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Algoma Central and Hudson Bay Railway Terminals at Sault Ste. Marie.

By R. S. McCormick, M. Am. Soc. C. E., Chief Engineer

The Algoma Central and Hudson Bay Ry. Co. is constructing terminal facilities at Sault Ste. Marie, Ont., in connection with the work of completing the railway through to the National Transcontinental Ry. at Hearst, which are intended to provide accommodation for the expected business of that road. These terminals consist of locomotive house, machine shop, combined general stores and mechanical department office building, new station and yard office, all located in a new terminal yard at Tagona (town of Steelton, a suburb of Sault Ste. Marie), a new terminal station and office building at the foot of Bruce St., in Sault Ste. Marie, and a freight house at the foot of Dennis St. close by.

In addition to the building construction, the main line is being extended to Bruce St., and a siding extension to the New Ontario Dock, to provide for temporary dock facilities. A new freight and terminal yard is also being built at the site of the locomotive house and machine shop, together with an overhead combined electric railway and highway bridge crossing over this yard.

The new yard layout will provide yard tracks, entrance to locomotive house and a new transfer yard at that point. About six miles of new tracks are being laid, to provide for which it is necessary to excavate about 70,000 cu. yds. of mixed clay and boulder material. This excavated material is used to fill up areas below grade in the new yard, build approaches to the overhead bridge and to grade the main line extension to Bruce St. and on to the dock referred to.

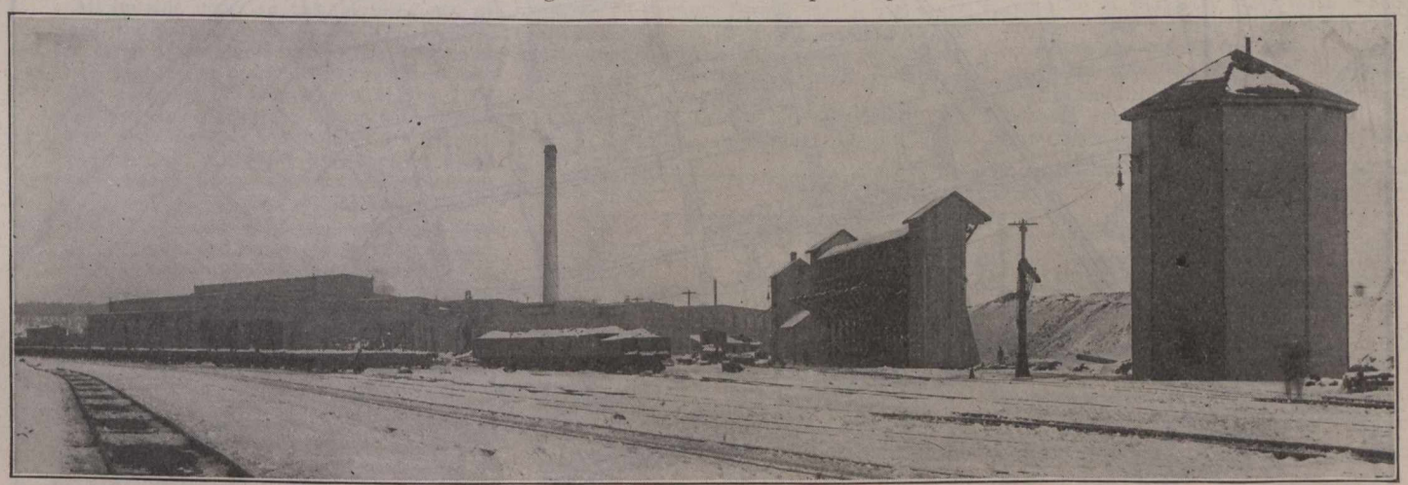
The overhead structure consists of earth embankments leading up to steel trusses on concrete spanning the opening. This steel structure is designed under the Dominion Government specification for electric railway and highway loadings and is 26 ft. wide c to c. of main trusses, carrying a single line of electric railway across on the south side. A roadway 15½ ft. wide in the clear is provided for alongside the car track. Outside the north truss there is provided a sidewalk 7 ft. wide on extension cross girders. The whole structure is 35 ft. wide and 190 ft. long, consisting of one 108.7 ft. and one 81.3 ft. spans. At present a temporary structure carries the electric railway over, pending the installation of the steel structure. On the west side of this crossing a pile trestle was driven to carry the electric railway temporarily, and this is now being filled and embankment widened to accommodate the highway and sidewalk. The concrete work for this structure was built in 1902, but the bridge was never completed. Due to the peculiar spacing and angle at which the abutments and the pier were located, the designing of the steel was much complicated. The Canadian Bridge Co. has the contract for erecting the steel structure complete, upon competitive plans submitted.

The locomotive house, machine shop, store building, coaling station, ash pit, sand house, etc., are all being constructed under contract with the Arnold Co. of Chicago, P. L. Battey being Chief Engineer of its industrial and railway shops department. This firm was called upon by the writer to submit preliminary plans for the entire layout in the spring of 1911. The plans submitted were then carefully gone into in conjunction with the Master Mechanic and Superintendent, and after long deliberation a plan was evolved, based upon the general plan submitted, which filled the requirements. The Arnold Co. was then awarded the contract to provide detail plans and construct the locomotive house, machine shop, store building, and the outlying structures and accessories, cinder pit, coal dock, tank, racks, etc. The Arnold Co. also installs the machinery and all other shop and locomotive house equipment. The railway company's forces are doing all track work, including the filling behind the abutments of the overhead crossing. The station and yard office building at this site is let by contract to the McPhail & Wright Construction Co., Sault Ste. Marie. This station building is a two-story brick veneered building, with basement of concrete. It is 26 by 40 ft. in size, with small waiting room, baggage room and office on ground floor, trainmen's locker room in basement, and Car Accountant, Trainmaster and road department offices on the 2nd floor.

LOCOMOTIVE AND CAR REPAIR SHOPS.

The shop layout consists of a locomotive house, machine shop and store house, with provisions made for adding a freight car repair shop, a woodworking shop and a passenger car repair shop in the future.

The yard layout provides through tracks for passenger and freight service, storage and switching tracks, and tracks serving all present and proposed buildings, with two tracks into locomotive house from the west and two into the machine shop from the east. On the two tracks to the locomotive house are located the cinder pit (having a single depressed track, with provision for another pit in the future), coaling station, and water tank of 50,000 gallons capacity. A line through the locomotive house and machine shop is in a northeast and southwest direction, but hereinafter will be called east and west to simplify explanations.

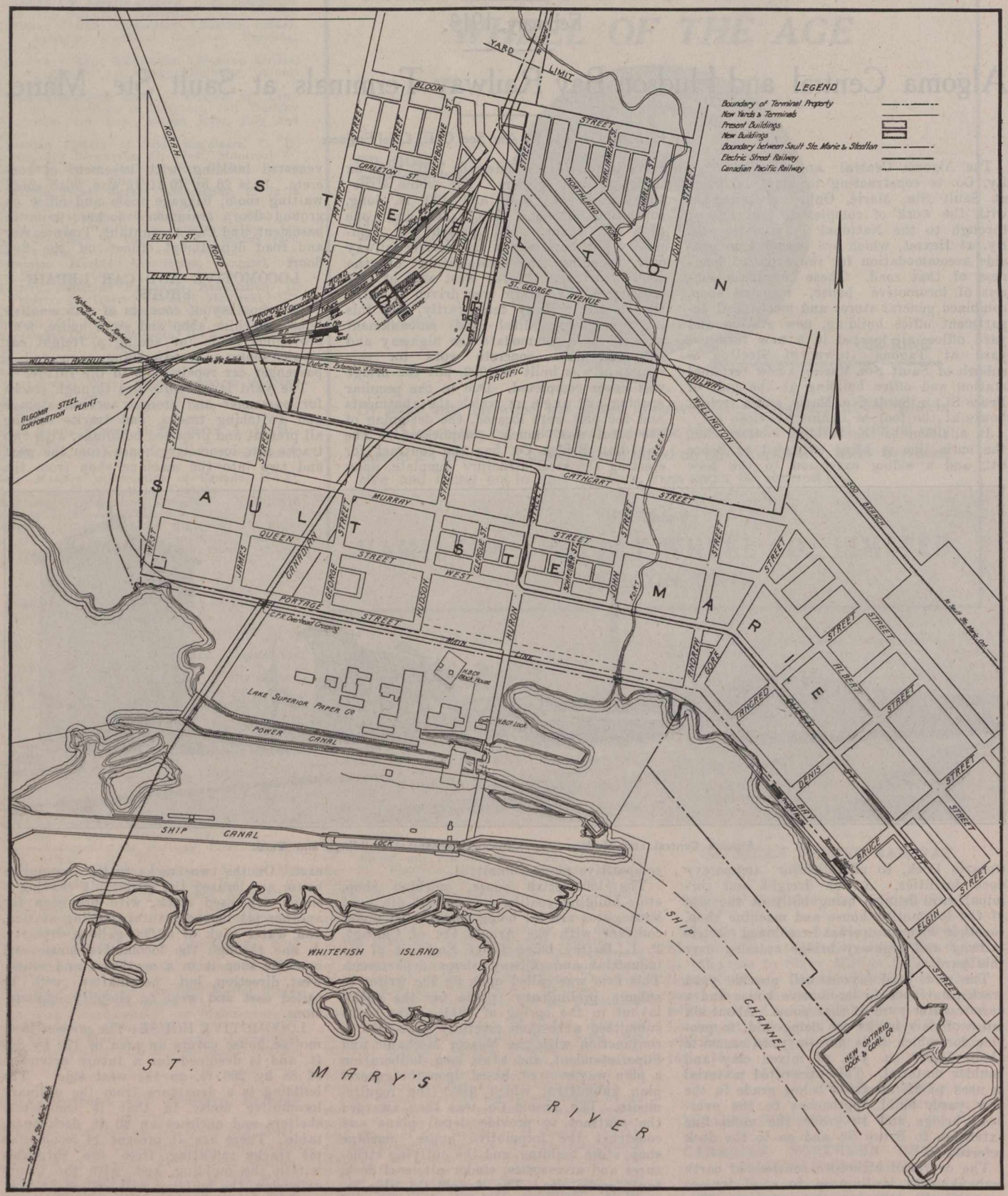


Algoma Central and Hudson Bay Railway Mechanical Buildings and Yard.

LOCOMOTIVE HOUSE: The present locomotive house covers an area of 178 by 266 ft. and is designed for a future extension of 88 by 266 ft. on the west side. The building is a departure from the ordinary locomotive house in that it completely shelters and encloses an 80 ft. deck turntable. There are at present 14 locomotive pit tracks radiating from the turntable within the building, and, with the future extension, the building will enclose 24 locomotive pit tracks in addition to the turntable. The operating advantages thus afforded by the enclosed turntable, eliminating many causes for delays due to weather conditions, and saving in the expense of handling locomotives in bad weather, will be readily appreciated by those familiar with the climate and deep snows prevalent in this or similar locations. There are two

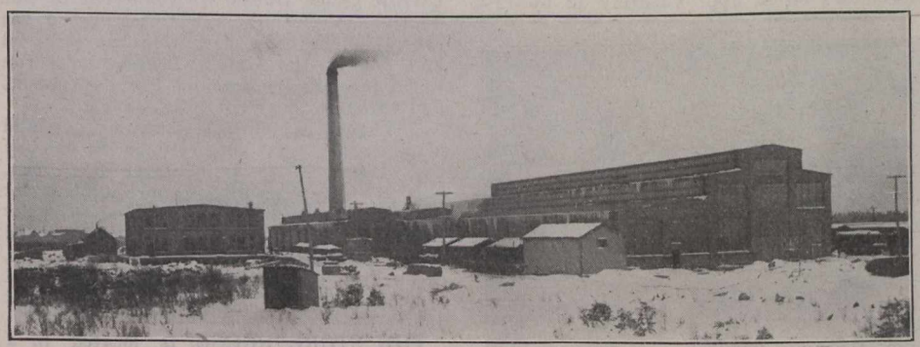
tracks entering the locomotive house from the west, both leading direct to the turntable. There are also two radiating tracks leading east from the turntable into the machine shop. Two of the locomotive pit tracks are provided with driving wheel drop pits and two others with truck wheel drop pits.

All foundations are of concrete and are set upon a firm base. The concrete base wall for the outside walls of brick is carried up to a height of 5½ ft. above grade, or 5 ft. above the floor line. This wall has an offset on the outside of two inches, 1½ ft. above grade, for a watertable and is capped off at the top for the full length with a 7 in. course projecting 2 ins., which forms the sills where windows occur and also a distinct division line between concrete and brick above. This concrete base, it will be seen, adds materially to the substantial appearances of the building, and also, by its color, contrasts with the brick above. Above this base the brick work is laid up in stretcher bond with struck joints of cement mortar and forming pilasters 3 ft. wide and 17 ins. thick. These pilasters are 22 ft. centres, alternate ones supporting steel roof trusses. Steel sash of the most modern type are set between pilasters and anchored in the brick, their size being in most cases 19 ft. wide and 14 ft. high, of which approximately one-third of the area



New Terminal Arrangement of A.C. & H.B. Ry. at Steelton and Sault Ste. Marie, Ont.

is composed of pivoted sections which can be opened variable amounts for ventilation. A maximum amount of outside light is obtained through these windows, which are glazed with factory ribbed glass. Above the windows is a four course brick corbel, which brings the face of pilasters and panels above windows flush, and gives the effect of weight at the top of the building, though this wall is but 13 ins. thick. The brick work above window and door openings is supported on steel lintels of the I beam and bottom plate type. The window lintels have an angle on the bottom of the plate for its entire length, to which the top of the steel sash is fastened with hook bolts, providing a neat, secure and weathertight anchoring.



Rear View of A.C. & H.B. Ry., Tagona Shops.

All outside doors in this building are of wood, the pass doors being 3½ by 7 ft., and the large track doors are 13 ft. wide and 17 ft. high. The track doors consist of two parts, each 6½ ft. wide with a 3¼ by 7 ft. pass door and a sash at the top with fifteen 10 by 16 in. lights. These doors are 3¼ ins. thick and are of a 3 ply construction, fitted with wrought iron stiffeners, heavy hinges and a locking device of special design.

Steel columns of latticed channel box type are used and are spaced 44 ft. centres each way, except at the turntable, which is in the centre of a clear space 88 ft. square. With the exception of the above mentioned space the roof is supported on 44 ft. steel trusses, 18 ft. clear above top of rail in all cases, with 22 ft. wide monitors over every bay running from east to west for full width of building, with one running in a transverse direction between two, over the turntable. These monitors are all equipped with Pond continuous steel sash hinged at top to swing out, the angle of which may be adjusted by the worm and gear gang operator, which is controlled from the floor. This sash is so built that when opened to its full extent it will permit of no rain entering under ordinary conditions, and consequently provides good ventilation at all times. Steel beam purlins resting on the roof and monitor trusses carry two inch wood sheathing, on which is laid a 5 ply Barrett specification roofing, finished off at edges with a copper gravel guard, giving a good, substantial roof. The roofs of the monitors drain over the edges to the roof below, which is saddled to drain water to cast iron conductor heads, set in top of box columns, and connected to cast iron soil pipe, set in concrete piers by wrought iron pipe downspouts, making a neat and inconspicuous disposal of roof water to sewers. The entire floor is of vitrified paving brick laid on edge in a sand cushion on a 5 in. base of concrete.

In the northeast corner of the locomotive house is a room approximately 40 ft. square, with partitions of wooden studs, expanded metal and cement plaster separating it from the rest of the interior. A portion of this room, 17 by 22 ft., is partitioned off for the foreman's office, and has a maple floor, one door to the outside and one to the inside of the building. The rest of the space is devoted to a locker and wash room, with concrete floor, for the employes. The equipment will consist of 154 steel lockers in double rows, back to back, with ample aisles between, in which there are seats; also a double row of lavatories, 32 in number, at one side of the room, which provide adequate washing facilities for the employes. This room is well lighted, having large windows on both sides, by which ventilation is also furnished.

In the southeast corner of the building is a space approximately 40 ft. square, partitioned off in the same corner as the locker room. In this room are located the boilers, stack, heating fan and engine, boiler feed pumps and vacuum pump. Along the south wall is a coal bin, 40 by 6 ft. wide, provided with small doors in the outside walls, permitting of unloading coal direct from cars into the coal storage space.

The turntable is 80 ft. long, 200 tons capacity, standard deck type, and is operated by a pneumatic turntable tractor. The turntable ring wall is of concrete, with four expansion joints equidistant on its circumference, the inside diameter of which is 80 ft. 5 ins. This wall is capped off at the base of rail with curved segmental curb timbers, 8 by 14 ins., each of which is fastened at two places with ¾ in. anchor bolts to concrete. The circular rail of the turntable is fastened to 6 by 8 ins. by 2 ft. creosoted ties anchored to a concrete base, cast integral with the ring wall. The pit floor is of 5 in. concrete pitched to drain to circular gutter 14 ft. from centre of pit, which drains to a large sump, the top of which is covered with a cast iron grating, and is connected to sewer. The centre pier is of concrete and liberal in size, being 11½ ft. square at the base.

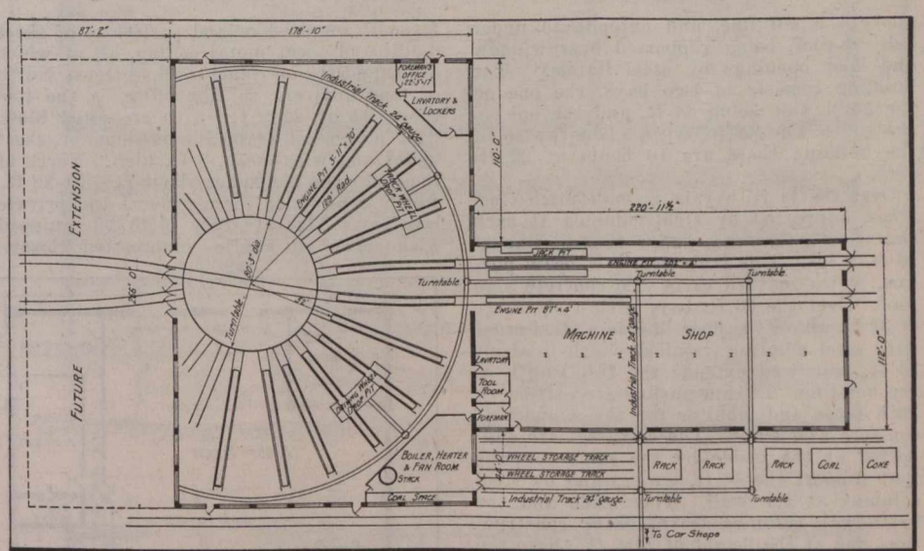
All pits under locomotive stalls are of concrete, 70 ft. long by 3 ft. 11 ins. wide; are 2 ft. 8 ins. deep at the high end and drained to low end, which is 3 ft. 2 ins. deep, and has a sump covered with a cast iron grating and a connection to sewer. All pits are absolutely clear on the sides, having no projections of any kind, and the bottoms are paved with vitrified paving brick, arched at centre and laid in ½ in. sand cushion on concrete.

The 80 lb. rails used exclusively are supported on the concrete side walls of pits, spiked to 6 by 8 ins. by 1 ft 4 ins. creosoted cross ties, which are set and anchored in the concrete. Outside of the rails, parallel to same, and flush with floor, are 6 by 10 in. dressed jacking timbers, fastened to blocks, which may be readily taken up at any time when repair of rails is necessary, without disturbing any of the brick floor paving.

The wheel drop pits are of concrete and extend radially a little more than the width of two stalls, having a 24 in. gauge track on the concrete bottom from end to end for transferring wheels on truck, which, when lifted to floor level, are run on 24 in. gauge track connected to circular industrial track at end of stalls by a turntable. The pits are to be equipped with modern air jacks and removable rails, supported by I beams across the pit. Drainage is obtained by gutters, which drain to a sump connected to sewer.

The smoke jacks are of sectional cast iron construction, with an opening 8 ft. by 3 ft. and a 30 in. diameter stack with a hood at the top. The bottom of the jacks are 16½ ft. above the top of rail and the jacks are supported upon the steel roof members.

The building is heated by the indirect system, consisting of a steam driven fan and Green Positivflo horizontal heater coils.



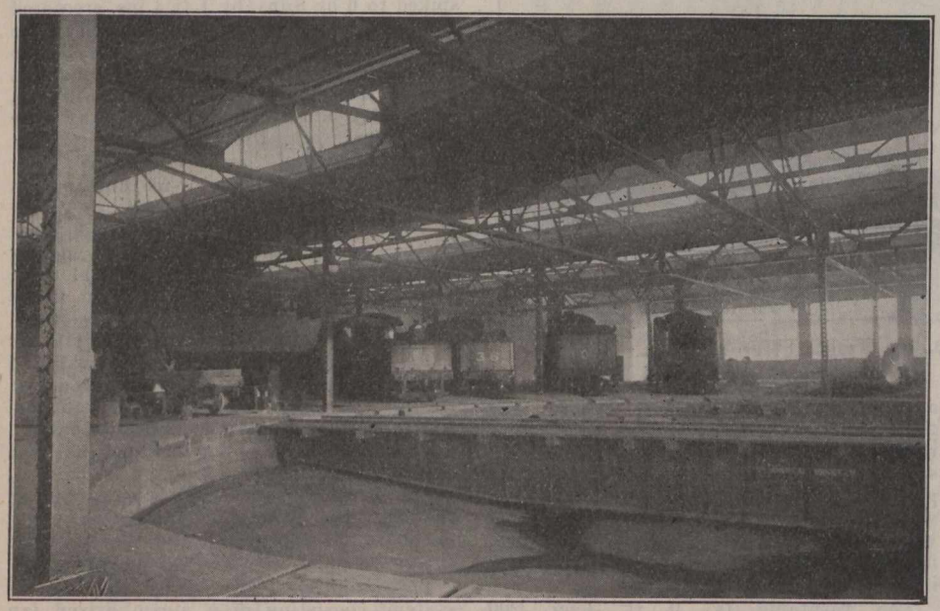
A.C. & H.B. Ry. Locomotive House and Machine Shop.

The hot air is forced through underground concrete tunnels and vitrified tile ducts to the turntable pit and all engine pits. Dampered outlets are provided, giving good distribution throughout the building. Steam for heating is supplied by three internally fired boilers of 150 h.p. each, for 100 lbs. working pressure, fitted with 50 in. inside diameter by 12¾ in. long, Morison furnaces. A steel smoke breeching connects the boilers to a Weber reinforced concrete chimney, both outer shell and lining of concrete, lining extending 39½ ft. above grade and top of outer shell 125 ft. above grade. The chimney is protected from lightning by modern lightning rods, well grounded.

Steam, air and water are conveyed to the locomotive stalls by pipe mains, with drops and valved outlets at the columns, between

stalls. One set of drops fitted with double valves and connections serves every two stalls.

THE MACHINE SHOP is 112 by 221 ft. long, the long way being in an east and west direction, and is directly adjacent to the locomotive house, the west wall of the machine shop being the east wall of the locomotive house. All foundations are of concrete, as are the base walls to the sill lines, the same as described for the locomotive house. Brick is used for the walls



Interior of A.C. & H.B. Ry. Locomotive House.

above the sill line, and extends to under side of roof, being supported over window and door openings by steel lintels. The building consists of two bays, the one on the north side being 66 ft. and the one on the south side 44 ft. wide. Lengthwise of the building there are 10 bents at 22 ft. each.

Over the 44 ft. bay is a single pitch steel truss, supported by steel columns at each end with a clearance below to floor line of 18 ft. 2 ins. This truss carries I beam purlins, which in turn carry the concrete slab roof. Over the 66 ft. bay, with a clearance of 32 ft. above the floor line, is a steel truss with steel monitor framing, which is about 33 ft. wide and extends the full length of the building. I beam purlins are carried on both truss and monitor for the support of concrete roof slabs. These trusses are supported at the inside by the same columns that support the 44 ft. trusses and by steel columns at the wall. The inside and the north wall columns are of heavy construction, and at the height of 24½ ft. above the floor support a crane rail girder on which a 10 ton, 63 ft. 4 in. span, electric travelling crane operates.

Steel sash are used exclusively, both sides of the monitor, and that portion of the wall where the roof over the 44 ft. bay is lower than the one over the 66 ft. bay is equipped with two rows of 3 ft. high, Pond continuous sash, for approximately the full length of the building, one row being fixed in each case and the other operated by gang operator from the floor. The steel sash set in the brick walls are of the unit type, which, in the south wall, are 19 ft. wide by 14 ft. high in one horizontal row, and in the north wall are two rows, the lower one being of units 19 by 14 ft., and the upper 19 by 11 ft. All the sash have pivoted sections, which may be swung to secure the desired ventilation.

The roof is of reinforced cement tile, 1¾ ins. thick, cast in slabs about 5½ ft. long and 2 ft. wide. These slabs bear directly on the steel purlins and on the wall at the outside, and are covered with 5 ply Barrett specification roofing, which is finished off at the edges with copper gravel guards. Drainage from this roof is allowed to run off edges to the ground. The floor of this building is to consist of a 5 in. concrete subbase and 1 in. sand cushion, on top of which will be laid 3 in. creosoted maple paving blocks.

In the southwest corner is located the foreman's office, approximately 12 by 12½ ft., with maple floor and partitions of sheet metal and sheet metal ceiling, all of which are supported on rolled steel sections. North of, and adjacent to this office, is the tool room, 22 by 22½ ft., with creosoted block floor and steel framed partitions of sheet metal and wire mesh, 8 ft. high. North of the tool room is a space about 11½ by 22 ft., which is provided for a general and private lavatory. This lavatory is to be equipped with seven automatic compression closets, inclosed in Brown sanitary water closet shields.

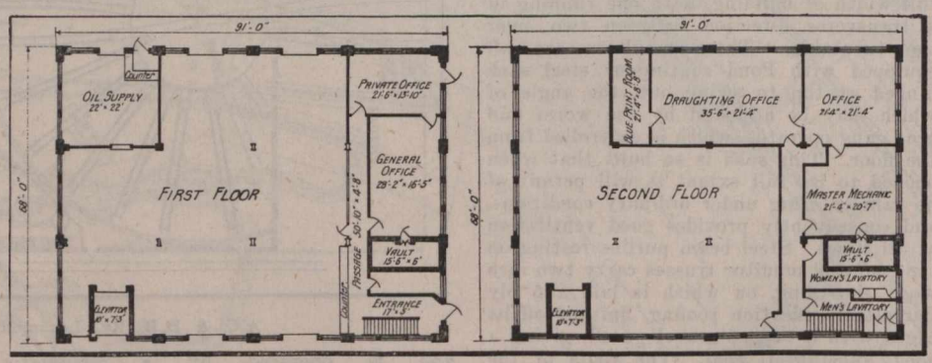
The erecting pits are located on the two through tracks leading from the locomotive house through the erecting shop. These tracks are on 21 ft. centres in the erecting shop. An electrically operated locomotive screw jack hoist is provided on one of these pits for unwheeling and mounting locomotives. The hoist consists of a pair of stationary screw jacks, and a pair of movable jacks mounted on rails outside of the pit rails. Each pair of jacks is provided with a lifting beam, which extends across the track from one jack to the other. The vertical movement of the beam is such as to permit the passage of a 72 in. driver underneath the beam when lifted to its full height. The jacks are all operated together.

The overhead 10 ton electric crane in this bay affords a method of handling heavy parts for repair work in any part of this section of the shop. A 24 in. gauge industrial track, running in the centre between the two standard gauge tracks, connected to the circular track in the locomotive house by a small turntable, extends to within 55 ft. of the east end of the machine shop. Two narrow gauge tracks are connected to this at right angles by turntables, one in the centre of the third bay from the east end and one in the sixth. These tracks run south through the machine tool department and through doors out into the yard.

The space used for the machine tools and blacksmith shop comprises the 44 ft. bay and about a 10 ft. strip of the 66 ft. bay, with the exception of the space allotted for office, tool room and lavatory, and space for the fan and heater. This building is heated in the same manner as the locomotive house, except the hot air is partially distributed through overhead galvanized sheet metal ducts.

THE STORE HOUSE is located in a position of easy access from all the present and proposed buildings, and has necessary facilities for the receiving and shipping of material, having platforms on each side adjacent to tracks. The building is 68 by 91 ft., and provision is made for an extension on the west end. It has three floors, a basement, first floor and second floor, and their heights are 10 ft., 13 ft., and ranging from 12 to 14 ft. on the second floor, respectively. The entire building, from foundation to first floor line, is of concrete, reinforced where necessary, including the 5 ft. permanent platforms and walls of same, in which are steel sash for the admission of light and ventilation to basement. The use of this space under platforms gives additional floor space in basement. The first floor is of reinforced concrete of the mushroom or flat slab type. The stairs to the basement, from the first floor in the southeast corner, are of reinforced concrete, and are inclosed in walls of expanded metal and cement plaster, with steel door and frame into basement.

Directly alongside of the stair well is located a lavatory room with light from the windows in the outside wall. A door from this room furnishes access to the janitor's closet under the stairs. At the east end, a little to one side of the centre, is a brick vault 6 by 16 ft., which is directly underneath the vaults on first and second floors. In the northwest corner of the basement is the oil storage room, approximately 27 by 22 ft. The walls of this room are of expanded metal and cement plaster, with one doorway 4½ by 7 ft., equipped with double sliding automatic fire doors. Light and ventilation are admitted through windows in north and west walls to this room. The entire basement floor is intended for the storage of heavy materials, and consists of



A.C. & H.B. Ry. Store House.

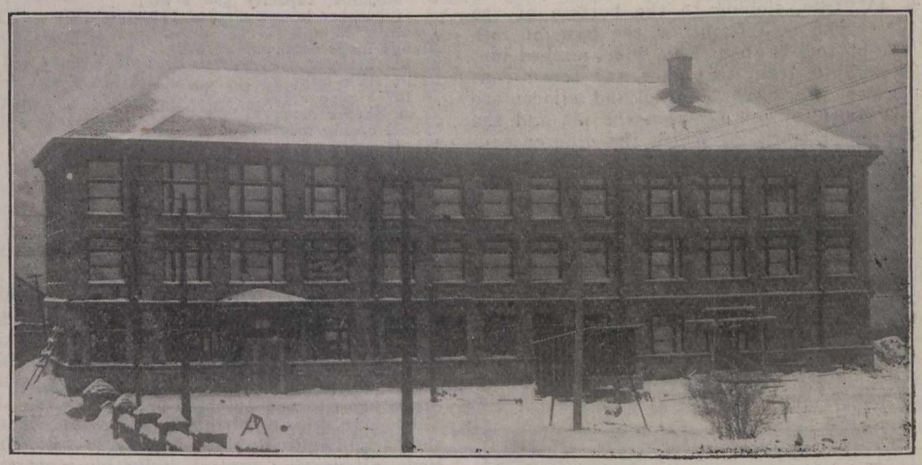
6 ins. of concrete.

The first floor is used for the storage of both light and heavy parts, in racks and bins, and necessarily all shipping and receiving is done on this floor from platforms through doorways 8 by 7½ ft., equipped with rolling steel shutter doors, of which there are two on both the north and south sides. The main entrance is at the south end of the east wall. Just inside of the entrance is a stairway to the second floor and at the side of this is a hall, which leads to a counter in the storeroom. At the east end of this floor is located a small tool storeroom 5 by 16½ ft., a vault 6 by 15½ ft., a general office 14 by 16½ ft. and a private office 14 by 21½ ft. These rooms are partitioned off with wooden studs and lath and plaster walls, with the exception of the vault, which is of concrete. Access is had to these offices by a long hall at the back, running north and south, which is separated from the large storeroom by a long counter and railing with a pass gate. In the northwest corner on this floor is the oil supply room, which is fireproofed with expanded metal and cement plaster partitions and ceiling. The inside door is a double sliding automatic fire door, and access is had to the outside platform by a rolling steel shutter door and a pass door.

The superstructure above the first floor is of brick, with steel lintels over door and window openings, steel columns and girders, with second floor of heavy joist and plank construction. The brick walls and steel columns extend to roof, with steel girders between columns, which support the heavy roof joists and sheathing. The roof is of the low pitch type with standing gutters, and is drained by inside downspouts of wrought iron pipe connected to cast iron conductor heads at roof and to the sewer in the basement. Barrett 5 ply specification roofing is used and is finished off at edges of overhanging roof with copper gravel guards.

The second floor is used for the storage of light material and also for offices. These are partitioned off with wood studs and metal lath, and all the walls and ceilings of the offices are plastered. The rooms consist of the Master Mechanic's office, 30 by 21 ft., a private office 21 by 21 ft., a draughting room 21 by 35½ ft., a blueprint room 9 by 21 ft., a concrete vault 6 by 15½ ft., and two lavatory rooms. This whole building is well lighted from all sides by large windows of steel sash, provided with adjustable, pivoted, ventilating sections. A hand power elevator serving all floors and basement is located in the southwest corner of this building, the platform of which is 7¼ by 10 ft., with a capacity of 2,000 lbs. and a lift of 23 ft.

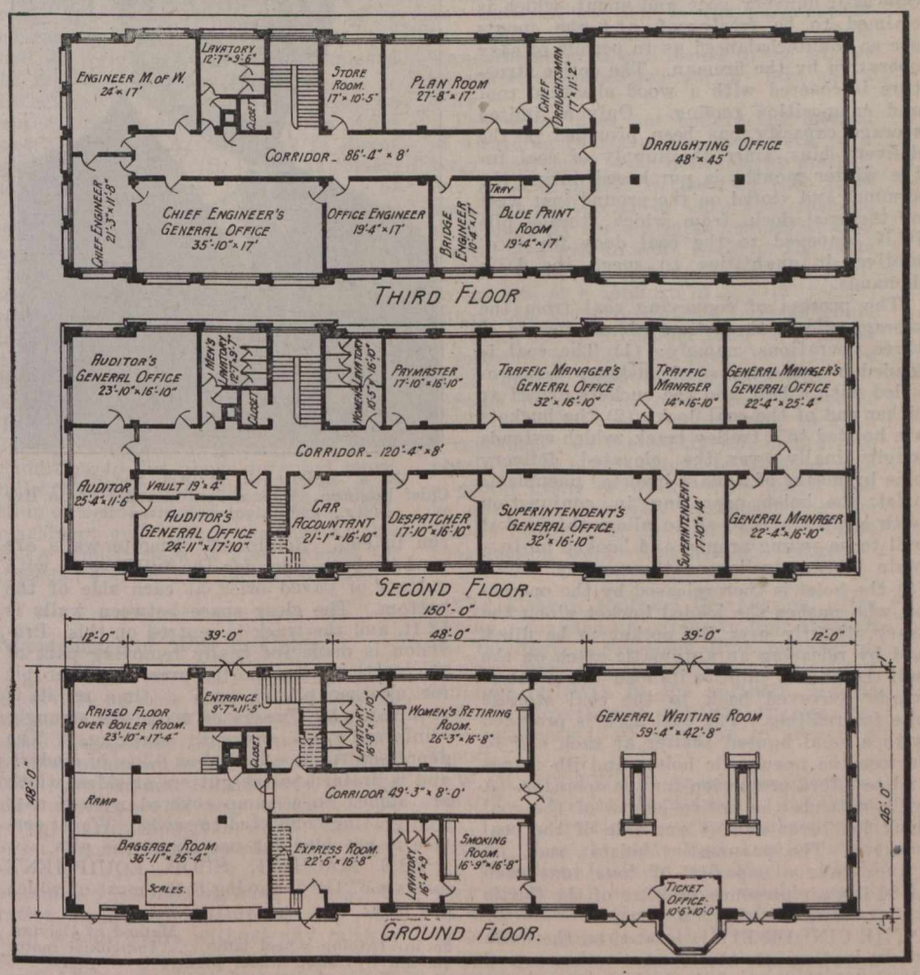
On the north side of the store house, outside of the concrete platform, there is a temporary wood platform 20 ft. wide for the full length of the building, and 25 ft. wide for a length of 40 ft. east of the building line, with a ramp 7 ft. wide and 30 ft. long, to grade level. A platform of the same type is built across the east face of the building, and provides storage space for parts that may be left exposed to the weather, also for additional receiving and shipping facilities, and the ramp provides for trucking to and from the building.



