Northern Ontario Ry.—Speaking at the Empire Club, Toronto, Feb. 8, J. L. Englehart, Chairman, T. & N.O.R. Commission, is reported to have said the commission was preparing to electrify the line, as it was believed electricity was to be the future motive power in the province. With this object in mind the commissioners had had made during the past two years a complete resurvey of the line and had its new plans completed. The T. & N.O.R. operates the Nipissing Central Ry., an electric railway between Cobalt and Liskeard, part of which is on T. & N.O.R. right of way.

Toronto Civic Ry.—The Toronto City Council is reported to have in contemplation the construction of a line from the northern city limits down Dufferin St. to the exhibition grounds. (Feb., pg. 73.)

Transcona, Man.—An informal proposal for the building of an electric railway into Transcona was discussed recently between representatives of the Transcona Town Council and the Greater Winnipeg Water District Commission. An agreement which had been under consideration by certain private interests was laid before the commission and discussed. It provided for the building of a line from Provencher Ave., St. Boniface, to the corner of Oxford and King Sts., Transcona, by Sept. 1, and for the operation of one round trip an hour. The cost such a line, including equipment, was estimated by the commission at $125,000. The commissioners expressed the view that an exclusive franchise for 10 years should be given, with the option of an extension for 30 years.

At a meeting of the commission, Jan. 27, a letter was read from J. G. Harvey, the commission's solicitor, in which he said the first question to be decided was whether the commission intended to construct and operate a permanent line from Deacon to St. Boniface. Following is a summary of the letter: "The district can expropriate upon and along any streets or public highways for its right of way. Expropriation must be followed by compensation. For the pipe line, Mr. Harvey suggests little compensation would be asked, while for the construction of a railway greater amounts might be asked. He recommends that an arrangement be entered into with the City of St. Boniface and the permanent use of its streets for the pipe line and even the temporary use of its streets by the railway. He suggests four estimates to be obtained from the Chief Engineer, viz.: as to the extra cost to the district of constructing a permanent steam railway from Deacon to the point in St. Boniface where it is to end; as to the extra cost to the district of constructing a permanent railway (not including the extra cost of right of way) from Deacon to the said point, such railway, either steam or electric, to be operated; the cost of building and equipping the proposed railway line in Transcona, including cars, and the cost of right of way. And in this regard the difference in cost of right of way for a permanent railway as compared with a temporary one."

The Greater Wininpeg Water District Commission owns a railway from St. Boniface to Shoal Lake, which connects with the Canadian Northern Ry. near St. Boniface. The commission, it was reported, paid $12,400 for running rights and transfers during the previous year. If the line were to be permanently operated and to be of use to the settlers going in, it would be necessary for the commission to have its own terminals in St. Boniface. Chief Engineer Chace said he would have estimates prepared showing the approximate cost of a steam and an electric railway from Deacon to St. Boniface.

We have been officially advised that nothing in the way of definite action has yet been taken about the Transcona proposition. (See Greater Winnipeg Water District and Transcona Electric Ry., Feb., pg. 73.)

The Windsor, Essex & Lake Shore Rapid Ry. proposes to do a small amount of track paving in Windsor, Ont., during this year. A. Eastman is Vice President and General Manager, Kingsville, Ont. (Oct., 1916, pg. 425.)

Sale of the St. John Railway.

The following circular was issued to St. John Ry. shareholders, Feb. 3, by H. M. Hopper, Secretary: "We have received an offer from the New Brunswick Investment Co., Ltd., of $1.300.000 for all of the company's property, assets and franchises, and in addition $10 a share for each share of the company's stock transferred to the New Brunswick Investment Co., making $140 a share net to the shareholders. The New Brunswick Investment Co. agrees to assume all of the St. John Ry. Co.'s indebtedness and liabilities. Payment to be made by the New Brunswick Investment Co. in full on transfer of the property on or before Feb. 28, 1917, or so soon thereafter as matters in connection with the St. John Ry. Co.'s mortgages can be arranged, as to which the parties making the offer anticipate no delay. Payment of the additional $10 for the stock will be made when the certificates are delivered to the New Brunswick Investment Co. in transferable form. Your directors have satisfied themselves as to the ability of the offerers to complete the transaction, and are of opinion the offer should be accepted by the shareholders. As it is essential, under the legislation affecting the company, that at least two-thirds of the shareholders, at a special meeting called for the purpose, shall vote in favor of the transfer, we hope you will sign and return forthwith the enclosed proxy if you are unable personally to be at the meeting. We enclose notice calling a special meeting of shareholders for Feb. 15 to consider this offer and to decide whether it should be accepted or not."

The shareholders decided at the meeting to accept the offer and the transfer of the property is being made accordingly.

Electric Railway Notes.

The Hamilton, Ont., City Council has appointed a special street railway committee, which is inviting citizens to make complaints against the service now being given by the Hamilton St. Ry.

The Port Arthur and Fort William, Ont., Utilities Commissions have arranged to hold a joint meeting to discuss fares on the sections of the two municipal electric railways connecting the two cities.

We are advised that the report to the effect that a company is being formed to operate a line of omnibusses for passenger and freight between St. Thomas, Aylmer and Port Burwell, Ont., is incorrect.

The Edmonton, Alta., City Council is having manufactured in the city steps for its electric railway cars. A question whether some patent rights are being infringed has been raised and Commissioner Harrison is ordering an investigation.

The Ottawa Electric Ry. has ordered 3 double truck semi steel cars, 33 ft. body, 45 ft. over all, equipped with Westinghouse 101-B-2 motors, 27-F-E-1 trucks, S.M.E. air brakes, etc., from Ottawa Car Manufacturing Co. They will be duplicates of the company's class 600 cars.

The London, Ont., Railway Commission has decided to purchase a freight motor car for operation on the London & Port Stanley Ry., in order to handle the increased freight traffic. The cost of the car is given as $23,500. The city has been asked to issue $25,000 new debentures, as a number of other matters on the railway demand attention, and several expenditures have been undertaken for the current year, to be paid out of revenue.

Mention was made in our last issue of a report that the Saskatoon, Sask., City Council had under consideration the building of electric cars for its street railway, owing to increasing cost, and to the inability of manufacturers to fill orders on short notice. We have since been advised that such a suggestion had been made to the city council, but that it is not likely that it will be considered until after the war.

The Ontario Railway and Municipal Board has ordered the City of Toronto to pay the whole cost of placing and maintaining the diamond and crossing at the intersection of the Toronto Civic Ry. and the Toronto Suburban Ry. at the junction of Lansdowne Ave. and Davenport Road, and that the cost and maintenance of the protective appliances be divided equally between the city and the company.

The Brantford, Ont., Railway Commission informed the local Trades and Labor Council recently that only policemen and firemen in uniform and the city hall janitor are carried free on the municipal railway. Books of tickets are issued free, as has been the custom for years, to the Victorian Order of Nurses, and books of tickets are sold to the different city boards for their employes at reduced rates. These latter books are issued in the names of particular persons.

Mainly About Electric Railway People.

A. H. Dennis has been appointed chairman of the civic committee in charge of the operation of the Fort William, Ont., Electric Ry.

F. X. Couture, heretofore Superintendent of Transportation, has been appointed Superintendent, Railway Department, Sherbrooke Ry. & Power Co., Sherbrooke, Que.

E. A. Robert, President, Montreal Tramways Co., has been elected a director of the Western Assurance Co. and the British American Assurance Co., Toronto.

Chas. Johnstone, heretofore acting Manager, Sherbrooke Ry. & Power Co., Sherbrooke, Que., has been appointed Comptroller. Office, 330 Coristine Bldg., Montreal.

T. Ahearn, President, and **J. D. Fraser,** Secretary-Treasurer, Ottawa Electric Ry., left Ottawa Feb. 20, via New York and New Orleans, for southern California, expecting to be away about five weeks.

F. A. Chisholm, heretofore Superintendent, St. Johns Electric Light Co. Division, Southern Canada Power Co., St. Johns, Que., has been appointed Superintendent Light and Power Department, Sherbrooke Ry. & Power Co., Sherbrooke, Que.

Thos. Ahearn, President, Ottawa Electric Ry., and Ottawa Car Manufacturing Co., has been elected a director of the Merchants Bank of Canada. He is also a director of the Bell Telephone Co. and Canadian Westinghouse Co., as well as of several other companies.

Martin N. Todd, President, Galt, Preston & Hespeler St. Ry., and General Manager, Lake Erie & Northern Ry., who has not been in good health for some time, left Galt, Ont., on Jan. 29, for the south, his intention being to go to the Isle of Pines, and to be away for two or three months.

Sir W. M. Aitken, Bart, who was elected a director, British Columbia Electric Ry., at the recent annual meeting of shareholders in London, Eng., has been created a Baron of the United Kingdom, with the title of Baron Beaverbrook, of Beaverbrook, N.B., Canada, and of Cherkley, Surrey, Eng.

C. G. Newton, formerly agent, London & Lake Erie Ry. & Transportation Co., St. Thomas, Ont., has been appointed Accountant at London, Ont., which position was occupied by L. Tait, who was also Secretary-Treasurer, prior to his appointment as Secretary-Treasurer, London St. Ry. The L. & L. E. R. & T. Co.'s directors will probably appoint a Secretary-Treasurer at their next meeting.

William Henry Dinsmore, whose appointment as Traffic Superintendent, British Columbia Electric Ry., Vancouver, was announced in our last issue, was born at Meaford, Ont., Apr. 14, 1877, and entered B.C.E.R. service, Feb. 1, 1901, since when he has been, to Oct. 31, 1909, conductor; Nov. 1, 1909, to Oct. 31, 1915, Inspector; Nov. 1, 1915, to Feb. 29, 1916, Chief Inspector; Mar. 1 to Dec. 1, 1916, acting Traffic Superintendent, City Lines, Vancouver, B.C.

Leonard Tait, heretofore Secretary-Treasurer, London & Lake Erie Ry. & Transportation Co., has been appointed Secretary-Treasurer, London St. Ry., vice G. C. Holding, who has resigned, in order to devote his time to his private affairs. He commenced railway service in 1899, with the Michigan Central Rd., at London, and has also served with the G.T.R. and C.P.R., and returned to the M.C.R. in Feb. 1905 as chief clerk to Freight and Passenger Agent, London. He was appointed Soliciting Passenger Agent, New York Central Rd., Toronto, and in Nov., 1912, he was appointed accountant, London & Lake Erie Ry. & Transportation Co., and later, Secretary-Treasurer of the company.

Lewis Clark Haskell, Secretary-Treasurer Southern Power Co., who has also been appointed Secretary-Treasurer, Sherbrooke Ry. & Power Co., Montreal, was born in Pennsylvania, Jan. 2, 1883, and graduated with the degree of B.A., from Colgate University, in June, 1905. From 1905 to 1908, he was Assistant Manager, Haskell Lumber Co., and Salmon River Ry., Fassett, Que.; 1900 to 1911, Secretary-Treasurer and Manager, Labrador Electric Co., Murray Bay, Que.; 1912 to 1913, Secretary-Treasurer, South Shore Power & Paper Co., Montreal; 1913 was appointed Secretary-Treasurer, Southern Canada Power Co., Montreal, which company has taken over the Sherbrooke Ry. & Power Co.

W. C. Franz, who has been elected President of the Trans-St. Marys Traction Co., of Sault Ste. Marie, to succeed the late T. J. Kennedy, was born at Bucyrus, Ohio, Mar. 14, 1871. In 1889 he entered the Toledo & Ohio Central Ry.'s service, remaining until 1901, when he went with the Hocking Valley Ry. in West Virginia, serving as Trainmaster and Superintendent. From 1906 to 1908 he engaged in railway construction work and coal development in West Virginia, and on Sept. 1, 1908, was made General Manager of the Lake Superior Corporation, succeeding to the Vice Presidency in 1913. He is also Vice President of the Algoma Steel Corporation, Ltd.; President of the Cannelton Coal & Coke Co. and the Lake Superior Coal Co.

Hon. James Leitch, K.C., Judge of the Supreme Court of Ontario, who died at Toronto, Feb. 7, after a prolonged illness, was born at South Branch, Stormont, Ont., June 2, 1850, and was educated at Williamstown and Cornwall, Ont. He became a barrister in 1876, and was created a Q.C. in 1889, practising his profession in Cornwall. He was reeve of Cornwall in 1884, mayor 1885-86, member of the High School Board there since 1887; life governor and a director, Cornwall General Hospital; and was also, for some time, President, Stormont Electric Light & Power Co., and Cornwall Gas Co. On the formation of the Ontario Railway and Municipal Board in 1906, he was appointed Chairman, and held that position until 1912, when he was appointed to the bench.

James B. Woodyatt, who has been appointed General Manager, Southern Canada Power Co., Montreal, which owns the Sherbrooke Ry. & Power Co., operating the street railway, and other utilities in Sherbrooke, Que., was born at Brantford, Ont., July 2, 1886. He was, from Apr. to July, 1905, chain man, Niagara & Welland Power Co.; July to Sept., 1905, topographer, Toronto & Hamilton Ry.; Apr. 1906 to Dec. 1908, apprentice, Canadian Westinghouse Co., Hamilton, Ont.; Dec. 1908 to June 1909, investigating ice conditions, Gulf of St. Lawrence, Dominion Government; June 1910 to June 1910, sales engineer, Allis-Chalmers-Bullock, Ltd., Montreal; June 1910 to July 1913, Superintendent of Power, Sherbrooke Ry. & Power Co., Sherbrooke, Que.; July 1913 to Oct. 1916, General Superintendent, Southern Canada Power Co., Montreal.

Electric Railway Finance, Meetings, Etc.

Cape Breton Electric Co.:

	Dec. 1916	Dec. 1915	Jan. 1 to Dec. 31, 1916.	Jan. 1 to Dec. 31, 1915.
Gross	$40,284.39	$36,267.87	$393,666.68	$357,214.07
Exp.	22,346.19	19,625.69	231,264.97	206,427.82
Net	17,938.20	16,642.18	162,401.71	150,786.25

Hamilton St. Ry.—The City Treasurer reported recently on the financial relations between the city and the company as follows:—

Total receipts, 1915	$569.694.15
Total receipts, 1916	706,789.14
Increase	$137,094.99
City's share, 1915	$45,575.53
City's share, 1916	$56,543.13
Increase	$10,967.60

The city's share in 1916 was $4,772 more than the highest previous year, viz., 1913.