A.C. & H.B. Ry. Terminal Building under Construction, Dec., 1912.

OIL STORAGE EQUIPMENT: The equipment of the oil storage room in the basement, and the oil supply room on the first floor of the storehouse, is very complete towards providing an efficient and clean system of oil handling and storage. The storage of oil is in five tanks located in the basement. These tanks are used for the following kinds of oil: 1. car oil, capacity 500 galls.; 2. locomotive oil, capacity 500 galls.; 3. headlight oil, capacity 500 galls.; 4. valve oil, capacity 300 galls.; 5. signal oil, capacity 300 galls. The tanks are ¼ in. black steel plate, with all seams single lap, thoroughly riveted and caulked. Three of the tanks are 4½ ft. in diameter by 5¼ ft. high, and two are 3½ ft. in diameter by 5¼ ft. high, these dimensions being inside. All tanks have a 4 in. pipe connection at the top, which extends to the first floor, where fill boxes are set in concrete slab and have easily removable covers flush with floor, which, when taken up, and cap on end of 4 in. pipe is removed, allows of rolling a barrel over the filling box and filling the tanks by gravity. Connected to these 4 in. pipes, just above tanks, are 2 in. pipes, which extend through building wall to outside track along the platform, where they each have a stop cock and hose connection, thus providing a method of filling the storage tanks from cars. Each tank has a 1½ in. vent pipe extending 18 ins. above the roof. The tanks are set 1 ft. above the floor level on a concrete base, in which is a small trench under each tank to allow for a 1¼ in. drain pipe and waste cock at the front of the tank. At the north side of this room, under the platform, is a fireproof room partitioned off for the storage of waste.

A tank for gasoline storage, 3½ ft. in diameter and 5 ft. long, is located 20 ft. west of the building, and is buried in the ground below frost line, and encased with 6 ins. of concrete. The filler pipe projects from the ground directly above the tank and a 1½ in. suction pipe extends to pump in oil supply room. This tank is also equip-



A.C. & H.B. Ry., Bruce St. Terminal Station.

ped with a vent.

In the oil supply room on the first floor are located six Bowser self measuring, hand operated, oil pumps for the distribution of oil. These pumps are arranged along the west wall and are of the positive suction type, and have a 1½ in. suction pipe from tanks. Directly below nozzles of pumps are drip pans with 1½ in. return connections. In the northeast corner of this room is a 3 ft. 2 in. by 7 ft. door, by which entrance is gained to oil room from the outside. Just inside of this door is a counter at which requisitions for material from this room are filled. Under this counter are racks for storage of a day's supply of waste.

COAL DOCK: The coaling station is located at the west end of the cinder pit on the south side of the south track leading from the turntable. Parallel to the track the structure is 161½ ft. long, with a width averaging about 10 ft. The building is constructed entirely of timber, well over size to allow for deterioration, and all posts rest on concrete footings and are anchored to same with heavy steel plate straps. The delivery bins consist of 13 inclined bottom coal pockets, graduated in capacity so as to deliver a predetermined amount of coal to locomotive tenders, the respective pockets each being designed to hold the following amounts of coal, namely, two 2 tons; one 3 tons; two 4 tons; three 5 tons; two 6 tons; one 7 tons, and two 8 tons. The bins and framework are built of timber and heavy plank. Each pocket is equipped with an Ogle coal delivery gate and spout, which is claimed to be frostproof, and the spouts are so counterbalanced as to permit of easy operation by the fireman. The entire structure is covered with a wood sheathed roof and composition roofing. Only a limited storage capacity has been provided in the delivery bins, since the supply of coal for the winter months is purchased during the summer and stored on the ground just west of the coal dock, from which storage pile it is conveyed to the coal dock for locomotives in quantities to meet the daily demands.

The process of conveying coal from the storage pile to the delivery bins consists of three operations, namely: (1) The coal is loaded into one ton steel buckets, each provided with a bail, and the buckets placed at either end of the coal dock; (2) the buckets are hoisted to a trolley track, which extends longitudinally over the elevated delivery bins by means of a plain inverted pneumatic hoist, the hoist operating in conjunction with a jib crane so as to allow the bucket bail to be swung around and hooked on to a plain I beam trolley on the runway track; (3) the hoist is then released by the operator, who pushes the loaded bucket along the track, directly over the pocket to be filled, and by releasing an automatic catch on the bail the bucket empties its load and is afterwards conveyed back to the coal storage pile for refilling. The coal dock is provided with a semi housed shelter at each end to enclose the pneumatic hoists and jib cranes and to afford protection for the operator. A walk extends the entire length of the coal dock just over and at one side of the coal pockets. The pneumatic hoists and jib cranes have a capacity of four tons each at 80 lbs. air pressure, and are of the Curtis & Co. Manufacturing Co.'s make.

THE CINDER PIT is located on the main tracks leading into the locomotive house, and about 400 ft. west of the latter. At present only one pit is built, with the depressed track in the centre between the two main tracks, which are 28 ft. centres. All pit walls are of concrete, with concrete base for vitrified paving brick floor. The cinder pit is 48 ft. long and approximately 10 ft. wide, and has a solid concrete wall under the outside rail of the track, forming bearing for same, and to which the rail is fastened with cast steel clips and anchor bolts set in concrete. Along the inside edge at the top of this wall is a steel curb angle to prevent chipping of the concrete. One inch below the top of this wall is the toe of a 45° face, sloping to the bottom of the pit, which is 3 ft. below the base of rail. The bottom is about 8 ft. wide, pitched just enough to drain to gutter and sewer connection, which runs parallel and adjacent to the concrete wall between the pit and the depressed track, of which the difference in height is approximately 3 ft. The inside rail is supported on cast iron standards, 6 ft. centres on concrete piers, an inverted rail being applied to the running rail, base to base, for reinforcing between standards. The clear height under rails to base of pit is about 2 ft. 8 ins., giving easy access to locomotive fire boxes.

The depressed track is 6½ ft. deep and level for about 48 ft. opposite the cinder pit, with a steep grade at the east end to act as a bumper, and a 6 per cent. grade on the

R. S. McCormick, M. Am. Soc. C.E., Chief Engineer, Algoma Central and Hudson Bay Ry., and Algoma Eastern Ry.

run in end. Reinforced concrete walls are used on both sides for the full length, with gutters of paved brick at each side of the bottom. The clear space between walls is 12 ft. and the track is centred on this. Provision is made for easily removing part of the north wall opposite present cinder pit for another pit at such a time as it is required. All corners of walls are strongly reinforced to prevent cracking. The depressed track is laid upon 6 ins. of cinders, and is drained to the gutters at sides, which are sloped to a sump covered with a cast iron grating connected to sewer. Water service is provided for use about the pits.

THE MACHINE SHOP EQUIPMENT consists of the following tools, most of which are new:

	Method of Driving.
80 in. Driving wheel lathe	Individual motor
400-ton hydraulic wheel press	Belt
36 in. Engine lathe	"
24 in. Engine lathe	"
16 in. Engine lathe	"
16 in. Toolmaker's lathe	"
Pratt & Whitney turntable lathe	"
42 in. Vertical boring mill	"
18 in. Crank slotter	"
18 in. Crank shaper	"
No. 2 Universal miller	"
66 in. Radial drill	"
30 in. Vertical drill	"
15 in. Sensitive drill	"
Power hack saw	"
Twist drill grinder	"
Wet tool grinder	"
Pipe bending machine	Hand operated
48 in. Punch and shear	Individual motor
Plate bending rolls	" "
Ryerson, pit type, flue cleaning machine, capacity 500 2 in. tubes per hour	" "
Flanging clamps	Air.
Flange forge	"
22 in. Lathe	Belt
22 in. Axle lathe	"
36 in. Planer	"
24 in. Shaper	"
Wheel boring machine	"
Wheel press	"
Radial drill	"
6-Spindle drill	"
3 Vertical drills	"
Triple bolt cutter	"
Pipe threader	"
Wet tool grinder	"
2 Emery wheels	"
42 in. Punch and shear	"
Bolt threader	"
Bulldozer	"
2 Bradley hammers	"
Flue cutter	"

Bolt furnace, case hardening and spring furnace, Annealing furnace, flue welding furnace, Blacksmith forges, oil rivet forge, flue welder, Steam hammer, and one blast and exhaust fan.

The motors for driving the group line-shafts and individual tools are 220 volt, 60 cycle, alternating current, induction motors. Power is purchased from the Tagona Water and Light Co., whose hydro-electric plant is located not far from the shops. Two motor-driven air compressors are located in the southwest corner of the engine house, and compressed air outlets are located at convenient points throughout the machine shop and locomotive house. The line shafts are supported by drop hangers fastened to steel shafting supports of special design, clamped to lower chords of the steel roof trusses. The supports are built of standard rolled steel sections, easily fabricated, and permit of very simple alignment of shafts and hangers. The motors driving the line shafts are supported by brackets, some of which are mounted on the steel columns and some on the brick walls. These brackets are constructed of standard rolled steel sections, with a base of reinforced concrete for the motors to set upon. Pipe sleeves are set in the concrete for motor base bolts, which gives a solid anchoring and minimizes vibration.

FUEL OIL STORAGE: Two 30 by 4½ ft. diameter steel fuel oil tanks are located underground outside the east end of the machine shop, the latter end of which accommodates the blacksmith shop department. Oil can be unloaded by gravity direct from tank cars into the tanks. It again flows by gravity into a small delivery tank, from which it is forced to the burners by compressed air at 20 lbs. pressure. All of the tanks and piping are equipped with heating coils to prevent the sluggish flow of oil during cold weather.

LIGHTING SYSTEM: The buildings and yards are all well lighted. The engine house is lighted with flaming arc lamps, one to each space between engine pits and three over the turntable pit. The erecting portion of the machine shop is also lighted with flaming arc lamps. Clusters of tungsten lamps are used in the machine shop. The shop offices, toilet and locker rooms, and tool room, are lighted with carbon filament lamps, and tungsten lamps are used in the store house and offices. All power, light and water is supplied by the Tagona Water and Light Co., one of the Lake Superior Corporation's subsidiary companies.

EXTENSION TO BRUCE STREET: The extension of the main line to Bruce St. involves an undercrossing of the C.P.R. Sault Ste. Marie branch, where excavation was made through part rock. This excavation, including the concrete abutments, was done by contract by the H. E. Talbott Co. of Sault Ste. Marie. A half deck girder span, 25 ft. long, spans the opening carrying the C.P.R. track over the A.C. and H.B.R., at

this point. There is a full clearance of 22½ ft. from base of rail to under side of the girders. This extension is 1¼ miles long to the site of the terminal station at Bruce St., and lies along the water front of the St. Marys river.

THE TERMINAL STATION AND general office building is located on Bay St. at the foot of Bruce St., the east line of the building being on the east line of Bruce St., locating the main entrance into the station directly across Bruce St. It is a thoroughly modern and substantial structure, 46 by 150 ft., with three stories, a small basement, and a loft under its pitched roof; and, with the exception of the roof framing, the building will be fireproof. Construction was begun on April 21, 1912.

On the ground floor is located the general waiting room and ticket office, women's retiring room, men's smoking room, express room, separate entrance hall (giving access to the offices by ample stairway, and by provision for an elevator), and the baggage room. Along the street side, the floor of the baggage room is 3½ ft. higher than its main floor. The two elevations are connected by an inclined runway, but in addition baggage can be delivered directly from trucks to the high elevation and from there directly into drays at the elevation of the wagon box. The second floor provides space for the General Manager's general and private offices, the Traffic Manager's general and private offices, the Superintendent's general and private offices, the Auditor's general and private offices, the Car Accountant's office and the Train Dispatcher's office. On the third floor will be located the Chief Engineer's general and private offices, offices of the Bridge Engineer, the Engineer of Maintenance of Way, the office engineers, draughting room and Chief Draughtsman's office, plan room, blueprint room and store room. Lavatories are provided on all floors.

The footings are of concrete and were carried to rock below the elevation of the river. The foundation walls from the footing to grade are of rubble, 2 ft. thick. The walls of the building are of hard native sandstone from the Root River Quarry, grading in color from grey to red brown. From the water table to the first story sill course, the walls are of rock faced coursed masonry. Above this line, rock faced, hammered ashlar work is being used. The first story walls are 20 ins. thick, second story 18 ins., and third, 16 ins. The cut stone trim is of red Portage Entry sandstone, from Houghton, Mich., and blends well with the native sandstone. The trim consists of water table, sill course, flat and arched lintels of first story doors and windows, a heavy belt course at the level of the second floor; sills, lintels and corbels of the second floor, and sills and lintel course of the third floor. The walls are surmounted by a heavy copper cornice and gutter, and the building will be covered by a pitched roof of Vermont variegated green and purple slate. A hipped roof marquise covers the main entrance opposite Bruce St. Provision has been made for train sheds of the umbrella type, to be built in the near future.

The structural supports of the interior of the building are two rows of seven steel columns, on concrete piers carried to rock foundation, and one additional column in the panel containing the elevator shaft and stair hall, forming 24 bays; 16 of approximately 16 by 20 ft. along the sides of the building and carrying the offices, and 8 of approximately 9½ by 20 ft. down the middle of the building and carrying the corridors. I beams form the girders between columns, and between the end columns and the masonry walls. The second, third and loft floors are of reinforced concrete and tile, of the type known as the Johnson system. The first floor is of concrete throughout, resting directly on the fill, except the portion over the basement, which is reinforced.

The building will be heated with steam and the mains will run from the basement, where the boilers are located, through tunnels under the first floor. The building will be electric lighted. Conduits are carried from floor to floor through a wiring duct, with distribution closets at each floor, and the circuits for any one floor are carried in conduits laid in the concrete of the floor above. All partitions are of hollow tile and are plastered. Exterior walls are plastered on metal lath carried by metal furring. Stairs are of steel. Floors of entire first floor and of corridors and lavatories of second and third floors are of granolithic finish. Remaining floors in building are of maple or rough sheathing and sleepers, anchored in concrete. The general interior trim is red oak.

The present concrete train platforms will extend 100 ft. each way from the station, giving a total length of 350 ft. Walks will extend along the east side and front. The space at the west end of the station for 60 ft. out will be paved.

All outside work, including grading, tracks, etc., is being done by the company's forces. Plans for this building were made by the Arnold Co., and the McPhail & Wright Construction Co. are the contractors.

THE FREIGHT HOUSE is a frame building on solid concrete walls and piers, covered with corrugated iron and a prepared felt roof. It is 32 by 112 ft., with an office in the east end, and was built by the McPhail & Wright Co. on plans furnished by the railway company.

All the above work is being carried on under the writer's general charge as Chief Engineer, with J. A. Hedgcock in direct charge of the forces. L. B. Wulff, as Superintendent for the Arnold Co., in charge of their part of the work, and H. H. Dickinson, Engineer in charge of this work at the Chicago office, have rendered excellent service to the railway company. The writer is indebted to Mr. Dickinson for the above description of the terminal buildings. All outside work is being rapidly completed, and the inside work at the shops and station buildings will run into the winter. The Mechanical Department took possession of the Locomotive House on Dec. 1, and has been using it regularly since.

In addition to the above terminal work, the railway company is considering the construction of a modern coal dock with unloading machinery and storage capacity at this point. A similar dock is also planned for Michipicoten Harbor and Little Current.

Maintenance of Way by Contract.

The article on this subject in Canadian Railway and Marine World for October, pg. 507, and the extract from a railway official's letter published in the November issue, pg. 559, have aroused considerable interest among maintenance of way officials. The following contribution from J. B. Cameron, Somerset, Pa., will also be read with interest:—

This subject has received more or less consideration from maintenance of way officials for several years without any railway of prominence as yet adopting the system; but such failure does not in any way indicate that a system of contracting would not result in increased efficiency and decreased costs, both of benefit to the railways.

Efficiency is the slogan of the day in all branches of railroading and especially in the maintenance of way department. Wages have increased, but the efficiency of the worker has not kept pace with them. It has on the contrary decreased, and this is to be expected, since the price of labor depends entirely on the economic laws of supply and demand and a large demand results in small supply, increased wages and increased indifference on the part of the laborer.

If increase in wages will not result in increased efficiency it is apparent that any other scheme offering even a suggestion of improvement is worthy of careful consideration.

There are but two methods, the writer believes, that will increase the efficiency of the worker and they are, first, by awakening an interest in the laborer for his work, and second, by increased efficiency in supervision. Either scheme is in its elements a contract scheme, for to awaken in any laborer an interest in his work can only be accomplished by making his earnings depend on results and not on a fixed amount per diem. Thus the laborer becomes in a measure a contractor, and increased efficiency in supervision can in a similar manner be best obtained by making the cost to the railway company depend on results and not on a fixed daily wage.

To contract for work it is necessary to have unit costs on which to base payment for same, but a just basis for such payments can only be arrived at after careful study and investigation. There are many classes of work that have been thus standardized, and in railway maintenance work any material increase in the efficiency of the worker will only result after such a standardization as will insure to the laborer adequate compensation for a fair day's work.

The writer does not believe the method of awarding contracts for such work to a large contractor to be desirable at present, but he does believe in treating each foreman as a contractor in some such fashion, as is done by certain large industrial concerns. Men will do more work for the same individual as a contractor than they will do for him as a foreman of a railway company. As a contractor the foreman could therefore do work cheaper than he could as a foreman, providing he gave the work the same efficient supervision in each case.

Some people will claim that a poorer grade of work would result from such an arrangement, as the contractor, in order to obtain larger profits, would be satisfied with a poorer grade of work. This might well be answered, however, by considering the results obtained by the contract system on construction work.—Engineering Record.

The Alaskan Railroad Commission, after having completed an extensive tour through the territory, spent some time recently in Ottawa, Ont., investigating the methods of building railways in the northern regions and the Government attitude thereto, before returning to Washington to prepare a report.

W. M. PORTEOUS, Agent, Canadian Pacific Ry., Freight Department, St. Louis, Mo., in remitting renewal subscription, writes: "I might state that I enjoy reading Canadian Railway and Marine World very much, as it is the only reliable means of information regarding Canadian railway matters in general which I receive."

The Interstate Commerce Commission recently dismissed the Humboldt Steamship Co.'s application for the establishment of through routes and joint rates, with the White Pass and Yukon Route, between Seattle, Wash., and Dawson, Yukon, and other Canadian points, on the ground that it had no jurisdiction over a company located, owned and operated in a foreign country.

Classification and Percentage Rating of Canadian Northern Railway Locomotives.

Canadian Railway and Marine World readers who in the course of their daily pursuits come across Canadian Northern Ry. locomotives, will latterly have noticed a considerable change in outward appearance, and many will probably be at a loss to locate the nature of the change which has taken place. The change referred to is that of the manner of classifying and rating of locomotives and the means by which this information is concisely arranged in a convenient location on the sides of the locomotive.

The fact of the matter is that the C.N.R. has felt for some time that it has outgrown its swaddling clothes, and become a large system, the growth being rather marked for its rapidity. Becoming a system, the various details that go towards its makeup must in consequence become systematized likewise, and not be left in the haphazard manner that would be successful on a small line, but which would not be economical on a large system such as the C.N.R.

Until recently, there was no accepted method of classifying and rating locomotives on the system. An attempt at introducing some standard of comparison among the locomotives then in use, was introduced on the system several years ago, the basis of comparison being an order of 10 wheelers just then being delivered from the builders, and which were the largest then in use on the system. These locomotives had a tractive effort at the drivers of about 23,600 lbs., and from the fact that they were the largest in use, were considered as 100% locomotives. Having an odd number of pounds such as 23,600 as the unit of comparison, naturally led to considerable confusion in the rating of other existing locomotives from this basis, as while it was a simple matter to determine the percentage by a simple calculation, the percentage thus arrived at conveyed but little meaning, the unit being so unusual. That is to say, given a locomotive with maybe a rating of 70%, a calculation beyond the scope of the average person's powers of mental arithmetic would have to be made to ascertain the tractive effort that the locomotive would develop, resort being made to pencil and paper to determine the desired information.

The system of classification and percentage rating at present in use, and to be here described, was developed recently by S. J. Hungerford, Superintendent of Rolling Stock. Not only is it being applied to the C.N.R. locomotives, but also to the locomotives of all the Mackenzie-Mann interests in Canada and the United States. Realizing the failings of several of the different systems of rating, principally from the fact that some arbitrary unit has been selected as a standard, for which no logical reason can be given, consideration was given to the selection of a base that would be within the realm of logic. As in most other systems, the tractive effort has been taken as the ground work of rating. The question was to determine the unit of comparison. Tractive effort is usually measured in even thousands of pounds, hence the selection by Mr. Hungerford of 1,000 lbs. tractive effort as being a 1% rating. A locomotive with a tractive effort of 28,000 lbs. is in this C.N.R. rating a 28% locomotive, and this is the rating of the latest 10 wheel passenger locomotives on the system.

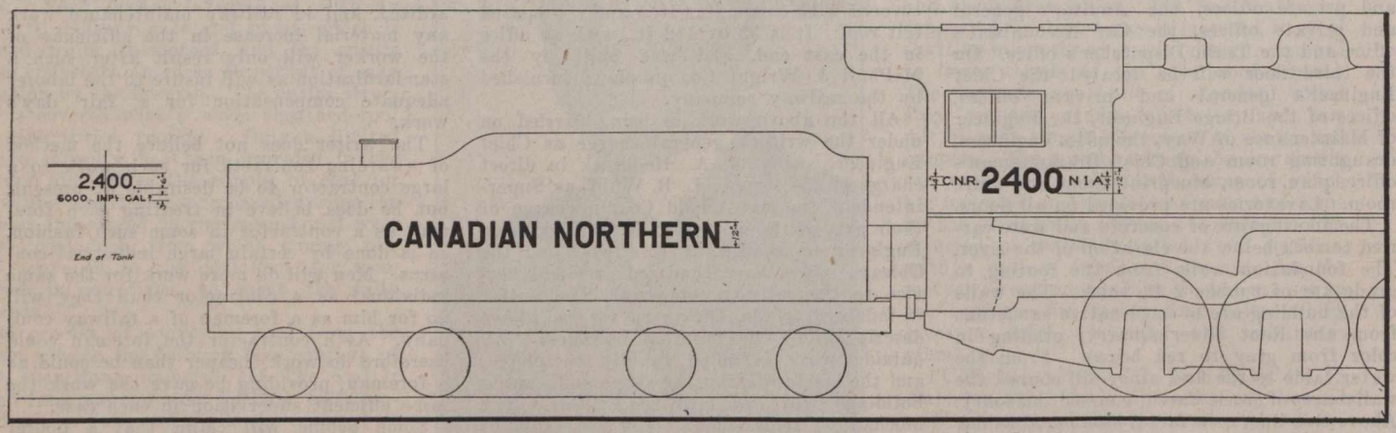
The classification scheme developed has necessitated the renumbering of nearly all the motive power. Previously, as each new batch of locomotives was received from the builders, they were given the series of numbers above the last lot of locomotives numbered, this scheme using up the numbers in properly ascending numbers, but without any system as regards the allocating of the different types of locomotives to any particular run of numbers. With but few exceptions, it was impossible to refer to any particular type of locomotive as say the "600 class." In the new scheme, certain runs of numbers are given to different types of locomotives, the number in each run depending as far as possible on the relative quantities of that particular type at present in use, with due regard to contemplated future additions to that particular type. That is a matter of pure conjecture, as new types are constantly being introduced, though, at the same time, it will be observed that there are certain general lines that appear to have become more or less standard—such for example as the 6 wheel switcher, the 10 wheeler, and the consolidation. The allocation of numbers is as follows:

Number.	Type.
1 to 99	4-4-0-American.
100 to 199	2-6-0-Mogul.
200 to 299	0-8-0-Switcher.
300 to 699	0-4-0 and 0-6-0-Switchers.
700 to 999	4-6-2-Pacific.
1000 to 1999	4-6-0-Ten Wheeler.
2000 to 2999	2-8-0-Consolidation.
3000 to ——	Mallet.

This provides for over 3,000 locomotives, giving the larger groups to 6 wheel switchers, Pacifics, 10 wheelers and consolidations. It is estimated that this arrangement will provide ample room for expansion for many years to come, as the number of railways operating over 3,000 locomotives is very few.

The planning of a system of locomotive classification involved different considerations. There is first of all the general type system of classification universally adopted, such as Pacific, consolidation, etc. The best basis of subdivision of these types was considered to be on the diameter of driving wheels, the locomotives of a certain type between given limits of driving wheel diameter are given a certain type symbol letter; for example, consolidation locomotives with driving wheels over 52 ins. diameter but under 58 ins. diameter, have the type symbol "M." This is the type of locomotives until recently in general use for freight, but they have been superseded by locomotives of a larger type, in the next or "N" group, for the heavier main line work. The general arrangement of type symbols is as follows:

Type Symbol. Outside Diameter of Drivers.
Wheel Arrangement, 4-4-0 (Standard).
A.....63 ins. or less.
B.....70 ins. or less, but over 63 ins.
Wheel Arrangement, 2-6-0 (Mogul).
C.....52 ins. or less.
D.....58 ins. or less, but over 52 ins.
E.....63 ins. or less, but over 58 ins.
Wheel Arrangement, 4-6-0 (Ten-Wheel).
F.....52 ins. or less.
G.....58 ins. or less, but over 52 ins.
H.....63 ins. or less, But over 58 ins.
I.....70 ins. or less, but over 63 ins.
Wheel Arrangement, 4-6-2 (Pacific).
J.....70 ins. or less.



Standard Lettering and Numbering, Canadian Northern Railway Locomotives.

K.....75 ins. or less, but over 70 ins.
Wheel Arrangement, 2-8-0 (Consolidation).
L.....52 ins. or less.
M.....58 ins. or less, but over 52 ins.
N.....63 ins. or less, but over 58 ins.
Wheel Arrangement, 0-6-0 (Switch).
O.....52 ins. or less.
Wheel Arrangement, 0-8-0 (Switch).
P.....52 ins. or less.
Wheel Arrangement, Mallet Articulated.
Q.....52 ins. or less.
R.....58 ins. or less, but over 52 ins.
Wheel Arrangement, 0-4-0 (Switch).
S.....58 ins. or less.

While it is possible, under the grouping of numbers before referred to, to roughly classify the locomotives, the object of this classification with type symbols, is to make it possible to refer to any locomotive by its type symbol, as the type symbol conveys concisely the locomotive type and its general size, as in each type, the size is more or less proportional to the driving wheel diameters.

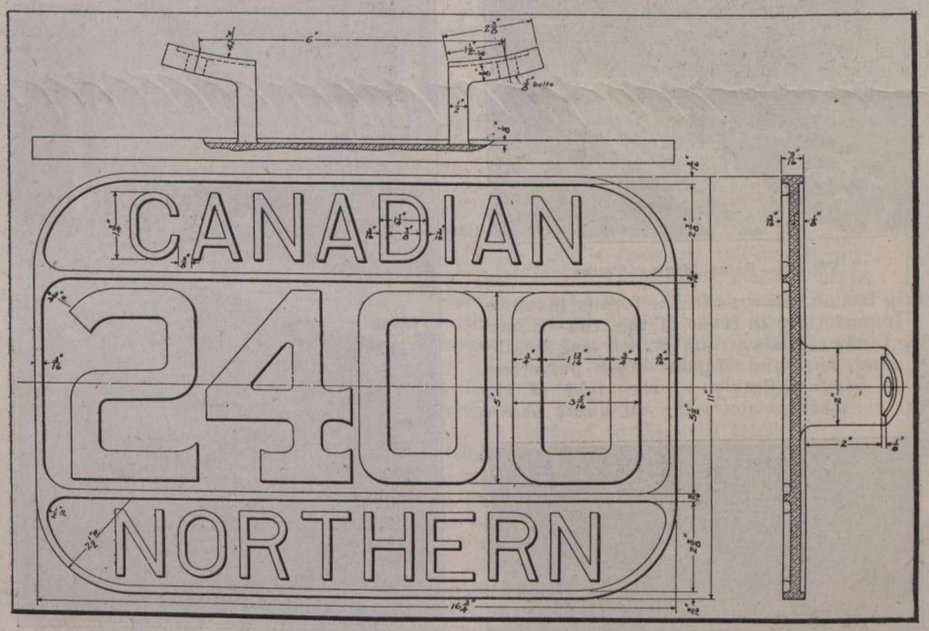
The type symbols are further subdivided into groups, symbolized by numerals, and sub-groups, symbolized by small letters. In each type symbol group, there are often several designs that are considerably different from each other, as for example when the same specifications are worked out independently by different builders. Now, any one of these different designs, if built again on a further order, might be slightly altered from the original and so could not

be included in the group designated by the numeral. Thus, in group M, there are say three different designs, 1, 2 and 3. Being the first of the group, there would be no subdesigns, so each group would have the subletter a. The first batches of the three designs would be designated respectively, M-1-a, M-2-a, and M-3-a. Now, suppose it was found that one of these designs was better than the other two, and it was decided to perpetuate that type with slight modifications, the next design would be given the subletter b. Thus, the next one in group 2 would be M-2-b. In some of the different groups, there are a great number of designs, running up to 16 in the G portion of the 10 wheeler group. The subgroups do not run as high, the highest being g in the H-6 class, the type of larger size 28% 10 wheelers that is being perpetuated for heavy passenger service.

The renumbering of the locomotives was made the occasion of the general change in the character of labelling the locomotives, the nature of which is shown in the accompanying two illustrations. Instead of printing the words "Canadian Northern" along the side of the cab as formerly, in the centre of the space the number of the locomotive is painted in letters 12 ins. deep, and to the left of the number, in letters 4 ins. deep, there is painted "C.N.R.," and on the opposite side to this, the classification of the locomotive, as for instance the one shown, the "N-1-a" class. The locomotive is further labelled on the smoke-box door by a projecting brass plate 11 ins. deep and 16¾ ins. wide, on which the legend stands out in raised brass letters, the surface of which is buffed, and the background painted black. Along the top, in letters 1¾ in. high, is the word "Canadian," with the word "Northern" in corresponding letters along the bottom. Between the two words, in figures 5 ins. high, is the number of the locomotive, as instanced in the illustration, "2400." The top sides of the headlight have the number also in letters, cut out of tin, 4 ins. high, with corresponding letters of the same height in the top front of the headlight, above the glazing.

The locomotive number formerly graced the sides of the tenders, but owing to the exigencies of the service sometimes requiring that the tenders be interchanged temporarily, (made possible by the standard type of tender used), it was deemed inadvisable to continue the practice of so locating the number. The present practice is to have the words "Canadian Northern" painted along that space in block letters 12 ins. high, utilizing to advantage a fine stretch of advertising space. The number of the locomotive is painted in letters 6 ins. high near the top of the rear end of the tender, in a place that would not be conspicuous in the event of a tender interchange. Below the number are letters 3 ins. high, giving the capacity in imperial gallons. All painted lettering on both locomotive and tender is in the company's standard golden yellow.

This policy of classifying and rating locomotives has been generally adopted all over the Mackenzie-Mann lines. With but single modifications, the standard lettering and numbering has also been adopted on the other lines, the modifications for the most part occurring through the difference in names. This standard method of classifying and rating, involving the scheme of renumbering in a standerd manner, was only introduced during the past year.



Standard Front End Number Plate.

Oil and Paint House of Grand Trunk Railway Port Huron Shops.

The oil and paint house of the G.T.R. car shops at Port Huron, Mich., labors under peculiar difficulties, from the fact that it does not possess an up to date equipment with self measuring oil tanks and automatic paint mixers such as are to be found in many recently constructed plants, or in old plants where a modern equipment has been introduced. Lacking these modern adjuncts of a well planned oil and paint shop, J. L. Hodgson, the Master Car Builder, was compelled to make shift with such facilities as could be readily improvised. Just how good a substitute for a modern installation he has been able to introduce will be seen from the ensuing description, and doubtless all will agree that a splendid means for handling the large quantities of oil and paint used in such a plant has been planned.

The oil and paint house is about 60 by 30 ft., parallel to the river, on to which it backs. All the buildings of the plant are located parallel to the St. Clair river. A partition wall the length of the building divides off the rear third of it, this portion being used as a rough store room for the paint and oil products, and is entered by doors from either end. The front two thirds of the building, facing across the rear of the freight car shops, is divided into three rooms, about 10, 20 and 30 ft. long, respectively. The 10 ft. room is used for a store for the finer paint and oil products, the central or 20 ft. end for a paint-mixing and distributing room, and the long room for the oil storage tanks. These rooms communicate with each other through end doors, and each has an entrance from the outside, the middle one through the front wall and the outer ones through the end walls.

The oil room at the northerly end of the building is the longest of the three front rooms. In it there are three rows of tanks as in figs. 1 and 2, one row as in fig. 1, down the rear wall of the room, and the other two back to back down the centre as in fig. 2. There are 16 tanks, ranging in size from 2½ to 25 barrels capacity each. They are all labelled with the oil contained, and have drawing off faucets near the bottom, the sides and bottom sloping to this point so as to completely drain the tank when necessary, an operation that is performed periodically, the interior being thoroughly cleaned out at the same time by washing.

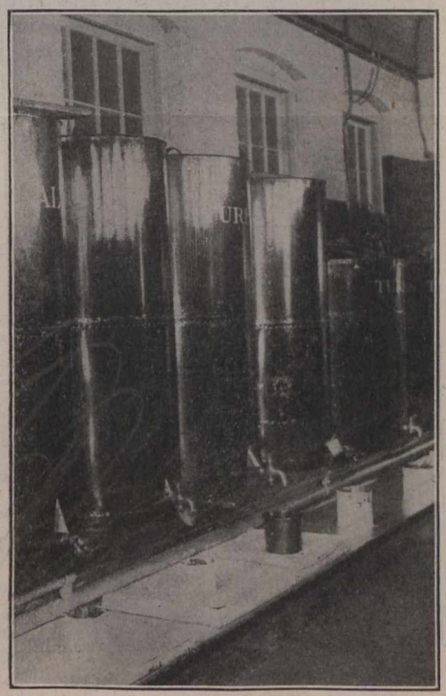


Fig. 1.—Oil Storage Tanks.

The tanks are all raised a few inches from the ground, on platforms. Below the platforms, on the floor, there is a drainage trough, with perforated stands on which the receptacle to be filled is placed. Beneath each of the faucets there is a drip can, which is always placed to one side when filling a can, and then replaced immediately afterwards, keeping the surface of the drain trough free from sticky oils and similar dirt. The reader will notice how clean and tidy the whole place appears, and it may be mentioned that the illustrations were made from photographs taken as it appeared under normal operating conditions, with no previous preparation to make it presentable. All the tanks are painted dark red, and are varnished over top. The drain troughs are painted white. Both tanks and trough are repainted at frequent intervals, and in consequence always present a neat appearance. Along in front

of each of the troughs there is a strip of car aisle carpet, further improving the interior finish of the room. The walls are painted white above the tanks, and below this level black. This room has an upstairs where all the car stencils are cut out. This is the only portion two stories high. The ceiling of the lower room is finished in natural wood, varnished.

The oil tanks are filled in a novel manner, as indicated in fig. 2. The barrel to be emptied is brought in from the storage pile at the oil room end of the building through the door to the rear, and rolled up on to the shallow stand shown, where it is located, bung uppermost, by two wedges. In this position, the oil emptying apparatus is applied. An air connection from the left, carrying a gauge, connects to the side of a header that has a tapered threaded lower end that screws into the bung hole. This air connection leads into an annular space around the inside of the header. Down through the centre of the header there is a long sleeve, making the inner surface of the annular air space. Through this sleeve there is a length of

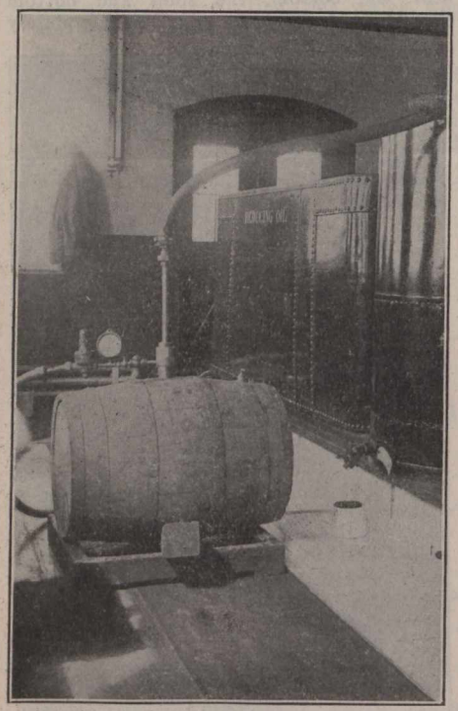


Fig. 2.—Filling Oil Storage Tanks.

pipe, making a fairly snug joint, but which is removable. This pipe is notched at its lower end, providing radiating channels through which the oil is free to enter. The air pressure on the top of the oil from the annular air space of the header forces the oil downwards, and up through the central pipe, which has a hose connection to the top of the barrel to be filled. All the attendant has to do is to turn on the air pressure, the barrel automatically draining itself, and when convenient to the attendant, he can turn it off, remove, and replace with another barrel. The operation is much simpler than it would be if a hand pump were used. Along the front wall of this oil room, there is a bench for repair work, etc., one end being separated for the oil room attendant's desk.

The middle room is used for mixing, the tanks for this purpose being ranged along the rear wall as shown in fig. 3. These are simply large vats, each containing an air connection from the air pipe along the wall about 4 ft. above the vats. A jet of air bubbling up through the paint ingredients thoroughly mixes them. The ingredients are dumped in from the receptacles in which they arrive, in the proper proportions, and require no hand mixing. The amount of mixing required from this plant latterly has not been as great as heretofore, as liquid stocks are coming into more general use for the making of the paints, instead of powder. The mixed paints are drawn off from the bottom through faucets, as in the oil tanks, there being a painted

Fig. 3.—Paint Mixing Tanks.

drip trough below as in the former instance.

Immediately in front of this row of mixing tanks there is a counter, carrying smaller mixing pots, and a paint stock pulverizer. This is immediately to the right of the central path through the oil house shown

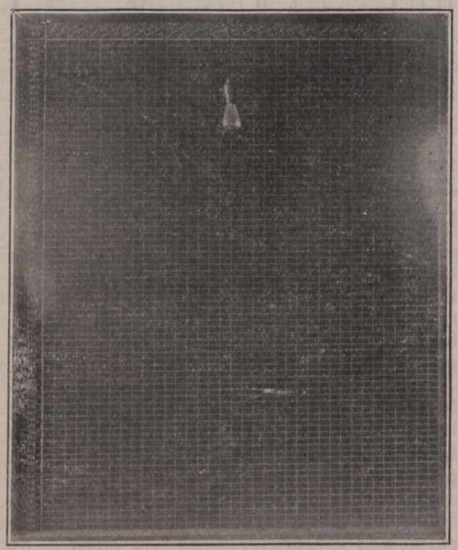


Fig. 5.—Workmen's Tool Record.

in the foreground in fig. 4. To the left in this illustration is the serving counter where the workmen receive their stock of paint and supplies. The serving portion of the room is entered from a door in the wall to the left. In the bins under this counter, there is kept the stock of white lead, powder, etc., each bin carrying a different product.

The system of keeping tab on all the tools issued from the oil and paint house centres on the tally board shown in fig. 5, located through the doorway as shown in fig. 4, on the end of the central rows of oil tanks in the oil room. This board is divided horizontally and vertically into blocks. Down the first column, there is a list of numbers, one for each of the painters on the payroll. At the head of each of the other columns, there is the name of the tool or tools issued, as for example, chamois, sponges, scrub brushes, paint cans, etc., every requirement of the men that it is possible to draw from stores being there recorded. Each morning, the painter is required to draw the supplies that will be required during the day, and in the block representing his number and the article drawn, there is inserted a peg in one of the four holes provided. If more than one of that particular article is drawn, a corresponding number of pegs is inserted in the block. Thus, 638 has drawn 1 chamois, 2 sponges, 2 scrub brushes, and water buckets. The supplies thus drawn at the beginning of the day must be returned the same night, leaving nothing of value that could be carried away lying around the shops. Ten minutes is allotted morning and night for this purpose. These supplies are kept in

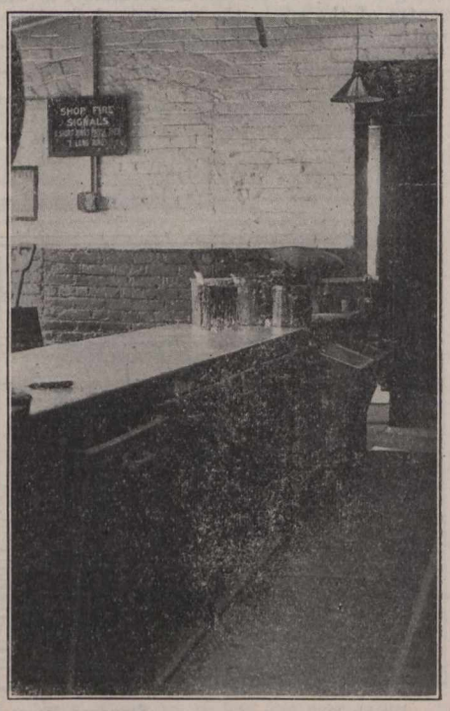


Fig. 4.—Serving Counter and Stock Bins.

pigeon holes in the front of the counter to the rear of the serving counter.

In the smallest room at the end opposite to the oil room, the rough stores that are in constant demand are kept. This is the only room of the lot that is not kept in a perfect condition at all times, but from the nature of the contents, and from the fact that considerable of the hand mixing is done there, it is impossible to keep it in the same condition as the other rooms.

In another building to the south of this end the inflammable materials, such as gasoline, are stored. This building is of concrete throughout, with vent holes a few feet above the ground. A division wall separates the building into two portions, the northern being for the purpose mentioned, and the southern being used for the storage of car stencils, which from their oily nature are very inflammable.

The whole oil and paint storage plant, considering the piecemeal evolution, is very complete, and handles the conditions admirably. The whole thing is handled by a single oil house man, showing the methodical manner in which it is laid out to make such a thing possible.

Railway Mechanical Methods and Devices.

Improved Link Motion Arrangement.

By M. Mahoney, Canadian Northern Quebec Railway, Joliette, Que.

It is often found necessary to redesign link motions to get away from the springing of the parts, inherent in the older designs. Where transmission bars are used, they have invariably to be set to clear the leading axle in connecting the link with the forward rocker. One arm of the forward rocker is usually set so that the transmission bar centre line, by means of pins, makes a 90 degree angle with the rocker arm, the object being to correct the distortion due to the angle the transmission bar makes with the motion centre line.

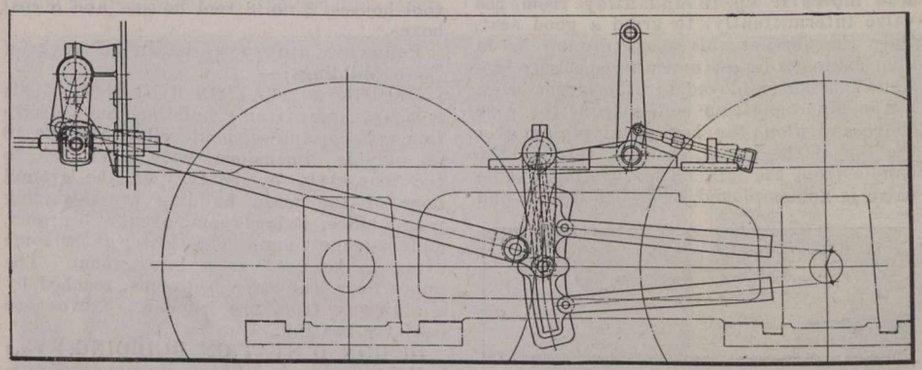


Fig. 1.—Proposed New Construction of Link Motion.

The gear arrangement shown in figs. 1 and 2 is a proposed redesign of an old gear. The diagrammatic view, fig. 2, shows the usual offset arm on the forward rocker, and a corresponding offset on the link rocker,

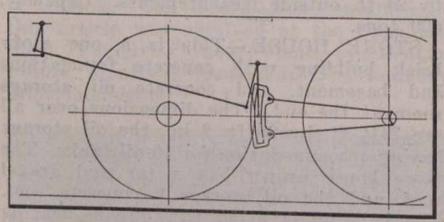


Fig. 2.—Diagrammatic View of New Construction.

imparting to the transmission bar a motion always parallel. The distortion in the angle of the transmission bar is thus corrected at both ends, instead of the usual correction at one end only. By doing this, a straight transmission bar is obtained, as by a combination of rocker arm lengths, the bar can be placed high enough to clear the forward axle without giving it any offset. An additional advantage lies in the fact that the usual long pin from the link block, providing bearing length for the rocker arm end and the transmission bar end, is shortened. Under this arrangement the transmission bar is attached to the link block pin in the manner indicated in fig. 1. The writer believes this construction is decidedly better than the usual transmission bar arrangement.

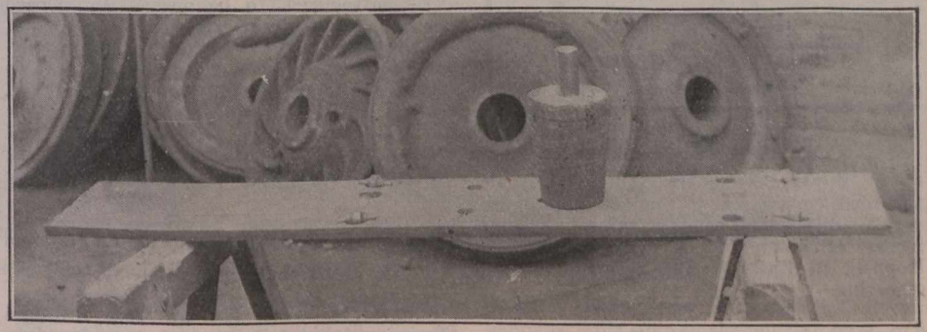
Tests on driving spikes in bored holes of treated ties, show that the point should be tapered on four sides to drive centrally. The holding power is slightly decreased by boring before treating, and while the tie is more thoroughly permeated, the condition of the fibre to withstand splitting and crushing is not as good.

Drilling Retaining Rings at the Grand Trunk Railway Port Huron Shops.

In the machine shop at the G.T.R. car shops at Port Huron, Mich., one of the machines missed most is a radial drill, one of which they lack. In consequence, where it would be the practice in a great many places to do certain jobs on the radial, in these shops the upright drill must be used, and to make this possible, a great many different ingenious methods have had to be improvised to handle the work to the best advantage. Among these is the matter of drilling passenger car wheel centre and retaining ring bolt holes.

The jig used is shown in the accompanying illustration. On a heavy piece of plate, there is secured at a central point in the width a vertical pin. At four points equidistant from this centre, and radial thereto, are rollers, set into the surface of the plate to form a bearing for a wheel centre mounted on the plate. The left end of the plate is clamped to the drill table.

The wheel centre to be drilled is mounted on the plate over the central pin, resting on the four rollers. Over the pin to centre the wheel centre, there is slipped a tapered wooden plug, which bears out on the sides of the axle bore. On top of the wheel centre rim is placed a drilling jig. The table is swung around so that the drill spindle is over the left edge of the wheel centre, in which position the holes are drilled.



Jig for Drilling Retaining Rings on the Vertical Drill Press.

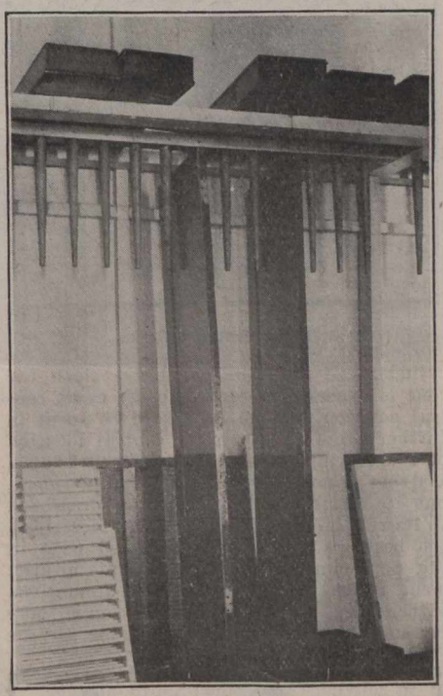
The same attachment is used for drilling the retaining rings. On the same pin centre, there is mounted a wooden ring frame, which centralizes the retaining ring, when the holes can be drilled to mate the wheel centre by the use of the drilling jig.

Using the vertical drill in this manner, it is claimed that equally rapid work can be performed as with a radial drill on the same kind of work. With a radial, the swinging arm must be changed in position each time, while with this attachment, the operator merely has to swing the centre or ring around on the roller bearings.

Varnished Door Drying Rack at Grand Trunk Railway Port Huron Shops.

In the G.T.R. shops at Port Huron, Mich., there is in use a rack for drying freshly varnished car doors in the varnishing room, that would appear to be a material improvement on existing practice.

Projecting downward from a scantling

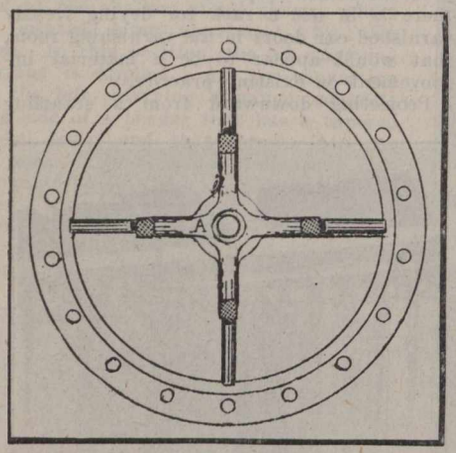


Rack for Drying Freshly Varnished Doors.

located about a foot out from the wall, and at a spacing of about 4 ins., are tapered hardwood pins, the larger end in the scantling and the smaller end at the bottom. The object in such a construction is at once apparent. The freshly varnished doors, when placed in between these projecting tapered pins, can only have point contact with the pins at the top edge of the door, from the fact that each side of a pin presents a sloping surface, contact along which is impossible unless the bottom of the door be set over at a large angle. If stood upright, marring of the surface would be impossible. The door storage space in these varnish shops is quite considerable, two sides of the room being provided with racks of this type.

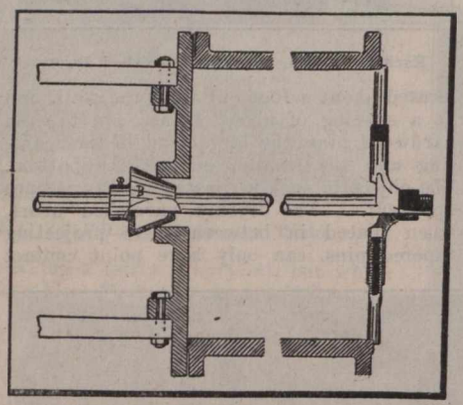
Setting Guides and Crossheads at the C.P.R. Montreal Shops.

The accompanying plans show a home made device for quick use in setting locomotive crosshead guide bars. A is the centre expander adjusted in the cylinder centre in the front end of cylinder, and can be readily proved to be in the centre by calipers or otherwise. B shows a tapering attachment, or cone, pressed as far as possible in the stuffing box in back end of



Cylinder Centring Device.

cylinder. If the stuffing box is clean the cone is unerring in regard to the exact central position, and no time need be spent in further proof of the exact central location of the extending shaft. As is well known, a string is not only difficult of adjustment, but its flexibility is an abiding drawback to its reliability. With the device described, the best results may be obtained both in the perpendicular and horizontal adjustment of the guide bars. The dimensions of the parts of the device, of course, may be such as are readily adaptable to the



Centre Expander in Cylinder.

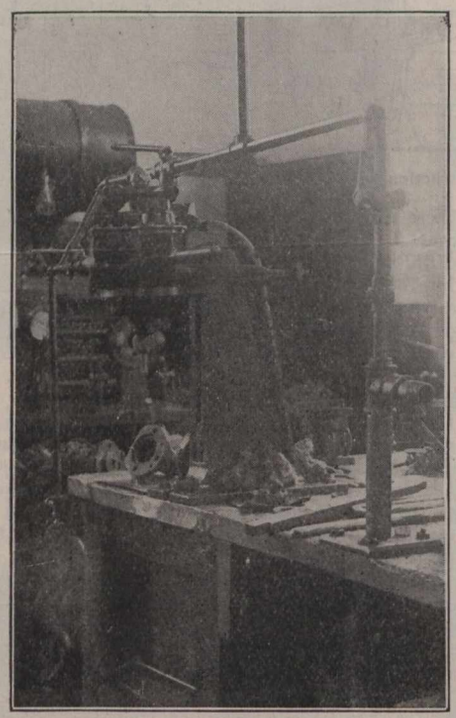
sizes of the cylinders, but adjustable threaded ends on the front end appliance may readily give a range varying in several inches of diameters of cylinders.—J. G. Koppell, in Railway and Locomotive Engineering.

Reward for Automatic Train Stop.—A reward of $10,000 has been offered by the New York, New Haven & Hartford Rd., to the first inventor of "an automatic device that will safely arrest an express steam locomotive that has passed danger signals; the test of efficiency to be its adoption within 1913, 1914 or 1915, by the New Haven, the New York Central, or the Pennsylvania lines, and its approval or recommendation by the Interstate Commerce Commissioners."

Grinding in Air Brake Valve Seats at Grand Trunk Railway London Shops.

The accompanying illustration shows a simple outfit for grinding air brake valve seats, a method employed in the air brake department of the G.T.R. car shops at London, Ont. On the end of one of the benches there is rigged up a vertical support to which is attached an air motor, the spindle of which is fitted to carry the valve that is to be ground to the valve seat. The casting containing the valve seat is held under the revolving spindle by the operator, who moves it up to and away from the valve intermittently, to grind a good seat. Only the smaller valves are ground in, in this manner, a larger machine, specially designed, being employed for the larger sizes.

The air connection comes from the pipe above, and along the horizontal piping over the top of the motor, entering through the handle from the left. The twisting handle valve is not employed, as it has been found



Stand for Grinding in Air Brake Valve Seats.

to close from the vibration of the machine when the operator is attending to the grinding. This valve is blocked open, and an air cock introduced, to be opened and closed without trouble from shifting.

The pipe in the right foreground has a short connection near the level of the table for the testing of angle cocks for leakage, etc. On the other side of the table, in the left background, the pipe terminates in a small pet cock, used for cleaning dirty valves, etc., by blowing a blast of air through.

Station and Other Buildings on the National Transcontinental Railway.

Contracts were let by the National Transcontinental Railway Commission during the past year, for the building of 59 station buildings of design A; three stations of design D; four ice houses, four store houses, three freight houses, three trainmen's houses, 59 tool houses, no 1; four tool houses, no. 2, and 59 coal boxes. The location of these several buildings is as follows:—

Section 13, district A.—Ice house, store house, no. 1 tool house. Sec. 14, district B.—11 design A station, 10 of which are to be fitted for bunks; 11 no. 1 tool houses and 11 coal boxes. Sec. 15, district B.—5 design A stations fitted for bunks; 1 design B station; ice house, store house, freight house, trainmen's house, 5 no. 1 tool houses and 5 coal boxes. Sec. 16, district D.—10 design A station fitted with bunks, 10 no. 1 tool houses and 10 coal boxes. Sec. 17, district E.—25 design A stations, 18 to be fitted with bunks; 2 design A stations, two ice houses, two storehouses, two freight houses, two trainmen's houses, 27 no. 1 tool houses, 2 no. 2 tool houses, and 25 coal boxes. Sec. 18, district F.—8 design A stations, 6 being fitted for bunks; 5 no. 1 tool houses, 2 no. 2 tool houses, and 8 coal boxes.

Following are some details of each of these buildings:—

DESIGN A STATION BUILDING.—This is a 1½ story frame building, on concrete foundations, and without cellar, 51½ by 16 ft. outside dimensions, with a kitchen to the rear, 14½ by 12 ft. On the ground floor of the main building are:—waiting room, office, living room, agent's bedroom, and baggage room. This latter is in some cases to be used as a bunk room. The upper floor has three bedrooms, reached by a stairway from the kitchen. Stoves are used for heating.

DESIGN D STATION BUILDING.—This building is used only at divisional points, and is a full two story frame building 130½ by 30 ft., on concrete foundations, and with concrete cellar. On the ground floor are:—lunch room and kitchen, general waiting room, women's waiting room, office, conductors' and trainmen's room, baggage room and lavatories. On the upper floor are 10 office rooms and toilet room. The building is heated by steam, lighted by electricity, and finished inside with plastered wall and hardwood trim in natural wood finish.

ICE HOUSE.—This is of wood, resting on sills and having double walls, the spaces being filled with sawdust. Dimensions, 59 by 24 ft. outside measurements. Capacity, 600 tons.

STORE HOUSE.—This is a one story brick building with concrete foundations and basement, and concrete oil storage room at the end. The dimensions over all are 74½ ft. by 20 ft. 2 in., the oil storage having accommodation for 10 oil tanks. The store house proper has a tar and gravel roof, and the oil storage a concrete roof. The building is fitted with steam heating and electric light.

FREIGHT HOUSE.—A one story frame building supported on piles, dimensions 60 by 28 ft., and consisting of an office, perishable freight room and freight storage room. The roof is of tar and gravel; the outside walls are battened, and the freight room walls are covered inside to a height of 5 ft. with 1½ in. plank. It is electrically lighted, and heated by stoves, storage for coal being provided in a bin underneath.

TRAINMEN'S HOUSE.—This is a two story frame building, 37 ft. 4 in. by 39 ft. outside dimensions, on concrete foundations, with concrete basement, and tar and gravel roof. The basement contains furnace room, for heating the building, wash rooms, lavatories and dressing room, fitted with shower baths and basins with hot and cold water attachments. On the ground floor is a recreation room, a living room and two bedrooms, while on the upper floor are 20 bunk rooms with lavatories and closets. There is a two story verandah at the front, supported on concrete piers and roofed over.

TOOL HOUSES.—These consist of frame buildings supported on pile heads, no. 1 being 12 by 10 ft.; and no. 2, 12 by 25 ft.

COAL BOX.—This is of 2 in. plank, and has a capacity of 10 tons. Its dimensions are 14 ft. by 7 ft. by 6 ft.

The Casting of a Locomotive Frame.

The advent of the cast steel locomotive frame into general use in the last decade, bringing with it the use of cast steel parts throughout the locomotive construction, has resulted in a wonderful expansion in the steel industry from a railway standpoint. The former method of building up a wrought iron frame by forging is familiar to all locomotive men; but very few have more than a passing knowledge of the initial stages through which a cast steel frame proceeds before it reaches the machine shop, the place where the majority make their first acquaintance with the cast steel frame. In consequence, it is believed that a brief description of the stages through which the frame passes before reaching the machine shop will not only be appreciated but will also be of value in leading to a proper understanding of the care and attention required before the production of the frame is possible. The information contained in this article was obtained at the Canadian Steel Foundries' new plant at Longue Pointe, Montreal, from Wm. Cox, Foundry Superintendent.

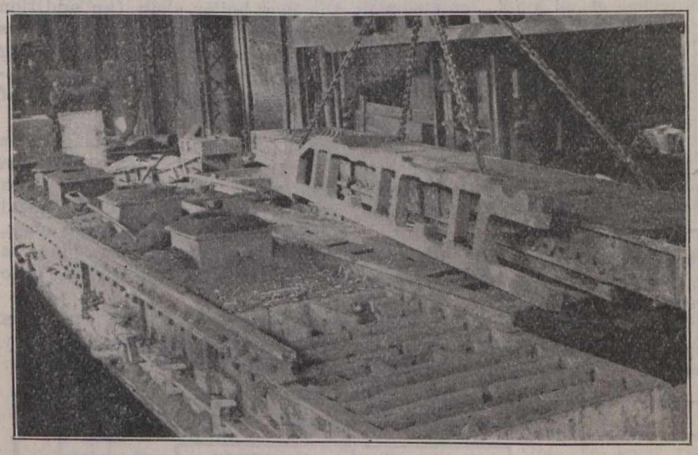


Fig. 1.—Cope and Flask with Drawn Pattern, and Mould ready to Pour.

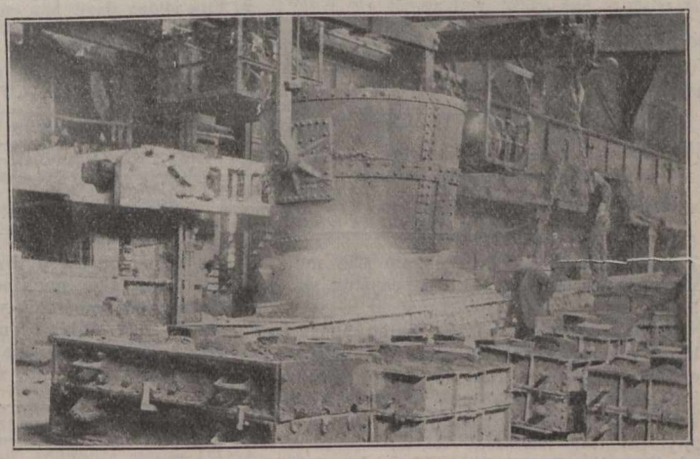


Fig. 2.—Pouring a Cast Steel Locomotive Frame.

There is nothing unusual about the pattern, other than the fact that the axle box opening has a cross brace at the bottom to prevent the top rail from warping the frame out of shape while cooling. The shrinkage is thus equalized top and bottom. The pattern shown in fig. 1, standing against the cope, has just been drawn from the sand of the mould. The mould is entirely contained in the flask, the cope presenting a smooth surface. A special grade of sand is used, and while being introduced into the mould is thoroughly rammed—to a greater degree than is necessary for cast iron. When the flask is filled, and rammed full to the level of the top of the flask, the surface is treated with a layer of separating sand, and the cope placed on top and similarly rammed full of sand. At the outer end of the slabbed portion of the frame, the pouring gate is located, with four risers or sprue holes at intervals along the length of the frame.

The construction of the cope and flasks that hold the moulds is in itself rather interesting, being of an exceptionally good design. The handling of moulds for long thin castings, is a more or less difficult task unless both cope and flask are particularly solid, for on account of the great length the whole sags in the centre. This precludes the use of wooden mould boxes. The moulds used are built up of cast steel sections, three lengths being joined along each side to form supporting beams. These side pieces are cast in channel beam sections, with outwardly projecting flanges. The shape is shown in fig. 1, but the method of joining up may best be seen in fig. 2, the pouring operation. Sagging is undesirable, as it tends to break the sand of the mould in addition to warping the resultant casting.

The flask, with contained mould, is lifted by a crane and carried across to an oven car, on which it is subjected to a surface treatment before it is baked. The surface treatment consists in filling the surface of the mould with long wire nails, closely spaced, especially along the edges of the mould where the sand is liable to break down from the rolling action of the molten metal traversing the mould. The nailed surface of the mould is next treated with a heavy saturation of molasses and water. Following this treatment of the flask, the cope is carried across and placed on top of the flask and treated in a like manner. The two are then placed in the oven for a thorough baking. The resultant mould must be much harder and more solid than for cast iron moulds. Following the baking of the moulds, the halves are secured together as shown to the left in fig. 1. Gates, as indicated, are built up around the pouring hole and risers.

Next in order comes the pouring of the mould, illustrated in fig. 2. One of the foundry cranes carries a 10 ton, bottom pouring ladle over to the pouring gate. The ladle gate being drawn, the mould is slowly filled from one end. As the molten steel finally creeps up the last riser, a signal is given for the pouring to stop, the ladle then proceeding along the mould to fill up each of the risers in order that a uniform liquid pressure may be presented through the full length of the casting, absorbing the liquid contraction while setting.

In from 10 to 15 minutes, the casting will have set sufficiently to permit of loosening the clamps which hold the cope and flask

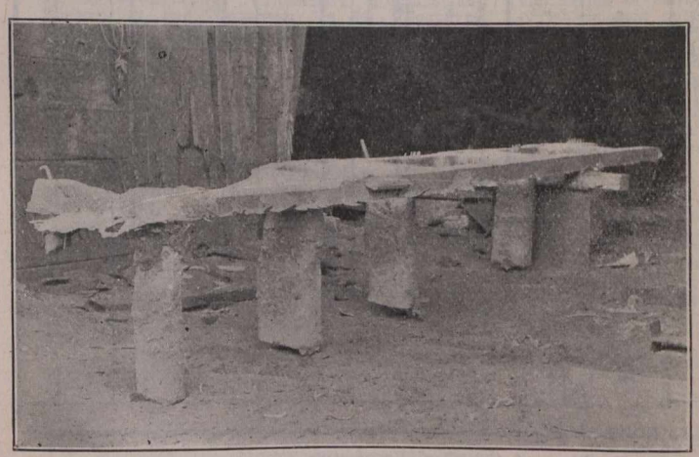


Fig. 3.—Frame Immediately after being Cast.

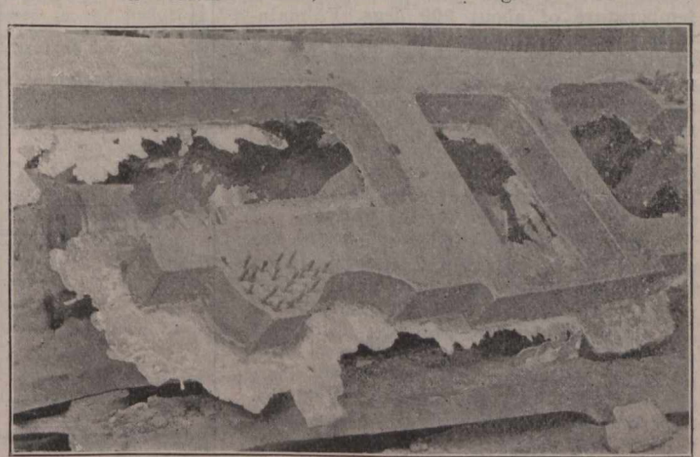


Fig. 4.—Section of Frame, Showing Test Bar.

The point that impresses the writer most forcibly is the striking difference in weights between the casting as it comes from the mould, and the same casting as it is finally ready to be built into the locomotive; the latter is less than half the original weight. Consideration of the various steps in the production of the frame will explain the reasons for the big difference. As a typical example, the frame for a small six wheel switching engine has been selected for descriptive purposes, it being the intention to follow this frame through from the pattern state to the time when it is ready for de-

together. This is partially done to break up the mould sand in the frame openings. On further setting, the cope is loosened still more, and is finally removed entirely, the frame being left in this condition to cool. Its appearance on leaving the mould is shown in fig. 3; where it is shown inverted. The nearest projecting lug is the pouring sprue, the other four being risers. The amount of fins left, and the bulk of metal left to form struts in the journal space, are shown to good advantage in fig. 4.

Kind of Steel	Analysis						Elastic limit per sq. in.	Tensile strength per sq. in.	Elongation %	Reduction in area, %
	Carbon	Phosphorous	Manganese	Sulphur	Silicon	Vanadium				
Vanadium	0.23	0.031	0.72	0.035	0.36	0.180	47,500	80,000	27	47.6
	0.23	0.020	0.66	0.029	0.33	0.175	47,000	80,000	27	53.5
Ordinary	0.28	0.030	0.73	0.034			37,750	72,000	30	44.1
	0.27	0.028	0.67	0.030			40,500	71,000	30	49.0

In this condition, fresh from the moulds with the sand removed, the casting weighs 5,380 lbs.

At two locations on the frame, short test bars, one of which is shown at the rear of the projecting rail in fig. 4, are cast integral with the frame. These are afterwards sawn off and subjected to various physical and chemical tests to determine whether they meet the required specifications.

Mounted as in fig. 3, the projecting fins are chipped off with air hammers, and the sand clinging tendency peculiar to steel castings, removed by the same means, leaving the casting clean. The casting is then removed to the cold cutting off saw, where the risers, test pieces and temporary struts are sawn off. The cleaned casting at this point, ready for delivery to the machine shop, weighs 3,670 lbs.

The casting next goes to the annealing oven, which is a long shallow pit, temporarily arched over during heats with brickwork. This is filled with castings, and a temperature of about 900 degs. F. maintained for several hours, temperature being taken by instruments. This produces a uniformly soft casting, at the same time removing the chill strains set up by unequal rates of cooling.

Next, the casting goes to the blacksmith shop, where under the steam hammer, heated if necessary, the frame is straightened and put in shape for machining.

In the machine shop it is subjected to the usual series of operations, successively on the planer, slotter and drill, still further reducing the weight to 2,560 lbs.

A summary of the weights at the different stages of completion is as follows: Immediately following casting, 5,380 lbs.; cleaned, 3,670 lbs.; and finished, 2,560 lbs. An examination of these figures shows what a large bulk enters into the production of a light frame. The finished product is less than half the weight of the initial casting.