Kitchener & Waterloo St. Ry.—The annual report of the operations for 1916, presented to the Kitchener, Ont., Light Commission, Feb. 7, showed net profits of $3,606.47. Of this 25% is paid to the town of Waterloo, in return for running rights.

It was also reported that the net profits for Jan., 1916, were $330.53, against $252.97 for Jan., 1916.

London & Port Stanley Ry.—The London Railway Commission announces that the gross railway earnings from July 1 to Dec. 31, 1916, were $178,211, and total expenses $146,321, leaving a net operating profit of $31,890. There was an increase of $5,300 in the operating expenses over the same period, 1915, of $10,000 in the total expense, and of $39,000 in the gross earnings. The net earnings were $27,500 more for the 1916 period than for the 1915 one, which was the first under the Commission's operation.

Port Arthur Civic Ry.—Traffic statistics for January:

	1916.	1917.
Revenue	$6,797.20	$8,104.00
Military tickets	6,854.00	4,375.00
Ordinary tickets	8,607.00	7,504.00
Workmen's tickets	27,747.00	50,612.00
School children	4,446.00	8,292.00
City officials	1,652.00	2,079.00
Cash fares	102,687.00	114,541.00
Total passengers	152,754	188,071
Transfers issued	15,386	18,976

Toronto Ry.—Earnings for Jan., $510,052.52; city percentage, $76,507.88. From figures compiled by one of the Toronto newspapers, it appears that since the commencement of the company's franchise, early in 1891, $72,917,572.31 were received in fares, and $9,249,213.13 paid to the city as percentage on earnings. The receipts for the first year of operation were $291,765.17, not much more than half of the receipts for Jan. 1917, the city percentage being $23,017.08.

The Sherbrooke Ry. & Power Co. has been taken over by the Southern Canada Power Co., Ltd., but maintains its corporate capacity as heretofore. Following are the officers:——F. W. Teele, President; J. B. Woodyatt, General Manager; L. C. Haskell, Secretary-Treasurer; Chas. Johnstone, Comptroller, all with offices at 330 Coristine Bldg., Montreal; F. A. Chisholm, Superintendent, Light and Power Department, and F. X. Couture, Superintendent, Railway Department, with offices at Sherbrooke, Que.

Dominion Power and Transmission Co's Annual Meeting.

The report presented at the annual meeting in Hamilton, Ont., recently, showed that the gross business during 1916 equalled that of 1913, the best year preceding the war, and the indications for 1917 are that the business will eclipse all former years. The net results of 1916 were not proportionately so good, owing to the increased price of materials and commodities. The restrictions under which the subsidiary companies operate does not permit of an advance in rates to customers, corresponding with the increased cost of operation.

The gross earnings were $2,693,211.93, which left a surplus of $710,348.29 after all expenditures. Profit and loss account had a balance of $536,060.67, after placing $250,000 additional to the credit of the regular reserve account. The reserve for maintenance and renewal has been increased by $111,079.02.

The officers for the current year, who were re-elected, are: President, J. R. Moodie; Vice President, C. A. Birge; Treasurer, Jas. Dixon; Managing Director and Secretary, W. C. Hawkins; General Manager, E. P. Coleman.

Toronto Railway Co's Annual Meeting.

Following are extracts from the report for the year 1916, presented at the annual meeting, Feb., over the signature of the President, Sir Wm. Mackenzie:—

A summary of the year's operations is attached, and when one takes into consideration existing conditions owing to the continuance of the war, it is certainly very gratifying.

Gross earnings		$5,973,161.27
Charges for operating, maintenance, etc.		3,350,657.87
Net earnings		$2,622,503.40
From which net earnings there was deducted $2,227,958.29, distributed as follows:—		
Dividends	$958,826.40	
Bond interest, etc.	156,122.14	
		$1,114,948.54
Payments to city:		
Percentage on earnings	$909,881.10	
Pavement charges	98,418.40	
General taxes	104.710.25	
		1,113,009.75
		$2,227,958.29

The increase in the gross passenger earnings is gratifying. The total for 1916 was $5,881,505.28, against $5,611,296.60 for 1915. The charges against earnings for operation, maintenance, etc., were $3,350,657.87, the percentage of operating cost being 57% of the passenger earnings. Payments made to the City of Toronto throughout the year amounted to $1,113,009.75, an increase of $48,937.53 over 1915.

The shareholders, at a special general meeting on May 29, 1916, authorized an increase in the capital stock of $3,000,000 by the creation of 30,000 shares, but no action was taken by the directors as to the disposition of such shares.

On Dec. 28, 1916, a fire occurred in the car barns at St. Lawrence and King Sts., completely destroying the buildings and contents, including 168 cars.

The sixth drawing of the company's currency and sterling bonds, under the terms of the mortgage deed dated Sept. 1, 1892, took place on June 21. Under said terms the company draws annually during the last 10 years of its franchise 5% of the amount of bonds issued, thus reducing during the 10 years mentioned, the outstanding bonds to 50% of the original issue, and all bonds so drawn are to be redeemed on or after Aug. 31 following the date of drawing, from which date no interest is payable on bonds so drawn. There has been drawn to date a total of $1,365,086.65.

Careful attention has been paid to the maintenance of the plant, rolling stock, equipment and other properties.

The directors declared, out of the accumulated surplus earnings, 4 quarterly dividends.

INCOME ACCOUNT.

Gross earnings		$5,973,161.27
Operating, maintenance, etc.	$3,350,657.87	
Interest on bonds, etc.	156,122.14	
Percentage on earnings	909,881.10	
Pavements, taxes	215,707.45	
		4,632,368.56
		$1,340,792.71

PROFIT AND LOSS ACCOUNT.

Balance from 1915		$5,026,907.37
Surplus earnings, after payment of all expenses, interest, taxes, etc.		1,340,792.71
		$6,367,700.08
Dividends, 4 of 3 per cent. each, on the paid up capital		$ 958,826.40
Balance from 1915	$5,026.907.37	
Surplus carried forward.	381,966.31	
		$5,408,873.68
		$6,367,700.08

COMPARATIVE STATEMENT.

	1916.	1915.
Gross income	$5,973,161.27	$5,694,136.43
Operating, maintenance charges, etc.	3,350,657.87	3,250,611.95
Net earnings	2,622,503.40	2,443,524.48
Passengers carried	149,529,754	142,061,258
Transfers	61,342,763	62,398,638
Percentage of charges, etc., to passenger earnings	57.	57.9

Prior to the annual meeting, a considerable canvass for proxies was conducted in Montreal by a shareholder there, H. A. Hutchins, K.C. On the morning of the meeting, a Montreal delegation called upon the Mayor of Toronto, with a view to sounding him as to the possibility of a new franchise on the expiry of the present one in 1921.

At the meeting of shareholders, which was attended by a considerable representation of Montreal holders of stock, some criticism was aimed at the report, concerning the subsidiary companies, and also of an issue of $3,000,000 of new stock, which was authorized in May, 1916. The President stated that the stock mentioned had not been issued, and that under present circumstances it would not be issued, as it would be practically impossible to get it subscribed. As to the subsidiaries, it was claimed that there was nothing in the annual statement to show what the assets were, and that the books were not open to inspection. After some explanation by the President, the report was adopted.

The board for the current year consists of: Sir William Mackenzie, President; Senator F. Nicholls, Vice President; Sir Henry M. Pellatt and E. R. Wood, Toronto; Sir Rodolphe Forget, G. H. Smithers, Montreal; and F. W. Ross, Quebec. There is now one more director than last year, G. H. Smithers and F. W. Ross, being the new ones, James Gunn, not being re-elected.

The Winnipeg Electric Ry. Co.'s annual meeting, which was to have been held Feb. 14, and which was postponed to Feb. 21, owing to the absence of the President, Sir Wm. Mackenzie, was further postponed, as he had not got back to Winnipeg from the Pacific coast.

London, Ont., Street Ry. employes are organizing a labor union, with a view of taking action on the application made recently for increased wages.

Toronto's Requests for Electric Railway Legislation.

Amongst the several matters in regard to which the Toronto City Council is applying to the Ontario Legislature, are the following:—

Toronto Suburban Ry.—That notwithstanding any agreement, statute, order or decision of any court, board or committee to the contrary, the company shall from time to time maintain a pavement upon the portion of Davenport Road within the city limits occupied by the company's lines and tracks, of a character and quality similar to that constructed and maintained from time to time by the city upon the remaining portion of the road.

To enable the city to enter into an agreement with the company for an alternative route in substitution for the route on Davenport Road easterly from Bathurst St., along any available highway or upon a private right of way, or upon such other way as may be provided, to the northerly city limits, and upon the consummation of such agreement, the company's franchise upon the portion of Davenport Road referred to shall cease. To declare forfeited and cancelled the company's franchise upon all streets south of Dundas St., in Ward 7.

Toronto & York Radial Ry.—To authorize the city by bylaw to enter upon, expropriate and acquire the portion of the T. & Y. R. R. (Metropolitan Division), upon Yonge St., within the city limits, and all the real and personal property used in connection with it, and necessary for its operation, including all franchises, rights and privileges, which it now has or may enjoy, respecting the construction, maintenance and operation of a railway within the city limits upon that street, upon paying such compensation therefor as may be agreed upon between the company and the city, and in the event of disagreement, by the Ontario Railway and Municipal Board. To build and operate a double line of railway on Yonge St. from the T. & Y. R. R. southern terminus to the northern city limits, and to grant running rights over it to the T. & Y. R. R. on terms to be mutually agreed upon.

Toronto Ry.—To require the company to build and place in operation 100 new cars during 1917, and 100 additional cars during 1918, and in default of doing so, the company to pay to the city a penalty of $100 a day for each car lass than the said numbers.

Toronto Civic Ry.—To authorize the city council to pass bylaws, without submitting them to the ratepayers' vote, for the issue of consolidated loan debentures to the extent of $1,498,864.33, for the following purposes, amongst others:—To cover overdrafts and complete work on civic car lines, $140,000. Balance of purchase of cars, $17.000. Amount already expended and required to complete Bloor St. line, $125,000.

Vancouver Transportation Club.—The following are the officers for the current year: President, C. E. Lang, Northern Pacific Ry.; First Vice President, W. D. Power, British Columbia Electric Ry.; Second Vice President, J. W. Nutt, Allan Steamship Co.; Third Vice President, A. Whitwall, Great Northern Ry.; Secretary, D. Alexander, Chicago, Milwaukee & St. Paul Ry.; Treasurer, Jas. Napier, Allan Steamship Co.; Directors, Messrs. Jenney, Faulds, P. Whitelock, Faar, Nace, Daniels and Foster.

The London Street Railway Co's Annual Meetings.

Following are extracts from the annual report for the year 1916:—

	1916.	1915.
Earnings—		
Passenger	$420,704.92	$393,299.00
Miscellaneous	5,609.85	5,559.00
Gross earnings	$426,314.77	$398,858.00
Expenses—		
Maintenance way and structures	$ 33,845.55	$ 35,619.41
Maintenance, equipment.	50,131.88	29,046.60
Transportation, power	37,994.08	38,465.25
Transportation, car service	138,653.55	131,308.94
Total operating expenses	$292,400.95	$275,212.04
Net earnings	$133,913.82	$123,645.96
Interest on bonds	$ 32,138.29	$ 32,769.63
Interest on overdraft	41.70	23.50
Taxes	8,123.06	.....
Total deductions	$ 40,303.05	$ 32,793.13
Net income	$ 93,610.77	$ 90,852.83

During the year $55,831.82 was expended in construction and equipment as follows:—Track and roadway construction, $54,965.18; electric line, $683.01; building and fixtures, $43.75; fare boxes, $56.15; new trucks, $40.90; miscellaneous equipment, $42.83; total, $55,831.82; credit by scrap sold, $3,566.22. Net expenditure, $52,265.60.

Even though approximately 3,000 citizens have gone with the overseas forces, the company's business has continued to increase substantially. Several battalions were brought to London for training; so that approximately 12,000 men were in camp during May and June. This made extra car service necessary and caused abnormal earnings for those two months; after which a very large percentage of the troops were moved away to Camp Borden for more extensive field training. Forty-three of the companys employes have joined the Canadian Expenditionary Force.

Owing to the extensive improvements proposed by the city for street paving last year and which would require the rebuilding of several miles of tracks, it was found necessary to use a portion of the company's surplus for this purpose rather than for the usual interim dividend in July. Considerable of the street work planned by the city last year could not be completed on account of the shortage of labor, and so remains to be included in next year's programme. This, together with the required annual redemption of $35,000 bonds and the abnormal costs of supplies and labor, without the ability to increase the prices charged for transportation, makes the coming year's operation rather more difficult.

During the past season the city paved Dundas St., from the exhibition grounds eastward to Ashland Ave., 0.64 mile. The track was renewed with 80 lb. T rail, on concrete foundation and with brick paving. The double tracks to the exhibition were extended 0.33 mile to the G.T.R. crossing. The Hamilton road was paved from Adelaide St. to Egerton St., 0.84 mile. Some new 80 lb. T rail was used in this section and all the tracks relaid with concrete and brick paving. An extension of the single track on the Hamilton road from Egerton to West St., 0.42 mile, was made with 80 lb. T rail and placed in operation on Dec. 1. The above additions to the trackage, together with the doubling of the curve at Mamelon St., amount to an extension of 0.83 mile, making the total mileage now 36.02.

Owing to the presence in the city of such a large number of soldiers during the early part of the summer, it was impossible to spare the cars for remodelling purposes to such extent as had been anticipated, but all necessary repairs and painting were continued as rapidly as possible.

Hydro electric power has continued to give us satisfaction, even though interruptions have been somewhat more numerous and of longer duration than last year. As the Power Commission is making improvements to avoid such delays it is expected the service will be considerably improved in the future.

No serious litigation is pending against the company and as our relations with the public are most gratifying a good year is looked for.

PROFIT AND LOSS ACCOUNT.