Recently, there has been given a decided impetus to the use of the cast steel frame by the use of vanadium. Some tests made at the Canadian Steel Foundries' plant are given in the accompanying table, and show the remarkable superiority of vanadium steel to ordinary cast steel, the difference being almost as marked as that which exists between the old wrought iron and the more recently developed ordinary cast steel frame. With the use of vanadium in the frame, a big forward stride has been made.

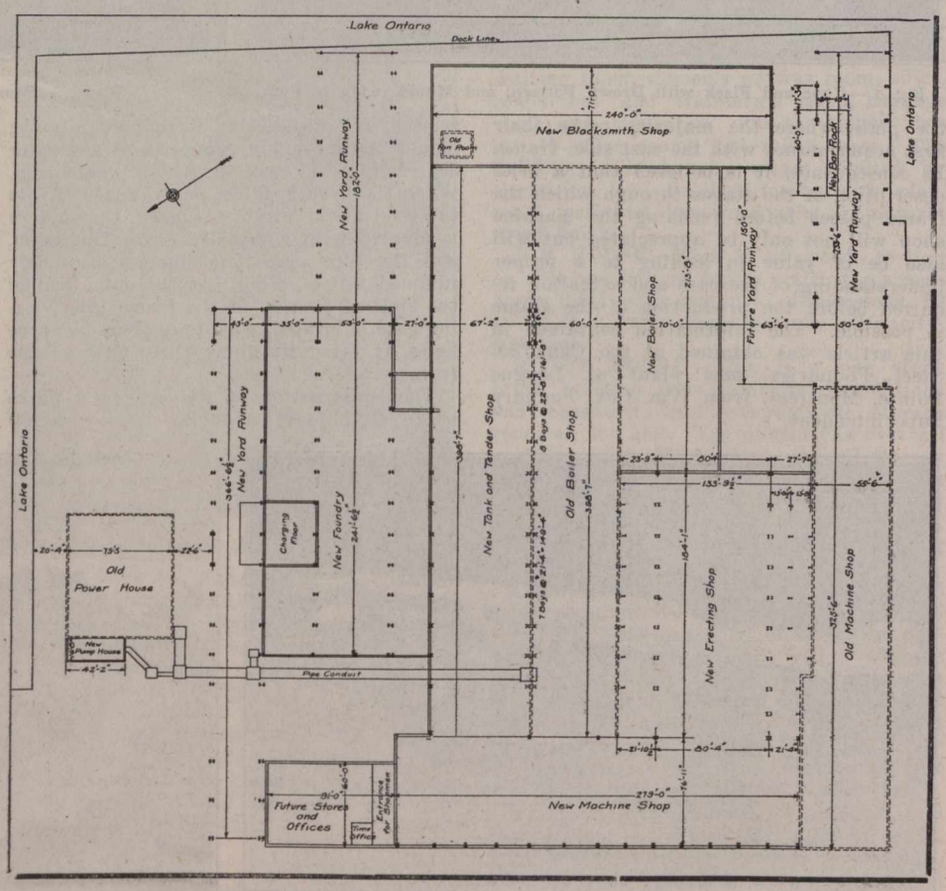
The Canadian Locomotive Company's New Plant.

An idea of the radically different layout of shops at the Canadian Locomotive Co.'s plant at Kingston, Ont., as at present being changed, may be gathered from the accompanying plan. On the completion of the buildings there shown, the whole plant will be essentially new, as while three of the buildings are shown as being old, the only one of these three that goes back 10 years is the machine shop to the right, completed some few years ago. The power house has only been in operation about eight years, and the old boiler shop less than two years old, so that with the new shops, the plant will be almost entirely new throughout, replacing the antiquated buildings with which the company has heretofore been compelled to do business.

The whole area shown in the plan has been more or less covered with a miscellaneous collection of old stone buildings, scarcely adapted to the work done, except under adverse conditions of operation. The problem presented was that of removing these old buildings, and replacing them with newer ones without interfering with the locomotive construction work. This is being accomplished by razing the old buildings one at a time, and on the cleared site, erecting the new ones. This work was commenced on the buildings to the north of the boiler shop, first erecting the new tank and tender shop on cleared ground, and then the foundry. Following this will come the construction of the new erecting shop, to replace the one on the site of the new machine shop, at the lower end of the old boiler shop. On the outer end of the pier on which the plant stands will next be erected the new blacksmith shop, to house the older one standing on the ground of the new erecting shop. This will be follocomotive construction work. This is belowed by the new boiler shop (an addition to the present one). Next in order comes the new machine shop and offices, replacing similar but smaller structures on the present site. All these buildings are to be of steel construction throughout.

The convenience of the layout is at once apparent. Every building will be in open communication with all the others. In addition, it will be noted that the focal point of construction is the erecting shop, about which every building in the plant is arranged, all the parts feeding directly into that final point.

The general design for these buildings has been worked out by the firm of Henry Goldmark, consulting engineers, New York; all details regarding buildings and their equipment, and the construction work, have been carried out under the personal supervision of C. J. Goldmark, of that firm.



Rebuilt Plant of Canadian Locomotive Co.

The effect of vanadium in plain carbon steel castings is said to be to increase the elastic limit about 30%, giving a much higher proportion of available strength for the same ultimate strength. Moreover, it increases the power of the castings to withstand repeated and alternating stresses fully 50%.

Orders by Board of Railway Commissioners.

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

The dates given of orders, immediately following the numbers, are those on which the hearings took place, and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the dates assigned to them.

18281. Dec. 9.—Rescinding order 16896, June 24, defining express delivery and collection limits for Montreal, and establishing collection and delivery limits in Montreal, Westmount and Maisonneuve.

18282. Dec. 11.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to divert road allowance at mileage 91.18 and cross same at grade at mileage 91.30 from Glentay, Ont.

18283. Dec. 12.—Amending order 17784, Oct. 17, re removal of spur at Tamarack station, B.C., by Nelson and Fort Sheppard Ry. (G.N.R.).

18284. Dec. 12.—Authorizing Canadian Northern Ontario Ry. to build bridge over Wistiwasing river (first crossing), Chisholm tp., at mileage 204.53 from Ottawa.

18285. Dec. 10.—Authorizing Canadian Northern Quebec Ry. to build across public road in lot 29, con. 3, Arundel tp., Que., by structure carrying highway over track.

18286. Dec. 12.—Approving British America Express Co.'s standard mileage tariff of maximum tolls for merchandise, C.R.C. 1, to take effect Jan. 1, 1913.

18287. Dec. 13.—Ordering C.P.R. to build public crossing over its Sault Ste. Marie branch, at Espanola station, Ont., 150 or 200 ft. west of existing private crossing.

18288. Dec. 9.—Approving Montreal and Southern Counties Ry. location, from cadastral lot 264, to Central Vermont Ry., on cadastral lot 203, St. Antoine de Longueuil parish, Que., 2¼ miles.

18289. Dec. 10.—Authorizing Canadian Northern Ry. to build across public road between secs. 11 and 14, tp. 21, r. 20, w. 2 m., on its Craven northeasterly line, Sask.

18290. Dec. 13.—Rescinding orders 16838 and 17970, June 20 and Nov. 5, re Canadian Northern Ontario Ry. crossing of C.P.R., near Ottawa.

18291, 18292. Dec. 13.—Authorizing C.P.R. to build spurs for McColl Bros. & Co., Montreal, and for Coquitlam Terminal Co., Coquitlam, B.C., connecting the latter with main line.

18293. Dec. 13.—Authorizing C.P.R. to build spur into Pickerel river Indian reserve, Parry Sound district, Ont.

18294. Dec. 14.—Authorizing C.P.R. to open for traffic its second track from Secretan to Walker, mileage 44.9 to 43.

18295. Dec. 14.—Authorizing C.P.R. to use bridges 53.7 and 65.6, Crowsnest subdivision, B.C.

18296. Dec. 13.—Amending order 18106, Nov. 22, by substituting Vancouver, Victoria and Eastern Ry. and Navigation Co. for Vancouver, Westminster and Yukon Ry. in second line of operative part.

18297. Dec. 13.—Approving, temporarily, Kootenay and Alberta Ry. standard passenger tariff of maximum local passenger fares, C.R.C. 1, to take effect Jan. 1.

18298. Dec. 14.—Ordering G.T.R. to file, on or before May 1, 1913, plans of proposed station and facilities at Jordan, Ont.

18299. Dec. 14.—Ordering C.P.R. to appoint permanent agent at Niverville station on or before Feb. 1, 1913.

18300. Dec. 14.—Authorizing C.P.R. to open for traffic its second main track from north of G.T.R. diamond crossing at St. Johns, Que., to St. Johns station, 1 mile.

18301. Dec. 14.—Authorizing C.P.R. to cross, with its third track, West street, Chatham, Ont.; and reserving for further consideration the installation of gates.

18302. Dec. 14.—Authorizing Edmonton, Dunvegan and British Columbia Ry. to build across 20 highways, mileage 68.30 to 130, Alta.

18303, Dec. 14.—Authorizing C.N. Ontario Ry. to build across public road between lots 8 and 9, con. 2, Gibbons tp., Ont.

18304. Dec. 14.—Approving Edmonton, Dunvegan and British Columbia Ry. location from north boundary of sec. 23-62-67, w. 2 m., mileage 68.30, to east side of Athabasca river, sec. 15-71-1, w. 5 m., mileage 130, Alta.

18305. Dec. 16.—Approving Alberta Central Ry. location from mileage 73.3 to 100, west of Red Deer.

18306. Dec. 14.—Authorizing Edmonton, Dunvegan and British Columbia Ry. to build across 3 highways, mileage 111.35 to 129.8, Alta.

18307. Dec. 14.—Authorizing C.N. Quebec Ry. to build siding for Donnacona Paper Co., Les Ecurecuils parish, crossing public road on lot 80.

18308. Dec. 16.—Approving Canadian Northern Ry. plans showing standard trestle work to be used west of Port Arthur, Ont.

18309. Dec. 14.—Approving location G.T. Pacific Ry.'s station at mileage 404, east of Prince Rupert, B.C.

18310, 18311. Dec. 14.—Authorizing C.P.R. to build spurs for Guelph Stove Co., Guelph, Ont., and Alberta Linseed Oil Mills, Medicine Hat, Alta.

18312 to 18314. Dec. 16.—Approving Esquimalt and Nanaimo Ry. detail plans of bridges 39.9 over Trent river, and 8.5, and authorizing it to build bridges 3.4 over French creek, and 15.5 over Big Qualicum river, on its Comox extension, Vancouver Island, B.C.

18315. Dec. 14.—Authorizing C.N. Ontario Ry. to build across and divert public road between cons. 1 and 2, Pembroke tp., mileage 83.10 from Ottawa.

18316. Dec. 18.—Establishing collection and delivery limits for Dominion Ex. Co., in Blind River, Ont.

18317. Dec. 16.—Authorizing Canadian Northern Ry. to build across and divert public road between sec. 34, tp. 28, r. 7, and sec. 3, tp. 29, r. 7, w. 4 m., on its Goose Lake extension, Alta.

18318. Dec. 16.—Authorizing Provincial Natural Gas and Fuel Co., of Ontario, to lay gas pipe under G.T.R., near Stevensville station.

18319, 18320. Dec. 16.—Authorizing Edmonton, Dunvegan and British Columbia Ry. to build across 16 highways in Alberta.

18321. Dec. 16.—Authorizing C.P.R. to revise grade of existing main line at approaches to G.T. Pacific Branch Lines Co.'s Melville-Regina branch grade crossing, Regina, Sask.

18322. Dec. 17.—Amending order 18002, Nov. 13, re Canadian Northern Ry. building across C.P.R. in Moose Jaw, Sask.

18323. Dec. 16.—Authorizing construction of subway at Eleventh avenue, Moose Jaw, Sask.

18324. Dec. 16.—Approving location of C.P.R. Suffield-Kipp branch from sec. 29-13-13, to sec. 9-13-17, w. 4 m., from mileage 32.85 to 57.45, and authorizing building of same across 24 highways.

18325. Dec. 16.—Authorizing C.P.R. to build its Lacombe easterly branch across 7 highways, mileage 149.20 to 153.69, Alta.

18326. Dec. 16.—Authorizing Clarence tp., Ont., to build road allowance across C.P.R. Montreal and Ottawa branch, between cons. 1 and 2, mileage 58.86.

18327. Dec. 16.—Authorizing G.T.R. to build two sidings for De Laval Dairy Supply Co., Peterboro, Ont.

18328. Dec. 16.—Authorizing C.P.R. to open for traffic its second main line, Cascade subdivision, B.C., between Vancouver and Westminster Jct., 16.44 miles.

18329. Dec. 14.—Authorizing C.P.R. to build its Pheasant Hills branch across highways in Sutherland, Sask., from mileage 296.11 to 317.15.

18330. Dec. 16.—Authorizing Edmonton, Dunvegan and British Columbia Ry. to build across and divert highway in sec. 19-54-24, w. 4 m., by means of overhead crossing.

18331. Nov. 18.—Authorizing city of Saskatoon, Sask., to carry its municipal railway across C.P.R. at avenue H.

General order 99, Dec. 18.—Disallowing special tariffs of railway companies, effective dates of which were postponed to and including Dec. 31, by orders 17911, 18088 and 18153, Nov. 6, 21 and 30, and in lieu thereof the companies may make effective on statutory notice, special tariffs chargeable for cartage at points in eastern Canada where cartage services are rendered by said companies, which shall not exceed 2½c. per 100 lbs., provided a minimum toll be charged for any single complete shipment not to exceed 15c.

18332. Dec. 19.—Approving Hudson Bay, Peace River and Pacific Ry. location, from sec. 15-18-9, e.p.m., mileage 62.9, to mileage 70.9 from Winnipeg in unsurveyed territory.

18333. Dec. 17.—Authorizing National Transcontinental Ry. and Canadian Northern Ry. to operate trains over crossing, without first stopping, at mileage 246, St. Boniface, Man.

18334. Dec. 17.—Extending, for three months from Jan. 2, 1913, time within which Esquimalt and Nanaimo Ry. may complete spur for Swift Canadian Co., Victoria, B.C.

18335. Dec. 18.—Authorizing C.P.R. to build two spurs for Beaver Co. in Hull tp., Que.

18336. Dec. 18.—Authorizing Vancouver and Lulu Island Ry. to open for traffic its second track between Granville street, Vancouver, and 24th avenue, Point Grey, B.C., about 2¼ miles.

18337. Dec. 18.—Extending, to May 30, 1913, time for completion of spur from Winnipeg to Humberstone coal mine, by G.T. Pacific Ry., authorized by order 17827.

18338. Dec. 18.—Authorizing G.T. Pacific Branch Lines Co. to build highway across its Prince Albert branch, at mileage 23.9, Saskatoon district, Sask.

18339 to 18341. Dec. 17, 18.—Authorizing Canadian Northern Ry. to build across public road between sec. 19-2-6, and sec. 24-2-7, w. 2 m., on its Bienfait to Estevan line; to build across and divert public roads in n.e. ¼ sec. 33-33-9, w. 3 m., on its Goose Lake extension, and between secs. 9 and 10, tp. 65, r. 22, w. 4 m., on its Morinville branch.

18342. Dec. 28.—Approving supplement 11 to Express Classification 2, for use of express companies subject to the Board's jurisdiction.

18343. Dec. 13.—Dismissing complaint of J. B. McGugan, Kronau, Sask., against C.P.R., alleging discrimination in freight rates between Kronau and Lajord on its Arcola line.

18344. Dec. 18.—Ordering Dominion Atlantic Ry. to install, within four months, an automatic electric bell at crossing of public road east of Weyburn station, N.S.

18345. Dec. 19.—Authorizing C.N. Ontario Ry. to operate trains, without their first stopping, over C.P.R. crossing, near Chaudiere Jct., Que.

18346. Nov. 12.—Authorizing restricted collection and delivery limits of express companies in Port Arthur, Ont.

18347. Dec. 20.—Authorizing T.H. & B.R. to build spur through Canada Steel Co.'s lands, Hamilton, Ont.; and to operate it jointly and on equal terms with G.T.R.

18348, 18349. Dec. 20.—Authorizing Canadian Northern Ry. to build spur to exhibition grounds, Brandon, Man., and to build across and divert Main St., Moose Jaw, Sask., and to cross Moose Jaw creek and a private road, all overhead.

18350. Dec. 19.—Authorizing C.N. Ontario Ry. to divert public road in lots 3 and 4, r. 2, Credit Indian reserve, Toronto tp.

18351 to 18353. Dec. 20, 19.—Authorizing G. T.R. to build sidings for Beardmore & Co., Acton; Beachville White Lime Co., Oxford tp.; and Davies Co., York tp., Ont.

18354, 18355. Dec. 20.—Approving C.P.R. plans showing location of station and siding proposed at St. Francois de Salle, Que., and plan A, showing revision of grade and subway proposed at Dundas St., Woodstock, Ont.

18356. Dec. 23.—Authorizing C.P.R. to use for construction purposes only, crossing where its third main track crosses Jacques Cartier Union Ry., Lachine parish, Que.; and approving plan of temporary protection.

18357. Dec. 21.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build bridge 34.4 over Third Depot Lake, near Parham, Ont.

18358. Dec. 23.—Approving location of C.N. Ontario Ry. station grounds at mileage 305.19, Blueface, Sudbury district, Ont.

18359. Dec. 21.—Authorizing Canadian Northern Ry. to build across 7 highways on its Craven northeasterly line, Sask.

18360. Dec. 23.—Extending to June 1, 1913, time within which Atlantic, Quebec and Western Ry build crossings, culverts, and drains along its railway.

18361. Dec. 16.—Authorizing C.P.R. to build across Nairn St., Winnipeg, one additional track each on its north and south main lines, crossing to be protected by day and night watchmen.

18362. Dec. 16.—Authorizing G.T.P. Branch Lines Co. to open for traffic its Regina-Moose Jaw branch from mileage 0 to 34.7; and ordering that the line be fenced before June 1, 1913.

18363. Dec. 20.—Approving crossings of Front and Overend streets, Toronto, by subways, city to pave Mill St. from Cherry St. to Overend St.

18364. Dec. 21.—Ordering G.T. Pacific Ry. to cut off top of hill on south side of N. Gilmour's farm crossing, Moose Jaw, Sask., and improve grade.

18365. Dec. 20.—Dismissing application of city of Winnipeg for order requiring C.P.R. to remove spur track connecting with its Winnipeg Beach branch, St. John parish, and along Jarvis Ave., with its main line spur.

18366. Dec. 21.—Authorizing city of Edmonton, Alta., to open up Muskoka Ave., across Canadian Northern Ry.

18367. Dec. 21.—Rescinding order 11224, July 19, that C.P.R. remove fence placed across crossing A, between secs. 7 and 18, and 8 and 17, 9-25 w. 4 m., Alta., and carry out Standard Regulations Affecting Highway Crossings, as amended May 4, 1910.

18368. Dec. 21.—Authorizing C.P.R. to open original road allowance, known as Twelfth St., and dismissing application of town of Blairmore, Alta., for order requiring C.P.R. to build crossing at Eighth Ave.

18369. Dec. 21.—Authorizing Pleasant Valley municipality 288, Sask., to build crossing over C.P.R. between secs. 7 and 8, and 7 and 18, tp. 28, r. 18, w. 3 m.

18370. Dec. 21.—Authorizing Regina, Sask., municipal railway to use C.N.R. crossing on Dewdney St., east of Albert St., and amending order 14282, July 21, 1911.

18371. Dec. 24.—Authorizing G.T. Pacific Ry. to carry traffic over its main line in British Columbia between South Hazelton and New Hazelton, mileage 176.8 to 181.

18372. Dec. 23.—Authorizing C.N. Saskatchewan Ry. to cross G.T. Pacific Branch Lines Co.'s line, north of distant signal on latter line, and dismissing application to cross at point applied for.

18373. Dec. 17.—Authorizing Toronto Suburban Ry. to build across G.T.R. in Esquesing tp., Ont.

18374. Dec. 23.—Ordering Canadian Northern Ry. to macadamize approach and roadway under subway trestle work and erect fence in accordance with Railway Act, on west side of opening ae each end of subway for 300 ft., at Main St., Emerson, Man.

18375. Dec. 23.—Ordering G.T.R. to cut down trees on south side of crossing at 3rd and 4th

concession line, Goderich tp., Ont., so that trains can be seen 100 ft. therefrom.

18376. Dec. 24.—Ordering Great Northern Ry. to arrange, within 30 days, for sale on its trains of return tickets to passengers from points at which agents are not maintained.

18377. Dec. 24.—Extending, to June 1, 1913, time within which C.N. Ontario Ry. install gates at Bridge St., Yarker.

18378. Dec. 24.—Approving Western Dominion Ry. location from Pincher Creek, Cardston and Montana Ry. located line, in sec. 34-6-1, w. 5 m., to Sarcee Indian Reserve, mileage 0 to 130, Alta.

18379. Dec. 13.—Dismissing C.P.R. application for order approving location of station at Coquitlam, B.C.

18380. Dec. 13.—Authorizing Toronto, Hamilton and Buffalo Ry. to build sidings at grade across River Road, Crowland tp., Ont.; and to install improved type of automatic electric bell.

18381. Dec. 28.—Authorizing C.P.R. to open for traffic its Weyburn and Lethbridge Branch, from Viceroy to Boissevain, mileage 75.85 to 112.

18382. Dec. 23.—Authorizing C.P.R. to build bridge, 68.31, over Pogamasing River, near Ramsay, Ont.

18383, Dec. 23.—Extending, for 30 days from date, time within which gates be installed at Front and West Streets, Orillia, Ont.

18384. Dec. 23.—Authorizing C.N. Ontario Ry. to build overhead across public road between lots 44 and 71, St. Laurent parish, Que.

18385. Sept. 30.—Approving Canadian Northern Ry. plan showing structural work of proposed bridge over C.P.R. main irrigation canal, sec. 4-24-28, w. 4 m., Alta., subject to wing walls being provided to abutments to retain embankment, and that location of abutments be satisfactory to C.P.R.

18386. Dec. 24.—Authorizing Meaford Manufacturing Co. and Meaford Wheelbarrow Co. to use lift bridges over G.T.R. sidings, Meaford, Ont.

18387. Dec. 24.—Ordering C.P.R. to install improved type of automatic electric bell at road between lots 100 and 101, Glenelg tp., Ont.

18388. Dec. 24.—Authorizing C.N. Ontario Ry. to revise grade in Nepean tp., mileage 5.53 to 14.3.

18389. Dec. 23.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build across nine highways, mileage 99.92 to 105.91, Ont.

18390. Dec. 24.—Authorizing C.P.R. to build its Sedgewick southerly branch across 20 highways, and to divert highway at mileage 3.73; and approving location from Sedgewick to sec. 35-40-13, w. 4 m., mileage 0 to 22.46, Alta.

18391. Dec. 9.—Ordering Great Northern Ry. to build suitable station and platform for passengers and freight at Salmo, B.C.

18392. Dec. 27.—Authorizing Winnipeg Electric Ry. to cross C.N.R. on Rue de Meuron, St. Boniface, and amending order 17381, Aug. 30.

18393. Dec. 27.—Approving, temporarily, G.T. Pacific Ry. standard freight mileage tariff, C.R.C. 13, cancelling C.R.C. 11, to apply between stations in British Columbia, Prince Rupert to New Hazelton, inclusive.

18394. Dec. 24.—Ordering G.T.R. to install electric bell at highway crossing about 3 miles east of Richmond station, Que.

18395. Dec. 26.—Authorizing Canadian Northern Ry. to build its Vegreville-Calgary extension across C.P.R. main line and irrigation canal in sec. 36-23-1, w. 5 m., mileage 257.1.

18396. Dec. 26.—Authorizing C.N. Quebec Ry. to build across public road between lots 40 and 41, con. 7, Ponsonby tp.

18397. Dec. 27.—Extending, to Sept. 1, 1913, time for use of connection of C.N.O.R. with C. P.R., at Meadowside, Nipissing district, authorized under order 16646, May 28.

18398. Dec. 27.—Approving Algoma Eastern Ry. standard freight mileage tariff, C.R.C. 34, cancelling C.R.C. 1.

18399. Dec. 27.—Approving Algoma Central and Hudson Bay Ry. standard freight mileage tariff, C.R.C. 159, cancelling C.R.C. 1.

18400. Dec. 26.—Authorizing C.P.R. to build spur for Steele Briggs Seed Co., Toronto.

18401. Dec. 27.—Extending, for three months from date, time within which C.P.R. complete spur for American Lumber Co. at Sumas Jct., B.C.

18402. Dec. 27.—Authorizing C.P.R. to build its Hawarden-Floral branch across 33 highways; and approving location, mileage 0 to 46.84, Sask.

18403. Dec. 27.—Approving location of Alberta Central Ry., Rocky Mountain to Yellowhead Pass line, from mileage 140 to 179.42, west of Red Deer.

18404, 18405. Dec. 27.—Authorizing G.T. Pacific Branch Lines Co. to build its Moose Jaw northwest branch across 4 highways, mileage 67.86 to 79.02, and its Prince Albert branch across highway between secs. 30 and 31, tp. 41, r. 26, w. 2 m., mileage 60.3, Sask.

18406. Dec. 27.—Approving location of G.T. P.R. site and station at mileage 435, in lot 3361, group 1, Carriboo district, east of Prince Rupert, B.C.

18407. Dec. 27.—Approving and authorizing clearance, as shown on G.T.P.R. plan, between centre line of its freight-house track and face of bumper of freight shed at Edmonton, Alta.

18408. Dec 28.—Authorizing G.T.R. to rebuild bridge 18, across T.H. & B. R., mileage 73.21 from Black Rock, near Cainsville, Ont.

18409. Dec. 28.—Amending order 17840, re carrying of certain streets over V.V. & E. Ry., in Vancouver, B.C.

18410. Dec. 28.—Extending, to Mar. 31, time within which C.P.R. install electric bell at crossing of Peterboro St., Norwood, Ont.

18411. Dec. 28—Approving plan showing signal layout in connection with G.T.R. interlocking plant at St. Lambert, Que.

18412. Dec. 30.—Extending radius in Montreal, within which Bell Telephone Co.'s flat rate shall apply.

18413. Dec. 31.—Establishing collection and delivery limits of express companies in Winnipeg, and rescinding order 15006, Sept. 15.

18414. Dec. 27.—Relieving C.P.R. from providing further protection at Northumberland crossing, just west of Ayr station, Ont.

18415. Dec. 30.—Approving Alberta Central Ry. revised location from sec. 8-38-27, w. 4 m., to sec. 2-39-4, w. 5 m., mileage 0 to 40, west of Red Deer.

18416. Dec. 30.—Authorizing C.P.R. to build its Virden-McAuley branch across 2 highways at mileage 11 and 17.3.

18417. Dec. 28.—Authorizing Canadian Northern Ry. to build spur for Burrows Lumber Co., Grandview, Man.

18418. Dec. 30.—Authorizing C.N. Ontario Ry. to divert Don Esplanade, Toronto, and approving location of Don station.

18419. Dec. 30.—Authorizing G.T. Pacific Branch Lines Co. to build its Tofield-Calgary branch across certain streets in Calgary, Alta., mileage 199.1 to 200.5.

18420. Dec. 31.—Extending, to Jan. 31, 1913, time within which Canadian Northern Ry. build station at Fort Frances, Ont.

18421. Dec. 23.—Amending order 17894, Oct. 29, re crossing at Avenue A, Saskatoon, Sask., by providing that city pay cost of building diamond, and half cost of building and maintaining half interlocker plant, C.P.R. paying other half.

18422. Dec. 31.—Ordering C.P.R. to build public crossing at highway, about 1,250 ft. east of mileage 73, North Bay-Cartier subdivision, Ont.

18423. Dec. 30.—Ordering Canadian Northern Ry. to put in water troughs and suitable flooring in pens, and supply water at Star City, Melfort, Kinistino, Birch Hills, and Shell Brook, Sask.; and arrange facilities at Prince Albert, Sask., for switching of stock to platform for unloading on arrival at that point.

18424. Dec. 31.—Authorizing C.P.R. to build two spurs for Bourget Brick Mfg. Co. at Bourget station, Ont.

18425. Dec. 31.—Authorizing C.P.R. to build spur for city of Winnipeg on lot D.G.S. 50, St. John.

18426. Dec. 31.—Authorizing C.P.R. to build bridge 75.6, over Crazy Creek, Cascade subdivision, B.C., for double tracking.

18427. Dec. 30.—Authorizing C.P.R. to divert and build highways across tracks at mileage 52.3 and 55.4 on its main line west, Swift Current subdivision, Sask.

18428. Dec. 31.—Authorizing Canadian Northern Ry. to build across 8 highways on its Morris-Portage line, Manitoba.

18429. Dec. 31.—Approving C.N. Ontario Ry. revised location through North Bay, Ont., mileage 344.

18430. Dec. 31.—Authorizing Canadian Northern Ry. to build across public road between secs. 31 and 32-7-2, w. p. m., on its Morris-Portage line.

18431. Dec. 31.—Ordering Great Northern Ry. to lengthen sidings at Cowday Road to accommodate 5 cars; Challuckthan, to accommodate 6 cars; and Smith Road, Embrey Road and Matthewson Road to accommodate at least 4 cars each, all in B.C.

18432. Dec. 31.—Authorizing city of Saskatoon, Sask., to operate, for construction purposes, pending installation of half-interlocking plant, crossing of C.P.R., at Twentieth St., authorized by order 17903, Oct. 29, and dismissing application to amend same.

18433. Dec. 31.—Authorizing Canadian Northern Ry. to build its Carman branch across its Morris-Portage branch, in s. w. ¼ sec. 11-7-2, w. p. m., Man.

18434. Dec. 31.—Authorizing C.N.Ontario Ry. to build bridge across Riviere des Prairies, main channel, between Laval and Jacques-Cartier counties, Que., mileage 40, from Hawkesbury, Ont.

18435. Dec. 31.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build bridge 149.4 over mill pond at Bowmanville, Ont.

18436. Dec. 30.—Approving Alberta Central Ry. revised location, Red Deer to Rocky Mountain House line, between mileage 60 and 65 west of Red Deer, in tp. 39, r. 7, and tp. 39, r. 8, w. 5 m., Alta.; and authorizing construction across 3 highways.

18437. Dec. 31.—Extending, to June 1, 1913, time within which Central Vermont Ry. complete ballasting entire line between St. Lambert and Waterloo, Marieville and St. Cesaire, Farnham and Frielsburg, and Iberville and Farnham, with 6 in. lift of ballast, and repair bridges, crossings and fencing.

18438. Dec. 31.—Authorizing city of Saskatoon, Sask., to build its municipal railway across Canadian Northern Ry. at Lena street.

18439. Jan. 2.—Authorizing G.T. Pacific Ry. to operate over C.N.R. crossing at Union Stockyard, St. Boniface, Man., for construction purposes only, pending completion of interlocking plant required by order 16930, June 29, 1912, crossing to be protected by day and night watchmen.

18440. Jan. 2.—Authorizing Canadian Northern Ry. to build its Morris-Portage Branch across 19 highways in Manitoba.

18441. Dec. 19.—Authorizing C.P.R. to build spur for R. D. MacDonnell, St. Boniface, Man.

18442. Jan. 2.—Extending, to June 30, time within which G.T.R. complete overhead bridge at Lachine Road, Rockfield, Que.

18443. Jan. 3.—Authorizing G.T. Pacific Ry. to build main line across highway in lot 335, r. 5, at mileage 263.8 east of Prince Rupert, B.C.

18444. Jan. 3.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build across road allowance between con. 1 and Broken Front Concession, and across road allowance between lots 26 and 27, Broken Front Concession, Darlington Tp., Ont., and to take possession of land in lot 27, for diverting highway.

18445. Jan. 2.—Authofizing city of Regina, Sask., to build its municipal railway across G. T. Pacific Branch Lines Co.'s line at rail level, at intersection of Dewdney and Alexander Sts.

18446. Jan. 2.—Ordering Canadian Northern Ry. to widen each approach of Nokomis crossing, north of sec. 10-49-3, 6 ft. at point of crossing, narrowing down to present grade 150 ft. from crossing, and to build side and wing fences.

18447. Dec. 30.—Ordering C.P.R. to divert Kingston Road, 20% to be paid out of railway grade crossing fund, not exceeding $5,000; $500 each by Brighton and Murray Tps., and balance by G.T.R. and C.P.R.

18448. Jan. 3.—Authorizing G.T. Pacific Ry. to extend Queen St. across its tracks, Coblenz, Sask., and to close existing road allowance at mileage 89.3, Reford Rural Municipality, Saskatoon District, Sask.

18449. Jan. 7.—Disallowing supplement 10 to M.C.R. local and joint commodity tariff on sand, gravel and stone, C.R.C. 1743; and ordering M. C.R. and G.T.R. to continue joint special commodity rate of 60c. per 2,000 lbs. on crushed stone in carloads, minimum 30 net tons, from St. Davids to Toronto, via Niagara Falls, Ont., rate to be apportioned 20c. to M.C.R. and 40c. to G.T.R.

18450. Jan. 3.—Authorizing C.N. Ontario Ry. to build bridge across Cooksville Creek, mileage 13.84 from Toronto.

18451. Jan. 3.—Authorizing Notre Dame des Anges de Montauban Municipality, Que., to build crossing over C.N. Quebec Ry., 1.7 miles south of Notre Dame des Anges station, mileage 26.06 from Garneau Jct.

18452. Jan. 3.—Authorizing M.C.R. to build siding for Noble Manufacturing Co., St. Thomas, Ont.

18453. Jan. 3.—Authorizing C.P.R. to build branch for Eastern Townships Brick and Manufacturing Co., Ascot Tp., Que.

18454. Dec. 31.—Ordering that G.T.R. and C.P.R. be connected at Orillia, Ont., to provide for reasonable receiving, forwarding, delivering and interswitching of traffic.

18455. Jan. 8.—Ordering Canadian Northern Ry. to build temporary trestle over spur connecting lot 23, St. John Parish, Winnipeg, with 16½ ft. headway, to connect track from Union Station with double track to Transcona; and authorizing it and G.T. Pacific Ry. to operate over and under same and through Union Station train shed.

18456. Jan. 8.—Amending order 18326, Dec. 16, 1912, re road allowance across C.P.R. in Clarence Tp., Ont.

18457. Dec. 30.—Authorizing C.P.R., on certain conditions, to build four extra tracks across May and Ridgeway Sts., Fort William, Ont., and divert portion of same.

18458. Jan. 7.—Approving proposed change in location of C.P.R. station at Eardley, Que.

Summaries of further orders are given on a subsequent page of this issue.

The Sanitary Inspection of Railway Trains and of Passenger Vessels in the United States is to be made in the future by officials of the Public Health Service. Lacking a specific appropriation for the purpose the various members of the service will conduct inspections while they are aboard railway trains or vessels. At Chicago, the Commissioner of Health has requested a number of steamship companies to confer with him regarding the discharge of sewage from vessels into the harbor and lake at points which would endanger the water supply drawn from Lake Michigan.