Surplus, Dev. 31, 1915	$109,976.48
Net income for year	93,610.77
	$203,587.25
Dividends, 6 per cent.	$ 33,860.40
Directors' fees	1,000.00
Surplus, Dec. 31, 1916	168,726.85
	$203,587.25

Expenses per cent. of earnings, 68.60. Passengers carried, 11,518,428. Car earnings per revenue passenger, 3.67c. Transfers, 1,792,579. Total passengers, 13,311,006. Car earnings per passenger, 3.08c. Car mileage, 1,938,492. Gross earnings, per car mile, 21.99c. Operating expenses per car mile, 15.08c. Net earnings, per car mile, 6.91c. Miles of track, 36.080. Gross earnings per mile of track, $11,835.46.

The report was adopted at the annual meeting at London, Ont., Feb. 7, when C. Currie, Akron, Ohio, was elected a director, and subsequently was elected President in place of E. W. Moore, Cleveland, Ohio, who resigned as director and President. The following are the directors for the current year: C. Currie, Akron, Ohio, President; T. H. Smallman, London, Ont., Vice President; C. B. King, Manager, W. M. Spencer, S. H. Ivey, London, Ont.; P. W. D. Broderick, Toronto, and Sir Herbert S. Holt, Montreal. G. C. Holding, Secretary-Treasurer, resigned in order to devote his time to private affairs, and the Manager, C. B. King, was appointed temporarily to succeed him. Subsequently L. Tait, theretofore Secretary-Treasurer, London & Lake Erie Ry. & Transportation Co., was appointed Secretary-Treasurer.

Answers to Questions on Electric Railway Topics.

Following are replies by W. R. McRae, Master Mechanic, Toronto Ry., to questions sent to the American Electric Railway Association's question box:—

Trolley Shoes vs. Trolley Wheels.—What experience have member companies had in the use of trolley shoes in place of trolley wheels? Do the advantages overcome the objections, especially the increased wear upon the trolley wire?

On many occasions during the early days of electric traction we used sliding trolley contacts, instead of wheels, and saw no undue wear of trolley wire. I doubt that there will be more wear on wire by using trolley shoes as designed now, especially in view of the superior quality of the trolley wire now in use.

What advantages have member companies experienced by equipping their cars with small extinguishers? Where they are used? What method is pursued to prevent theft?

All motor cars on this system are equipped with fire extinguishers. Have found them very useful in putting out or checking fires due to overheated resistance and controller fires. They are carried in vestibule directly behind motorman, are easily detached and are checked the same as balance of removable equipment. We have had no loss of extinguishers due to theft.

Welding Steel Tools.—Is the welding of high speed steel bits to machinery steel shanks for wheel turning tools practical, and if so, what is the best method to employ?

We use high speed steel bits welded to machine steel shanks for ordinary lathe work, but not on wheel lathe. The tool steel bit is tapered to mat with the V in shank, and oxy-acetylene welded.

Boring Air Compressor Cylinders.—What method is employed by member companies in boring out air compressor cylinders on a mill for boring wheels, or in a lathe?

We bore them on a lathe and grind to finish.

The Street Railway Situation in Halifax.

A meeting of the City Board of Control was held, Feb. 1, which citizens were invited to attend and offer suggestions for the betterment of the street railway service. H. R. Mallison, Secretary-Treasurer, Nova Scotia Tramways & Power Co., and J. A. DeYoung, Assistant Secretary, Halifax Tramway Co., were present, but very few citizens turned up to voice their complaints. The chief cause of any trouble that may have arisen in the service appears to be in regard to overcrowding of certain cars during rush hours. Mr. Mallison stated that crowding could be avoided if the public did not all wish to get on the same car. The company is supplying a 3 minute service, the best that can be given on single track curves and with present trackage facilities. It is almost impossible to get additional cars. The company is seeking them, and has estimates under consideration, as well as studies of trackage for them. Labor is scarce and material not only high in price, but it is exceedingly difficult to obtain deliveries. Replying to a suggestion by one of the controllers that the cars be equipped with air brakes, he stated that the brakes at present in use had been thoroughly gone into by the Public Utilities Commission and deemed by it to be the best for the service.

British Columbia Electric Ry.'s Office Employes' Association. — The B.C.E. Ry.'s office staff has organized with the following officers: Honorary President, Geo. Kidd; President, A. E. Chamberlin; Vice President, E. Rogers; Secretary, P. Lewis; Treasurer, J. V. Armstrong. There are about 400 persons in the 18 departments eligible for membership, and it was stated that about 300 had signified their intention to join. The association is formed to look after the mutual welfare of the company and the office employes. It is the purpose of the members to work together in their own and the company's interest, as they believe they will be able to further their ends by working in a body. Social gatherings may be held from time to time during the year. A schedule of meetings has been made out and a great deal of work planned for the near future.

The Sandwich, Windsor & Amherstburg Ry. is having the 2 double truck cars, which are being built at Cleveland, Ohio, and which were described in our last issue, equipped with air brakes. Similar equipment will be placed on 6 double truck cars which are now in operation.

Marine Department

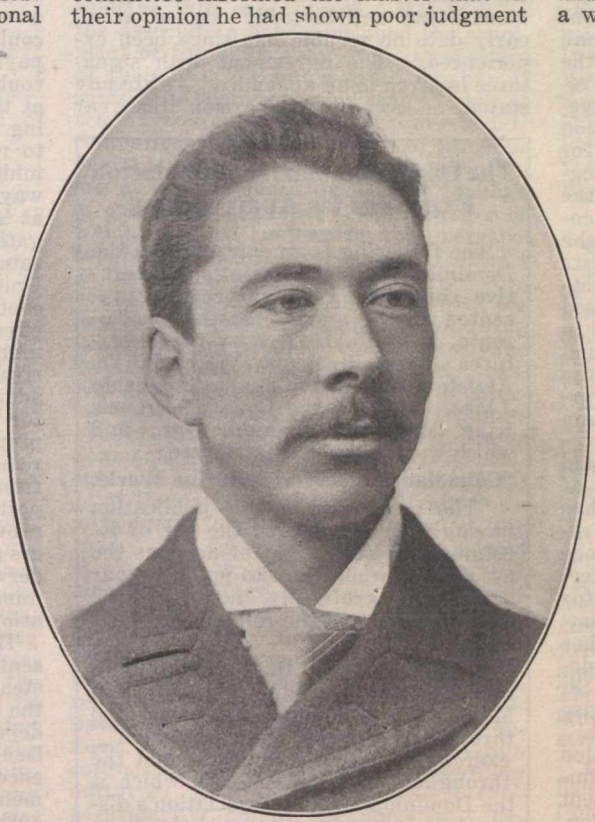
Canadian Lake Protective Association's Annual Report and Meeting.

The following report, signed by W. E. Burke, chairman of the committee, and Francis King, counsel for the association, was presented at the annual meeting in Toronto, Feb. 15:

The year 1916 presents a good record for the vessels enrolled in this association and trading in the waters over which the association exercises any jurisdiction. The casualties reported are few in number and in most of the cases the damages are slight and the accidents of an almost insignificant character. A few exceptional cases, notably one or two hereafter mentioned, show claims on underwriters of considerable extent, but their number is so limited that the season may be said to present a very low record, not only in the number of casualties, but also in the amount of damages resulting. Furthermore, it is noteworthy that with the exception of a few cases which are still the subject of enquiry, the casualties have all occurred under such circumstances that no master has been censured and only one has been criticized. The committee therefore extends to the members of the association and to the masters of the enrolled vessels congratulations upon the success which appears to be attending the efforts of all parties to reduce controllable losses.

An appendix to this report contains an analysis of the casualty records for the season. The number of ships at sea accounts to a large extent for the extremely small list, but careful navigation, with fair depths of water, must constitute the chief reasons for the marked reduction in the number of reported accidents. As the year progressed a doubt arose whether masters were fulfilling their obligations and filing reports faithfully, but careful investigation was made and available lists were checked, with the result that your committee was satisfied that all casualties of which it should take cognizance were being reported as they occurred, and that the records correctly represented the small number and extent of avoidable disasters.

The outstanding feature of the list is the complete absence of total losses. The collisions are only 10 in number, and, with one exception, all of a minor character with but slight loss, 6 of the 10 occurring at docks in harbors, 2 in the Welland Canal, 1 in ice, the boats in these cases being at slow speed and the damages being almost negligible. The tenth case was more serious: the Midland Prince and the Imperial collided in Lake Superior with substantial hull damages and much resulting delay and loss of use. Full particulars of the casualty have been withheld by owners, as litigation must settle the liabilities, and in the meantime your committee has therefore not been able to take any action. Another serious collision between the W. Grant Morden and the Nottingham occurred in Lake Superior on July 27, with serious results. The W. Grant Morden (a new ship) is owned by a member of this association, but is not enrolled, and no report being filed, the collision is not included in the appendix. This case is also the subject of litigation. Groundings and strandings are again classified together and are 12 in number. Of these, 7 occurred under circumstances which appear to exonerate the navigators completely, and only 5 called for investigation. In one of these the Ionic ran on the north end of Caribou Island on Apr. 24, before lights were lit, and the committee informed the master that in their opinion he had shown poor judgment



A. A. Wright,
Vice President and Treasurer, Montreal Transportation Company, Ltd., and President, Dominion Marine Association.

in shaping a course for Whitefish Point from a point where he, apparently in error, thought himself off the west end of Michipicoten Island, without using greater caution until he had ascertained his position with certainty. In another, the Keybell ran on Morgans Point, 4 miles west of Port Colborne, in fog, and the committee, notwithstanding the master's excuses as to a faulty compass, has asked for explanations as to the failure to use the lead. His explanations are filed and await further action. In the third case, the Masaba ran on Grassy Shoal, northeast of Victoria Island, Lake Superior, in a fog, and the master has been asked to explain his use of the inner passage and the time at which thick weather set in. Explanations are also filed in this case. In the fourth, the Saskatoon ran over Jackass Shoal upbound in the St. Lawrence River, at a time when the gas buoy was misplaced and not burning. The committee made enquiry as to the notice, if any, regarding this buoy on the canal bulletin boards, and found that a notice posted in due time at Cornwall was read and reported by the engineer of the ship to the effect merely that the light was out. As the master admits seeing the buoy, the question arising is important both in regard to his conduct and to the usefulness of the new bulletin boards, and the committee has asked for an explanation. The fifth and last case is that of the Iroquois, which grounded off Salmon Point in the Lower St. Lawrence in charge of a sailing master who had gone to his room at the time of the accident, leaving only a wheelsman and a watchman on watch. In this case a wreck investigation has been asked by your committee and has recently been held. This investigation produced another example of the doubts in the minds of many masters as to the respective duties and responsibilities of master and pilot on the St. Lawrence. Masters do not appear to realize yet that they retain responsibility and are bound to intervene in cases where it is apparent that the pilot is in doubt or making a manifest error. The difficulty is even greater where, as in the case in question, the lake master turned the ship over to a so-called "sailing master" at Quebec. The Wreck Commissioner, in the finding he has just handed out, expresses strong views on this point and reprimands the lake master for his apparent lack of interest. The certificate of the "sailing master" is suspended for nine months. A suggestion has now been made that present day trade conditions require the extension of the limits for an inland waters certificate so as to include points as far down as the Island of Anticosti.

There were 6 collisions with docks or bridges and 2 with lock walls important enough to require report. Three of the remaining 4 cases were minor accidents to machinery or gear, and the last case is one of fire resulting apparently from careless use of matches and tobacco. This case led your committee to issue a bulletin prohibiting smoking in the sleeping quarters of the crew. But in none of these cases did it appear that the officers of the ship could be blamed in any way, and making due allowance for the peculiar difficulties attendant upon each case in the circumstances reported, your committee passed each of these casualties without further action.

There were no collisions with lock gates. On more than one occasion during the season lock gates were broken, and with considerable attendant damage, but in no case did the accident result from the action of a steamer enrolled in this association. Doubtless the experience of masters and the work of this association in this respect has led to the exercise of greater caution in bringing ships into position in the locks. Nevertheless conditions remain unsatisfactory and the situation is one of some insecurity. An accident from this cause with tremendous resultant damage is possible at any time in any one of a great number of locks in the Dominion canals, and another year's record may show boats of this association involved in these cases even without

clear fault on the part of the navigator.

The report of the committee for 1915 referred to the effort made to secure the installation of safety devices on all locks to prevent gates from getting out of mitre or giving way under pressure, and during the past year your committee has renewed these requests for action, enlisting as well the support of the Dominion Marine Association. After correspondence on the subject a small delegation waited upon the Deputy Minister of Railways and Canals and later submitted its representations in writing. The department admits the correctness of the statements made, and claims to have already equipped the more dangerous locks with the Gowan safety device. On the Welland Canal the department is disinclined to recommend any further expenditure for this purpose on account of the present building of the new Welland Ship Canal.

Your committee also pressed upon the attention of the same department the request for an improved and uniform system of lighting to indicate the position (open or closed) of lock gates, and for guards to prevent collision with lock entrance walls. The delegation from the Dominion Marine Association above mentioned also discussed these items with the Deputy Minister and placed the requests in writing. With reference to the lighting system the department has raised some objection to the method proposed in the report of your committee for 1915, and has determined simply to maintain the existing departmental regulation. Nevertheless it was admitted that investigation proved that lock masters were not carrying out instructions in this respect and were in some cases adopting plans of their own making. The department has therefore issued strict instructions requiring absolute and uniform compliance with the existing regulation above referred to. As to the desired protection for lock entrances the position taken is similar to that with reference to the other safety appliances mentioned. The department claims to have protected the St. Lawrence locks well and will not advise expenditure on the Welland at present.

In several cases casualty reports filed have called attention to the need of improvement in channels and establishment of additional or better aids to navigation, and whenever it appeared advisable your committee has taken steps to bring the question raised to the attention of the proper department at Ottawa or before the Lighthouse Board. Telegraphic reports to the association's office at Kingston have led to the prompt replacement or relighting of misplaced or unlighted buoys. Positions of stake buoys have been corrected. Light keepers and fog horn operators have been warned. Obstructions in channels have been removed; and it may be said in general terms that no opportunity has been lost to make good use of all suggestions received from the men who navigate the ships enrolled in the association.

The co-operation of the Lake Carriers' Association and the Great Lakes Protective Association was sought as occasion required, and your committee gave due consideration to occasional recommendations of these associations. Bulletin 2 of 1916, published your committee's adoption of the recommendation of the Great Lakes Protective Association that no vessel should attempt to pass another in the shallow and narrow channels between the lower end of Port Huron Middle Ground and Corsica Shoals Lightship, and between the upper end of Russell Island and the lower end of St. Clair Canal.

The plans worked out in 1915 to bring the upper St. Lawrence pilots under the jurisdiction of the Dominion Wreck Commissioner proved somewhat unsuccessful at first, as pilots boarding a ship at Kingston or Montreal did not consider themselves bound to comply with the understanding that they should sign the ship's articles. This difficulty was met by a resolution early in the season that these pilots should sign an agreement offering their services for the boats enrolled and agreeing to sign articles on first boarding ships. An agreement was prepared, duplicates were placed at Montreal and at Kingston, and pilots were invited by public notice in the newspapers of both cities, to sign the offer and undertaking. An interview with a delegation of pilots explained the situation, and the agreement being satisfactorily signed at an early date no trouble has since been experienced. The agreement with signatures is given in an appendix. As already stated, no occasion has arisen this year for criticism or censure in the case of any of these men.

The Dominion Marine Association Expresses Its Appreciation.

The following is an extract from the Dominion Marine Association's executive committee's annual report, presented at the annual meeting in Toronto, Feb. 15, 1917, over the signatures of the President, W. E. Burke, Assistant Manager, Canada Steamship Lines, Ltd., and the Counsel, Francis King, M.A., of Kingston, Ont., and which was unanimously adopted:

"Canadian Railway and Marine World.

"The proprietor of this publication having formally offered the use of its columns for such items of news as the association would care to publish, your committee gratefully accepted the offer and adopted the following resolution:

" 'That in view of the thorough manner in which Canadian Railway and Marine World covers the marine field throughout Canada, the care which exercises to secure accuracy, and the throughout Canada, the care which it the Dominion Marine Association's disposal, it is hereby appointed the association's official organ.' "

In accordance with the resolution of the committee of 1915, casualty reports have been required only with reference to voyages within the limits covered by certificates issued to masters for inland waters, and therefore no record has been attempted of casualties or losses in the Gulf or on the Atlantic Coast or further at sea. Notwithstanding this, members of the association, in accordance with a resolution of your committee, have continued the enrollment of their ships, irrespective of their present trade routes, as their return to lake waters may be expected, and all the ships are thus equally interested in the improvement of navigation conditions. A list of ships enrolled, showing those still in lake trade and those at sea or laid up in ocean ports, is set out as an appendix to this report.

The Dominion Wreck Commissioner did not hold a sitting during 1916 to investigate a casualty affecting any one of the vessels enrolled in the association. One case, held over from 1915 pending correspondence, that of the s.s. Meaford, which stranded east of Detour, was ultimately dropped, for lack of available evidence, as the crew was scattered, some members being overseas. The only other case in which an investigation was asked, that of the Iroquois at Salmon Point, St. Lawrence, occurred late in November, and the investigation was not held until Jan. 12. A decision has just been rendered and is reported above.

Insurance rates on the lakes for 1916 remained as in 1915. The standard on steel hulls carrying to the foot of Lake Erie for a period of one year, with a navigation season from April 15 at midnight to Nov. 30 at midnight was 3¾%. The usual extra ½% for the season was charged for navigation not east of Kingston, with a further ½% for navigation not east of Montreal, an additional fraction being charged for navigation as far as Cape Breton. The sailing season could be extended to midnight Dec. 12 on payment of an additional 1%, and a boat could make a one way trip after Nov. 30 at the following fractional charges: Sailing up to midnight Dec. 5, ½%; sailing up to midnight Dec. 8, ¾%; sailing up to midnight Dec. 12, 1%; or make a one way trip on one lake sailing up to Dec. 12 at ¼%. The policies also permitted navigation from April 1 to April 15 at pro rata of the season rate. Some of the United States policies on Canadian boats contained an additional clause to the effect that a vessel on a voyage at midnight Nov. 30 and sailing again after arrival should pay a pro rata season rate in addition to the special premium provided for the late or extended navigation. The proposals of the association in 1915 for removal of the deductible average clause from all policies and for additional proportionate lay-up rebates met with approval in all quarters among vessel owners and brokers, but up to the present underwriters do not appear to have determined to make either of the desired alterations.

The various bulletins of 1916 have been sent regularly to all masters of enrolled steamers on the lakes, to all members of the association, and to brokers and underwriters. Circular letters have been issued from time to time, and correspondence has been carried on with individual members, with masters, and with the authorities at Ottawa and in local centres as occasion arose. Owners and masters are again asked to make full use of the association's services for the purposes for which it was organized, and to assist its officers as much as possible in making its records complete and its work thoroughly effective.

Agreement With Pilots.—The agreement with St. Lawrence River pilots between Kingston and Montreal, referred to in the foregoing report, is addressed to the Canadian Lake Protective Association and its members and reads as follows:

"As the Dominion Wreck Commissioner has declared that he has no authority upon a wreck investigation to deal with pilots between Kingston and Montreal who are not officers of the ship in question, it has become necessary that pilots in the waters named should on coming on board the steamer sign the ship's articles as 'mate and pilot.' Accordingly, the undersigned mariners, who hold certificates good upon the waters mentioned, hereby offer to serve as pilots in these waters upon any boats enrolled in the Canadian Lake Protective Association and to comply with the above requirement, and each of the undersigned hereby undertakes and agrees with the said association and with its members that immediately upon joining any steamer he will sign the ship's

articles, on request, as 'mate and pilot' for the trip."

Analysis of Accidents Reported, 1916

Groundings and strandings	12
Collisions	10
Striking locks or gates	2
Striking bridges, docks, piers and harbor and channel banks	5
Accidents to machinery or other gear through stress of weather or otherwise	3
Fire	1
Total	33

GROUNDINGS AND STRANDINGS.

St Lawrence River	2
Welland Canal	1
Lake Erie	2
Lake Huron, North Channel	1
St. Marys River	2
Lake Superior	3
Kaministikwia River	1
Total	12

COLLISIONS.

Harbors	5
St. Lawrence Canals	1
Welland Canal	2
Lake Superior	2
Total	10

STRIKING LOCKS OR GATES.

St. Lawrence Canals	1
Welland Canal	1
Total	2

STRIKING BRIDGES, DOCKS, PIERS, AND HARBOR AND CHANNEL BANKS.

Bridges	1
Docks	4
Total	5

ACCIDENTS TO MACHINERY OR OTHER GEAR THROUGH STRESS OF WEATHER OR OTHERWISE.

All in open water	3

FIRE.

Fire	1
Total	33

The report was unanimously adopted.

The chairman suggested the desirability of having the Dominion Marine Association undertake the Canadian Lake Protective Association's work. After discussion, it was agreed that the Canadian Lake Protective Association, being now a recognized body, and having membership comprising only a section of the Dominion Marine Association, should be continued as a separate organization, but it was sugegsted that it might have the same executive committee as the Dominion Marine Association, without any change in the constitution, so it was decided that the Canadian Lake Protective Association's committee for 1917 consist of the Dominion Marine Association's executive committee, whose names are given in the report of the latter association's annual meeting on this page.

The German "Blockade" of Europe.—In connection with what the German authorities have declared to be a submarine blockade of Great Britain and the allied countries, which is merely an unrestricted submarine and mine campaign against all vessels, whether belonging to neutral countries or not, they have announced that they will allow the United States to run one steamship a week to Great Britain under certain guarantees. They also stipulate that such vessels must be painted with white and red vertical stripes about 10 ft. wide, and must carry a large flag of red and white checked material on each mast, with the U. S. flag at the stern. A daily paper points out that the C.P.R. house flag, which is flown from all C.P.R. vessels, is checkered red and white, so that in reality the Germans have ordered the use of the C.P.R. flag on such vessels as they will permit to sail. It may be added that the Canadian Pacific Ocean Services, Ltd., house flag, while checkered red and white, has in the centre the letters C.P.O.S.

Dominion Marine Association's Annual Meeting.

The annual meeting was held at Toronto, Feb. 15, the chairman, W. E. Burke, Assistant Manager, Canada Steamship Lines, Ltd., presiding. The executive committee presented a comprehensive report over the signature of the President, and of the Counsel, Francis King. It showed that the steam tonnage enrolled in the association in 1916 was 166,997 net registered tons, against 210,000 in 1915. The barge or sailing tonnage was 29,469 net registered tons, against 32,075 in 1915, a total of 196,466 tons, against 242,075 the previous year. This decrease follows conditions due to the war which have continued to attract tonnage into ocean trade. Members of the association have continued the enrolment of the ships they own, irrespective of their location, but a great number of sales have been made and many losses at sea have occurred and therefore a fair comparison with the tonnage of previous years is not possible. The association has at least temporarily lost the tonnage of one member company, the manager of which resigned his seat on the executive committee during the election of officers at the annual meeting in 1916.

The report dealt in full detail with the past year's work, including the following subjects: Legislation, coasting voyage defined, pilots in Quebec district, masters and engineers for boats with internal combustion engines. The Business Profits War Act, 1916. United States Seamen's Act, Mr. 4, 1915. U. S. Rivers and Harbors Bill. International Joint Commission. Board of Grain Commissioners for Canada. Rules of the road. St. Lawrence River pilots and ship's articles, Kingston to Montreal. Montreal pilotage bylaws. Restrictions upon trading to foreign ports. Chicago drainage canal, withdrawal of water from Lake Michigan. Pollution of international waters. Shipping offices, registers for seamen. Deckloads, loadlines and bulkheads. Power development. Unlicensed small craft. Grain cargoes, Canadian regulations regarding outturns; Buffalo Grain Clearance Corporation; trimming arrangements; extended powers of Grain Commission under order in council of Mar. 22, 1916, and enquiries resulting; overtime work and minimum loading speed of elevators. Canals: safety devices on gates, guards at lock entrances. Navigation of the Kaministikwia River. Harbor and channel improvements. Aids to navigation. Canadian Railway and Marine World. General business, membership and tonnage. The report was unanimously adopted.

Special consideration was given to the Grain Commission's enquiry as to the regulations governing the adjustment of discrepancies in outturns of grain cargoes, and the meeting confirmed the executive committee's action in approving of force during 1916.

Report was made of the Lake Carriers' Association's action in appointing a committee to confer regarding the Buffalo Clearance Corporation, and the President and Vice President for 1917, with the association's Counsel, were appointed a committee for the same purpose, with power to agree, on behalf of the association, upon any proposed plans.

The following were appointed as a committee on aids to navigation: A. A. Wright, A. E. Mathews, W. J. Bassett, Toronto; W. J. McCormack, Sault Ste. Marie; J. F. Sowards and H. N. McMaster, Kingston, and they were empowered to elect a chairman.

The four vacancies on the executive committee, occurring by the expiration of the terms of office of **H. W. Cowan**, Montreal; C. B. Harris and A. A. Wright, Toronto, and W. J. McCormack, Sault Ste. Marie, were filled by the re-election of Messrs. Harris, Wright and McCormack and by the election of J. T. Mathews, Toronto, to succeed Mr. Cowan, who declined re-election. John Waller, Montreal, was also elected a member of the executive, to succeed Jas. Playfair, Midland, Ont., who had withdrawn from the association's membership. The executive committee for 1917 is now constituted as follows: A. A. Wright, Toronto, President; J. T. Mathews, Toronto, First Vice President; A. E. Mathews, Toronto, Second Vice President; W. E. Burke, G. E. Fair, C. B. Harris, W. L. Reed, J. F. Stewart, Toronto; L. Henderson, John Waller, Montreal; D. Murphy, Ottawa; W. J. McCormack, Sault Ste. Marie.

Government Vessel Building in Canada.—In response to questions in the House of Commons, Feb. 7, the following information was given respecting vessel building by the Dominion Government since Sept. 1, 1911: Five tugs, or tenders, were built by the Government for the Public Works Department's service and five were built for the same department by private builders. Three others were built but not registered, and one is under construction. Two motor launches were built for the Naval Service Department, but not registered, and five tugs or tenders were built for the Railways and Canals Department, one by the Government and four by private builders. Nine steamships and dredges were built by private firms for the Marine Department, and one dredge is under construction. The Government has also built 35 miscellaneous vessels for various departmental services.

The Storstad-Empress of Ireland Collision.—In connection with the distribution amongst various claimants of the amount realized by the sale of the s.s. Storstad, after sinking the C.P.R. s.s. Empress of Ireland, in the St. Lawrence River, off Father Point, May 29, 1914, a question has arisen in an appeal by the C.P.R., as to whether the vessel sank within Canadian coastal waters or on the high seas. If it is decided that the disaster occurred within coastal waters, the distribution to claimants will be governed by the Canada Shipping Act, and if decided otherwise, the Merchant Shipping Act (British) will apply. In either case, the C.P.R., claiming $2,500,000, will get nothing, the amount realized by the sale of the Storstad being $175,000, which will not even meet the prior claims and expenses.

Steamship Depreciation Schedule.—The Dominion Marine Association has adopted the following schedule of rates of depreciation for use in returns under the Business Profits War Tax Act, 1916, the percentages named being per year on the original cost of the new vessel, including only structural additions: Steel built steam lake freighters, 3%; steel built barges, 5%; composite steamers and barges, 5%; wooden steam freighters, 7½%; wooden barges, including schooners, 10%; passenger boats (wooden or steel), 7½%; steel tugs, 5%; wooden tugs, 7½%.

Mail Subsidies and Steamship Subventions for 1917-1918.