The best all round aluminium mixture, says a correspondent, is an alloy containing 92% of aluminum and 8% of copper. This mixture, it is said, casts well, does not crystallize in service, nor crack in the mould, and has a fair tensile strength.

Steam Railway Statistics for Year Ended June 30, 1912

In the following table the column headed gross earnings includes passenger and freight earnings, as well as miscellaneous earnings; the latter not being shown separately; the next four columns give the operating expenses classified under their various headings, while the last gives the net earnings, which are arrived at by deducting the totals of the four columns referred to from the figures in the gross earnings column. The minus mark (—) before figures in the net earnings column shows that there was a deficit in the operations of the line to the extent of the figures given. The numbers in brackets—thus (1)—after the name of the railway refer to notes on page 68. The cents have been omitted in all cases, and the figures in the totals show the aggregate earnings, etc., including the cents. omitted from the detailed items.

Name of Railway	Mileage	Passenger Earnings	Freight Earnings	Gross Earnings	Maintenance of Way and Structures	Malntenance of Equipment	Traffic and Transportation Expenses	General Expenses	Net Earnings
Alberta Ry. & Irrigation Co. (7)	111.82	$ 96,448	$ 269,172	$ 383,782	$ 64,384	$ 20,248	$ 107,141	$ 21,304	$ 170,704
Algoma Central & Hudson Bay (1)	134.38	51,521	314,189	545,054	116,531	59,376	119,915	29,999	219,230
Atlantic, Quebec & Western (2)	52.25	11,981	14,844	26,786	18,425	867	23,188	4,172	—19,866
Algoma Eastern (1)	22.70	1,628	94,940	97,811	15,513	11,342	21,388	9,807	39,760
Bay of Quinte (3)	89.39	47,988	185,306	238,333	32,316	32,832	110,944	10,700	52,039
Bedlington & Nelson (4)	15.30	345	22,251	2,597	8,208	421	660	942	—7,637
Brandon, Sask. & H. B. (4)	69.45	29,916	52,757	83,080	31,488	9,604	52,365	4,523	—14,901
British Yukon (5)	101.12	66,370	210,045	279,926	25,644	6,381	34,227	11,619	202,093
Brockville, Westport & N.W. (3)	45.00	39,139	36,282	75,503	13,825	3,671	22,901	2,854	32,250
Canada Southern (16)	380.04	3,085,335	6,533,468	9,666,639	841,882	953,485	3,142,009	161,177	4,568,083
Canadian Government Railways—									
Intercolonial (6)	1,462.89	3,558,498	7,259,766	11,003,410	1,826,338	2,682,304	5,992,504	251,744	250,517
Prince Edward Island	269.33	187,310	180,499	378,773	117,599	87,286	236,909	15,170	—78,193
Canadian Northern (3)	4,272.92	3,997,900	15,575,039	20,860,093	2,608,866	2,900,277	8,364,139	549,142	6,437,667
Canadian Northern Ontario (3)	492.35	258,772	595,436	881,953	211,904	112,243	488,781	38,735	30,288
Canadian Northern Quebec (3)	369.27	348,780	955,316	1,327,534	226,900	153,933	660,284	47,125	239,291
Canadian Pacific (7)	10,813.70	35,098,796	79,204,412	116,233,812	17,719,795	13,608,708	41,803,850	2,256,630	40,844,827
Cape Breton	31.00	4,985	4,336	9,338	7,193	725	8,340	3,395	—10,376
Caraquet (8)	84.78	21,343	45,291	66,635	16,377	7,192	27,308	5,101	10,456
Central Ontario Ry. (3)	149.73	93,447	220,692	321,368	54,675	20,514	110,526	7,701	127,949
Crow's Nest Southern (4)	74.18	24,708	127,036	152,447	68,322	19,534	56,703	8,185	—281
Cumberland Ry. & Coal Co (9)	32.00	18,245	97,590	115,999	21,538	14,838	42,400	3,781	33,441
Dominion Atlantic (7)	279.01	421,033	579,297	1,005,245	132,806	63,719	355,687	33,526	419,560
Eastern British Columbia (10)	16.00	4,333	37,798	42,244	6,029	7,806	11,403	938	16,065
Elgin & Havelock	28.00	4,333	9,519	13,852	4,248	580	5,023	588	3,411
Essex Terminal	10.00	.....	33,022	35,283	5,709	209	9,722	2,000	17,641
Grand Trunk (11)	3,105.82	12,426,044	22,978,790	35,801,975	3,871,367	6,310,851	14,028,988	928,070	10,662,696
Grand Trunk (Canada Atlantic) (11)	456.26	509,347	1,634,225	2,173,363	440,565	305,632	1,115,262	60,234	251,668
Halifax & South Western (3)	378.32	232,270	242,507	478,031	135,992	39,843	228,108	21,341	52,745
Hereford (17)	52.18	20,111	53,363	74,639	39,690	15,038	47,970	4,160	—32,221
Inverness Ry. & Coal Co. (3)	60.91	23,627	175,839	200,704	30,404	23,678	49,102	8,106	89,412
Irondale, Bancroft & Ottawa (3)	51.00	9,018	16,822	26,380	8,864	783	11,696	1,509	3,527
International of New Brunswick (12)	112.00	.....	.....	.....	.....	.....	.....	.....	.....
Kent Northern	27.00	8,724	12,022	20,747	5,781	887	6,924	1,660	5,493
Kettle Valley	22.20	513	3,566	4,159	1,299	.....	1,478	490	891
Kingston & Pembroke (7)	109.80	65,546	163,796	225,936	63,621	29,332	86,860	9,093	37,027
Klondike Mines	31.81	2,069	57,564	60,034	17,294	5,196	18,086	10,951	8,505
Lotbiniere & Megantic	30.00	5,695	30,510	36,215	12,268	3,048	9,154	6,413	5,600
London & Port Stanley (18)	23.66	38,640	79,044	118,571	21,659	25,144	99,849	5,630	—33,712
Maine Central (17)	5.10	9,629	7,008	16,700	2,715	2,279	8,206	686	2,812
Manitoba Great Northern (4)	97.67	7,766	114,999	122,843	32,555	13,079	50,031	4,661	22,516
Maritime Coal Ry. & Power Co.	15.00	7,444	56,224	63,669	11,634	4,119	20,092	1,717	26.105
Massawippi Valley (17)	35.46	71,988	147,729	220,629	38,345	34,121	113,708	7,467	26,896
Moncton & Buctouche	32.00	10,785	18,480	29,319	8,825	2,536	9,544	2,435	5,976
Midland Ry. of Manitoba (4)	97.82	22,613	38,459	61,155	12,001	2,701	27,407	1,111	17,933
Montreal & Atlantic (7)	163.40	222,710	861,734	1,109,848	302,995	110,997	501,886	29,723	164,245
Montreal & Province (11)	58.60	63,660	62,511	128,320	33,730	5,741	41,016	2,904	44,926
Montreal & Vermont Jct. (11)	23.60	61,656	60,635	122,400	14,502	10,974	42,166	5,227	49,529
Morissey, Fernie & Michel (13)	10.85	7,600	72,108	79,708	9,513	13,274	33,464	20,334	3,122
Napierville Jct. (14)	27.06	5,637	64,637	70,651	6,072	5,352	29,730	1,841	27,654
Nelson & Fort Sheppard (4)	55.42	32,311	44,934	80,169	56,164	9,371	173,004	8,530	—166,901
New Brunswick Coal & Ry. Co. (15)	58.00	11,775	32,757	48,281	27,943	12,856	26,314	10,258	—29,091
New Brunswick & P.E.I.	36.00	12,993	24,677	37,726	9,496	5,844	14,810	2,748	4,826
New Westminster Southern (4)	23.73	14,058	38,748	59,017	12,114	4,112	12,763	2,082	27,944
North Shore	8.63	196	1,723	1,920	177	.....	1,467	99	176
Ottawa & New York (16)	56.90	82,848	102,728	189,316	46,086	20,803	91,354	8,351	22,720
Pere Marquette (18)	198.81	170,453	2,199,364	2,378,339	218,011	417,274	891,985	55,763	795,305
Phillipsburg Ry. & Quarry Co.	6.00	.....	6,651	6,651	2,500	.....	.....	3,115	1,036
Quebec Central (19)	253.00	418,238	921,302	1,351,039	190,109	158,951	527,488	67,427	407,062
Quebec & Lake St. John (3)	286.50	280,400	505,494	798,055	129,828	135,095	393,827	37,121	102,181
Quebec, Montreal & Southern (14)	191.91	149,464	252,040	402,012	137,889	73,091	176,035	19,410	—4,415
Quebec Oriental (2)	100.00	40,798	50,112	90,948	26,741	12,585	42,388	4,153	5,078
Quebec Ry., Light & Power Co. (20)	27.50	11,843	62,415	74,883	8,861	10,693	28,596	8,474	18,256
Red Mountain	9.50	3,606	15,776	19,634	13,061	2,817	15,356	1,542	—13,144
Rutland & Noyan	3.39	8,807	5,055	13,863	3,303	2,132	5,402	655	2,369
Salisbury & Albert	45.00	9,319	13,104	23,176	10,497	2,538	10,251	2,277	—2,387
Schomberg & Aurora (3)	14.40	6,035	6,9?2	12,989	6,238	889	8,079	497	—2,715
Stanstead, Shefford & Chambly (11)	43.00	41,068	56,115	99,798	24,931	7,498	48,802	2,546	16,019
St. Clair Tunnel	1.13	.....	296,936	296,936	10,579	11,339	59,407	3,232	212,376
St. Lawrence & Adirondack (16)	46.12	236,845	354,356	593,773	70,666	22,985	296,680	12,452	190,987
St. Martin's	30.00	6,188	12,406	19,006	5,103	575	7,147	1,096	5,083
Sydney & Louisburg (9)	67.11	41,613	700,143	759,028	108,920	151,125	233,072	28,816	242,093
Temiscouata (22)	113.00	61,346	149,165	214,048	51,547	25,462	72,221	13,426	51,380
Timiskaming & Northern Ontario (21)	302.28	760,190	1,085,330	1,935,421	370,436	234,089	695,482	87,678	547,784

(*Continued on page 68*)

Steam Railway Statistics for Year Ended June 30, 1912—(*Continued from page 67*)

Name of Railway	Mileage	Passenger Earnings	Freight Earnings	Gross Earnings	Maintenance of Way and Structure	Maintenance of Equipment	Traffic and Transportation Expenses	General Expenses	Net Earninge
Thousand Islands	6.33	13,336	24,050	39,955	6,710	2,097	20,357	4,517	6,270
Toronto, Hamilton & Buffalo (7-16-23)	80.15	369,164	1,088,243	1,467,312	169,451	124,164	487,794	28,123	657,778
Vancouver, Victoria & Eastern (4)	231.56	272,141	561,669	849,076	199,806	67,006	322,171	26,960	233,069
Victoria Terminal Ry. & Ferry Co. (4)	0.99	2,465	2,267	5,236	1,003	338	1,456	274	2,163
Victoria & Sidney (4)	15.97	28,359	30,709	59,713	18,388	5,356	23,280	3,901	8,786
Wabash (24)	.....	648,497	1,628,767	2,281,586	234,664	511,155	1,142,206	75,762	316,896
Wellington Colliery Co.	10.75	4,605	90,543	95,148	28,561	36,374	41,593	.....	—11,381
York & Carleton	10.50	1,983	3,686	5,670	1,081	100	2,258	5	2,224
	26,651.20	65,048,186	149,961,140	219,403,752	31,514,098	29,811,511	84,163,242	5,137,688	68,677,212

Notes to Steam Railway Statistics.

(1) The Algoma Central Ry. and the Algoma Eastern Ry. (formerly known as the Manitoulin and North Shore Ry.) are owned by the Lake Superior Corporation. The A. E. Ry. has trackage rights over 3.25 miles of C.P.R. lines.

(2) The Atlantic, Quebec and Western Ry. was once known as the Baie des Chaleurs Ry. It has 1.75 miles of trackage rights over another company's line.

(3) Mackenzie, Mann and Co. Ltd. interests own or control and operate the following railways: Bay of Quinte Ry.; Brockville, Westport and North Western Ry.; Canadian Northern Ry.; Canadian Northern Ontario Ry.; Canadian Northern Quebec Ry.; Central Ontario Ry.; Halifax and South Western Ry.; Inverness Ry. and Coal Co.; Irondale, Bancroft and Ottawa Ry.; Quebec and Lake St. John Ry. and Schomberg and Aurora Ry.

The Bay of Quinte Ry. has trackage rights over 19 miles of another company's lines. The Central Ontario Ry. operates the Marmora Ry. and Mining Co.'s line (formerly known as the Ontario, Belmont and Northern Ry. The Toronto-Ottawa section of the C.N.O.R. connects with the Central Ontario Ry. at Trenton, and runs over the B. of Q. Ry. between Deseronto and Sydenham. The Irondale, Bancroft and Ottawa Ry. connects with the Central Ontario Ry. near Birds Creek. The Canadian Northern Ontario Ry. has trackage rights over 3.80 miles into Toronto Union Station.

The Halifax and South Western Ry. mileage includes the Nova Scotia Southern Ry., the Central Ry. of N.S., the Halifax and Yarmouth Ry. and the Liverpool and Milton Ry. It has traffic rights over 2.30 miles of the Intercolonial Ry. into Halifax.

The Canadian Northern Ry. mileage includes 3,672.22 miles of main line and branches, in Ontario, Manitoba, Saskatchewan and Alberta; the Manitoba Ry. including the Northern Pacific and Manitoba Ry., Winnipeg Transfer Ry., Portage and North Western Ry., Waskada and Northeastern Ry., 350.68 miles leased from the Province of Manitoba, and the Qu'Appelle, Long Lake and Saskatchewan Ry. Of the total mileage 397.72 miles are operated under lease, and 250.02 miles under contract. The Canadian Northern Quebec Ry. has 0.80 miles of second track, and has trackage rights over 58.60 miles of the lines of other companies.

(4) The Bedlington and Nelson Ry., the Brandon, Saskatchewan and Hudson Bay Ry., the Crows Nest Southern Ry., the Midland Ry. of Manitoba, the Midland Great Northern Ry., the Nelson and Fort Sheppard Ry., the New Westminster Southern Ry., the Red Mountain Ry., the Vancouver, Victoria and Eastern Ry., the Victoria and Sidney Ry., and the Victoria Terminal Ry. and Ferry Co. are owned by the Great Northern Ry., U.S.A. The several lines have trackage rights over other companies' lines as follows:—Bedlington and Nelson Ry., 8.67 miles; Manitoba Great Northern Ry., 0.99 mile; Midland Ry. of Manitoba, 69,.02 miles; Nelson and Fort Sheppard Ry., 5.42 miles; New Westminster Southern Ry., 1.48 miles; Vancouver, Victoria and Eastern Ry., 1.48 miles.

(5) The British Yukon Ry. is the Canadian section of the line operated as the White Pass and Yukon Route, connecting with steamboats on the Yukon River to Dawson, in the summer, and with stages in the winter.

(6) The Intercolonial Ry. mileage includes the old Canada Eastern Ry., 125.08 miles, the Fredericton and St. Marys Ry. bridge, and the Nova Scotia Steel and Coal Co.'s line; its mileage does not include the Windsor branch, which it owns but leases to the Dominion Atlantic Ry. It has 26.70 miles of second track, and has trackage rights over 77.90 miles of other companies' lines.

(7) The C.P.R. mileage includes 6,740 miles of main lines and branches owned; 3,972.30 miles of leased and proprietary lines, and lines operated under contract. It has 754.20 miles of second track, and has trackage rights over 37.30 miles of the lines of other companies. Its traffic returns include the figures relating to the Esquimalt and Nanaimo Ry., and whatever traffic there has been over the Kaslo and Slocan Ry., which it took over during the year, and which it is now reconstructing as a standard gauge railway. The lines operated by the C.P.R. include the Montreal and Atlantic Ry., and the Alberta Ry. and Irrigation Co., which report separately. The Montreal and Atlantic Ry. has 6.40 miles of second track, and a leased line—Lake Champlain and St. Lawrence Jct. Ry. The Alberta Ry. and Irrigation Co. owns the lines formerly owned by the Alberta Ry. and Coal Co. and the St. Marys River Ry., and has trackage rights over 1.60 miles of the C.P.R.

The Dominion Atlantic Ry., which is controlled by the C.P.R., includes the old Windsor and Annapolis Ry., the Yarmouth and Annapolis Ry., the Cornwallis Branch, the Midland Ry. of Nova Scotia, and Windsor Branch of the Intercolonial Ry., which is operated under an agreement. It has trackage rights over 14.42 miles of the Intercolonial Ry. into Halifax.

The Kingston and Pembroke Ry. is also controlled by the C.P.R. Its passenger and freight earnings in columns 3 and 4, are in excess of the gross earnings given in column 5, which figure is arrived at by deducting $4,405.90, which is marked "Cr." in another column in the statistics headed "other earnings from operation."

The C.P.R. also owns, with the New York Central and Hudson River Rd., the Toronto, Hamilton and Buffalo Ry.

(8) The Caraquet Ry. mileage includes the Gulf Shore Ry., 16.78 miles, which is operated under lease.

(9) The Cumberland Ry. and Coal Co.'s line, formerly known as the Springhill and Parrsboro Ry., together with the Sydney and Louisburg Ry., is owned by the Dominion Coal Co.

(10) The Eastern British Columbia Ry. gives the Spokane and British Columbia Ry. a connection with the C.P.R.

(11) The G.T.R. mileage includes 2,942.61 miles of lines owned, 161.30 miles of lines leased and partly owned. It has 706.81 miles of second trackage and has trackage rights over 13.94 miles of the lines of other companies. It owns the St. Clair Tunnel and approaches, and the Canada Atlantic Ry., which companies report separately, and the Magnetawan River Ry. The Central Vermont Ry., which operates the Montreal and Province Line, the Montreal and Vermont Jct. Ry., and the Stanstead, Shefford and Chambly Ry. (each of which reports separately), is controlled by the G.T.R. It also owns the G.T. Pacific Ry., with its branch lines, which is still reported as being under construction, although it has upwards of 1,000 miles built and in operation. The Canada Atlantic Ry. mileage includes the Ottawa, Arnprior and Parry Sound Ry., the Central Counties Ry. (leased), and the Pembroke Southern Ry. It has 0.88 mile of second track.

(12) No statistics, except mileage, are given for the International Ry. of New Brunswick, the records having been destroyed by fire.

(13) The Morrissey, Fernie and Michel Ry. mileage includes 5.03 miles of leased line. It is owned by the Crow's Nest Pass Coal Co.

(14) The Napierville Jct. Ry., and the Quebec, Montreal and Southern Ry. (which includes the East Richelieu Valley Ry., the United Counties Ry. and the South Shore Ry.), are owned by the Delaware and Hudson Co.

(15) The New Brunswick Coal and Ry. Co.'s line includes the old Central Ry. of N.B., and is operated by a commission appointed by the New Brunswick Government.

(16) The New York Central and Hudson River Rd. owns the Ottawa and New York Ry., and the St. Lawrence and Adirondack Ry. It also controls the Michigan Central Rd., which owns the Canada Southern Ry., and owns with the C.P.R., the Toronto, Hamilton and Buffalo Ry. The Ottawa and New York Ry. has trackage rights over 1.90 miles of other companies' lines. The St. Lawrence and Adirondack Ry. has trackage rights over 8.92 miles of other companies' lines, and its mileage includes 16.52 miles of leased lines. The Canada Southern Ry. operates under lease the Sarnia, Chatham and Erie Ry., 7 miles, and the Leamington and St. Clair Ry., 15.95 miles. It has 243.04 miles of second track and has trackage rights over 18.53 miles of other companies' lines.

(17) The New York, New Haven and Hartford Rd. controls the Boston and Maine Rd., the Maine Central Rd., and the Rutland Rd. The Boston and Maine Rd. operates the Massawippi Valley Ry., which has trackage rights over 2.95 miles of another company's lines. The Maine Central Rd. owns the Princeton Branch of the Washington County Ry., in New Brunswick, operating it under its own name, and also

owns the Hereford Ry. in Quebec.

(18) The Pere Marquette Rd., a U.S. company, owns the Lake Erie and Detroit River Ry. (which operates under lease the Erie and Huron Ry.), and leases the London and Port Stanley Ry. It has trackage rights over 159.81 miles of other companies' lines.

(19) The Quebec Central Ry. has trackage rights over 5.00 miles of other companies' lines.

(20) The Quebec Ry., Light and Power Co. operates a steam railway service, as well as an electric one, over the old Quebec, Montmorency and Charlevoix Ry., on which there are 9.50 miles of second track. It has trackage rights over 3 miles of other companies' lines.

(21) The Timiskaming and Northern Ontario Ry. is owned by the Province of Ontario and is operated by a commission. The Province also owns the Nipissing Central Ry., an electric line, which is run in connection with the T. & N.O.R.

(22) The Temiscouta Ry. has trackage rights over 0.25 mile of another company's line.

(23) The Toronto, Hamilton and Buffalo Ry. has 1.16 miles of second track. It has trackage rights over 4.74 miles of another company's line.

(24) The Wabash Rd. does not own any tracks in Canada, but operates over G.T.R. tracks under a lease.

The total given in the mileage column varies from the total railway mileage given in the general section of the statistical report by 76.03 miles. This difference is accounted for as follows:—Alberta Southern Ry., 19 miles, reported abandoned; Bessemer and Barrys Bay Ry., 5 miles, not operated; Bruce Mines and Algoma Ry., 17.28 miles, not reported on; Carillon and Grenville Ry., 13 miles, not operated during the year; Lenore-Mount Sicker Ry. Vancouver Copper Co.), 12 miles, not reported on; Nosbonsing and Nipissing Ry., 5.50 miles, not reported on; Pontiac and Renfrew Ry., 4.25 miles, not reported on.

Birthdays of Transportation Men in February.

Many happy returns of the day to:—

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

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

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

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

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

F. W. Churchill, C.P.R. ticket agent, Collingwood, Ont., born in London, Eng., Feb. 6, 1853.

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

R. Colclough, Assistant to General Superintendent, Intercolonial Ry., Moncton, N.B., born at Bic, Que., Feb. 24, 1871.

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

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

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

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

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

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

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

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

W. Jackson, C.P.R. Ticket Agent, Clinton, Ont., born there Feb. 4, 1860.

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

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

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

D. McDonald, Superintendent, Montreal and Ste. Flavie District, Intercolonial Ry., Levis, Que., born at Ste. Hyacinthe, Que., Feb. 28, 1862.

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

J. K. McNeillie, Superintendent, District 1, Eastern Division, C.P.R., Farnham, Que., born at Toronto, Feb. 23, 1874.

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

C. S. Maharg, Superintendent of Terminals, C.P.R., Calgary, Alta., born in Dufferin County, Ont., Feb. 4, 1867.

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

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

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

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

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

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

A. H. Robinson, Superintendent, Elgin and Havelock Ry., Havelock, N.B., born at Elgin, N.B., Feb. 2, 1862.

J. E. Robitaille, Comptroller, Ha Ha Bay Ry., Chicoutimi, Que., born at Quebec, Feb. 17, 1870.

A. E. Rosevear, Assistant to Vice President, G.T.R., Montreal, born Feb. 20, 1863.

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

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

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

G. Spencer, Superintendent, C.P.R., Sudbury, Ont., born in London, Eng., Feb. 21, 1865.

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

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

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

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

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those for 1911-12, from July 1, 1912:—

	Gross Earnings	Expenses	Net Earnings	Increase
July	$1,829,700	$1,335,100	$494,600	$133,000
Aug.	1,745,800	1,375,000	370,800	56,100
Sept.	1,671,500	1,248,000	423,500	4,100
Oct.	2,351,200	1,645,900	705,300	24,900
Nov.	2,509,700	1,631,900	877,800	212,600
	$10,107,900	$7,235,900	$2,872,000	$430,700
Incr.	$1,604,600	$1,173,900	$ 430,700	.....

Approximate gross earnings for Dec., $2,131,700, against $1,831,400 for Dec., 1911.

The mileage in operation at Nov. 30 was 4,297.

Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases or decreases, compared with those for 1911-12, from July 1, 1912:—

	Gross Earnings	Expenses	Net Earnings	Increase
July	$12,052,398.58	$7,604,221.68	$4,448,176.90	$745,148.57
Aug.	12,251,715.87	7,533,790.21	4,717,925.66	642,354.65
Sept.	11,579,733.98	7,329,430.13	4,250,303.85	332,857.05
Oct.	13,060,397.80	7,999,510.61	5,060,887.19	379,782.44
Nov.	12,362,666.42	8,104,527.38	4,258,139.04	270,772.55
	$61,306,912.65	$38,571,480.01	$22,735,432.64	2,370,915.26
nc.	$9,395,418.3	$7,024,503,07	$2,370,915.26	.....

Approximate gross earnings for Dec., $12,108,000, against $10,568,000 for Dec., 1911.

Commencing with Jan. 1, the mileage in operation was increased to 11,458.

Grand Trunk Railway Earnings, Etc.

The following figures show the earnings and expenses of the G.T.R., C.A.R., G.T. Western Ry. and D.G.H. & M.R. for Nov., 1912, as compared with those for Nov., 1911:—

Grand Trunk Railway.

	1912.	1911.
Earnings	$3,534,500	$3,152,800
Expenses	2,820,800	2,489,200
	$ 713,700	$ 663,600

Canada Atlantic Railway.

	1912.	1911.
Earnings	$223,500	$188,100
Expenses	211,400	163,800
	$ 12,100	$ 24,300

Grand Trunk Western Railway.

	1912.	1911.
Earnings	$621,000	$534,200
Expenses	523,800	424,600
	$97,200	$109,600

Detroit, Grand Haven and Milwaukee Ry.

	1912.	1911.
Earnings	$243,400	$226,000
Expenses	197,600	160,000
	$ 45,800	$66,000

TRAFFIC RECEIPTS OF THE SYSTEM

Aggregate from July 1 to December 31:—

	1912	1911	Increase
G.T.R.	$22,408,122	$20,129,268	$2,278,854
C.A.R.	1,271,732	1,095,906	175,826
G.T.W.R.	3,745,760	3,428,738	317,022
D.G.H. & M.R.	1,329,057	1,231,301	97,756
Totals	$28,754,671	$25,885,213	$2,869,458

The Largest Individual Bridge Contract placed in Great Britain since that for the Forth Bridge has recently been secured by British firms in competition with those of Belgium, Germany and the United States. This contract comprises all the steel work for the railway and highway bridge to carry the Eastern Bengal State Ry. across the Lower Ganges, between Damukdea and Tera Ghat, India. The bridge, exclusive of approaches, comprises 15 main spans, each 359 ft. long and 52 ft. deep. These spans weigh about 1,300 tons each. The bridge will carry two broad gauge railway tracks and a footwalk supported on cantilevers from the main girders. The pier foundations for the main spans are carried to a depth of 150 ft. below the bed of the Ganges to guard against the deep scour of the river. The entire project involves an expenditure of about $6,000,000.

Railway Rolling Stock Notes.

The G.T. Pacific Ry. has received 4 consolidation locomotives from Canadian Locomotive Co.

The Quebec Oriental Ry. has received a snow plough from the Canadian Car and Foundry Co.

The Canadian Steel Foundries, Ltd., has received 6 slag cars from the Canadian Car and Foundry Co.

The Algoma Central and Hudson Bay Ry. has received 4 second class cars from the Preston Car and Coach Co.

The Intercolonial Ry. has ordered 5 refrigerator cars from E. E. Armstrong, Falmouth, N.S., and 50 box cars from its Moncton shops.

J. D. McArthur Co., railway contractors, have ordered 100 Hart ballast cars, 40 tons capacity, from the Hart-Otis Car Co. They will be built by the Canadian Car and Foundry Co.

The Canadian Northern Ry., between Dec. 15, 1912 and Jan. 15, ordered 250 box cars from the National Steel Car Co., and 100 refrigerator cars from the Mount Vernon Car Mfg. Co.

The Algoma Eastern Ry. has received 13 fifty ton Otis dump cars and 1 forty ton steel underframe flat car from the Canadian Car and Foundry Co., and 1 second class car from the Preston Car and Coach Co.

The Canadian Northern Ry. has ordered, from the National Steel Car Co., 200 steel underframe cars, 41 ft. long, 40 tons capacity; 593 standard 30 ton box cars, 36 ft. long, and 9,172 I beam brake beams, 5 ins. depression.

The Toronto, Hamilton and Buffalo Ry. has ordered 1,000 box cars, 100 flat cars, 36 ft. long, and 150 steel hopper bottom coal cars, 50 tons capacity, from the National Steel Car Co.; and 50 Hart convertible cars from the Hart-Otis Car Co.

The C.P.R., between Dec. 13 and Jan. 13, placed orders for the following rolling stock:—20 stock cars, 2 freight refrigerator cars, 7 vans and 7 flat cars, with its Angus Shops; one Atlantic steam shovel, with Mussens, Ltd.; and 100 air dump cars, with the Western Wheeled Scraper Co.

The G.T.R. has received the following additions to rolling stock,—1 first class car and 3 baggage cars, from its Montreal shops; 25 refrigerator cars and 393 box cars, from the Canadian Car and Foundry Co.; 6 Pacific type locomotives from the Baldwin Locomotive Works, and 598 box cars from the Pressed Steel Car Co.

The Canadian Northern Ry., between Dec. 15, 1912, and Jan. 15, received the following additions to rolling stock,—8 cabooses from its Winnipeg shops; 2 first class cars, from the Canadian Car and Foundry Co.; 100 automobile box cars, from the Crossen Car Co.; and 20 box cars, from the Rathbun Co.

The Intercolonial Ry. has received the following additions to rolling stock:—106 box cars from Nova Scotia Car Works; 50 Hart-Otis coal cars, 100,000 lbs. capacity, built by Canadian Car and Foundry Co., from Hart-Otis Car Co.; 10 refrigerator cars from Canadian Car and Foundry Co.; 2 locomotives from Canadian Locomotive Co.; 1 snow plough from Wendell and McDuffie, New York.

The C.P.R., between Dec. 13 and Jan. 13, received the following additions to rolling stock:—21 flat cars, 10 first class cars, 1 double track snow plough, 1 double track flanger, 18 single track snow ploughs, and 7 locomotives, class D.4, from its Angus Shops; 511 box cars, from the Canadian Car and Foundry Co.; 19 locomotives, class D. 10, from the Montreal Locomotive Works; 353 box cars, from the Standard Steel Car Co.; 280 box cars, from Barney and Smith Car Co.; and 523 box cars from the American Car and Foundry Co.

The Canadian Car and Foundry Co., between Dec. 15 and Jan. 15, delivered the following rolling stock:—13 Otis dump cars, 50 tons capacity; 1 steel underframe flat car, 40 tons capacity, to the Algoma Eastern Ry.; 483 steel frame box cars, 40 tons capacity, to the C.P.R.; one first class car to the Canadian Northern Ry.; 6 slag cars to the Canadian Steel Foundries, Ltd.; 344 steel underframe box cars, 30 tons capacity, to the G.T.R.; 1 refrigerator car, 30 tons capacity, to the G.T. Pacific Ry.; 14 Hart convertible coal cars, 50 tons capacity, 54 steel underframe flat cars, 40 tons capacity, and 6 steel underframe stock cars, 30 tons capacity, to the Intercolonial Ry.; 6 steel street car bodies to the Montreal Tramways Co.; one snow plough to the Quebec Oriental Ry., and is building one steel box car, 40 tons capacity, for its own purposes.

The Quebec Harbor Commission has ordered 3 six wheeled switching locomotives from the Montreal Locomotive Works. Following are the chief details:—

Cylinders	19 x 26 ins.
Tractive power	28,720 lbs.
Factor of adhesion	4.19
Wheel base, engine	11 ft., 6 ins.
Wheel base, engine and tender	38 ft., 7 ins.
Weight in working order	120,400 lbs.
Weight, engine and tender	193,160 lbs.
Boiler, type	Straight top
Boiler, outside diar, first ring	64½ ins.
Boiler pressure	180 lbs.
Firebox, type	Narrow
Firebox, length and width	102 x 33 ins.
Crown staying	Radial
Tubes, no. and diar.	259. 2 ins.
Tubes, length	11 ft.
Heating surface, tubes	1,480 sq. ft.
Heating surface, firebox	140 sq. ft.
Heating surface, total	1,620 sq. ft.
Grate, area	23.4 sq. ft.
Driving wheels, outside diar.	50 ins.
Axles	8½ x 9 ins.
Journal boxes	Cast iron
Brakes	Westinghouse American
Tank, type	U shape, sloping top
Capacity, water	3,500 U.S. gals.
Capacity, coal	6 tons

The Toronto, Hamilton and Buffalo Ry. has ordered 2 superheater six wheeled switching locomotives, type S137, one superheater six wheeled switching locomotive, type S165, and one superheater Pacific passenger locomotive, from the Montreal Locomotive Works. Following are the chief details:—

	Type S137.	Type S165
Cylinders, diar. and stroke	20 by 26 ins.	21 by 28 ins
Tractive power	31,200 lbs.	37,000 lbs.
Factor of adhesion	4.39	4.46
Wheel base, engine	10 ft., 6 ins.	11 ft. 6 ins.
Wheel base, engine and tender	43 ft. 2 ins.	45 ft. 4½ ins.
Weight, engine	137,000 lbs.	165,000 lbs.
Weight, engine and tender	247,000 lbs.	275,000 lbs.
Boiler, type	Straight top	Straight top
Boiler, outside first ring	64½ ins.	67½ ins.
Fire, type	Wide	Wide
Firebox	102 by 42½	72 by 65½ ins.
Crown staying	Radial	Radial
Tubes, no. and diar.	154. 2 ins.	165. 2 ins.
Flues, no. and diar.	21. 5½ ins.	22. 5½ ins.
Tubes, length	10 ft. 9 ins.	16 ft.
Heating surface, tubes & flues	1,183 sq. ft.	1,879 sq. ft.
Heating surface, firebox	146 sq. ft.	129 sq. ft.
Heating surface, total	1,350 sq. ft.	2,021 sq. ft.
Grate area	29.9 sq. ft.	32.7 sq. ft.
Driving wheels, diar.	51 ins.	51 ins
Tender wheels	33 ins.	33 ins.
Journals	8½ x 10 ins.	9 x 12 ins.
Journal boxes	Cast steel	Cast steel
Brakes	Westinghouse American	
Tank, type	U, level top	U, straight top
Capacity, water	5,500 U.S. gals.	5,500 U.S. gals.
Capacity, coal	8 tons	8 tons

PACIFIC TYPE

Cylinder, diar. and stroke	25 x 28 ins.
Tractive power	32,800 lbs.
Factor of adhesion	4.2
Wheel base, driving	13 ft.
Wheel base, engine, total	33 ft. 7 ins.
Wheel base, engine and tender	67 ft.
Weight in working order	219,000 lbs.
Weight on drivers	138,000 lbs.
Weight on trailers	41,000 lbs.
Weight on engine truck	40,000 lbs.
Weight, engine and tender	385,000 lbs.
Boiler, type	Extended wagon top
Boiler, diar. first ring	64 ins.
Boiler, working pressure	180 lbs
Firebox, type	Wide
Firebox, length and width	108 by 65½ ins.
Crown staying	Radial
Tubes, no. and diar.	177. 2 ins.
Flues, no. and diar.	26. 5⅜ ins.
Tubes, length	20 ft.
Heating surface, tubes and flues	2,575 sq. ft.
Heating surface, firebox	165 sq. ft.
Heating surface, total	2,768 sq. ft.
Grate area	49 sq. ft.
Driving wheels, diar.	69 ins.
Journals	Main 10 by 12, others 9 by 12 ins.
Journal boxes	Cast steel
Air brakes	Westinghouse American
Tank, type	Water bottom
Capaciy, water	9,000 U.S. gals.
Capacity, coal	12 tons

Referring to the information as to additions to rolling stock by the G.T.R., given in our last issue, it was mentioned that 18 locomotives had been received from the Baldwin Locomotive Works, but it should have read as 13.