The estimates for the fiscal year 1917-18, submitted to the House of Commons recently, contain the following items for steamship service:

ATLANTIC OCEAN.	
Between Annapolis and London or Hull, Eng., or both	$ 5,000.00
Canadian Atlantic ports and Australia and New Zealand	140,000.00
Ocean and mail service, Canada and Great Britain	1,000,000.00
Canada and Cuba	25,000.00
Canada and Newfoundland	70,000.00
Canada and West Indies or South America or both	340,666.66
Canada and South Africa	146,000.00
Halifax, St. John's, Nfld., and Liverpool, Eng.	20,000.00
Montreal, Quebec and Manchester, Eng., during summer, and St. John, Halifax and Manchester during winter	35,000.00
Winter service between St. John, N.B., Dublin and Belfast, Ireland	7,500.00
Winter service between St. John, N.B., and Glasgow, Scotland	15,000.00
Winter service between St. John, N.B., Halifax and London, Eng.	15,000.00
St. John, Halifax and London, Eng.	25,000.00
PACIFIC OCEAN.	
Between Canada and Australia or New Zealand or both	180,509.00
Canada, China and Japan	253,333.34
Prince Rupert and Queen Charlotte Islands, B.C.	16,000.00
Victoria and San Francisco	3,000.00
Victoria, Vancouver way ports and Skagway	12,500.00
Victoria and west coast Vancouver Island	5,000.00
Vancouver and northern ports of British Columbia	16,800.00
LOCAL SERVICES.	
Between Baddeck and Iona, N.S.	5,825.00
Charlottetown, Victoria and Holliday's Wharf, N.B.	2,500.00
Froude's Point and Lockeport, N.S.	600.00
From opening to closing of navigation in 1917, between Gaspe Basin and Dalhousie or Campbellton, N.S.	15,000.00
Grand Manan and mainland	10,000.00
Halifax, Canso and Guysboro, N.S.	5,000.00
Halifax and Newfoundland via Cape Breton ports	10,000.00
Halifax, Mahone Bay, Tancook Island and La Have River ports	4,000.00
Halifax and Spry Bay and ports in Cape Breton	4,000.00
Halifax, South Cape Breton and Bras d'Or Lake ports	6,000.00
Halifax and West Coast Cape Breton, calling at way ports	4,000.00
Halifax and Sherbrooke	2,000.00
From opening to closing of navigation between Kenora and Fort Frances, Ont.	8,000.00
From opening to closing of navigation, between mainland and Magdalen Islands	18,000.00
Mulgrave and Canso, N.S.	6,500.00
Mulgrave and Guysboro, N.S., calling at intermediate ports	5,500.00
Newcastle, Neguac and Escuminac, calling at all intermediate points on Miramichi River and Miramichi Bay	2,500.00
Pelee Island and mainlain, Ont.	8,000.00
Petit de Grat and Intercolonial Ry. terminus at Mulgrave, N.S.	7,000.00
Petitcodiac River between Moncton and way ports, and west coast of Cumberland County, N.B.	2,500.00
Pictou and Montague, calling at Murray Harbor and Georgetown, P. E. I.	6,000.00
Pictou, New Glasgow, Antigonish County ports and Mulgrave, N.S.	1,000.00
From opening to closing of navigation in 1917, between Pictou, Mulgrave and Cheticamp, N.S.	7,500.00
From opening to closing of navigation in 1917 (between Port Mulgrave, St. Peter's, Irish Cove and Marble Mountain and other ports on the Bras d'Or Lakes, N.S.)	6,500.00
Prince Edward Island, Cape Breton and Newfoundland	20,000.00
During 1917, between Quebec and Harrington, calling at ports and places along northern shore of River St. Lawrence between such terminals	28,000.00
Quebec and Gaspe Basin, touching at intermediate ports	8,500.00
Quebec and ports on north shore of Isle of Orleans	4,500.00
Riviere du Loup, Tadoussac and other North Shore ports	6,000.00
Winter service between Riviere du Loup, Tadoussac and other St. Lawrence ports	8,000.00
Winter service between St. Catherines Bay and Tadoussac, Que.	3,500.00
St. John and ports in Cumberland Basin, N.B.	3,000.00
St. John and St. Andrew, N.B., calling at intermediate points	4,000.00
St. John and Bridgetown, N.S.	2,500.00
St. John and Digby, N.S.	20,000.00
St. John, Digby, Annapolis and Granville, viz., along the west coast of Annapolis Basin, N.S.	2,000.00
St. John, N.B., and ports on Bay of Fundy and Minas Basin, and Margaretville, N.S.	8,000.00
St. John, Westport and Yarmouth and other way ports	10,000.00
During 1917, between St. Stephen, N.B., Ste. Croix River points, Deer Island, Campobello and the inner islands, Passamaquoddy Bay and L'Etete or Back Bay	6,000.00
During 1917, between Sydney and Bay St. Lawrence, calling at way ports	6,000.00
During 1917, between Sydney and Whycocomagh	3,000.00
Sydney, N.S., around east coast of Cape Breton to Hastings and return to Sydney via Bras d'Or Lakes	5,500.00
Expenses in connection with supervision of subsidized steamship services	3,000.00
	$2,630,734.00
AUTHORIZED BY STATUTE.	
Canada, China and Japan	$ 121,666.66
Canada and France	200,000.00
	$ 321,666.66

St. John Harbor Improvement Contract Litigation.

A petition was filed in the Superior Court at Montreal, Feb. 2, for an interlocutory injunction to prevent the proposed transfer of certain property, valued at about $1,000,000, from the Norton Griffiths Construction Co., to W. H. Brown, New York. The petitioner, J. H. Craven, Larchmont, N.Y., claims that if the transfer is made, his interest in the property and belongings will be prejudiced and he will suffer loss.

The Norton Griffiths Construction Co. was given a contract by the Dominion Government on Mar. 25, 1912, for the construction of harbor works and improvements at Courtenay Bay, St. John, N.B., and it is claimed that, on July 20, 1912, an agreement was entered into by the company, the petitioner and J. A. Bulyea, St. John, N.B., providing that the company should receive 51% of the total net profits on the contract, over and above 15% of the total prime cost of the construction works, and that the petitioner and J. A. Bulyea were entitled to 24½% each. The company, it is claimed, undertook to render an audited accounting of the works and all expenditures every three months as the contract proceeded and to make a final report showing the net profits to be distributed when the contract was completed. The work was continued up to Dec. 22, 1916, when the contract was abandoned. During the progress of the work considerable assets were accumulated in machinery, dredges and other materials, lands were acquired on Courtenay Bay, and it is alleged that the company is negotiating with the Dominion Government and W. H. Brown, acting for himself and other parties, for the sale and transfer of these properties.

Masters' and Mates' Examinations.—The following certificates have been granted: W. C. Jordon, Collingwood, Ont., master, passenger steamship, coasting; J. Preston, Midland, Ont., master, inland waters; Jas. Gunn, Owen Sound, Ont., mate, passenger steamship, inland waters; J. A. Lethbridge, Owen Sound, Ont., mate, passenger steamship, inland waters.

The s.s. Fernfield's Stranding Recalled.

The Liverpool Journal of Commerce, in commenting recently on the stranding of the British s.s. Fernfield on Battery Point shoal, Louisburg, N.S., says: "At the subsequent enquiry held before Capt. Demers, the Canadian Wreck Commissioner, it was proved, through the able defence of solicitors who acted in the service of the Mercantile Marine Service Association, that the log books had been properly kept and supervised, and as a result of their able defence, the certificate of the master was not dealt with, and he himself was exonerated from all blame, a happy result, which has given much gratification to the council of the Mercantile Marine Association, who are constantly pointing out the dangers and difficulties attendant on navigation in these waters."

The court's judgment in this enquiry was summarized in Canadian Railway and Marine World, at the time, as follows: "From the evidence adduced the court found that from the time the vessel left St. John, N.B., on July 1, until it reached Louisburg light, the master exercised all the necessary and proper precautions in navigating, but in that neighborhood, under the weather conditions existing, he omitted to include in his calculations the possible influence of wind on his starboard, in heading for the light on the wharf, and also that in turning around close to the buoy, a mistake was made. It therefore found that he erred in judgment, but not in a culpable manner, and therefore did not deal with his certificate, nor reprimand him, but cautioned him to be more careful in the future, in entering harbors with which he is not well acquainted. The logs were examined and found properly kept and supervised."

The Liverpool paper's criticism might have passed without comment from this side, regardless of its inaccuracy, but for the matter contained in the last few lines. This would convey that the "dangers and difficulties" were more responsible for the casualty than the error of judgment on the part of the master, and would be liable to give other masters the impression that they may continue the careless and slipshod methods of navigation, which the Wreck Commissioner's courts, for several years past, have been condemning. The master was not exonerated from all blame in the casualty under notice. It was found that he erred in judgment, but not in a culpable manner and was cautioned to be more careful in future.

Lights on Bridges Over Navigable Waters.—An order in council has been passed providing that no plan and description of a fixed bridge over navigable waters (not a canal) submitted to the Public Works Department for approval shall be approved unless they indicate a fixed white light on each side of every channel to be navigated through the fixed bridge, such lights, of an intensity to be approved by the Marine Department, to be maintained by the owner of the bridge during every night from sundown to sunrise during the entire navigation season.

Sufficiently Obvious.—A Petrograd press dispatch states: "In an explosion on an icebreaker .... persons have been killed and .... injured." Local press comment states that the number of casualties has evidently been struck out by the censor.

Marine Votes for 1917-1918.

The estimates for the fiscal year 1917-18, submitted to the House of Commons, include the following items for works connected with navigation:

CHARGEABLE TO CAPITAL ACCOUNT.

		Revotes.
Welland Ship Canal	$ 200,000	$ 200,000
Trent Canal	600,000	350,000
	$ 800,000	$ 550,000
Harbors and Rivers—		
St. John harbor improvements	$1,000,000	
Lauzon dry dock	1,000,000	$ 250,000
River St. Charles improvements	700,000	200,000
Toronto harbor improvements	1,000,000	
Port Arthur and Fort William harbor	750,000	500,000
Victoria harbor improvements	1,000,000	
	$5,450,000	$ 950,000

CHARGEABLE TO INCOME ACCOUNT.

Canals—		
Chambly	$ 1,700	
St. Annes lock	1,500	
St. Peters	45,000	$ 45,000
Soulanges	1,000	
Trent	25,000	
Welland	30,000	
	$ 104,200	$ 45,000
Canal surveys and inspections	25,000	$ 5,000
Harbors and Rivers—		
Nova Scotia	285,300	181,900
Prince Edward Island	26,900	
New Brunswick	150,950	8,600
Maritime Provinces generally	5,000	
Quebec	438,020	145,100
Ontario	333,850	161,700
Manitoba	19,000	800
Saskatchewan and Alberta.	20,000	
British Columbia	136,850	5,400
General	40,000	
Dredging	1,705,000	67,000
	$3,120,870	$ 570,500
Authorized by statute—		
Collingwood dry dock No. 1	$ 15,000.00	
Collingwood dry dock No. 2	9,208.96	
Montreal floating dock	105,000.00	
	$129,208.96	
Naval service	$2,270,400.00	
Ocean and river service	1,444,800 00	
Marine Department	888,550.00	
Lighthouse and coast service	2,201,900.00	
Scientific institutions	399,293.00	
Marine hospitals	78,000.00	
Steamboat inspection	79,749.00	

Harbor Improvement Scheme at Vancouver.

Canadian Railway and Marine World for Sept., 1916, contained an outline of the harbor improvement scheme for Vancouver, as suggested by the Harbor Commissioners. This scheme involved the purchase of the Kitsilano Indian reserve, 80 acres, for $700,000; property at Port Moody, 88 acres, $500,000; the Heaps property on Burrard Inlet, 16¾ acres, $650,000; right of way for a harbor terminal railway from the Kitsilano Indian reserve to the Heaps property, $1,552,861; a portion of the Pacific Great Eastern Ry. right of way, $516,627, and wharf property and warehouses owned by the Great Northern Ry., and the waterfront property immediately east of the G.N.R. property, $1,800,000. The approximate total cost of the properties to be acquired is $5,769,128. This scheme has met with considerable opposition, especially from the Vancouver City Council. A report on the whole situation has been prepared by F. L. Fellowes, City Engineer, and is now before the civic railways and bridges committee. It is a general outline of the work of improvement carried out in the past, what is now under way, and also deals with the Harbor Commissioners' proposals.

Included in the report is also the outline of a new plant for an additional reclaimed area in False Creek, near the bridge at Main St., increasing the waterfrontage by 31 acres for industrial sites, which, it is claimed, would be carried out at a cost of $10,000 an acre, and open up a main artery through False Creek, and allow the use of present bascule bridge on Main St. to span the new waterway. The Harbor Commisisoners' scheme for a harbor terminal railway is endorsed. This line it is proposed to operate by electricity, and to make connections, with switching facilities, with all the railways entering Vancouver. In connection with this railway, it is planned to do away with all level crossings on Main St., obviate the necessity of participating in the cost of erection of overhead viaducts at Union, Harris, Keefer and Pender Sts.; remove the British Columbia Electric Ry. tracks from Hastings St.; route all B.C.E.R. interurban traffic over the Commissioners' tracks; eliminate the C.P.R. tracks across Pender, Hastings and Cordova Sts. to the main line at Columbia Ave.; abandon the proposed tunnel scheme; remove the C.P.R., B.C.E.R. and Great Northern Ry. from Front St., and by arrangement with the G.N.R., to secure the removal of the G.N.R. tracks over Main St. and substitute the right to operate over the Commissioners' tracks to the G.N.R. terminal at Pender St., the two systems connecting at the head of False Creek. The estimated cost of this proposal is $418,700, exclusive of bridges and rails, and $756,260 inclusive of bridges and rails. The report also estimates that the whole acreage, 31.74 acres, should yield in normal times an average of $20,000 an acre, or a total of $664,400.

It is shown, in a comparison of the charges at Vancouver, with those of ports in other parts of the world, that Vancouver is the lowest.

Caandian Icebreaker in Russia.—The ice breaking steamship which was built by Canadian Vickers, Ltd., Montreal, last year, for the Dominion Government, and which was, immediately on completion, sold to the Russian Government, has arrived at her destination, and is being used in the White Sea. She crossed the ocean in charge of Capt. Reid, who had previously taken over the Dominion Government icebreaker Minto for the same service. Reports state that the voyage was accomplished in safety, and that the Russian Government officials are delighted with the vessel, which is said to be the most powerful icebreaker in the world. She was originally named J. D. Hazen and has been renamed Mikula. It is reported that Capt. Reid has been appointed to the chief command of all the Russian icebreakers operating in the White Sea.

Vessels Turning in the River at Fort William.—An order in council has been passed amending sec. 15 of the special regulations for the government of the harbor at Fort William, Ont., by providing that steam vessels exceeding 260 ft. long may be turned with a tug in that section of the Kaministikwia River lying between the bend above C.P.R. elevator D and the westerly limit of the Grand Trunk Pacific Ry. rail dock, and that steam vessels of such tonnage and length may be turned also in that section of the river between C.P.R. slip 1 and elevator C, but the turning of such vessels in the latter portion of the river shall not take place without the use of a tug, unless sanctioned by the harbormaster.

Quebec Harbor Improvements.

The Quebec Harbor Advances Act, 1917, which has been passed by Parliament, provides that the Government may advance from time to time, to the Quebec Harbor Commissioners, $1,500,000, to carry on the construction of such terminal facilities as are necessary properly to equip the port. During the construction, the interest payable on the debentures deposited with the Finance Minister, in respect of these terminal facilities, are to be deemed as money required to enable the commission to complete the work, and payable out of the present advance. The time limit for the construction outlined is to be fixed by the Governor in council. Detailed plans and specifications of the work to be done and on which the advances are to be made, must be satisfactory to the Minister of Marine, and approved by the Governor in council. Advances will be made monthly on application, which must be accompanied by statements showing the total expenditure for the month the advance is intended to cover, and the commission is to deposit with the Finance Minister debentures equal in par value to the advance made. The debentures are to be repayable in 25 years and to bear interest at 3½% a year, payable half yearly.

The Minister of Marine stated in the House of Commons, Feb. 4, that the $1,500,000 provided in the estimates for 1917-18 as an advance to the Quebec Harbor Commission, was necessary to enable it to complete the work started in 1913, and for which the Government had already advanced $500,000. Since the harbor development scheme was undertaken, the revenue of the port has advanced from $126,000 in 1913 to $288,000 in 1916. Of this amount to be advanced, it is expected that $700,000 will be spent during the current year, and the balance within about two years. The addition to the grain elevator and the completion of the conveyor system for the elevators will cost about $800,000.

Dominion Government Vessel Replacement and Upkeep.

In the estimates submitted to the House of Commons for the fiscal year, 1917-18, provision is made regarding vessels, as follows:

Lighthouse and Coast Service.—For rebuilding s.s. Scout, $12,000; new vessel to replace s.s. Maisonneuve, $12,000 (additional to $25,000 voted for current year); pilotage and maintenance and repairs to s.s. Eureka, $56,300.

St. Lawrence Ship Channel.—To provide for construction and completion of dredging plant for St. Lawrence River from Montreal to Father Point, $216,550 (additional to $452,715 voted for current year).

Ocean and River Service.—To provide for the construction of two steamships to replace s.s. Quadra, $150,000; maintenance and repairs to steamships and icebreakers, $1,180,000.

Tidal Service.—Maintenance of tidal stations and surveying steamships, $35,000.

Fisheries Protection.—To provide new vessels, $100,000; repairs and maintenance of fisheries protection steamships, $375,000; maintenance and upkeep of ships, Naval College, etc., $1,000,000.

Customs Department.—To provide for maintenance and upkeep of revenue cruisers and preventive service, $100,000.

Licensing Canadian Vessels for Ocean Service.

The daily press throughout the Dominion, during February, published the following "information": "The situation caused by the German submarine blockade is being given consideration, as far as sailings of vessels of Canadian register are concerned, by a ship's licensing committee appointed by the government to control Canadian steamship transportation. The committee is composed of A. Johnston, Deputy Minister of Marine; F. C. T. O'Hara, Deputy Minister of Trade and Commerce; J. McDougald, Commissioner of Customs, and G. J. Desbarats, Deputy Minister of Naval Service."

It might be inferred from this that recent events had caused the Government to put into force some new regulations regarding Canadian vessels in ocean service, but this is not the case. The order in council, framing the regulations and authorizing the appointment of a committee to issue the necessary licenses, is dated Mar. 11, 1916, and it was published in Canadian Railway and Marine World for May, 1916. No other orders in council in connection with this matter, and no further regulations, have been passed since that date.

At the time the regulations became effective, Apr. 1, the Licensing Committee issued a circular to steamship owners and charterers, pointing out that the sole object to be attained was the conservation of Canadian registered vessels for British and allied needs. There is no desire to interfere with established service, unless it is absolutely essential, nor is there any intention to interfere, all things being equal, with charters which were in existence prior to Mar. 11, 1916. The committee favors voyages to and from Canadian and other British and allied ports, and everything possible is being done to facilitate the issuing of licenses. Licenses are also issued for inter-neutral voyages, only when it is conclusively shown that the cargo is being carried to, or is ultimately destined for British or allied ports. The committee's desire is to facilitate shipping, to avoid unnecessary ballast voyages, and as far as possible to regulate voyages to congested ports.

Increase in Vessel Prices.—From a list of vessels sold during the last quarter of 1916, prepared by Lloyd's, it is seen that there have been some extraordinary increases in prices paid for vessels, as compared with normal times. The s.s. Kaifuku Maru, built in 1892, was sold in 1907 for $43,798, and was resold recently for $729,975. The s.s. Hercules, built in 1903 at a cost of $210,000, and sold in 1904 for $161,250, has been resold for $1,300,000. The s.s. Gozan Maru, built in 1898, and sold in 1913 for $122,500, has ben resold for $875.000. An old vessel, the s.s. Miaoulis, built in 1893, sold in 1905 for $75,000, in 1907 for $77,500, was resold in 1916 for $592,500.

Shipbuilding in Great Britain.—It is reported that the Controller of Shipping in Great Britain has decided on a type of freight steamship to be built in yards there during the war. This will, it is stated, be single deck, about 9,000 tons dead weight, about 400 ft. long, and all vessels will be built on the same design and to the same specifications. It is also stated that contracts have been awarded for 36 such vessels, and that other orders will be placed as soon as arrangements can be made.

The Whereabouts of Canadian Lake Steamships.

The following list made up at the close of navigation, 1916, shows the enrolled vessels owned by the Canadian Lake Protective Association members, and the waters on which the vessels were then engaged:

Trading on the Great Lakes: J. Frater Taylor, W. C. Franz, Agawa, Thos. J. Drummond, Emperor, Midland Prince, Midland, King, Martian, Sarnian, Haddington, Hamiltonian, Doric, Ionic, Bickerdike, City of Hamilton, City of Ottawa, Calgarian, A. E. Ames, Beaverton, Mapleton, J. H. Plummer, H. M. Pellatt, Saskatoon, Paipoonge, Geo. A. Graham, Atikokan, Thunder Bay, Collingwood, Edmonton, Yorkton, Masaba, Ungava, J. H. G. Hagarty, E. B. Osler, W. D. Matthews, Iroquois, Mariska, Keywest, Keyport, Keybell, Keynor, Arabian.

Trading to Gulf or Lower St. Lawrence or coasting on the Atlantic but still entering Canadian waters: Easton, Steelton, *Glenmount, *Kinmount.

At sea: A. E. McKinstry, Acadian, C. A. Jaques, Canadian, Dundee, Fordonian, Glenellah, D. A. Gordon, Kenora, Neepawah, Renvoyle, Rosedale, Strathcona, Tagona, Wahcondah, Winona, *Rosemount, Port Colborne, W. H. Dwyer, Keyvive.

*Those marked with an asterisk have been sold since the close of navigation. It is understood that at least one other sale has taken place, but no return has been filed.

Riviere du Loup-Tadoussac Ferry.—The Minister of Trade and Commerce stated in the House of Commons recently that this ferry service was discontinued April 30, 1916. Tenders were called for, but only two were received. The subsidy asked for in one was to high, and the other tenderer was unable to put a boat on the route for the winter of 1916-17. The House of Comomns subsequently adopted a motion by C. A. Gauvreau, M.P. for Temiscouata, for a copy of all correspondance, notes, memoranda, and other documents, addressed to the Ministers of Marine and of Trade and Commerce, or to their departments, concerning the ferry between Riviere du Loup, Tadoussac, St. Simeon, St. Catherine and Escoumains, from Jan., 1912, to Dec., 1916, and respecting the contracts with the Trans-St. Laurent Co., the Quebec & Levis Ferry Co., and also regarding the steamboats Mahone, Pilot and Queen.

Canada Steamship Lines' Finances. — At a meeting of directors at Montreal, Feb. 1, a dividend of 7% on the $12,500,000 preference stock was declared, payable Mar. 1 to shareholders of record Feb. 15. This payment reduces the accumulated dividend arrears to 5¼%, which, it is expected, will be cleared off durin gthis year. The net earnings from operation for 1917 are estimated at $4,000,000, against $1,732,057 for 1915. The balance, after interest, depreciation, etc., estimated, has been deducted, shows $2,500,000, or 20% on the preference stock. The annual meeting of shareholders has been called for Mar. 7.

B. C. Shipyards, Ltd., has been incorporated under the British Columbia Companies Act, with $100,000 authorized capital, and office at Vancouver, to build, own and operate dry docks, marine railways, steam, sailing and other powered vessels of all descriptions, and to carry on a general shipbuilding and navigation business.

Marine Engineers and Their Pay.

The following is taken from the Quebec Chronicle of Feb. 1:—

"Marine Engineers Want More Pay.

"In view of the increase cost of living it has been decided by the National Association of Marine Engineers of Canada to apply for an increase of 25 p.c. on the salary paid in 1916. For this purpose a circular letter has been sent to all the companies asking them to grant the Engineer's request. This is the first application of the kind made by the Association. Many companies have already given an answer to the Association concerning the matter, and it is expected that the mainder will send a favorable reply soon.

"It will be to the general public interest if this question is settled before the opening of navigation. It would be unfortunate if navigation is paralyzed at a period when there is the greatest need of all our resources. The movement is a most serious one and it is hoped that all interested parties will give a favorable answer and so avoid terrible results.—Advt."

It is plain from this that marine engineers desire an increase in their wages, and it also seems plain that the National Association of Marine Engineers of Canada is going to see that they get it, or, according to the notice, there will be terrible results. It will be noticed that the item quoted above bears the contraction "Advt." at the end. This means that it is an advertisement, and is paid for as such. It is usual for advertisements to be placed by some interested parties, in this case, presumably the association mentioned.

Is this method to be adopted as a general thing in future whenever the question of readjustment of wages comes up for settlement? The wording of the whole thing is unfortunate, and it is an open question whether the threats, so thinly veiled, do not.. bring it within the law.

The circular referred to in the notice, with the rates of pay desired for the forthcoming season, was reproduced in Canadian Railway and Marine World for Feb., pg. 79.

The William Nottingham-W. Grant Morden Collission.—The U. S. local inspectors held an enquiry recently into the cause of the collision between the Great Lakes Steamship Co.'s s.s. William Nottingham and Canada Steamship Lines' s.s W. Grant Morden on Lake Superior, July 27, 1916. They found that the second officer of the William Nottingham, C. F. Bowen, was guilty of negligence, and violated rule 26 of the Pilot Rules for the Great Lakes, and state that while they are convinced that the licensed officer in charge of the W. Grant Morden was seriously at fault, and was to some extent responsible for the collision, as he was navigating at an immoderate speed and failed to comply with the same rule, that does not free the Nottingham's second officer from penalty. They therefore suspended his license as a first class pilot of steam vessels for five months from Dec. 5, 1916.

Steamship Examinations at Halifax.—It is announced that arrangements are being made for the continuation of the examination of neutral steamships, bound for trans-Atlantic ports, at Halifax, N.S., instead of Kirkwall, Scotland, or Falmouth, England, as hitherto. The first steamship to be so examined was the Danish s.s. Frederick VIII, which is conveying the German Ambassador to the United States, and his staff, back to Germany, under safe conduct guarantees by the British. For the present, it is stated that these examinations will only apply to eastbound traffic, but that it is expected that they will be extended to westbound traffic shortly.

Atlantic and Pacific Ocean Marine.

The Ulster Steamship Co.'s s.s. Innishowen Head is reported as sunk by the enemy, while bound from Belfast, Ireland, to St. John, N.B. She had been on the Canadian route for a number of years and was built at Belfast in 1886.

Lord Furness, who is visiting the American continent, is reported to have stated that Furness, Withy & Co. had lost 31 steamships during the war, but that it was building two vessels to replace each one lost, so that at the end of the war its facilities would be more than doubled.

Shipping companies have announced a general increase in Atlantic passenger rates, both eastbound and westbound. First class rates have been increased by $10, second class $5, and third class $2.50. Passenger rates on U. S. lines have also been increased $15, $5 and $3.75 for each class respectively.

The creation of an Atlantic ocean port at Galway, Ireland, to deal with North American trade, was the subject of a resolution at a recent meeting of the Dublin City Council. This matter has been before the public for several years, in connection with a proposed all red route round the world.

Reports from Japan state that the British Government has purchased 17 steamships under construction at Kobe, Japan, for service between China and Japan and Puget Sound ports. The price mentioned is $33,000,000. Of these vessels, one is stated to be 12,000 tons, two others 10,300 tons each, and the balance 9,000 tons each.

A body washed ashore near Ilfracombe, Devonshire, Eng., has been identified, by papers carried in the clothing, as E. S. Gage, third officer of the s.s. Rappahannock, owned by Furness, Withy & Co., which sailed from Halifax in Oct., 1916, for London, Eng., and is presumed to have been torpedoed by the enemy, without warning.

The C.P.R. s.s. Empress of Asia was cleared recently from the dry dock at Hong Kong, China, where she has had her annual overhauling and painting. She was to be followed in the dock by the s.s. Empress of Russia, and then by the s.s. Empress of Japan. Each of the vessels spends about 28 days in the annual overhaul.

The British Admiralty Court awarded the owners of the Danish s.s. Norma $11,250 recently for salvage services to the s.s. Rosedale, owned by the Canada Steamship Lines, Ltd. The claim was contested, as it was claimed that the Rosedale broke away while being towed, but the Elder Brethren of Trinity House decided that the Norma rendered important service.

The White Star s.s. Laurentic was reported sunk by an enemy torpedo or by striking a mine towards the end of January, near the coast of Ireland. She was built at Belfast, Ireland, in 1908, and with her sister vessel, Megantic, was placed on the Canadian service. On the outbreak of war, she was requisitioned by the British Government, and was used as a transport, taking some of the first contingent of the Canadian Expeditionary Force to England. She was later engaged in war service in the Far East, and returned recently to British waters.