Recent Quebec Legislation.

At the recent session of the Quebec Legislature the following acts were passed affecting transportation interests:—

ALMA AND JONQUIERES RY.—Incorporation.

CALUMET AND NORTHERN RY.—Incorporation.

HUNTINGDON AND HEMMINGFORD Ry.—Incorporation.

L'AVENIR AND MELBOURNE RY. — Extending time for construction.

LITTLE NATION RY.—Extending time for construction.

QUEBEC AND NORTHEASTERN RY.—Incorporation.

RAILWAY ACT.—Amending Quebec Rail-Act with respect to expropriation proceedings.

RAILWAY SUBSIDIES.—Amending act of 1912 granting subsidies in aid of certain railways.

ROBERVAL AND SAGUENAY RY. — Extending time for construction.

SAGUENAY HYDRAULIC CO.—Granting company right of expropriation under Quebec Railway Act.

Dominion Railway Subsidy Agreements.

The Dominion Government has entered into agreements, under the acts granting aid for the construction of railways, with the following companies:—

Esquimalt and Nanaimo Ry., Oct. 19, for line from Wellington to Alberni, B.C., 60 miles.

St. John and Quebec Ry., Nov. 5, for line from St. John to Grand Falls, N.B., exclusive of railway bridge over the Kennebecasis river near Perry point, and two railway bridges over the St. John river, 228 miles.

Canadian Northern Alberta Ry., Nov. 29, guaranteeing principal and interest of company's securities to extent of $35,000 a mile for line from 150 miles west of St. Albert westerly to British Columbia boundary, in Yellowhead Pass, 115 miles.

Algoma Central and Hudson Bay Ry., Dec. 28, from the C.P.R. northerly towards the National Transcontinental Ry., not exceeding 50 miles; from 50 miles northerly from the junction with the C.P.R. northerly to the National Transcontinental Ry., not exceeding 65 miles.

Canada Southern Ry.—It was reported in New York, Jan. 9, that $16,500,000 of the C.S. Ry. consolidated guaranteed 5% bonds had been taken up, and that the remaining $6,000,000 were being exchanged for C.S. Ry. second mortgage 5% bonds.

Western Dominion Ry.—The Minister of Railways has approved of route map for this projected railway from tp. 6, r. 1, west 5th meridian, to near Calgary, Alta., 130 miles. (Dec., 1912, pg. 605.)

Steam Railway Track Laid in 1912.

In the figures published in last month's issue respecting track laid in 1912, as officially reported by the companies to Canadian Railway and Marine World, a total of 2,099.79 miles was shown. A number of revised figures and additions have since been received, which brings the total mileage laid up to 2,179.09, against 1,869.24 miles laid in 1911. In the figures published by a U.S. contemporary, and reproduced in one or two Canadian publications, the total mileage laid in Canada is given as 2,232.10, in which is included the Alberta Central Ry., 65 miles, in regard to which we were officially advised, Jan. 13, that no track whatever was laid in 1912; about 50 miles of C.P.R. branch lines, in reference to which the reports furnished us give a smaller mileage to the total extent mentioned; and over six miles on the Timiskaming and Northern Ontario Ry., which is now being laid. Our table includes returns from five lines, representing nearly 70 miles, which are not included in our contemporary's table.

The statement that the Edmonton, Dunvegan and British Columbia Ry. laid 8 miles of track north from Edmonton, first published in our January issue, was based on a report received from a correspondent in Edmonton, to whom we wrote after failing to obtain any information from the railway company. We have since heard from another source that the company claims to have laid 23 miles of track, and although we have been unable to verify this, we have inserted the latter figures in our table.

Following are the details:—

	Miles.	Miles.
Algoma Central and Hudson Bay Ry.—		
Mileage 97 to 117	20.00	
Mileage 194.5 to 244.5	50.00	
		70.00
Algoma Eastern Ry.—		
Mileage 22.7 to 43.00	20.30	
Mileage 49.75 to 84.95	35.20	
		55.50
British Columbia Electric Ry.—		
Port Moody to Coquitlam (steam line).		8.70
British Yukon Ry.—		
Mileage 106 to Pueblo mines		13.00
Canadian Northern Ontario Ry.—		
On Toronto-Ottawa line	45.00	
Between Ottawa and Capreol	35.00	
Between Ruel and Port Arthur	115.00	
		195.00
Canadian Northern Pacific Ry.—		
Sumas to Hope		41.75
Canadian Northern Ry.—		
Manitoba—		
Winnipeg Northern Ry.	9.62	
Saskatchewan—		
Melfort-Humbolt line	4.69	
Moose Jaw line	2.00	
Delisle extension	3.70	
Alberta—		
Goose Lake line extension	100.02	
Can. Nor. Alberta line	50.42	
Vegreville-Calgary line	24.92	
Strathcona Camrose	46.00	
Morinville line	17.00	
Brazeau line	45.26	
	283.62	
Canadian Pacific Ry.—		303.63
Ontario—		
From Flamboro to T. H. & B. Jct.	10.42	
Manitoba—		
Lauder Boissevain branch	1.80	
Tilston Westerly in Manitoba	3.20	
	5.00	
Saskatchewan—		
Tilston West in Saskatchewan	22.30	
Weyburn westerly	36.80	
Moosejaw southwest	7.80	
Swift Current south east	16.70	
Swift Current south west	23.80	
Estevan north west	20.00	
Wilkie-Anglia branch	35.40	
	162.80	
Alberta—		
Lacombe east	32.80	
Bassano Irricana	36.50	
Suffield south west	26.80	
	96.10	
British Columbia—		
Golden south	41.00	
Colvalli north	14.50	
Caithness south	11.00	
Laggan-Lake Louise	4.00	
Three Forks-Whitewater	5.37	
Port Moody spur	3.60	
	79.47	353.79
Central Ry. of Canada—		
Hawkesbury west		2.50
Dominion Atlantic Ry.—		
Main Line to Canning wharf, N.S.	0.69	
Centreville to Belltown, N.B.	0.31	
		1.00
Edmonton, Dunvegan and B.C. Ry.—		
Edmonton, Alta., to near Morinville		23.00
Esquimalt and Nanaimo Ry.—		
Hayward Jct. to Cowichan Lake, B.C.	18.20	
Osborne Bay Jct. to Osborne Bay, B.C.	2.60	
		20.80
Fredericton and Grand Lake Coal and Ry. Co.—		
Gibson, N.B., to mileage 11	11.00	
Near Minto to Ripples	7.00	
		18.00
Grand Trunk Pacific Ry.—		
Main Line between Yellowhead Pass and Prince Rupert, B.C.	128.00	
Regina towards Int. Boundary	136.00	
Regina to Moose Jaw, Sask	40.00	
Talmage to Weyburn, Sask.	0.25	
Oban to Battleford, Sask.	48.50	
Biggar towards Calgary	104.00	
Battleford towards Wainwright	4.00	
Tofield towards Calgary, Alta.	92.00	
Bickerdike to Brazeau, Alta.	56.00	
		608.75
Intercolonial Ry.—		
Diversion of line between Nelson and Chatham, N.B.	8.30	
Diversion of line between Georges River and Sydney Mines, N.S.	9.00	
		17.30
Kettle Valley Ry.—		
On several sections		30.00
Port Moody and North Shore Ry.—		
Port Moody line		15.1
Prince Edward Island Ry.—		
Harmony Jct. to Elmira		9.90
Timiskaming and Northern Ontario Ry.—		
Earlton to Montreal River, Ont.		22.70
Vancouver, Victoria and Eastern Ry.—		
Abbottsford to Kilgard, B.C.	4.52	
Kilgard to Sumas Landing	3.00	
		7.52
National Transcontinental Ry.—		
At various points between:		
Mileage 109 and 153 E. of Quebec Bridge	33.00	
Mileage 1 and 8.6 E. of Quebec Bridge	7.50	
Mileage 288 and 419 W. of Quebec Bridge	84.75	
Mileage 168 west of Cochrane and 102 east of Lake Superior Jct., Ont.	235.90	
		361.15
Total		2,179.09
Actual track laid in 1911		1,851.98

Of this mileage, 1,860.07 miles were laid in connection with three systems, the following being the comparison of the mileages laid by the same lines in 1911:—

	1911 Miles.	1912 Miles.
Canadian North Eastern	11.00	.....
Canadian Northern Ontario	75.20	195.00
Canadian Northern Pacific	46.00	41.75
Canadian Northern Ry.	446.10	303.63
	578.30	540.38
Canadian Pacific	465.20	353.79
National Transcontinental	280.25	361.15
Grand Trunk Pacific	254.00	608.75
	534.25	969.90
Total of the three systems	1,577.75	1,864.07

The remaining 314.93 miles were laid by 13 companies.

In addition to the new mileage the C.P.R. laid 300.33 miles of second track, 30.33 miles being in Quebec, 59.40 in Ontario, 86.60 in Saskatchewan, and 24.00 in British Columbia.

The Minneapolis, St. Paul and Sault Ste. Marie Ry., a C.P.R. subsidiary, laid 103.93 miles from Fordville to Drake, N.D. The Duluth, Winnipeg and Pacific Ry., a Canadian Northern subsidiary, laid 73.4 miles in Minnesota.

Divided by provinces the track laid compares as follows:—

	1912 Miles.	1911 Miles.
Ontario	592.02	394.44
Alberta	554.72	392.10
Saskatchewan	501.94	630.74
British Columbia	331.34	216.00
Quebec	125.25	[illegible]
New Brunswick	26.61	0.73
Manitoba	14.62	[illegible]
Yukon	13.00	....
Nova Scotia	9.69	2.50
Prince Edward Island	9.90	....
	2,179.09	1,856.98

Grand Trunk Railway Betterments, Construction, Etc.

Construction for 1913.—We are officially advised that the undermentioned works are more or less definite as to construction and completion during 1913:—

Lachine, Jacques Cartier and Maisonneuve Ry.—From Jacques Cartier Jct. to the east end of Montreal, 7.00 miles.

Port Hope Cut off.—About one mile to connect the Northern Divison with the Eastern Division at Port Hope, Ont.

Holmedale Spur.—From West Brantford, Ont., to the Holmedale industrial area, about 3 miles.

Erie, London and Tillsonburg Ry.—From Port Burwell to London, Ont., about 34 miles.

Detroit and Huron Ry.—From Cass City to Bad Axe, Mich., 68.5 miles. (Jan., pg. 30.)

Kingston, Ont.—E. J. Chamberlin, President, has informed the Kingston City Council that it would cost about $1,000,000 to divert the main line through Kingston. While the change would be desirable, the company cannot, owing to the financial situation, consider making it.

Montreal Track Elevation Project.—The City Board of Control has decided to obtain an estimate of the cost of depressing the G.T.R. tracks in the city. The question of elevating them has been under consideration for several years.

Portland, Me.—Press reports state that a large area of land on the east end of Portland has been acquired by the G.T.R. R. S. Logan, Vice President, is quoted as stating, Jan. 17, that the company has made an exchange with the Portland Parks Commission, the G.T.R. securing some water front land for land on a higher level.

Toronto Yards.—A plan has been submitted to the Toronto City Council for a new 26 stall locomotive house with machine shop attached near the foot of John Street. Seven tracks are shown leading to it. The building is intended to replace some existing buildings.

New Brunswick Coal and Ry. Co.—Central Ry., of N.B. — We are officially advised in connection with the press reports that the C.P.R. had made arrangements to take over these lines from the New Brunswick Government, Jan. 1, that no decision has been reached in regard to them. The taking over of these lines by the C.P.R. is a part of the bargain made with the New Brunswick Government in connection with the building of the Fredericton and Grand Lake Coal and Ry. Co.'s line, which connects the C.P.R. system with Minto, the terminus of the N.B.C. and Ry. Co.'s line.

The Canadian Ticket Agents' Association has admitted to membership C. Casselman, C.P.R., Chesterville, Ont., and L. Atkinson, Newmarket, Ont.

Mainly About Transportation People.

J. A. McKEE, Western Steamship Co., who died in Toronto recently, left an estate of $532,958.

C. GREENWOOD, for many years in the G.T.R. locomotive department, died in Montreal, Jan. 19, aged 9..

GEORGE BURY, Vice President, C.P.R., left Winnipeg, Jan. 20, for a trip to Japan expecting to return about Mar. 21.

SIR WM. WHYTE, of Winnipeg, has been elected Vice President for Manitoba of the Canadian Red Cross Society.

B. A. MACNAB, at one time in the Intercolonial Ry. service, has resigned his position as editor of the Montreal Star.

W. J. CROSSEN, President, Crossen Car Co., has been elected Honorary President of the Cobourg, Ont., Horse Show Association.

Mrs. King, wife of R. KING, Superintendent, C.P.R., London, Ont., died there Jan. 9, and was buried at St. Stephen, N.B.

H. J. FULLER, President, Canadian Fairbanks-Morse Co., Montreal, has been elected a director of the Canadian Bank of Commerce.

J. W. TROUP, Manager, British Columbia Coast Service, C.P.R., sailed from St. John, N.B., Jan. 10, on the s.s. Empress of Britain, for England.

CHARLES BERESFORD FOX, M. Can. Soc. C.E., of Wragge & Fox, Toronto, who died there in April, 1912, left an estate valued at $65,158, mostly in England.

J. A. GLASSFORD, formerly Superintendent of the Fort Garry Joint Terminals, Winnipeg, has been appointed industrial and publicity agent at Portage la Prairie, Man.

SIR FREDERICK W. TAYLOR, Manager of the Bank of Montreal in London, Eng., who was knighted by the King at the New Year, is a director of the Allan Steamship Line.

F. H. PHIPPEN, General Counsel, Canadian Northern Ry., accompanied by his wife and son, left Toronto Jan. 21 for New York, whence they sailed for England, en route for Egypt.

T. S. DARLING, of the Canadian Northern Ry. Land Department in Montreal, has been elected first Mayor of Mount Royal, the C.N.R. model city at the back of Mount Royal, Montreal.

A. L. CODY, who was employed as an inspector of construction at the C.P.R. yards, St. Boniface, Man., disappeared Oct. 18. His friends are offering a reward for news of his whereabouts.

S. W. FURNESS, M.P., has succeeded the late Lord Furness, his uncle, as Chairman of Furness, Withy and Co., and other shipping interests with which both have been associated for several years.

MRS. JAMES WILSON, whose husband was, at the time of his death, Claims Agent, Ontario Division, C.P.R., Toronto, and before that General Superintendent, Ontario Division, died in Toronto, Jan. 14, aged 78.

T. McKEAG, of the local freight staff of the Midland Ry. of Manitoba, Winnipeg, was presented with a cabinet of silver, Jan. 18, by the staff, on the occasion of his marriage to Miss E. Roland, of the same office.

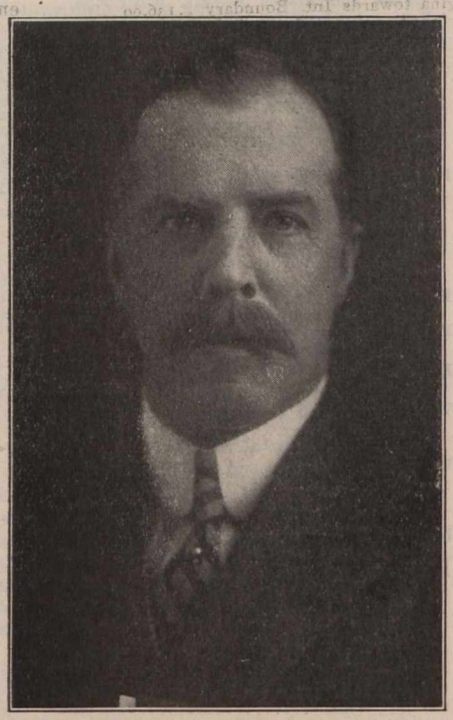
J. McDOUGALD, Cornwall, Ont., who celebrated his golden wedding Jan. 9, was active in promoting the building of the original Canada Atlantic Ry., and was Secretary-Treasurer of the company for about ten years.

W. BORBRIDGE, Master Mechanic, C.P.R., District 3, Montreal, was presented with a gold watch and chain by the staff, Dec. 31, on his being transferred to a similar position on the Montreal Terminals and Montreal-Smiths Falls district.

W. L. KELLOGG, heretofore Superintendent of Motive Power, Pere Marquette Rd., Grand Rapids, Mich., has been appointed Superintendent of Machinery and Equipment, Missouri, Kansas and Texas Ry. of Texas, at Parsons, Kan.

H. HOLGATE, M. Can. Soc. C.E., of Montreal, and D. Moran and C. Sooysmith, of New York city, were elected members of council for three years of the American Institute of Consulting Engineers at the annual meeting Jan. 14.

JAS. ROSS, Montreal, with a party of friends, is making an extended tour in his yacht Glencairn. He reached Bermuda Jan. 2, and was expected in the Canary Islands Jan. 20, after which he proposed to visit Madeira, Gibraltar and Mediterranean ports.



A. D. MacTier,
General Manager, Eastern Lines, Canadian Pacific Railway.

ROSWELL MILLER, Chairman of the Board, Chicago, Milwaukee and St. Paul Ry., and President, between 1888 and 1899, died at New York, Jan. 3. He was born at Hartford, Pa., Oct. 28, 1843, and retired from the Presidency on account of ill health.

J. LUMSDEN, owner of the Lumsden Line of steamboats on Lake Timiskaming, Que. and Ont., has given the Bellevue hotel and grounds at the foot of Lake Timiskaming, Que., to the National Sanitarium Association. The property is valued at $55,000.

V. H. WILLIAMS, who has been appointed Travelling Freight Agent, Western United States, Intercolonial and Prince Edward Island Rys., Chicago, Ill., was born at Litchfield, Ill., Jan. 24, 1892, and has served with the I.R.C., in the U.S., since Dec. 15, 1910.

F. W. EMMERSON, Judge of the Probate Court, Westmoreland county, N.B., who died at Moncton, N.B., Jan. 6, was father of R. H. Emmerson, Resident Engineer, Intercolonial Ry., Levis, Que., and brother of Hon. H. R. Emmerson, formerly Minister of Railways and Canals.

W. W. JOHNSTON was presented with a gold watch by his colleagues recently on his resignation of the position of City Freight and Passenger Agent, Canadian Northern Quebec Ry., and Quebec and Lake St. John Ry., Quebec, to take an appointment in the Provincial Treasury Department.

HON. ARCHIBALD CAMPBELL, who died at Toronto Jan. 5, was until recently President of the Central Ry. Co. of Canada. He was father-in-law of G. S. Deeks, President, Dominion Construction Co., contractors for the construction of the Campbellford, Lake Ontario and Western Ry. (C.P.R.).

JOHN M. BOAK, who has been appointed Travelling Freight Agent, Intercolonial Ry., was born at Halifax, N.S., May 13, 1877, is a son of J. A. Boak, Western U.S. Freight Agent, I.R.C., Chicago, Ill. Prior to his appointment, Dec. 23, 1912, he was engaged in private business in Chicago.

JAMES PLAYFAIR, President, Northern Navigation Co., Midland, Ont., is President of Mexican Mahogany and Rubber Corporation, Ltd., bonds of which have been offered to the public recently. H. W. Richardson, of James Richardson and Sons, vessel owners, Kingston, Ont., is also a director.

JNO. McLEAN, who died in Montreal, Jan. 4, aged 81, was for over 60 years well known in connection with the marine interests of the city. At different times he represented the Montreal Transportation Co., the Kingston and Montreal Forwarding Co., and latterly was associated with the Inland Lines.

R. O. MACKAY, the senior partner of the former firm of R. O. & A. B. Mackay, vessel owners, Hamilton, died there, Jan. 26, aged 59. The vessels owned by his firm were taken over some time ago by Inland Lines, Ltd., which latter company has since been absorbed by the Richelieu and Ontario Navigation Co.

D. B. HANNA, Third Vice President, Canadian Northern Ry., was among a deputation which waited on the Ontario Minister of Agriculture recently to urge that a larger grant be given the Toronto Women's Hostel. He stated that the organization had promoted the immigration of a better class of girls and women.

C. ELSON, a sub-contractor on the Canadian Northern Ontario Ry., left his camp recently to walk to Nemegos, on the C.P.R., for a trip home to Sweden. His body was found in the snow some distance from the C.P.R., Dec. 24. A large sum of money he carried was missing, and there is every evidence that he met with a violent death.

SIR WILLIAM MACKENZIE was dismissed from a case, Jan. 16, in which he was joint defendant with the Toronto Ry. Co., in which damages were claimed for injury sustained by a pedestrian who claimed to have been knocked down by the company's automobile, something over two years ago, in which Sir William was a passenger.

GEO. HANNAH, who recently resigned his position as Passenger Manager, Allan Line Steamship Co., Montreal, was entertained to dinner there, Jan. 15, by a number of transportation officials, on the occasion of his retirement from active service after 45 years as a steamship official. He was presented with a silver tea service and tray, suitably inscribed.

C. W. PRICE, who has been appointed Chief Dispatcher, Intercolonial Ry., Moncton, N.B., was born in New Brunswick July, 1867, and entered I.R.C. service Oct., 1882, since when he has been, to June, 1886, operator at Petitcodiac, N.B.; June, 1886, to

Nov., 1888, operator, Moncton, N.B.; Nov. 1888, to May 15, 1893, relief dispatcher; May 15, 1893, to Nov. 25, 1912, trick dispatcher, Moncton, N.B.

E. W. DAHL, Travelling Freight Agent, G.T.R., Cincinnati, Ohio, and his six year old son, were killed by a freight train while crossing a trestle near there, Jan. 1. He had been in G.T.R. service for about 20 years, and had been located in Cincinnati for six years, having previously been stationed at Detroit, Mich. He was First Vice President and a director of the Cincinnati Transportation Club.

HON. F. COCHRANE, Minister of Railways; C. Murphy, General Superintendent of Transportation; W. Stitt, General Passenger Agent, Eastern Lines; H. E. Macdonell, General Freight Agent, Eastern Lines, and G. H. Ham, of the Publicity Department of the C.P.R., were guests at a dinner given by the Orillia Board of Trade Jan. 10, in connection with the recent advent of the C.P.R. into Orillia, through its Georgian Bay and Seaboard line.

M. A. FULLINGTON, who has been appointed Assistant Division Engineer, Eastern Division, C.P.R., Montreal, was born at Johnson, Vt., May 12, 1880, and entered C.P.R. service Oct., 1904, since when he has been, to Apr., 1907, rodman, transitman, and Assistant Engineer of Terminals, London and Toronto; Apr., 1907, to Feb., 1912, Resident Engineer, districts 1 and 4, Ontario Division; Feb., 1912, to Jan. 1, 1913, Engineer, Dominion Atlantic Ry., Kentville, N.S.

B. F. BUSH, M. Am. Inst. M.E., President of the Missouri Pacific Ry., has been elected President of all the so-called Gould railways, including the Missouri Pacific, the Denver & Rio Grande, the Iron Mountain, the Western Pacific, the Texas & Pacific and the International & Great Northern Rys., a system embracing 13,844 miles of track. J. M. Johnson, Vice President of the Missouri Pacific Ry., will be Vice President in charge of traffic of the entire system.

JOHN PATTERSON, who has been active in the promotion of the projected Hamilton, Waterloo and Guelph Ry., died at Hamilton, Ont., Jan. 26, aged 56. He was intimately connected with the origin of what is now known as the Dominion Power and Transmission Co. He had been in ill health for two or three years, but has been to London, Eng., several times in that period, in connection with the financing of his project, but without having brought it to a successful conclusion.

A. D. MacTIER, whose appointment as General Manager, Eastern Lines, C.P.R., Montreal, was announced in our last issue, and whose portrait appears in this issue, was born at Blairgowrie House, Scotland, Dec. 27, 1867, and entered C.P.R. service, May, 1887, since when he has been, to Apr., 1896, successively, in General Baggage Agent's Office, General Superintendent's Office, Superintendent Sleeping, Dining and Parlor Cars Stores, and Car Service Departments; Apr., 1896, to Nov., 1899 General Baggage Agent; Nov., 1899, to June, 1907, General Fuel Agent; June, 1907, to Dec. 31, 1912, Assistant to the Vice President, Montreal.

P. J. FLYNN, who has been appointed Manager of the Canadian Northern, G.T. Pacific and National Transcontinental Rys. joint terminals, Winnipeg, including Fort Garry Union Station, entered Lehigh Valley Rd. service in 1893, and has been in charge of the terminals at Manchester, N.Y., and Sayre, Pa.; in a similar position in service of the New York, New Haven and Hartford Rd. at Worcester, Mass., and Providence, Conn. Returning to Lehigh Valley Rd. service Feb. 1, 1907, he was appointed in charge of the terminals at Buffalo, N.Y., and in 1908 was appointed Trainmaster, with jurisdiction over all terminals in the Buffalo division.

F. CONWAY, who has been appointed City Freight and Passenger Agent, C.P.R., Kingston, Ont., was born at Ernestown, Addington county, Ont., Nov. 19,1850. He entered railway service, Aug., 1869, since when he has been, to Feb., 1882, operator at Coteau, Que., relieving and station agent G.T.R.; Feb. to May, 1882, C.P.R. Freight Department; May, 1882, to Jan., 1883, agent Midland Ry. (now part of G.T.R.), Markham, Ont.; Jan., 1883, to Jan. 1, 1913, on the taking over of the line by the C.P.R., General Freight and Passenger Agent Kingston and Pembroke Ry., Kingston, Ont., and since Oct. 1, 1906, also acting General Superintendent.

WALTER E. LADLEY, who has been appointed Superintendent of Motive Power, Reid Newfoundland Co., St. Johns, Nfld., was born in England, and came to this continent at the age of 10 years, his family settling in Port Huron, Mich. He served an apprenticeship of five years in the G.T.R. shops there, as a machinist, and two years

H. J. Herrold,
General Freight and Passenger Agent, Algoma Central and Hudson Bay Ry.

after the ending of that time was appointed General Foreman of the same shops. From Jan., 1906, to 1907, he was Master Mechanic, Central Vermont Ry., St. Albans, Vt., and from 1907 to Dec. 26, 1910, was with the Ford Automobile Co., Detroit, Mich., from which latter date to Dec. 31, 1912, he was Shop Superintendent, Chicago and Alton Rd., Bloomington, Ill.

D. J. HACKETT, who has been appointed Superintendent, Canada Division, Michigan Central Rd., St. Thomas, Ont., was born in Cass County, Mich., May 1, 1868, and entered M.C.R. service in 1884, since when he has been messenger, timekeeper, roadman, yard clerk, operator, clerk in Freight Department, clerk to Trainmaster and Assistant Superintendent, switchman, yard conductor, Assistant Yardmaster, Yardmaster, all at Detroit, Mich.; General Yardmaster, Assistant Trainmaster at Toledo, Ohio; Trainmaster, Assistant Superintendent, Middle Division and Branches, Jackson, Mich.; and to Jan. 1, 1913, Assistant Superintendent of Detroit and Toledo Terminals, Detroit, Mich.

H. E. WHITTENBERGER, who has been appointed General Superintendent, Ontario Lines, G.T.R., Toronto, and whose portrait appears in this issue, was born at Peru, Ind., Nov. 9, 1869, and entered transportation service in 1885, since when he has been, to Feb., 1897, in various position, Wabash Rd.; Feb., 1897, to May, 1902, Trainmaster, Middle Division, G.T.R.; May, 1902, to Sept., 1904, Superintendent, Denver and Rio Grande Ry.; Sept., 1904, to Jan., 1906, Superintendent, Cincinnati, Hamilton and Dayton Ry., Indianapolis, Ind.; Jan., 1906, to Sept. 30, 1907, Superintendent, Kansas City Southern Ry.; Sept. 30, 1907, to Oct. 17, 1912, Superintendent, Eastern Division, G.T.R., Montreal; Oct. 17, 1912, to Jan. 14, 1913, Superintendent, Middle Division, G.T.R., Toronto.

J. M. McKAY, whose appointment as Superintendent, District 1, British Columbia Division, Revelstoke, was announced in our last issue, was born at Tiverton, Ont., Mar. 13, 1868, and entered railway service 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., Winnipeg; Aug. 1 to Dec. 14, 1912, Trainmaster, District 1, British Columbia Division, Revelstoke.

L. J. FERRITOR, who has been appointed Superintendent, Scranton Division, Delaware, Lackawanna and Western Rd., Scranton, Pa., was from July, 1896, to 1898, Trainmaster, Middle Division, G.T.R., Stratford, Ont.; 1898 to May, 1899, Assistant Superintendent, Middle Division, G.T.R., London, Ont.; May, 1899, to Feb., 1904, Joint Superintendent, Southern Division, G.T.R., and Buffalo Division, Wabash Rd., St. Thomas, Ont.; Feb., 1904, to Aug., 1905, Superintendent, Eastern Division, Wabash Rd., Peru, Ind.; Aug., 1905, to 1910, Superintendent, Middle Division, same road, Decatur, Ill.; 1910 to Oct., 1912, Superintendent, Northern and Southern Divisions, Chicago and Alton Rd., Bloomington, Ill., resigning that company's service with F. W. Morse, Vice President and General Manager, who had formerly been Vice President and General Manager, Grand Trunk Pacific Ry.

H. J. HERROLD, who has been appointed General Freight and Passenger Agent, Algoma Central and Hudson Bay Ry., and Algoma Eastern Ry., Sault Ste. Marie, Ont., and whose portrait appears in this issue, was born at Athens, Ohio, Jan. 21, 1880, and entered railway service Sept., 1897, since when he has been, to April, 1898, operator and clerk, Agent's office, Kanawha and Michigan Ry., Ganley Bridge, W. Va.; April to Oct., 1898, operator and clerk, same road, Cedar Grove, W. Va.; Oct., 1898, to July, 1905, Agent, same road, Cedar Grove, W. Va.; July, 1905, to June, 1908, Agent, same road, Athens, Ohio; June, 1908, to April, 1909, Agent, same road, Dickinson, W. Va.; April, 1909, to March, 1911, chief clerk to Traffic Manager, Algoma Central and Hudson Bay Ry., and Algoma Eastern Ry., Sault Ste. Marie, Ont.; March, 1911, to Jan., 1913, General Agent, same roads, Sault Ste. Marie, Ont.

J. W. EBER, who has been appointed General Manager, Toronto, Hamilton and Buffalo Ry., Hamilton, Ont., entered railway service in 1890, since when he has been, to 1902, rodman, draughtsman, transitman and Supervisor of Track, West Shore Rd.;

1902 to 1904, in charge of the Main Line Division, New York Central Lines, Albany, N.Y.; 1904 to 1905, Division Engineer, Rome, Watertown and Ogdensburg Division, New York Central Lines; 1905 to 1909, Assistant Engineer of Maintenance of Way and Engineer of Track, of the entire New York Central System, his territory covering nearly 4,000 miles of road; 1909 to 1910, Superintendent, New York Central Stockyards and Terminals, Buffalo, N.Y.; 1910 to May 14, 1912, Superintendent, Adirondack Division, New York Central Lines, Utica, N.Y.; May 14, 1912, to Jan. 1, 1913, General Superintendent, Toronto, Hamilton and Buffalo Ry., Hamilton, Ont.

M. B. DUBE, who has been appointed General Foreman in charge of Transcona shops, G.T. Pacific Ry., Transcona, Man., was born in Quebec, Que., Sept. 6, 1877, and entered railway service Sept., 1891, since when he has been, to 1893, messenger G.T.R., Gorham, N.H.; 1893 to 1902, in G.T.R. shops, Gorham, N.H.; 1902 to Jan. 31, 1904, in charge motive power and car department, Gorham shops; Jan. 31 to Apr., 1904, night foreman G.T.R. shops, Belleville, Ont.; Apr., 1904, to Jan. 1, 1907, in G.T.R. shops, Gorham, N.H.; Jan. 1 to Mar. 1, 1907, locomotive foreman G.T.R., Madawaska, Ont.; Mar. 1, 1907, to Apr. 20, 1908, locomotive foreman G.T.R., Coteau Jct., Que.; Apr. 20, 1908, to Dec. 22, 1909, locomotive foreman G.T.R., Island Pond, Vt.; Jan. 1 to Oct. 1, 1910, locomotive foreman G.T.P.R.; Oct. 1, 1910, to Feb. 4, 1911, locomotive foreman G.T.P.R., Graham, Ont.; Feb. 4, 1911, to Jan. 20, 1913, general foreman G.T.P.R., Rivers, Man.

H. M. GAIN, who has been appointed Trainmaster, Districts 6 and 7, Belleville Division, Ontario Lines, G.T.R., Belleville, was born at Lindsay, Ont., Mar. 21, 1879. He entered Canadian Express Co.'s service, Apr. 13, 1894, and was, to Oct., 1898, relieving agent and messenger, Port Harvey to Portland, Me.; Oct., 1898, to Apr., 1899, in general and executive offices same company, Montreal; Apr., 1899, to June, 1904, messenger, Portland, Me., to Richmond, Que., same company; June to July, 1904, acting route agent, same company, Montreal; July to Sept., 1904, assistant route agent, Quebec; Sept., 1904, to Feb., 1905, route agent, same company, Montreal; Mar., 1905, to Mar., 1910, route agent, same company, Richmond, Que.; Apr. to July 30, 1910, route agent, same company, Montreal; July 31, 1910, to Jan. 23, 1911, in G.T.R. passenger train service at Montreal; Jan. 23, 1911, to Jan. 20, 1913, Passenger Trainmaster, Eastern Division, G.T.R., Montreal.

J. McGILLIVRAY, who has been appointed General Manager, Inverness Ry. and Coal Co., Inverness, N.S., was born at Nairn, Scotland, Nov. 13, 1867, and entered railway service in 1887, since when he has been, to June, 1902, stenographer to Assistant Superintendent, C.P.R. lines between Port Arthur, Ont., and Winnipeg; secretary to General Superintendent Western Division, C.P.R.; secretary to Manager of C.P.R. lines west of Lake Superior; chief clerk and accountant to Superintendent C. P.R. Manitoba Division; chief clerk to Superintendent of Transportation, C.P.R., Winnipeg. In June, 1902, he left C.P.R. service with E. A. James, Superintendent of Transportation, and remained with him as chief clerk on his appointment as General Superintendent, and afterwards as Manager, Canadian Northern Ry., Winnipeg; July to Aug. 30, 1904, Trainmaster, C.N.R., Kamsack, Assa.; Aug. 30, 1904, to Dec. 16, 1912, Superintendent Inverness Ry. and Coal Co.'s railway lines, Inverness, N.S.

D. CROMBIE, who has been appointed General Superintendent of Transportation, G.T.R., Montreal, was born at Hamilton, Ont., May 13, 1864, and entered railway service in 1882, since when he has been, to 1887, telegraph operator G.T.R.; 1887 to 1889, ticket clerk same road, Chatham, Ont.; 1889 to 1890, train dispatcher same road, London, Ont.; 1890 to 1892, train dispatcher, Flint and Pere Marquette Rd., Saginaw, Mich.; 1892 to 1894, car distributor same road; 1894 to Jan. 1, 1900, Car Service Agent same road; Jan. 1, to July, 1900, Superintendent Car Service Pere Marquette Rd.; July, 1900 to 1903, Superintendent of Transportation same road, Detroit, Mich.; 1903 to Feb., 1907, engaged in commercial business; Feb. to Oct., 1907, Master of Transportation, G.T.R. Middle division, London, Ont.; Oct., 1907, to Nov. 22, 1910, Assistant to General Transportation Manager, G.T.R., Montreal; Nov. 22, 1910, to Jan. 14, 1913, Assistant to the Vice President (Transportation, Maintenance and Construction), Montreal.

A. WILCOX, who has been appointed General Superintendent, Central Division, Canadian Northern Ry., Winnipeg, was born at Kincardine, Ont., Jan. 2, 1865, and entered railway service in 1881, since when

J. W. Eber,
General Manager, Toronto, Hamilton and Buffalo Railway.

he has been, to 1883, successively, operator, ticket and freight clerk, Toronto, Grey and Bruce Ry., Owen Sound, Ont.; 1883 to 1887, operator and agent at various points, and relieving dispatcher, C.P.R., Winnipeg; 1887 to 1890, train dispatcher, C.P.R., Moose Jaw, Sask.; 1903, Chief Dispatcher, C.P.R., Cranbrook, B.C.; July, 1903, to July, 1904, Chief Dispatcher, Canadian Northern Ry., Port Arthur, Ont.; July, 1904, to Jan., 1908, Superintendent, District 2, C.N.R., Winnipeg; Jan., 1908, to May, 1909, Superintendent, District 1, C.N.R., Port Arthur, Ont.; May to Nov., 1909, Superintendent, District 3, C.N.R., Dauphin, Man.; Nov., 1909, to Nov. 1, 1911, Superintendent, District 1, C.N.R., Port Arthur, Ont.; Nov. 1, to Dec. 1, 1911, Assistant General Superintendent, C.N.R., Winnipeg; Dec. 1, 1911, to Dec. 30, 1912, General Superintendent, Western Division, C.N.R., Edmonton, Alta.

GRANT HALL, whose appointment as General Manager, Western Lines, C.P.R., Winnipeg, and portrait appeared in our last issue, was born at Montreal, Nov. 27, 1863, and entered railway service as an apprentice in the G.T.R. shops, Montreal. He has been, from Mar. to July, 1888, Master Mechanic, International Ry., Sherbrooke, Que.; Aug., 1888, to June, 1889, Locomotive Foreman, C.P.R., Megantic, Que.; July, 1889, to March, 1890, Locomotive Foreman, C.P. R., Brownville Jct., Me.; Apr., 1890, to Feb., 1893, Locomotive Foreman, C.P.R., Windsor St., Montreal; Mar., 1893, to Aug., 1898, General Foreman, Intercolonial Ry., Moncton, N.B.; Sept. to Dec., 1898, Locomotive Foreman, C.P.R., Windsor St., Montreal; Jan., 1899, to Jan., 1901, General Foreman, C.P.R., McAdam Jct., N.B.; Feb. to June, 1901, General Foreman, C.P.R., Winnipeg; July, 1901, to Nov., 1902, Master Mechanic, Pacific Division, C.P.R., Revelstoke, B.C.; Dec., 1902, to Feb., 1904, Assistant Superintendent of Rolling Stock, C.P.R., Montreal; Mar. to Sept., 1904, Assistant Superintendent of Motive Power, C.P.R., Montreal; Oct., 1904, to Jan., 1908, Assistant Superintendent of Motive Power, C.P.R., Winnipeg; Jan., 1908, to Oct., 1911, Superintendent of Motive Power, C.P.R., Winnipeg; Oct., 1911, to Dec. 24, 1912, Assistant General Manager, Western Lines, C.P.R., Winnipeg.

Traffic Orders by the Board of Railway Commissioners.

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

Crushed Stone Rates.

18449. Jan. 7. Re application of Power City Stone Company, Niagara Falls, Ont., complaining of change proposed by Michigan Central Rd. in routing of crushed stone from the applicant's quarry, near St. Davids, Ont., to Toronto, under Supplement 10 to Local and Joint Commodity Tariff, C.R.C. 1743; and applying for an order disallowing or suspending the said change. It is ordered that the said supplement be disallowed; and the M.C.R. and the G.T.R. are directed to continue the joint special commodity rate of 60 cents per ton of 2,000 lbs. on crushed stone in carloads of the minimum weight of 30 net tons from St. Davids to Toronto, via Niagara Falls, Ont., the said rate to be apportioned 20 cents to the M.C.R. and 40 cents to the G.T.R., unless the companies mutually agree to apportion otherwise.

Rates on Rice, etc., from Vancouver.

18251. Nov. 29. Re application of the Imperial Rice Milling Co., Vancouver, B.C., for reductions from present freight rates on rice and broken rice (or brewers' grits. from Vancouver to points east of and including Calgary, Alta., to Winnipeg, inclusive. The application is dismissed.

Rates Between Kronau and Lajord, Sask.

18343. Dec. 13. Re complaint of J. B. McCugan, of Kronau, Sask., alleging discrimination in freight rates between the towns of Kronau and Lajord on the C.P.R. Arcola line. It is ordered that the complaint be dismissed, without prejudice to complainant's right to re-open the matter upon giving proper notice to the Board and the railway company.

Return Tickets on Great Northern Railway.

18376. Dec. 24. Re complaint of Fruitvale Conservative Association of Fruitvale, B.C., complaining that as no agent is maintained at Fruitville by the Great Northern Ry., the residents have been unable to get the benefit of a cheaper rate by purchasing return tickets. It is ordered that the G.N.R. Co. arrange within 30 days from date for the sale on its trains of return tickets to passengers from points at which no agents are maintained.

G.T.P.R. Freight Tariff.

18393. Dec. 23. Re application of Grand Trunk Pacific Ry., under section 327 of the Railway Act, for approval of its Standard Freight Mileage Tariff, C.R.C. 13, cancelling C.R.C. 11, to apply between stations in British Columbia, Prince Rupert to New Hazelton, inclusive. It is ordered that the company's said tariff be temporarily approved, pending result of enquiry by Board into rates charged generally by railways west of and including Crowsnest, Canmore, and Thornton.

Interswitching at Orillia, Ont.

18454. Dec. 31. Re application of Board of Trade of Orillia, Ont., it is ordered that the Grand Trunk Ry. and the Canadian Pacific Ry. at Orillia be so connected as to provide for the reasonable receiving, forwarding, delivering, and interswitching of traffic between their respective railways; the railway companies to file, within sixty days from date, a plan showing the proposed connection and interchange tracks; and, in the event of the companies failing to agree upon a point of connection, the same to be fixed by the Board's Chief Operating Officer.

Coal Rates from Detroit, Mich.

18464. Jan. 14. Re application on behalf of the Windsor, Walkerville and Sandwich Boards of Trade, protesting against increased rate on coal from Detroit, Mich., to Windsor and Walkerville, Ont. It is ordered that the G.T.R. and the Wabash Rd. forthwith file with the Board tariffs restoring the rate on coal, in carloads, from Detroit to Windsor and Walkerville, which was in effect prior to the publication and filing of Supplement 11 to the G.T.R. Tariff C.R.C. no. W.113 (I.C.C. no. A.1143), and Tariff C.R.C. 656 (I.C.C. no. 3138) of Wabash Rd., and cancelling the rate of 40 cents a net ton shown therein, pending hearing on a date to be fixed by Board.

Railway Finance, Meetings, Etc.

Canadian Northern Ry.—Application is being made to the Dominion Parliament to define and increase the company's bonding powers.

Dominion Atlantic Ry.—Estimated earnings for Nov.: —Passenger, $46,150.65; freight, $64,844.19; gross, $110,994.84; for December:—Passenger, $37,743.07; freight, $43,341.22; gross, $81,084.29.

Georgian Bay and Seaboard Ry.— An agreement between the company and the C.P.R., increasing the rental payable by the latter, under the original agreement of Jan. 3, 1910, has been deposited with the Secretary of State at Ottawa. There has also been deposited a duplicate of a mortgage dated Oct. 3, 1912, made between the company, the Royal Trust Co., and the C.P.R.

Grand Trunk Pacific Branch Lines Co.— The G.T.R. Co. issued a prospectus in London, England, Jan. 10, offering £240,700 four per cent. first mortgage sterling bonds of the Grand Trunk Pacific Branch Lines Co., due 1939, principal and interest unconditionally guaranteed by the Saskatchewan Government, also £238,600 similar bonds due 1942, principal and interest unconditionally guaranteed by the Alberta Government. The issue price was 94. The proceeds are to be applied in building the following branch lines:—Extension of Biggar-Calgary branch, Sask., 54 miles; extension of Biggar-Battleford branch, Sask., 3.2 miles; extension of Prince Albert branch, Sask., 1.5 miles; extension of Yorkton-Canora branch, 31.3 miles; Alberta Coal branch from Bickerdike, Alta., southerly and westerly for 58 miles. A London cablegram of Jan. 16 states that 75% of the issues was taken up by the underwriters.

Grand Trunk Pacific Branch Lines.—A second supplementary instrument, dated July 31, 1912, to the original trust deed dated June 24, 1909, made between the company, the Royal Trust Co., and the Province of Saskatchewan, securing a further issue of 4% first mortgage sterling bonds, has been filed with the Secretary of State at Ottawa.

Grand Trunk Ry.—There has been deposited with the Secretary of State at Ottawa, copy of agreement of conditional sale between Blair & Co., the G.T.R. and the Bankers' Trust Co., series B., dated Nov. 1, 1912.

London and Port Stanley Ry.—At a meeting of directors Jan. 20, it was decided to ask all interests desirous of putting in bids for the lease of the line, to send in their offers by Feb. 15.

New York Central Rd.—Michigan Central Rd.—A supplemental agreement made between these railways, and other lines in the United States, dated Oct. 1, 1912, has been deposited with the Secretary of State at Ottawa. The N.Y.C. and H.R. Rd. owns the Ottawa and New York Ry., and shares with the C.P.R. the ownership of the Toronto, Hamilton and Buffalo Ry., while the Michigan Central Rd. owns the Canada Southern Ry.

St. Marys and Western Ontario Ry.—A duplicate of a mortgage entered into between the company, the Royal Trust Co., and the C.P.R., has been filed with the Secretary of State at Ottawa.

Temiscouata Ry.—Net earnings for Oct., 1912, $1,399. Aggregate net earnings for four months ended Oct. 31, $22,265.

Victoria and Sidney Ry.—After three months consideration, and several conferences with Great Northern Ry. officers, the Victoria, B.C., City Council has unanimously decided not to accept the company's offer to pay $60,000 in full settlement of the claims of the city and the provincial government for interest paid under the guarantee of the V. and S. Ry. bonds. The company offered $36,000 to the city and $24,000 to the Government and to assume all further liability on the $300,000 of bonds, which have still five years to run. The city expressed its willingness to accept $100,000 in full settlement. The line, according to the auditors, is not paying operating expenses and fixed charges, and the G.N. Ry. officials state that an immediate expenditure of $105,000 is necessary for betterments. The company informed the city council Dec. 30, that it will not increase its offer beyond the amount already named and will not consider the city's proposition. The city council is considering the desirability of taking legal proceedings.

Eastern Canadian Passenger Agents' Association.

At a meeting in Montreal, Jan. 7, the following officers, etc., were elected for the current year:—

Chairman:—G. C. Martin, G.F. & P.A., Toronto, Hamilton & Buffalo Ry.

Executive Committee:—T. Henry, T. M. Richelieu & Ontario Navigation Co.; W. Stitt, G.P.A., Canadian Pacific Ry.; H. G. Elliott, G.P.A., Grand Trunk Ry.

Rules Committee:—W. Stitt, H. G. Elliott, R. L. Fairbairn, G.P.A., Canadian Northern Ry.; J. W. Hanley, G.P.A., Central Vermont Ry; F. T. Grant, A.G.P.A., Boston & Maine Rd.; N. Mooney, G.A.P.D., New York Central Lines; W. H. Underwood, A.G.P.A., Michigan Central Rd.; J. M. Lyons, G.P.A., Intercolonial Ry.; A. J. Parr, G.F. & P.A., Timiskaming & Northern Ontario Ry.

Canadian Ticket Agents' Association.

At a meeting of the executive committee in Toronto, Jan. 21, it was decided to hold the annual meeting at Cleveland, Ohio, on Oct. 8 next. The Hollenden Hotel will be the headquarters.

W. McIlroy, City Ticket Agent, C.P.R., Hamilton; W. Jackson, City Ticket Agent, C.P.R., Clinton; and J. A. McKenzie, City Ticket Agent, G.T.R., Woodstock, Ont., were appointed a committee to visit Cleveland in August to make arrangements in connection with the entertainment of the party, etc.

C. E. Horning, City Ticket Agent, G.T.R., Toronto, was appointed the Association's delegate to attend the American Association of General Passenger and Ticket Agents' annual meeting.

Railway Route Maps Approved.

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

EDMONTON, DUNVEGAN AND BRITish Columbia Ry., Dec. 7, 1912; revision in tps. 62-70, r. 27, west of 4th meridian, and rgs. 1 and 2, west of 5th meridian, about 50 miles.

HUDSON BAY, PEACE RIVER AND Pacific Ry., Dec. 18, 1912; from near Winnipeg, towards Port Nelson, 7½ miles, at crossing of Winnipeg river.

Sharp Flange Wheels on Locomotives and Tenders.

The Board of Railway Commissioners has issued the following circular:—"The Board's inspectors are reporting quite a number of locomotives in service with sharp flanges on wheels of both locomotives and tenders, flanges in many instances being worn down to and below the M.C.B. standard allowance gauge. Some of these locomotives are running on fast passenger trains; and while it is expected that freight cars may sometimes be found with flanges of wheels in the condition described above, it does not seem reasonable or safe to allow locomotives in service with wheel flanges worn so badly that they would not be accepted on cars at interchange points. The Board therefore urges upon you the importance of issuing to those in charge of motive power on your lines such instructions as will ensure change of wheels before flanges are so badly worn as to come under the M.C.B. standard defect gauge."

Great Northern Railway Lines in Canada.

Midland Ry. of Manitoba.—Application is being made to the Manitoba Legislature to extend the time for the building of the various lines authorized for a further period of five years.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—Guthrie, McDougall and Co., who have the contract for a 50 mile extension westerly from Princeton, B.C., are reported to have sublet a portion of the work to Werdenhoff and Jacobson, St. Paul, Minn.

Press reports state that the question of building a double track line eight miles long, up the west fork of the Otter river to Otter Summit, is under consideration.

Victoria and Sidney Ry.—The British Columbia Government issued an order Jan. 2 directing the company to make considerable betterments on its line in Victoria during the next 12 months. (Jan., pg. 30.)

Canadian Pacific Railway Lets Contracts for Building Over 800 Miles on the Western Lines.

A press dispatch from Winnipeg, Jan. 18, states that the C.P.R. has let contracts for the building of 526 miles of new branch lines, and 317 miles of second track on the transcontinental line, and adds that the firms to which these contracts have been let will not consider them binding until they have been formally ratified by the President.

The transcontinental line now has at present second track from Port Arthur, Ont., to Brandon, Man, 556 miles. The contracts now let start at Kemnay, 12 miles west of Brandon, and the first two cover the distance to Regina, 217 miles. The contract for the first section from Kemnay to Virden, 40 miles—is reported let to J. D. McArthur, and the second section from Virden to Regina, 177 miles, is reported let to Foley, Welch and Stewart. A second track is already in operation from Regina to Chaplin, Sask., 96 miles. The third section for which a contract for second track construction is reported let, extends from Chaplin to Juava, 60 miles, the contract being let to Janse Bros., Boomer and Hughes. Juava is a short distance west of Swift Current, near the point at which the Swift Current-Bassano line diverges from the present transcontinental line. The fourth section of the second track work to be put under contract is from Gleichen to Shepard, Alta., 40 miles. Gleichen is about nine miles west of Bassano, where the cut off from Swift Current joins the present transcontinental line. The contract for this section is reported let to Foley, Welch and Stewart.

There are ten contracts reported let for extensions to existing lines covering altogether 586 miles. This mileage includes the following:—

Extension of Winnipeg Beach and Gimli branch in Manitoba, from the present terminus at Gimli, to Rivertown, 40 miles, let to Foley, Welch and Stewart.

There is a line from Wood Bay on the Winnipeg, Deloraine and Lyleton branch, south easterly through Snowflake to Windygates, Man. A contract has been let to J. D. McArthur for the building of a branch of nine miles south westerly from Snowflake, parallel with the International Boundary.

The extension of the line from Weyburn, Sask., to Lethbridge, Alta., is in operation to Viceroy, Sask., and under contract for some distance further. A contract has been let to Foley, Welch and Stewart, and E. Peterson, of Omaha, Neb., for the building of a further section of 145 miles. While this line is called the Weyburn-Lethbridge line, it is to connect with the Alberta Ry. and Irrigation Co.'s line near Stirling, Alta. A branch line is under construction easterly from Stirling, and a contract for a further distance of 20 miles has been let to Geo. Webster. These mileages, with the work already under contract, will complete the line.

The branch line running north westerly from Moose Jaw, Sask., passes through Milden, Anglia and Kerrobert, and connects with the extension of the Manitoba and Northwestern Ry., and the extension of the Wetaskiwin branch of the Calgary and Edmonton Ry. at Macklin, Sask. A contract has been let to Janse Bros., Boomer and Hughes, for the building of a line from Milden to Empress, 126 miles. A second contract has been let to the firm for the extension of this line from Empress to Bassano, Alta., 118 miles. What is referred to as the Swift Current-Bassano cut off is in operation from Swift Current to Cabri, Sask., 41 miles, and is under construction for some miles further. It would therefore appear that the present construction will connect up at Empress with the line now put under contract from Milden, and so complete the Swift Current-Bassano line, and a further connection with the north at Milden.

A branch line was started three years ago from Wilkie, on which one section west of Tramping Lake has been completed to Kerrobert, and a second section east of Tramping Lake has been completed to Kalfield. A contract has now been let to Geo. Webster for building a line from Anglia northerly for 30 miles, which will connect with the branch east of Tramping Lake.

A contract has been let to Janse Bros., Boomer and Hughes for a line from Kerrobert, Sask., 60 miles, westerly to a junction with the extension of the Lacombe branch of the Calgary and Edmonton Ry., which is in operation to Coronation, and is under construction for some distance further east.

A contract has also been let to Janse Bros., Boomer and Hughes, for a line northerly from Coronation, Alta., for 24 miles.

A line is being built from Suffield, Alta., southwesterly, of which about 57 miles are under construction, and on which about 26 miles of track were laid in 1912. This carries the branch to near Ritlaw, from which point a branch is to be built northerly, the contract for which has been let to Geo. Webster.

The contracts for the new lines call for the completion of the several works during this year. All the work is said to be average prairie construction, with the exception of the extension from Gimli, Man., on which there is considerable rock work. It is estimated that the contracts let to Janse Bros., Boomer and Hughes call for the shifting of 16,000 cubic yards of material; the Foley, Welch and Stewart contracts, 4,000,000 cubic yards, and the other contractors have to shift about 2,000,000 cubic yards between them.

Official Announcement of New Works.

The following official announcement was made Jan. 24, after the foregoing matter had been put in type:—

The annual appropriations for the Western Lines have been engaging the attention of Sir Thos. Shaughnessy for the past two days. The appropriations had all been passed upon by George Bury, Vice President, prior to his departure from Winnipeg for Japan on six weeks holiday, and were placed before the President by Grant Hall, General Manager Western Lines.

The policy of Mr. Bury, concurred in by the President, is that the terminals shall be increased and the main line double tracked to such an extent that they can care for the present traffic and for a reasonable prospective increase. On the building of branch lines Mr. Bury has also a distinctive policy. Early in the year he told a delegation that waited on him, asking that the C.P.R. build a branch line into a city already supplied with one railway, that he considered it a far more constructive policy to build branch lines into territory fairly well settled, but not served by a railway, than to build into places where all requirements of transportation are fairly well met. Mr. Bury considers that every farmer who is given an advantage over what he now possesses in placing his products on the market is adding an asset to the country. To reach the farmer who now has to haul his products beyond what is considered a reasonable distance, to enable him to compete with one who has been in the country a much longer period, is, Mr. Bury thinks, doing something that will encourage the man who is on the ground as well as the man who contemplates coming.

Last year there was put in operation in the West by the C.P.R. about 450 miles of new line. In addition to the new lines placed in operation the great bridge at Outlook, Sask., was finished, thus completing a practically new line from Moose Jaw to Edmonton. The Outlook bridge is over 3,000 feet long. The big Ogden shops at Calgary are enclosed and steps are being taken to put them in operation. It is estimated that the population of the Calgary district will be increased by 10,000 by the opening of these shops. The high level bridge at Edmonton is 75% completed and will connect the two sections of the city for both railway and highway traffic. At Fort William, Ont., the company has completed a 1,000,000 ton coal handling plant and bridges across the river at that place are nearing completion, thus placing the terminal there in position to care for the immense traffic now coming out of the West. On the Pacific coast the terminal station at Vancouver will be one of the best on the continent, and on the British Columbia division the double tracking is going steadily ahead, the rock ballasting through that section being one of the most permanent in track building that has ever been accomplished. Add to all these improvements the building of the yards at North Transcona, near Winnipeg, to care for 12,000 cars, some of the immensity of the work accomplished and in contemplation on Western lines can be gleaned.

The improvements on the Western lines will include: Fort William, six stall addition to locomotive house, increase of storage capacity of elevator to 4,000,000 bushels, and increase of size of freight car repair shops. Kenora, six stall addition to locomotive house. Minnedosa, Man., five stall addition to locomotive house. Arcola, Sask., four stall addition to locomotive house. Additional trackage at Regina, Moose Jaw, Saskatoon and Sutherland, Sask. Sicamous, B.C., additional trackage facilities. Vancouver, complete new terminal station and wharf, additional trackage at False Creek yards.

New branch lines: Kootenay Central, Skookumchuck, B.C., to mileage 60; Coronation to Sedgwiek, Alta., 25 miles; Kootenay Central, mileage 42 to mileage 60, south of Golden, B.C.; standardization of Kaslo and Slocan Ry. from Whitewater to Kaslo, B.C., 17 miles; Snowflake, Man., west, 9 miles; Lacombe, Alta., east to Kerrobert, Sask., 66 miles; Stirling, Alta., east, 25 miles; Suffield, Alta., southwest, 25 miles; Weyburn, Sask., west, 145 miles; Assiniboia, first division point west of Weyburn, new yard; Bassano, Alta., to Empress, 118 miles; Gimli to Tiverton, Man., 26 miles.

New second track: Kemnay to Virden, Man., 40 miles; Whitewood to Broadview, Sask., 15 miles; Broadview to Grenfel, Sask., 16 miles; Indian Head to Regina, Sask., 44 miles; Chaplin to Swift Current, Sask., 57 miles; Swift Current to junction point with Swift Current northwest branch, 6 miles; Gleichen to Shepard, Alta., 40 miles. In addition to the above double tracking there will be 81 miles of double track in British Columbia from Vancouver to Ruby Creek. A portion of this, between Vancouver and New Westminster Jct., is already in operation. The balance to Ruby Creek will be completed this year. The terminal at North Transcona will be

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TORONTO, CANADA, FEBRUARY, 1913.

PRINCIPAL CONTENTS.

further developed during the year to provide for increased traffic both east and west.

Other works include additional trackage at Dunmore and Calgary, Alta., automatic block signals between Ogden and Sunalta, Alta. Passenger coach house with ice house, coal shed, etc. Alyth, Alta., six stall addition to locomotive house. Strathcona, Alta., increased trackage facilities, overhead bridge at Anthony St. Edmonton, increased trackage facilities. Wetaskiwin, Alta., increased trackage facilities and extension to express room. Lacombe, Alta., two stall addition to locomotive house and 50 ft. addition to freight shed.

British Columbia coast service, new tug boat for car barge between Vancouver and Vancouver Island, lengthen Princess Mary by 40 ft., increase stateroom capacity from 60 to 80, and instal Princess Sophia with fuel oil apparatus. British Columbia lake and river steamboats: new steam tug for Okanagan Lake, eight car barge for Okanagan Lake, eight car barge for Arrow Lake, 15 car barge for Kootenay Lake, deck barge for Kootenay Lake, steel hull steamboat for Okanagan Lake.

In addition to new work of constructing branch lines and double tracking many of the lines now in operation will be improved and laid with heavier steel, roadbed improved and additions made to smaller stations and general improvement to yards and passing tracks. Altogether it will be one of the busiest years the C.P.R. has ever had in building and improving the system. The new lines to be built total 532 miles; miles of double track, 260.

Railway Lands Patented.—Letters patent were issued during Nov., 1912, in respect of railway lands in Manitoba, Saskatchewan and Alberta, as follows:

	Acres.
Canadian Northern Ry	800.00
Canadian Pacific Ry. roadbed and station grounds	3.06
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.	1,782.72
Total	2,585.78

G.T.P.R. Winnipeg-Fort William Service.—It is said that the G.T. Pacific Ry. contemplates putting on a regular passenger service between Winnipeg and Fort William in the spring, but no definite announcement has been made. When this service is put on it is expected that the trains will be run into the new Union Station built by the C.P.R. at Fort William, and that the Superintendent's office will be moved from the present quarters to the Union Station.

Reduction of Steel Rails Duty.—The Minister of Customs stated in the House of Commons, Jan. 20, that orders in council had been passed during 1912 remitting $294,000 duty on 75,000 gross tons of steel rails imported into Canada, and supplied by the Algoma Steel Co., in fulfilment of contracts with the G.T. Pacific Ry. and the C.P.R. The amount remitted was one half of the duty authorized to be levied.

White Pass and Yukon Route Rates to Dawson.—In the case of the Humboldt Steamship Co. vs. White Pass and Yukon Route, consisting of Pacific and Arctic Ry. and Nav. Co., British Columbia-Yukon Ry. Co., British-Yukon Ry. Co., and British-Yukon Navigation Co., which was a petition for the establishment of through routes and joint rates from Seattle, Wash., to Dawson, and to other points in Canadian territory, the U.S. Interstate Commerce Commission held recently that it has no jurisdiction of railway and steamship lines located, owned and operated entirely in an adjacent foreign country; and that the wharf used by defendants at Skagway, Alaska, is an instrumentality of interstate commerce used by defendants.

The Dominion Government Railway to Hudson Bay.

An Ottawa dispatch Jan. 2, says H. T. Hazen, the engineer in charge of surveys, was expected in Ottawa at the end of January. His work has been the preparation of plans for terminals at Port Nelson, particularly the harbor terminals.

It was reported in Winnipeg Jan. 9, that the bridge over the Saskatchewan River at Pas, Man., for which Mackenzie, Mann and Co. are the contractors, was about half erected, and that good progress was being made with the grading by J. D. McArthur, the general contractor for the line.

An order in council has been issued withdrawing a half mile strip on either side of the line from Pas to Port Nelson from sale and reserving it for the railway's purposes. (Jan., pg. 30.)

Railway Equipment Requirements.—The Board of Railway Commissioners, at its sitting in Ottawa, Feb. 4, will consider the question of requiring railway companies, subject to its jurisdiction, to put into use truck and body bolster locking device which will hold the body of the car to the trucks, or passenger equipment, in case of derailment, head on or rear end collision. The Board will also consider the question of standardizing safety appliance equipment, similar to the requirements of the Interstate Commerce Commission.

Freight Rates on Potatoes, Etc.—In the matter of the investigation and suspension of advances in rates by carriers for the transportation of potatoes and other perishable freight in heater cars between points in Trunk Line Territory and Canada, the U.S. Interstate Commerce Commission held recently in the case of Boston Potato Receivers' Association vs. Bangor and Aroostook Rd. Co., that the proposed heater tariffs under suspension were just and reasonable and should be allowed to take effect when the reconsignment provisions therein have been modified in accordance with the views expressed by the Commission report, and subject to the limitation that no charge should be made for the use of a heater car unless ordered by the shipper, or unless the fires are lighted.

The Michigan Central Rd. has given a 99 year lease of a site in St. Thomas, Ont., conditional on a $50,000 building being erected thereon by the local Y.M.C.A.

The Quebec Legislature has passed an act creating the district of Ungava, recently granted to the Province by the Dominion, a territory to be called New Quebec.

The Department of Railways and Canals has under consideration tenders for the supply of 765,000 tons of bituminous coal for the Intercolonial Ry., and 15,500 tons for the Prince Edward Island Ry.

At the recent session of the Quebec Legislature some amendments were made in the course of procedure for the liquidation of railway companies. The law is not to become operative until 1914, and is not to be applied to any liquidation proceedings pending.

The Canadian Manufacturers' Association is considering the question of the adoption of special boxes and nails to prevent pilfering of goods in transit on railways. The executive committee of the Association has passed a resolution requesting the Board of Railway Commissioners to introduce a system of uniform penalties against railways for failure to receive, carry and deliver freight within a reasonable time, on a similar basis to that adopted under the car demurrage rules.

Transportation Appointments Throughout Canada.

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

Algoma Central and Hudson Bay Ry., Algoma Eastern Ry. H. J. HERROLD, heretofore General Agent, has been appointed General Freight and Passenger Agent. Office, Sault Ste. Marie, Ont. The position of General Agent has been abolished.

Algoma Central Steamship Line.—S. V. McLEOD has been appointed Superintendent, vice J. E. McLurg, reported to have been appointed Superintendent of Sales, Algoma Steel Corporation. Office, Sault Ste. Marie, Ont.

Canadian Northern Quebec Ry., Quebec and Lake St. John Ry.—A. S. BUCKLE, heretofore chief clerk, Claims Department, has been appointed City Freight and Passenger Agent, Quebec, vice W. W. Johnston, resigned.

Canadian Northern Ry.—A. E. WARREN, heretofore General Superintendent, Central Division, Winnipeg, has been appointed Assistant to the General Manager. Office, Winnipeg.

A. WILCOX, heretofore General Superintendent, Western Division, Edmonton, Alta., has been appointed General Superintendent, Central Division, vice A. E. Warren, promoted. Office, Winnipeg.

A. E. MACDONALD, heretofore Special Agent, has been appointed General Claim Agent. Office, Winnipeg.

B. T. CHAPPELL, heretofore Trainmaster, District 3, Western Division, North Battleford, Sask., has been appointed Superintendent, District 2, Western Division, vice J. G. Entwistle, transferred. Office, Saskatoon, Sask.

W. C. TURNER, heretofore Yardmaster, Saskatoon, Sask., has been appointed Trainmaster, District 2, Western Division, vice F. W. Ross, transferred. Office, Saskatoon, Sask.

W. A. BROWN, heretofore Superintendent, District 3, Western Division, Edmonton, Alta., has been appointed General Superintendent, Western Division, vice A. Wilcox, transferred. Office, Edmonton, Alta.

J. G. ENTWISTLE, heretofore Superintendent, District 2, Western Division, Saskatoon, Sask., has been appointed Superintendent, District 3, Western Division, vice W. A. Brown, promoted. Office, Edmonton, Alta.

F. W. ROSS, heretofore Trainmaster, District 2, Western Division, Saskatoon, Sask, has been appointed Trainmaster, District 3, Western Division, vice B. T. Chappell, promoted. Office, Edmonton, Alta.

Canadian Pacific Ry.—The President, Sir Thos. Shaughnessy, issued a circular, Jan. 15, as follows,—"It has been decided to create a Department of Investigation, in charge of RUFUS G. CHAMBERLIN, whose title will be Chief of the Department of Investigation, with office at Windsor St. Station, Montreal. Hereafter all enquiries or investigations, excepting those involving the relations between officials and employes, and those which must necessarily be conducted through the Audit Department, will be under the control and supervision of the Chief of the Department of Investigation, who will report to the President. He will have such assistants on the different sections of the system as may be necessary to enable him to perform his work effieiently." Mr. Chamberlin was until recently Chief of Police at Vancouver, B.C.

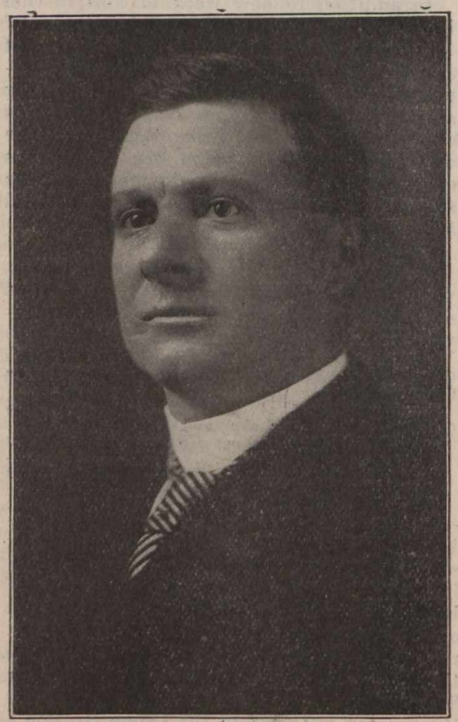
W. A. COWAN, heretofore Assistant Engineer, Montreal, has been appointed acting Superintendent, Distric 1, Atlantic Division, vice H. C. Grout, Superintendent, promoted. Office, Brownville Jct., Me.

A. C. BRADY, heretofore Inspector of Montreal Terminals, has been appointed Assistant Superintendent Montreal Terminals, vice J. B. Smith, transferred to office of General Manager, Eastern Lines, Montreal.

M. A. FULLINGTON, heretofore Resident Engineer, Dominion Atlantic Ry., Kentville, N.S., has been appointed Assistant Division Engineer, Eastern Division, vice S. B. McConnell, promoted to Assistant Engineer. Office, Montreal.

N. E. GUTELIUS, heretofore senior transitman, London, Ont., has been appointed Resident Engineer, District 2, Eastern Division, vice C. C. Kirby, promoted to Assistant Chief Engineer's office. Office, Montreal.

T. COLLINS, Superintendent, L. L. ROSS, Bridge and Building Master, W.



A. Wilcox,
General Superintendent, Central Division, Canadian Northern Railway.

TANSLEY, Assistant Superintendent, and M. HUNT, Chief Dispatcher, District 1, Ontario Division, have had their jurisdiction extended over the Kingston and Pembroke Ry., which is being operated as part of that district. The offices of the first two are at Toronto, and those of the other two at Havelock.