It is reported that J. S. Dennis, M.Can.Soc.C.E., Assistant to President, C.P.R., has announced that the C.P.R., as agent for the Russian Government, is arranging for a steamship service between Russia and Canada after the war, the Canadian port to be St. John, N.B. Prior to the war, the Russian Volunteer Fleet was operating a line of steamships between Siberian ports and Vancouver, the C.P.R. acting as agent. If this is continued after the war, a round the world service between Canada and Russia on the Atlantic, and between Russia and Canada on the Pacific, would be operated.

The former Great Northern Pacific Steamship Co.'s s.s. Minnesota is reported sold to the International Mercantile Marine Co., for $2,750,000. While on her way to Great Britain, from Seattle, Wash., about a year ago, her boilers were disabled, while off the Mexican coast, and she was towed back to San Francisco, where repairs costing about $160,000 were made, and where she has been berthed ever since. She was built at New London, Conn., in 1904, and is 20,718 tons gross, 13,324 tons register, with dead weight capacity of 17,000 tons. Her dimensions are: length 622 ft., breadth 73.5 ft., depth 41.5 ft.

Maritime Provinces and Newfoundland.

The s.s. Sagona, operating between North Sydney, N.S., and Port aux Basques, Nfld., ran ashore during bad weather, near Louisburg, N.S., Feb. 21.

The harbor revenue for St. John, N.B., for January was $20,776.99, compared with $15,909.59 for Jan. 1916. The sailings in January numbered 48 against 33 for Jan. 1916.

The Home Steamship Co., Ltd., Halifax, N.S., has, at its own request, had its certificate of registration revoked. It was incorporated under the Nova Scotia Companies Act, Oct. 1, 1912, and operated the s.s. Eskasoni.

The winter service between Pictou, N.S., and Georgetown, P.E.I., is being performed tri-weekly by the car ferry steamship Prince Edward Island, leaving Pictou Tuesday Thursday and Saturday at 7 a.m., and returning from Georgetown Monday, Wednesday and Friday at the same hour. Commencing Jan. 30, an iceboat mail service was operated between Cape Tormentine, N.B., and Point Borden, P.E.I., leaving the former place Monday, Wednesday and Friday at 3.40 p.m., and the latter place Tuesday, Thursday and Saturday at 4.10 p.m.

The Minister of Public Works announced, Feb. 9, that the contract with the Norton Griffiths Construction Co., for harbor improvements and other works at Courtenay Bay, St. John, N.B., had been cancelled, and that a new contract was being prepared, for which tenders would be invited immediately, and the work carried on as expeditiously as possible. He stated that every effort had been made to secure a completion of the contract by the original successful tenderers, but the necessities of the case would not permit of further delay.

The Newfoundland sealing fleet, which commences operations about the middle of March, will be the smallest on record. The vessels of the modern type which have been engaged in the service for the past few years, are now employed elsewhere, so for this season the sealers revert to the older, wooden type of vessel. Owners have announced that they will engage no unmarried men between 20 and 30, who have not offered their services to the naval or military authorities, or can establish that they remain at home to permit other members of their families to go to the front.

Province of Quebec Marine.

The name of the s.s. O. S. Paul, no. 126851, owned by the Tourville Lumber Mills Co., Montreal has been changed to Tourville.

The Dominion Government s.s. Montcalm sailed from Quebec recently, with supplies, etc., for north shore points, Seven Islands, and possibly Ellis Bay, Anticosti Island. Owing to the exceptionally heavy ice in the Gulf this year, it is not anticipated that Ellis Bay will be reached, even if the attempt be made.

The British Yukon Navigation Co., operating as the River Division of the White Pass and Yukon Route, is buildin gtwo vessels to replace the steamboats Gleaner and Scotia, which, owing to the increase of the tourist business into Atlin, are now unable to handle it. The vessel for the Taku Arm will be driven by a stern wheel propeller, and will be 165 ft. long, 35 ft. beam ,and will have capacity for berthing 70 passengers. She will sail from Caribou, on the Rail Division of the White Pass and Yukon Route, and run to Taku, where passengers and freight will be transported over the Portgage, a small tram line about two miles long, and thence taken by the Lake Atlin boat to points on Lake Atlin. The second vessel, for Lake Atlin, is designed for sightseeing, and will be 87 ft. long, 18 ft. beam, and will have no berthing accommodation. These vessels are being built at Victoria, and will be removed in sections by steamship to Caribou, whence they will be hauled over the ice to Atlin. Press reports state that the cost of them will be about $200,000, but we are officially advised that this is very much exaggerated. We are also advised that press reports that the company is buildin gtwo additional steamships to operate between White Horse and Atlin is very wide of the mark, as there is no water transportation between the points named.

Georgian Bay Canal Commission.—The Minister of Public Works stated in the House of Commons recently that the Georgian Bay Canal Commission is composed of W. Sanford Evans, F. S. Meighen and E. Gohier. Its cost to Dec. 31, 1916, was $46,164.06. It cannot conclude its labors until conditions are such that full public hearings can with propriety be held, and the public mind is free to give this important subject the necessary attention. The special preliminary investigation now being carried on will be continued only as long as in the Government's judgment the results justify the expenditure. It is expected that a second interim report will be submitted before the close of the present parliamentary session, containing further studies of the movement of agricultural products, while certain detailed investigations of traffic between Canada and Europe are already well advanced.

Notice has been issued that cables addressed to soldiers in France are being improperly sent to the War Office, London, Eng., thereby causing some annoyance and delay. All cables intended for soldiers of the Canadian Expeditionary Force, in France, should be addressed to France, and in addition to the regimental number, name, unit, etc., should bear the words, Canadian, France. There may, however, still be some little delay, as the cables, in the final stages of delivery, are not necessarily sent by wire. This does not apply to cables sent at the special non-minimum week end letter rate, such messages being sent from the War Office, London, Eng., by mail.

Ontario and the Great Lakes.

The Lake Erie Fishermen's Association, affiliated with the Canadian Fishermen's Association, has agreed to petition the Dominion Government to place two substantial patrol boats to guard the fisheries in Lake Erie, in place of the two small vessels now there.

A press report from Chatham, Feb. 12, states that Public Works Department engineers have commenced taking soundings in the River Thames from Chatham to the lighthouse, and that a report is being prepared in connection with the proposal to dredge a 14 ft. channel from Chatham to Lake St. Clair.

A press dispatch from Cleveland, Ohio, states that options have been taken by unknown Canadian interests on eight package freight steamships of U.S. register, and if the U.S. Shipping Board approves, sales will be closed at an early date. If the vessels are taken through the Welland Canal, they will have to be cut to pass the locks.

The Toronto, Hamilton & Buffalo Navigation Co. hopes to resume its ferry service between Port Maitland, Ont., and Ashtabula, Ohio, early in March. It was intended that the service would be suspended about the middle of February, but, owing to unprecedented accumulation of ice in Lake Erie, it was necessary to suspend it towards the end of January.

The U. S. Lake Survey reports the levels of the Great Lakes in feet above mean sea level, for January, as follows: Superior, 602.78; Michigan and Huron, 580.48; Erie, 571.68; Ontario, 245.26. Compared with the average January levels for the past ten years, Superior was 0.82 ft. above; Michigan and Huron, 0.64 ft. below; Erie, 0.06 ft. below, and Ontario, 0.20 ft. below.

The Lake Simcoe Navigation Co., Ltd., at the end of January, assigned to J. F. Lawson, chartered accountant, Toronto. The company owned and operated two steamboats, named Modello and Otonabee, on Lake Simcoe, and had its head office at 84 King St. East, Toronto. It was incorporated in 1912, and had a paid up capital of $25,000. The officers and directors were: Herbert Waddington, President; R. J. Law, Secretary Treasurer; F. E. Dalton, W. S. Simpson and F. C. L. Jones, directors.

The Dominion Public Works Department's estimates for the fiscal year 1917-18, contain an item of $35,641.50, to pay the Western Dry Dock and Shipbiulding Co., Port Arthur, a portion of the fourth payment of subsidy due on the completion of works as per agreement, notwithstanding that the works are not completed. The agreement mentioned provides for payment out of the consolidated revenue fund of $37,741.50 a year for 20 years, being at the rate of 3% of the cost of the dry dock, which is given in the agreement as $1,258,050. The property has now passed to the Port Arthur Shipbuilding Co., Ltd.

The s.s. Keenora, owned by the Rat Portage Lumber Co., Kenora, Ont., and formerly owned by the Rainy River Navigation Co., Fort William, Ont., has been sold to Alex, Mackenzie, for a Winnipeg syndicate. It is stated that it is the owners' intention to operate the vessel in a passenger and freight service on the Red River and Lake Winnipeg, and that she will be dismantled and taken to Winnipeg, where she will be reassembled and placed in service on the reopening of navigation. She was built at Kenora, Ont., in 1897, and is screw driven by engine of 38 n.h.p. Her dimensions are: length 119.9 ft.; breadth 28 ft.; depth 8.3 ft; tonnage, 486 gross, 269 register.

The C.P.R. Great Lakes service will be performed this year by the steamships Assiniboia and Keewatin on the Port McNicoll route, and by the s.s. Manitoba on the Owen Sound route. The Manitoba will leave Owen Sound on Thursdays, commencing with the reopening of navigation, connecting with the train leaving Union Station, Toronto, at 5.25 p.m.; arrive at Fort William on Saturdays and Port Arthur on Sundays, and return to Owen Sound on Tuesdays, connecting with the train due at North Toronto at 8.10 p.m. On the Port McNicoll route, the service will commence June 2, and the vessels will leave Port McNicoll and Fort William on Wednesdays and Saturdays, and arrive at Fort William and Port McNicoll on Fridays and Mondays.

The Toronto Board of Control had before it recently a proposal of the Mayor that the city should keep the bay clear of ice during the winter months and assist in the maintenance of a steamship service for coal. He stated that he had had an interview with J. W. Norcross, Vice President and General Manager, and W. E. Burke, Assistant Manager, Canada Steamship Lines, Ltd., on the previous day, and a tentative arrangement had been made by which it was proposed to break up the ice in the bay and prepare a channel to the eastern entrance, so that vessels may be operated between Toronto and other lake ports to bring in coal. He also stated that if the city entered into an agreement for 10 years, to take coal, the company would build vessels capable of carrying 10,000 tons of coal.

An injunction has been obtained in an Ontario court by F. H. Clergue against the Lake Superior Dry Dock and Construction Co., restraining it until Mar. 15, from executing or recording any mortgage, lien, charge or encumbrance against any or all its property, and restraining individual members of the company from acting as directors and from dealing with the assets. The Lake Superior Dry Dock & Construction Co., Ltd., was formed in 1914 to take over an agreement between F. H. Clergue and Sault Ste. Marie City Council, and to build a dry dock at Sault Ste. Marie. In the agreement it was provided that work was to be commenced by Apr. 1, 1914, and the whole was to be complete and ready for operation by Apr. 1, 1916. The city voted a bonus of $20,000 a year for 20 years, gave a fixed assessment of $750,000 for school taxes for 20 years, and $500.000 for general taxes for 15 years, and the work was to be done to the Dominion Public Works Department's satisfaction, so as to earn the government subsidy of 3% per annum for 20 years on an expenditure of $1,330,026.76.

In connection with the congestion of freight at the Niagara border, and the consequent dislocation of the coal service in Ontario generally, the Mayor of Toronto announced recently that to relieve the situation he would arrange immediately for the breaking up of the ice in Toronto Bay, and the opening of a channel between the coal docks and the eastern entrance to the bay, to enable coal to be brought in at once by steamship. Canada Steamship Lines, Ltd., announced that it had vessels ready for the traffic immediately the ice was cleared, and would run coal from Charlotte with two or three steamships if required. The coal situation, which had become acute in the early part of February, was relieved to some extent by the railways by the third week in the month. About this time, it was announced that one party had instructed another party, who in turn had held a conference with a third party as to certain requirement, after which the second party was to report to a commission, when it was possible a course of action would be decided upon. In the meantime the ice remains in the bay, and the steamships remain at their docks.

British Columbia and Pacific Coast.

The Vancouver Board of Trade is urging the city to provide a fire boat for the protection of shipping, etc., along the water front, where it is calimed fire protection is inadequate.

The Victoria City Council passed resolutions recently regarding the early construction of necessary facilities at the ocean docks and for the starting of work on the proposed dry dock at Esquimalt.

The C.P.R. is operating the s.s. Princess Beatrice on a new route from Vancouver to Powell River, Ocean Falls, Swanson Bay and intermediate points, on a weekly service to Swanson Bay, and fortnightly to Surf Inlet.

The C.P.R. has arranged with the Dominion Government, to maintain the Gulf Islands service with the s.s. Otter, pending the preparation of a new mail contract. The service was to have been discontinued Feb. 1.

The name of the steamboat Kezia, no. 133696, owned by Mackenzie & Pipe, Victoria, has been changed to Lornet. She is a small vessel of 39 register tons, and was built at Ballard, Wash., in 1901, and formerly named Challenge.

Press reports state that a syndicate interested in the building of wooden and steel vessels for the Norwegian trade, is negotiating for the purchase of the shipyard established at Coquitlam, B.C., at the junction of the Pitt and Fraser Rivers.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince John was driven ashore, towards the end of January, at Rocky Point, in the Wrangell Narrows, and was later beached at Finger Point. She was eventually refloated and taken to Victoria for examination.

The C.P.R. announces that its British Columbia Coast Service will give 17 round trip sailings on the Alaska route during the forthcoming season. The s.s. Princess Charlotte will make three round trips, the s.s. Princess Alice seven, and the s.s. Princess Sophia seven.

The breakwater at Ogden Point, Victoria, was completed at the end of January. The work was commenced in 1913, the contractors being Sir John Jackson (Canada), Ltd. Tenders are to be received for the construction of a lighthouse at the end of the breakwater.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince John, which stranded in Wrangell Narrows towards the end of January, was overhauled and repaired at North Vancouver, during February. Some 15 plates were replaced, the crank shaft drawn, and a new propeller placed.

The Vancouver Island Towing Co.'s steam tug Pilot is reported to have foundered with all hands, while engaged in salvaging the s.s. Sesostris off the Guatemalan coast. The tug left Salina Cruz Feb. 1 and has not since been heard of. She was built at Chemainus, B.C., in 1898, and was screw driven by engine of 90 n.h.p. Her dimensions were, length

127 ft., breadth 24.8 ft., depth 12 ft.; tonnage 279 gross, 148 register.

On another page are details of the Dominion Government's estimates for the current year, which are connected with navigation. Provision is made for the construction of two vessels for the Pacific Coast service, to replace the s.s. Quadra. We are advised that this matter is in abeyance for the present.

The first of the new type of lumber schooners with auxiliary power, under construction for Canada West Navigation Co. by Wallace Shipyards, Ltd., North Vancouver, was launched Jan. 27, and named Mabel Brown. Considerable details of this, and her sister vessels, have been given in previous issues.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince George is to be withdrawn from service Mar. 1, for a general overhaul. The s.s. Prince Rupert, which has been overhauled recently, replaces the Prince George, sailing from Prince Rupert, Mar. 2. The s.s. Prince John resumes the Alaska and Queen Charlotte Islands service, sailing from Prince Rupert Mar. 7, leaving Vancouver Mar. 3, to take up that route.

The Public Works Department has deepened the basin on each side of the Canadian Collieries' coaling wharf at Union Bay, Haynes Sound, on the east coast of Vancouver Island. On the west side there is an irregular basin 80 ft. wide at the outer end of the wharf tapering to a point 300 ft. inside the head, having a depth of 30 ft. or over. On the northeast side depths of 30 ft. etxend 340 ft. inside the head, except for a strip 15 ft. wide immediately alongside the wharf.

Some little jealousy appears to exist on the port of Victoria, owing to the fact that the vessels being built there for the Canada West Coast Navigation Co. are being registered at Vancouver, and have the name of Vancouver placed on their sterns. It is customary to have the vessels registered at their home port, and to have the name of the home port placed on the vessel's sterns, but it sometimes happens that the vessel is registered at the port where she is built. The matter is one entirely for the owners.

With regard to the shallow draught steamboat, under construction at Yarrow's yards, Esquimalt, some details of which were given in our last issue, it was reported that early in February the construction had reached an advanced stage, all the shell plating having been completed, with the exception of the bow end and the bilge. It was expected that the assembling of the hull would be completed by the end of the month, or early in March, when it will be knocked down, packed in sections and shipped to Burma. The machinery is supplied by the parent firm in Great Britain, and shipped direct, and the whole assembled where the vessel is to be utilized.

The Prince Rupert Board of Trade communicated recently with E. J. Chamberlin, President, Grand Trunk Pacific Ry., expressing dissatisfaction that the company's steamships were being overhauled and repaired at other yards than the company's own at Prince Rupert, and also that the company's headquarters at the coast are at Vancouver instead of Prince Rupert. Mr. Chamberlin stated in reply that in the recent repair of the s.s. Prince Rupert it was necessary that the vessel be repaired at Victoria, as the plates required were in stock there, but arrangements are being made that the company's vessels will be repaired at Prince Rupert in future, when such a course is practicable and the dry dock facilities are not in demand for government work. The question of moving the headquarters to Prince Rupert had been under consideration, but up to the present it had not been found practicable to make the change.

Mainly About Marine People.

H. McLaughlin has been appointed shipping master for the port of Montreal, vice R. S. White.

Mrs. C. J. Smith, wife of the master of Canada Steamship Lines' s.s. Cayuga, died at Toronto Feb. 19.

Jas. Carruthers, President, Canada Steamship Lines, Ltd., has subscribed £40,000 to the British War Loan in England.

H. J. Dick, accountant, has been appointed acting General Agent, Canada Steamship Lines, Ltd., Kingston, Ont., vice E. E. Horsey, resigned.

A. E. Mathews, Vice President, Mathews Steamship Co., Toronto, and Vice President, Dominion Marine Association, has gone to California for a holiday.

Lord Furness, Chairman, Furness, Withy & Co., arrived in New York at the end of January, and visited Canada. He is also associated with Canada Steamship Lines, Ltd.

Jas. Playfair, President and Managing Director, Great Lakes Transportation Co., Midland, Ont., who was operated on in Montreal some little time ago for appendicitis, has gone to California.

Capt. H. R. Mouck, who died at Port Colborne, Ont., Feb. 14, aged 89, had sailed on vessels of almost every type on the Great Lakes, during the past 70 years. He retired from active service several years ago.

Capt. David Warwick, of Froomfield, Ont., master of the s.s. David Mills, engaged in the lumber trade between Cleveland and Duluth, died suddenly at Marysville, Mich., after walking across the St. Clair River on the ice.

Capt. E. D. Anderson, who died at Detroit, Mich., Feb. 19, aged 79, was formerly commodore of the C.P.R. Great Lakes service. He retired from active service about nine years ago, on reaching the age limit fixed by the company's pension rules.

Peter Baldwin, who died at East Orange, N.J., Feb. 12, aged 78, was, some years ago, a well-known shipbuilder at Quebec, owning what was then known as the Baldwin shipyard. For several years subsequent to leaving Quebec, he represented the Quebec Steamship Co. in New York.

T. Ashley Sparks, whose appointment as General Agent for the U.S. Cunard Steamship Co., New York, was announced in a recent issue, has joined the board of directors of that company. He is also President, Funch Edye & Co., New York, which has recently become closely associated with the Cunard Co.

Capt. R. G. Bassett, master of the Bassett Steamship Co.'s s.s. Mariska, died at Toronto, at the home of his father, Capt. W. J. Bassett, Feb. 17, aged 33. He was born at Collingwood, Ont., and had been associated with navigation for some years, having formerly been in command of the Western Steamship Co.'s s.s. J. A. McKee.

One of our Canadian contemporaries says: "**Wm. Phillips** has been appointed by the Canada Steamship Line as their representative in the office of the Robt. Reford Co., Montreal, general agents for Canada." This will be "news" to the Canada Steamship Lines management and to Mr. Phillips, who, as previously stated in Canadian Railway and Marine World, has been appointed Canadian Representative, Cunard Steamship Co.

Capt. Edward Martin, Superintendent of the Halifax Dockyards, who has been created a Companion of the Order of St. Michael and St. George, entered the Royal Navy in 1873, and has served on Admiralty stations in various parts of the world. He came to Canada in 1910, when the Dominion inaugurated a Naval Service Department, and has since been senior naval officer in charge of the dockyard and the Royal Naval College.

J. F. Condon, who has been appointed General Passenger Agent, Great Lakes Transit Corporation, Buffalo, N.Y., was City Passenger and Ticket Agent, Erie Rd., there, for the past eight years, and in addition to those duties, had charge of the Cleveland & Buffalo Transit Co.'s Buffalo office, and acted as agent for the various trans-Atlantic steamship lines. He commenced his transportation service as ticket clerk, Lehigh Valley Rd., Buffalo, N.Y., about 15 years ago.

Regulations Respecting His Majesty's Vessels.—The order in council, dated Nov. 15, 1916, amending the regulations for the government of the port of Halifax, N.S., respecting rules to be observed when His Majesty's ships leave the harbor, has been cancelled, and the regulations are amended by providing that such vessels when leaving the port shall hoist the letter O (International Code) at the foremast head, instead of the Union Jack.

Atlantic Mail Service Subsidies.—The Minister of Trade and Commerce stated in the House of Commons recently that the following subsidies were paid in 1916 for trans-Atlantic mail service: Canadian Pacific Ocean Services, Ltd., winter service at $11,363.63 per round trip, $159,090.82; summer service, at $5,291 per round trip, $100,529; a total for this company of $259,619.82; White Star-Dominion Line, half trip, $2,645.50. The subsidy claim for December quarter had not then been received.

Triangle Island.—The Marine Department has completed a short line of railway from Howes Harbor to the lighthouse on Triangle Island, B.C., 2.5 miles. The ties and other lumber required were secured locally, and the steel rails were part of those used during the construction on the Sooke waterworks project. A gasoline propelled car is used on the line, which was built mainly for the purpose of the transfer of stores and supplies to the lighthouse.

Proposed Dam on the St. Clair River.—The International Joint Waterways Commission has before it an application to build a submerged dam across the St. Clair River, to raise the level of Lake Huron. Opposition to the scheme is made by the Dominion Government, and all those interested in the maintenance of the levels on Lakes Erie and Ontario and the St. Lawrence River.

Toronto Water Borne Traffic.—The Minister of Customs stated in the House of Commons recently that for the year ended Mar. 31, 1916, 2,771 vessels, of a total of 1,636,620 tons register, arrived at Toronto, and 2,722 vessels departed, of a total of 1,366,723 tons register. There is no customs record of the tonnage of freight carried by these vessels.

Among the Express Companies.

W. F. Crichton has been appointed agent, Dominion Ex. Co., West Toronto, Ont., vice T. Townsend, deceased.

H. M. Watson has been appointed cashier, Dominion Ex. Co., Moose Jaw, Sask., vice G. A. Brown, promoted.

G. E. Bellrose has been appointed Traffic Supervisor, Canadian Northern Ex. Co., Winnipeg.

W. W. Williamson, General Auditor, Canadian Ex. Co., Montreal, has been elected grand master of the Grand Lodge of Quebec, A.F. & A.M.

A. E. Yuill, heretofore agent, Estevan, Sask., has been appointed agent, Dominion Ex. Co., Brandon, Man., vice D. H. Taylor, transferred.

G. A. Brown, heretofore cashier, Moose Jaw, Sask., has been appointed agent, Dominion Ex. Co., Estevan, Sask., vice A. E. Yuill, transferred.

The Dominion Ex. Co. has opened offices at York, P.E.I., and Metis Beach, Que., and has closed its offices at Aldershot and Musquodoboit, N.S., and Plourde, Que.

The Wells, Fargo Co. has concluded arrangements with the London Railway Commission to establish an office at London, Ont., and to operate an express service over the London & Port Stanley Ry.

The Board of Railway Commisisoners has approved revised Supplement 10 to Express Classification for Canada, C.R.C. 3, submitted to the board by C. N. Ham, Secretary, Express Traffic Association of Canada, Jan. 16.

Canadian Northern Ex. Co. employes at Winnipeg have formed an association for instruction and entertainment. Monthly meetings will be held, when an address will be delivered by one of the officials, on a subject connected with express work, which will be followed by a social evening.

The Minister of Railways, in replying to questions in the House of Commons, Feb. 7, stated that the Canadian Ex. Co. operates its service over the National Transcontinental Ry. from Quebec to Winnipeg. On account of the war, it was thought advisable to make a temporary arrangement with the Canadian Ex. Co. for the service.

The Dominion Ex. Co. was fined $150 and costs at Edmonton, Alta., Jan. 30, for carrying intoxicating liquor between Saskatoon, Sask., and Edmonton, Alta. In making a conviction, the magistrate stated that the accused had failed to prove that it had good reason for believing that the liquor brought from Saskatchewan into Alberta would only be dealt with in a lawful manner.

Wm. Thos. Anderson, Assistant Treasurer, Canadian Express Co., died at Montreal, Feb. 12, after 42 years service. He was born at Iroquois, Ont., in 1853, entered the C. E. Co.'s service in 1875 as junior clerk in the Money Department, later becoming the head of same. In 1891 he was appointed Auditor, Money Order Department, and in 1899, Assistant Treasurer, which position he held until his death.

Jas. H. Sonne, who has been appointed acting Assistant Treasurer, Canadian Express Co., Montreal, vice W. T. Anderson, deceased, was born in Dunedin, New Zealind, in 1869. He entered the C. E. Co.'s service in 1887 as junior clerk. In 1890 he was transferred to the Money Department, later having charge of same; was appointed Cashier at Montreal office in 1912, and acting Assistant Treasurer on Feb. 1, 1917.

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.

Preston Car & Coach Co.—Preston, Ont., ratepayers are being asked to vote on a bylaw to lend this company $75,000 to rebuild the car plant destroyed by fire recently.

The Independent Pneumatic Tool Co., Thor Building, Chicago, Ill., has ready for distribution a 4 pg. folder illustrating and describing in detail the Thor line of portable electric drills and grinders, which consists of eight different sizes of electric drills, with capacities ranging from ¼ to 2 in., and a portable electric grinder with wheel ¾ x 4 in.

Locomotive Superheater Co., 30 Church St., New York, N.Y., has issued bulletin 2 on fire tube marine superheaters, giving a list of 69 vessels fitted with its fire tube superheaters and entering United States ports, the object being to give ship owners and engineers an opportunity to inspect the vessels and to obtain at first hand reliable information as to the results which are being obtained.

The Electric Railways Improvement Co., Cleveland, Ohio, has developed a light portable outfit for electric welding rail bonds, which consists of an electric furnace, weighing 65 lbs., and a rheostat, weighing 200 lbs. By means of these two pieces of apparatus, current may be taken from the trolley and utilized in welding the copper rail bond to the rail. It is claimed that when the weld is completed, the copper of the bond and the steel of the rail are so intimately and firmly united that there is no chance for a depreciation of the electrical contact thus made. The electric furnace measures about 6 x 8 x 8 in. and when in operation is supported by a yoke resting on the top of the rail. The final adjustment for position is accomplished by means of 2 hand wheels, which give the operator complete control of the position of the furnace. The heat is transmitted to the bond by an incandescent piece of graphite pressing against it. No flame or arc strikes either the bond or the rail. Likewise there is no arc exposed to the eye, thereby doing away with the blinding effect of intense light. The rheostat measures about 15 x 20 x 24 in. and is equipped with switches and circuit breaker. By means of it, the electric furnace can be used with a line voltage of anywhere from 150 to 600 volts. It is equipped with handles, making it handy for two men to carry. The furnace may be placed on the top of the rheostat while moving from one rail joint to the next, thus making an easily portable outfit. The whole outfit may, if desired, be mounted on a 4-wheeled lorry for pushing along the track. The power consumption of the welder is claimed to be from 1 to 1½ k.w. hours per 4/0 bond. It is claimed by the manufacturers that it will put electric welded bonds within the reach of the smaller electric railways, will also be in certain demand by the larger roads, for use where traffic or other conditions forbid the use of a larger and more complicated apparatus.

Reynolds Timber Shipping and Insurance Agency, Ltd., has been incorporated under the Dominion Companies Act, with $40,000 capital, and office at Vancouver, B.C., to carry on a general produce, manufacturing, shipping and warehouse business, and in connection therewith to own and operate steam and other vessels, wharves, docks, etc., and to act as financial, insurance, commercial and vessel agents.