F. CONWAY, heretofore acting Superintendent and General Freight and Passenger Agent, Kingston and Pembroke Ry., Kingston, Ont., has been appointed City Freight and Passenger Agent, C.P.R., there.

J. ERWIN, heretofore Roadmaster, Kingston and Pembroke Ry., Kingston, Ont., has been appointed Roadmaster, Kingston Subdivision, C.P.R., at Kingston, Ont.

F. CLARK, heretofore dispatcher, Kingston and Pembroke Ry., Kingston, Ont., has been appointed dispatcher, Kingston Subdivision, C.P.R., at Kingston, Ont.

W. J. PICKRELL, heretofore District Master Mechanic, District 4, Ontario Division, Toronto, has been appointed District Master Mechanic, District 3, Ontario Division, vice J. R. Spragge, retired. Office, Toronto.

C. W. BURPEE, formerly Superintendent, District 1, Ontario Division, Toronto, who has been on sick leave for some time, has resigned.

The circular appointing GRANT HALL General Manager, Western Lines, as announced in our last issue, states that he will be in charge of maintenance and operation, with office at Winnipeg.

C. B. FOSTER, General Passenger Agent, Winnipeg, has had his territory rearranged, his jurisdiction now covering Manitoba, Saskachewan, and Alberta Divisions, and Field B.C., the territory west of Kootenay Landing and Field, and east of Revelstoke, heretofore under his jurisdiction, having been transferred to the British Columbia Division.

R. M. MITCHELL has been appointed Right of Way Agent. Office, Winnipeg.

C. PERRY, heretofore fitter at Winnipeg, has been appointed Shop Foreman at Brandon, Man., vice R. McPherson, promoted.

J. P. McANANY, heretofore District Master Mechanic, District 1, British Columbia Division, Revelstoke, has been appointed District Master Mechanic, District 2, Saskatchewan Division, vice G. Whiteley, Office, Moose Jaw.

R. McPHERSON, heretofore Shop Foreman at Brandon, Man, has been appointed Shop Foreman at Moose Jaw, Sask., vice W. J. Renix, promoted.

W. J. RENIX, heretofore Shop Foreman, Moose Jaw, Sask., has been appointed Locomotive Foreman, Sutherland, Sask., vice A. McArthur, promoted.

W. H. LEE has been appointed Locomotive Foreman, Weyburn, Sask., vice P. Walz, resigned.

R. C. HARRIS, heretofore Resident Engineer, District 1, Alberta Division, Medicine Hat, has been appointed Resident Engineer of Terminals at Calgary, Alta.

J. ROBERTSON, heretofore Resident Engineer, District 3, Alberta Division, Cranbrook, B.C., has been appointed Resident Engineer, District 2, Alberta Division, vice T. J. Brown, transferred to Cranbrook. Office, Calgary, Alta.

R. J. BETHUNE has been appointed Resident Engineer in charge of the high level bridge between Strathcona and Edmonton, and of terminal work at Edmonton. Office, Edmonton, Alta.

J. H. SOANS, heretofore transitman, has been appointed Resident Engineer, District 1, Alberta Division, vice R. C. Harris, transferred. Office, Medicine Hat.

J. ALEXANDER has been appointed Locomotive Foreman at Hardisty, Alta., vice E. B. Patterson, resigned.

M. J. SCOTT, heretofore District Master Mechanic, Nelson, B.C., has been appointed District Master Mechanic, District 1, British Columbia Division, vice J. P. McAnany, transferred. Office, Revelstoke.

A. McARTHUR, heretofore Locomotive Foreman, Sutherland, Sask., has been appointed General Foreman, Revelstoke, B.C., vice A. Mallinson, promoted.

J. HOPGOOD has been appointed Trainmaster, District 1, British Columbia Division, vice J. M. McKay, promoted. Office, Revelstoke.

A. W. CLARK has been appointed Locomotive Foreman at Kamloops, B.C.

A. E. BENNETT has been appointed Locomotive Foreman at Eholt, B.C.

T. J. BROWN, heretofore Resident Engineer, District 2, Alberta Division, Calgary, has been appointed Resident Engineer, District 3, Alberta Division, vice J. Robertson, transferred to Calgary. Office, Cranbrook, B.C.

A. MALLINSON, heretofore General Foreman, Revelstoke, B.C., has been appointed District Master Mechanic, Nelson, B.C., vice M. J. Scott, transferred.

H. W. BRODIE, General Passenger Agent, Vancouver, B.C., has had his territory extended to cover the British Columbia Division, with the exception of Field, the additional territory being the lines west of Kootenay Landing and Field.

Central Vermont Ry.—E. J. CHAMBERLIN, President, G.T.R., G.T. Pacific Ry., and subsidiary companies, and Chairman of the Board, C.V.R., has also been elected President, C.V.R., vice E. H. Fitzhugh, resigned.

Dominion Atlantic Ry.—G. G. HARE, heretofore Engineer of Construction, has been appointed Engineer, vice M. A. Fullington, retransferred to C.P.R. service. The duties of the former position will be combined with those of the latter. Office, Kentville, N.S.

Fort Garry Union Station, Winnipeg.—P. J. FLYNN, heretofore Trainmaster, Buffalo Division, Lehigh Valley Rd., Buffalo, N.Y., has been appointed Manager of Terminals, Winnipeg Joint Terminals, Canadian Northern, G.T. Pacific and National Transcontinental Rys., vice J. A. Glassford, resigned.

Grand Trunk Pacific Ry.—G. W. ROBB, Master Mechanic, has had his office removed from Rivers to Transcona, Man.

M. B. DUBE, heretofore General Foreman, Rivers, Man., has been appointed General Foreman, Transcona Shops. Office, Transcona, Man.

H. HULATT has been appointed Commercial and Traffic Superintendent with jurisdiction over operation of railway and commercial telegraphs and departmental accounts. Office, Winnipeg.

W. J. ROONEY has been appointed Superintendent of Plant, with jurisdiction over all matters pertaining to construction and maintenance of telegraph and telephone plant. Office, Winnipeg.

J. H. MITCHELL has been appointed Locomotive Foreman, Rivers, Man.

C. B. SMITH, heretofore Road Foreman of Locomotives, Wainwright, Alta., has been appointed a locomotive driver at Edmonton, Alta.

H. L. GURWELL has been appointed agent at Hinton, Alta.

S. J. COVEY, heretofore Roadmaster, has been appointed Trainmaster at Wainwright, Alta.

W. L. PINKSTONE, heretofore section foreman, has been appointed Roadmaster at Wainwright, Alta., vice S. J. Covey, promoted.

Grand Trunk Ry.—The Transportation Department has been reorganized and a number of new positions created. The office of General Transportation Manager, which was abolished on the resignation of W. G. Brownlee, has been partially revived, by the creation of the position of General Superintendent of Transportation. The system has been divided into three grand divisions, each in charge of a general superintendent. The various districts have also been grouped into divisions, instead of subdivisions as heretofore. A superintendent of freight service and a superintendent of passenger service have also been appointed.

D. CROMBIE, heretofore Assistant to the Vice President, Montreal, has been appointed General Superintendent of Transportation. Office, Montreal.

W. H. FARRELL, formerly Superintendent of Terminals, Toronto, and latterly on special service, has been appointed Superintendent of Freight Service. Office, Montreal.

F. PRICE, heretofore Superintendent of Car Service, Montreal, has been appointed Superintendent of Passenger Service, and his former position has been abolished. Office, Montreal.

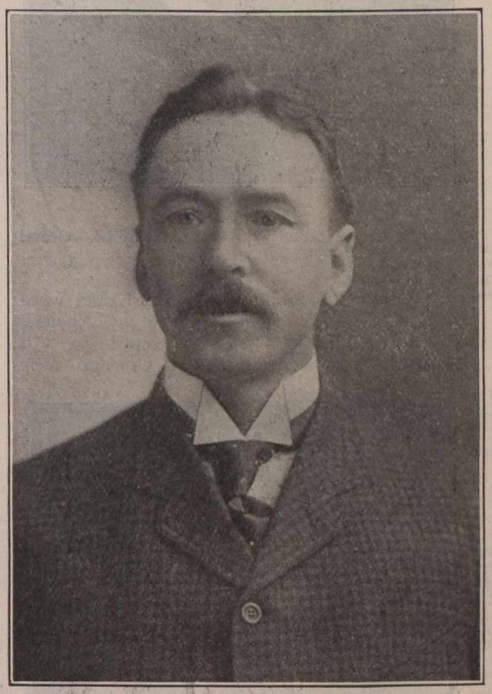
C. G. BOWKER, heretofore Joint Superintendent, G.T.R. and Wabash Rd., St. Thomas, Ont., has been appointed General Superintendent, G.T.R. Eastern Lines, including Montreal Division (Districts 1, 2, 3 and 4), Montreal Terminals, Belleville Division (Districts 5, 6, 7, 8, 9 and 10), and Ottawa Division (Districts 30, 31 and 32). Office, Montreal.

J. J. CONNOLLY, heretofore Assistant Superintendent, Montreal, has been appointed Superintendent, Montreal Division, Eastern Lines, comprising Districts 1, 2, 3 and 4. Office, Montreal.

R. W. SCOTT, heretofore Freight Agent, Montreal, has been appointed Superintendent of Montreal Terminals. Office, Montreal.

F. L. C. BOND, heretofore Resident Engineer, Montreal, has been appointed Division Engineer of Eastern Lines. Office, Montreal.

J. H. JOHNSTON, heretofore Master of Bridges and Buildings, Montreal, has been appointed Superintendent of Bridges and Buildings, Eastern Lines. Office, Montreal.



W. A. Brown,
General Superintendent, Western Division, Canadian Northern Railway.

G. BECKINGHAM, heretofore General Roadmaster, Montreal, has been appointed Superintendent of Track, Eastern Lines. Office, Montreal.

L. HAROLD, formerly Assistant Trainmaster, Hamilton, Ont., has been appointed Superintendent of Transportation, Eastern Lines. Office, Montreal.

R. P. SMALLHORN, heretofore Trainmaster, Richmond, Que., has been appointed Freight Agent at Montreal.

T. CUSHING, heretofore Chief Dispatcher, Belleville, Ont., has been appointed Trainmaster, District 3, Montreal Division, vice R. P. Smallhorn, assigned to other duties. Office, Richmond, Que.

H. F. COYLE, heretofore Assistant Superintendent, Belleville, Ont., has been appointed Superintendent, Belleville Division, Eastern Lines, comprising Districts 5, 6, 7, 8, 9 and 10. Office, Belleville, Ont.

H. M. GAIN, heretofore Passenger Trainmaster, Eastern Division, Montreal, has been appointed Trainmaster, Districts 6 and 7, Belleville Division, Eastern Lines. Office, Belleville, Ont.

C. S. OGILVIE has been appointed Assistant Engineer, Belleville Division, Eastern Lines. Office, Belleville, Ont.

H. E. WHITTENBERGER, heretofore Superintendent, Middle Division, Toronto, has been appointed General Superintendent, Ontario Lines, including Toronto Terminals, Barrie Division (Districts 11, 12 and 14), Hamilton Division (Districts 13, 16, 17 and 19), London Division (Districts 17, 18, 20, 21 and 24), St. Thomas Division (Districts 18 and 19), Stratford Division (Districts 15, 22 and 23). Office, Toronto.

G. A. STOKES, heretofore acting Superintendent of Terminals, Toronto, has been confirmed in that position.

G. A. MITCHELL, heretofore Master of Bridges and Buildings, Toronto, has been appointed Superintendent of Bridges and Buildings, Toronto.

H. FERGUSON, heretofore General Roadmaster, Toronto, has been appointed Superintendent of Track, Toronto.

E. G. HEWSON, heretofore Resident Engineer, Toronto, has been appointed Division Engineer, Toronto.

JOHN GRAY, heretofore agent at Hamilton, Ont., has been appointed General Agent, Toronto, vice J. H. Gordon, promoted.

J. H. GORDON, heretofore General Agent, Toronto, has been appointed Superintendent, Hamilton Division, Ontario Lines, comprising Districts 13, 15, 17 and 19. Office, Hamilton.

WM. HALL, heretofore Assistant Trainmaster, Hamilton, Ont., has been appointed Trainmaster, Districts 13, 16, 17 (Hamilton to Niagara Falls), 19 Port Dalhousie to Port Robinson, and Welland Jct. to Port Colborne), Hamilton Division, Ontario Lines. Office, Hamilton.

H. McLENNAN, heretofore night chief dispatcher, London, Ont., has been appointed Chief Dispatcher, Hamilton, Ont.

J. WILSON has been appointed General Foreman of Bridges, Hamilton, Ont.

J. ADAMS, heretofore chief clerk, Local Freight Department, Toronto, has been appointed agent at Hamilton, Ont., vice J. Gray, promoted.

W. R. DAVIDSON, heretofore Trainmaster, London, Ont., has been appointed Superintendent, London Division, Ontario Lines, comprising Districts 17, 18, 20, 21 and 24. Office, London.

W. J. DURKIN, heretofore conductor, has been appointed Trainmaster, Districts 17 (Sarnia Tunnel to Hamilton, including Petrolia Branch), 18 (Komoka to Glencoe), 19 (Glencoe to Kingscourt Jct.), and 24, London Division, Ontario Lines. Office, London.

F. A. RUTHERFORD, heretofore dispatcher, has been appointed Chief Dispatcher, London, Ont.

R. H. FISH, heretofore Road Foreman of Locomotives, London, Ont., has been appointed Trainmaster, Districts 20 and 21, London Division, Ontario Lines. Office, Brantford.

C. FORRESTER, heretofore Trainmaster, Stratford, Ont., has been appointed Superintendent, Stratford Division, Ontario Lines, comprising Districts 15, 22 and 23. Office, Stratford.

C. J. McKEOUGH, heretofore conductor, has been appointed Trainmaster, District 15, Stratford Division, Ontario Lines. Office, Stratford.

WALTER WHITE has been appointed Trainmaster, Districts 22 and 23, Stratford Division, Ontario Lines. Office, Stratford.

W. CULLIGAN, heretofore dispatcher, has been appointed Chief Dispatcher, Stratford, Ont.

P. J. LYNCH, heretofore Superintendent, Northern Division, Allandale, Ont., has been appointed Superintendent, Barrie Division, Ontario Lines, comprising Districts 11, 12 and 14. Office, Allandale.

J. C. CROMBIE, heretofore Master of Transportation, London, Ont., has been appointed Superintendent at St. Thomas, Ont.

U. E. GILLEN, heretofore Superintendent Eastern Division, Montreal, has been appointed General Superintendent, Western Lines, including Districts 25, 26, 27, 28, 29 and Pontiac, Oxford and Northern Ry. Office, Chicago, Ill.

J. CALDWELL has been appointed Superintendent, Detroit Division, including Durand Terminals, Districts 27, 28, 29, and Pontiac, Oxford and Northern Ry., vice C. S. Cunningham, Superintendent, Western Division, resigned. Office, Detroit, Mich.

J. EHRKE, heretofore Assistant Superintendent, with territory covering Districts 25 (main line) and 26, Battle Creek, Mich., has been appointed Superintendent, Chicago Division, including Districts 25 and 26. Office, Battle Creek, Mich.

A. B. SMITH, heretofore Manager of Telegraphs, G.T. Pacific Ry., Winnipeg, has also been appointed Manager of Telegraphs, G.T.R System. Office, Montreal.

B. H. BROWN, Montreal, has been appointed one of the two auditors in Canada for the G.T.R. System. The other auditor is C. Percy, Montreal.

With reference to the appointment of A. S. GOING as Engineer of Construction, as announced in our last issue, we are advised that matters of location will remain under his supervision, so no appointment to the position of Locating Engineer, formerly held by him, will be made.

W. H. SPICER, heretofore Commercial Agent, Detroit, Mich., has been appointed Division Freight Agent there, vice C. Clarke, whose appointment as Assistant Commissioner of Industries was announced in our last issue.

JAS. McPEAK has been appointed Commercial Agent at Detroit, Mich., vice W. H. Spicer, promoted.

G. W. NORMAN, heretofore Travelling Passenger Agent, Kansas City, Mo., has been appointed Travelling Passenger Agent, Chicago, Ill., reporting to Assistant General Passenger Agent, Chicago, vice M. J. Corcoran, resigned.

W. M. LEWIS has been appointed Travelling Passenger Agent, Kansas City, Mo., reporting to Assistant General Passenger Agent, Chicago, Ill., vice G. W. Norman, transferred.

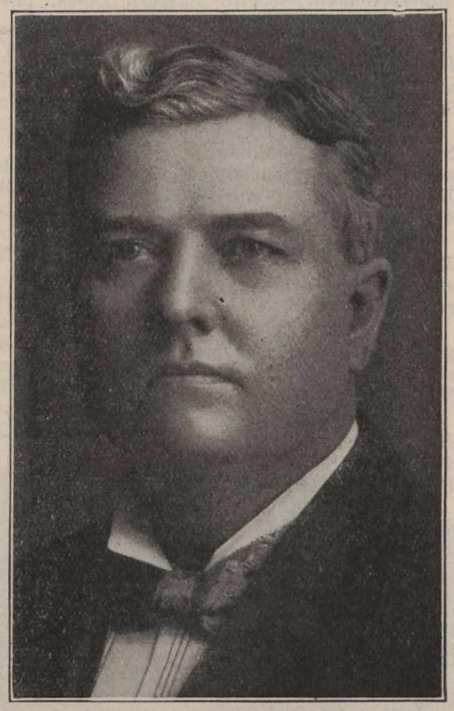
The following agents have been appointed:—Dewittville, Que., W. J. Martin; Thousand Island Ry. Jct., Ont., F. J. Laughton; Novar, Ont., J. Mitchell; Wyebridge, Ont., W. J. Breathaur (relieving); Alliston, Ont., F. O. Moore; Burlington Jct., Ont., I. G. Heldman; Beamsville, Ont., D. O'Neill; Komoka, Ont., H. W. Sussex; Wyoming, Ont., T. M. Davis; Nelles Corners, Ont., O. W. Heath; Ekfrid, Ont., A. E. Beales; Elora, Ont., R. L. Angell; Milverton, Ont., S. Young; Wingham, Ont., W. F. Burgman; St. Polycarpe Jct., Ont., A. Joli; Wilno, Ont., E. C. Childerhose (temporarily); Enterprise, Ont., outside, S. B. Wagar; Lachute, Que., outside, W. H. G. Garratsee.

Intercolonial Ry.—H. JARDINE, heretofore Division Engineer, Truro, N.S., has been appointed Resident Engineer, with territory between Halifax, N.S., and St. John, N.B. Office, Truro, N.S.

J. C. FULMORE, heretofore Roadmaster at Pictou, N.S., has been appointed Roadmaster at Truro, N.S., vice C. W. Archibald, promoted.

C. W. ARCHIBALD, heretofore Roadmaster, Truro, N.S., has been appointed Resident engineer, with territory between Truro and Sydney, N.S.

H. SPINNEY has been appointed Roadmaster, Pictou, N.S., vice J. C. Fulmore, transferred.



U. E. Gillen,
General Superintendent, Western Lines, Grand Trunk Railway.

J. M. BOAK and V. H. WILLIAMS have been appointed Travelling Freight Agents, Western United States, reporting to Western U.S. Freight Agent, Chicago, Ill.

H. E. Whittenberger,
General Superintendent, Ontario Lines, Grand Trunk Railway.

Inverness Ry. and Coal Co.—J. McGILLIVRAY, heretofore Superintendent of the company's railway lines, has been appointed General Manager, vice W. D. Barclay, deceased. Office, Inverness, N.S.

Michigan Central Rd.—H. SHEARER, heretofore Assistant to General Manager, has been appointed Assistant General Superintendent, vice M. B. Snow, resigned. Office, Detroit, Mich.

F. W. COWLEY, heretofore acting Superintendent, Canada Division, St. Thomas, Ont., has resumed his former position as Trainmaster, St. Thomas, Ont., vice J. S. Graney, assigned to other duties.

W. E. HACKETT has been appointed Local Treasurer, M.C.R., Detroit River Tunnel Co., Detroit River Terminal Rd., and Toronto, Hamilton and Buffalo Ry., vice J. E. Griffiths, deceased. Office, Detroit, Mich.

D. J. HACKETT has been appointed Superintendent, Canada Division, vice F. W. Cowley, acting Superintendent, who resumes his former position. Office, St. Thomas, Ont.

W. E. HACKETT has been appointed Local Treasurer, T.H. and B.R., as well as of the Michigan Central Rd., vice J. E. Griffiths, deceased. Office, Detroit, Mich.

J. S. GRANEY, heretofore acting Trainmaster, St. Thomas, Ont., has resumed his former position there, as dispatcher.

Pere Marquette Rd.—J. J. WATERS has been appointed Superintendent of Motive Power, vice W. L. Kellogg, resigned. Office, Grand Rapids, Mich.

Quebec, Montreal and Southern Ry., Napierville Jct. Ry.—N. J. FERGUSON, heretofore Travelling Freight and Passenger Agent, Montreal, has been appointed General Freight and Passenger Agent, vice D. I. Roberts, resigned. Office, Montreal. We are officially advised that the position of General Manager also held by Mr. Roberts, will not be filled for the present, the duties heretofore performed by Mr. Roberts having been divided between N. J. Ferguson, General Freight and Passenger Agent, and J. E. Roberts, Superintendent.

Reid Newfoundland Co.—F. RIOUX, heretofore Superintendent, St. John's, Nfld., has been appointed Assistant to President. Office, St. John's, Nfld.

W. E. LADLEY, heretofore Shop Superintendent, Chicago and Alton Rd., Bloomington, Ill., has been appointed Superintendent of Motive Power, R.N. Co., vice A. C. Gray. Office St. John's, Nfld.

A. GRAHAM has been appointed Assistant to General Superintendent. Office, St. John's, Nfld.

G. COBB, heretofore Chief Dispatcher, St. John's, Nfld., has been appointed Superintendent, vice F. Rioux, promoted. Office, St. John's, Nfld.

W. CHARD has been appointed Claims Agent, dealing with baggage and freight claims, under supervision of General Passenger Agent. Office, St. John's, Nfld.

Dining car crews, sleeping car porters, stewards and cooks of steamers, and pursers, have been placed under the supervision of the General Passenger Agent, instead of the Superintendent, as heretofore.

Toronto, Hamilton and Buffalo Ry.—J. W. EBER, heretofore General Superintendent, has been appointed General Manager, vice H. H. Adams. Office, Hamilton, Ont.

C. H. BOIRE has been appointed chief clerk to the Secretary-Treasurer, Montreal Tramways Co., vice G. A. McNamee, resigned.

The Manitoba Public Utilities Commission, which has had under consideration for some time the matter of the utilization of the Winnipeg Electric Ry. poles by the municipality, has ordered that the company's poles be owned and used jointly with the city.

Railway Rolling Stock Orders in 1912.

Passenger Cars

Purchaser.	No.	Kind	Builder.
Algoma Central	4	Coaches	Preston Car
Algoma Eastern	ej2	First class	Canada Car & Fdy.
	ej1	Second class	Preston Car
	ej2	Pass. & baggage	Can. Car & Fdy.
Canadian Northern	ef30	First class	
	eg2	Cafe-parlor	Barney & Smith
	eg15	Baggage	
	ej9	Baggage and mail	
	eg2	Dining	
	eg16	Sleeping	
	1	Gas electricity	Gen. Elec.-Wason
	25	Second class	Crossen Car
Canadian Northern Ont.	ef12	First class	
	ef3	Second class	
	eg2	Cafe-parlor	
	ej4	Baggage	
	ej2	Dining	
Canadian Nor. Quebec	ef3	First class	
	ef10	Second class	
	ej6	Excursion	
	ej2	Cafe-parlor	
	ef2	Baggage	
	ej2	Baggage and mail	
	ef2	Second class	
	ag1	Motor	
Canadian Pacific	eg30	Sleeping	Barney & Smith
	e30	Sleeping	Pullman
	e13	Dining	
	g15	Tourist	Canadian Car & Foundry
	g20	Baggage and express	" "
	g10	First class	" "
	12	Sleeping	Company Shops
	3	Compt. sleeping	" "
	34	Sleeping	" "
	12	Dining	" "
	8	Buffet parlor	" "
	42	Tourist	" "
	2	Colonist	" "
	107	First class	" "
	12	Second class	" "
	56	Baggage and express	" "
	13	Mail and express	" "
	1	Baggage and smok.	" "
	2	Horse exp.	" "
	1	Fruit exp.	" "
	50	Baggage	" "
Central Vermont	b2	Parlor	American Car & Foundry
	b1	Dining	" "
Grand Trunk	b15	Sleeping	Pullman
	g10	Second class	Canadian Car & Foundry
	g5	Colonist	" " "
	b5	Tourist	" " "
	b6	Dining	Pullman
	e10	Colonist	"
	b6	Cafe-parlor	"
	b10	Coaches	"
Intercolonial	bfg2	Sleeping	Pullman
	bfg1	Dining	"
	bfg1	Dining	Canadian Car & Fdy.
	bfg2	Sleeping	" "
	ef6	Coaches	Preston C. & C.
	ef3	Baggage	" "
	ef2	Coach	Canadian Car & Fdy.

a Indicates all-steel cars
b Indicates steel underframe cars.
c Indicates composite body cars.
d Indicates composite underframe cars.
e Indicates all-wood cars
f Indicates gas lighting.
g Indicates electric lighting.
h Indicates acetylene lighting.
j Indicates oil lighting.

Freight Cars

Purchaser.	No.	Kind.	Capacity.	Builder
Algoma Cent. & Hud. Bay	70	Gen. serv		Canadian Car & Fdy.
Algoma Eastern	bh70	Hart-Otis	100,000	" " "
	ah24	Flat	80,000	" " "
	bfh25	Box	80,000	" " "
Algoma Steel Corp	aj 5	Gen. service	100,000	
Allis Chalmers	b1	Logging		Canadian Car & Fdy.
Canadian Northern	gl.500	Box	60,000	Nova Scotia
	b650	Box	60,000	Canadian Car & Fdy.
	g500	Box	60,000	" "
	g50	Box	60,000	Rathbun
	g200	Box	60,000	Crossen Car
	700	Box	60,000	
	g100	Auto	60,000	Crossen Car
	gj500	Flat	60,000	" "
	g300	Flat	60,000	Rathbun
	aj250	Flat	80,000	
	gj324	Hart	80,000	
	gj50	Caboose		
	gj10	Tank	8,000	g.
	g100	Refrig	60,000	Mt. Vernon C. & Mfg.
	g150	Stock	60,000	Crossen Car
Canadian Nor. Ontario	gj200	Box	60,000	
	gj50	Coal	60,000	
	gj76	Hart	80,000	
Canadian North. Quebec	gj300	Box	60,000	
	gj50	Flat	60,000	
	gj50	Coal	60,000	
	gj20	Caboose	60,000	
Canadian Pacific	1,000	Box		American Car & Fdy.
	2,000	Box		Western Steel
	2,000	Box		Standard Steel
	800	Flat		Canadian Car & Fdy.
	200	Stone		" " "
	a616	Ballast	100,000	" " "
	a400	Flat	80,000	" " "
	a411	Gen. serv	100,000	" " "
	be3,000	Box	80,000	" " "
	be5,000	Box	80,000	" " "
	100	Auto	80,000	" " "
	bf5,000	Box	80,000	Barney & Smith
	865	Stock	60,000	Company Shops
	522	Refrig	60,000	" "
	170	Flat	60,000	" "
	38	Horse	60,000	" "
	3,000	Box	80,000	" "
	1,141	Box	80,000	" "
	20	Dump	100,000	Canadian Car & Fdy.
	1,500	Box	80,000	National Steel
	500	Box	80,000	Nova Scotia
	200	Stone	80,000	"
	20	Tank		American Car & Fdy.
Cavicchi & Pagano	g16	Dump	60,000	Canadian Car & Fdy.
Dominion Bridge Co.	gl	Unloader	60,000	" " "
Dominion Coal Co.	a25	Coal	100,000	" " "
	g50	Coal	30,000	" " "
Dominion Eq. Co.	g3	Unloader	60,000	" " "
Dom. Iron & Steel Co.	g10	Limestone		" " "
Edmonton Radial	a1	Self-cl		Canadian Car & Fdy.
Grand Trunk	gh250	Refrig	60,000	American Car & Fdy.
	gh250	Refrig	60,000	Canadian Car & Fdy.
	bh250	Auto	60,000	American Car & Fdy.
	bh250	Auto	60,000	Western Steel
	bfh2,000	Box	60,000	Pressed Steel
	bh300	Flat	60,000	American Car & Fdy.
	ah50	Tank	60,000	" " "
Hopkins & Co., F. H.	g11	Unloader	60,000	Canadian Car & Fdy.
	g1		60,000	" " "
Intercolonial	bfh500	Box	60,000	" " "
	gh100	Hart conv	80,000	" " "
	ah100	Flat	80,000	" " "
	ah50	Dump	100,000	" " "
	gh20	Refrig	60,000	" " "
	ahl	Tank	8,000 g.	" " "
	ah	100 Flat	80,000	" " "
	ah50	Hart-Otis	100,000	" " "
	bh20	Stock	60,000	" " "
	gh10	Refrig	60,000	" " "
	bfh250	Box	60,000	" " "
	gh120	Box	60,000	Company shops
	gh10	Caboose		" "
	bf623	Box	60,000	Nova Scotia
	g150	Box		" "
Malcolm, Thos.	g20	Logging	60,000	Canadian Car & Fdy.
Mussens, Limited	bj200	Box	80,000	" " "
Prince Edward Island	gh15	Hart-Otis	60,000	Company shops
	h1	Tank	3,000g	" "
Quebec Central	gh100	Rack	60,000	" "
Timiskaming & N. Ontar.	b4	Box		Canadian Car & Fdy.
Toronto, Hamilton & Buff.	bh4	Way		American Car & Fdy.
	1,250	Freight		National Steel
	250	Rodg. bal		Canadian Car & Fdy.
	ah10	Flat	80,000	" " "

a Indicates all-steel cars.
b Indicates steel underframe cars.
c Indicates all-composite cars.
d Indicates composite underframe cars.
e Indicates composite body cars.
f Indicates steel frame cars.
g Indicates all-wood cars.
h Indicates spring draft gear.

Locomotives

Purchaser.	No.	Cylinders.	Total Weight, Engine Only.	Type	Builder.
Algoma Central	†5	22x28	197,300	2–8–0	Canadian
Algoma Eastern	†1	22½x28	195,000	2–8–0	Montreal
	†1		142,000	2–6–0	"
British Columbia Electric	†5			Electric	West-Baldwin
Canadian Northern	†4	23x28	213,000	4–6–2	Montreal
	†15	22x26	172,000	4–6–0	"
	†20	24x32	220,000	2–8–0	Canada Foundry
	†20	20x24	154,000	4–6–0	Montreal
	†25	23x26	188,600	2–8–0	Canadian
	20	19x26	121,000	0–6–0	"
Canadian Northern Ont.	†10	22x26	173,000	4–6–0	Montreal
Canadian Nor. Quebec	†6	22x26	173,000	4–6–0	"
	2	19x26	123,000	0–6–0	Canadian Loco. Co.
Canadian Pacific	†21	22½x28	222,000	4–6–2	Company shops
	†30	22½x28	222,000	4–6–2	Montreal
	†100	21x28	198,000	4–6–0	"
	†25	21x28	198,000	4–6–0	American
	†25	21x28	198,000	4–6–0	Canadian Loco. Co.
	†60	23½x32	225,000	2–8–0	Montreal
	†10	23½x32	225,000	2–8–0	Canada Foundry
	†20	23½x32	258,000	2–8–2	Company shops
	†75	23½x32	258,000	2–8–2	Montreal
	27	18x26	137,000	0–6–0	Company shops
	†45	18x26	137,000	0–6–0	"
	†8	19x24	139,000	4–6–0	Montreal
	†25	19x24	139,000	4–6–0	Company shops
	†10	19x24	146,000	4–6–0	"
	†2	22½x28	222,000	4–6–2	"
	†10	21x28	188,000	0–8–0	"
Canadian West Lumb. Co.	1		124,000	Geared	Heisler
Central Vermont	4	22x28	216,500	4–6–2	Baldwin
	3	20x26	145,200	Shay	Lima
Grand Trunk	†19	23x28	225,000	4–6–2	Baldwin
	†41	23x28	225,000	4–6–2	Montreal
	15	20x26	139,500	0–6–0	Canadian Loco Wks.
	†25	27x30	276,000	2–8–2	American
Grand Trunk Pacific	15	23x30	208,600	2–8–0	Canadian
	25	33x30	209,000	2–8–0	Montreal
Grant, Smith & Co.	3	17x24	94,000	0–6–0	Davenport
Harbor Com'rs of Quebec	3	19x26	120,000	0–6–0	Montreal
Intercolonial	†5	22½x28	200,000	2–8–0	"
	8	20x26	137,700	0–6–0	Canadian
	†10	22x28	200,000	2–8–0	"
	†5	24x32	236,000	2–8–0	Canada Found. Co.
Niag. St. Cath. & Toronto	1			Electric	West-Baldwin
O'Brien, McD. & O'G	7	18x24	109,000	4–6–0	Montreal
Quebec Central	2	20x26	50,000	4–6–0	Canadian
	†4	21x26	55,000	4–6–0	"
Sydney & Louisburg	1	21x26	177,000	2–8–0	Montreal
	1	19x26	129,000	2–6–0	"
Toronto, Hamil. & Buff.	†2	23x28	205,000	2–8–0	Montreal Loco
	†2	21x28	166,000	0–6–0	" "

† Indicates superheater.

—Railway Age Gazette

National Transcontinental Railway Construction.

The main line of the N.T.R., which has been operated for freight purposes by the G.T. Pacific Ry. for some time, under an agreement with the Commission, from Winnipeg to Lake Superior Jct., was connected up with Cochrane, Ont., Dec. 28. A train load of wheat was started from Winnipeg Dec. 27, and was run over the line to Cochrane, Ont., there transferred to the Timiskaming and Northern Ontario Ry., over which the G.T.R. has running powers, transferred to the G.T.R. at North Bay, and thence run over the G.T.R. to Port Colborne, Ont., where the wheat was milled. The flour was then carried over the G.T.R. and Intercolonial Ry. to St. John, N.B., where it was shipped to South Africa.

The shops at Transcona, Man., were taken over by the G.T.P. Ry. from the N.T.R. Commission Jan. 20. (Jan., pg. 29.)

Crand Trunk Pacific Railway Construction.

In the House of Commons Jan. 17, the Minister of Finance stated that it had been decided to devote part of the surplus revenues of the country to the purchase of G.T.P.R. bonds. The country had had to provide $4,944,000, the difference between the face value of bonds already sold, and the price realized for them on the market, under the "implementing" clause of the guarantee agreement. There remained to be sold bonds to the value of £6,800,000, and it was proposed that the Government have power to take these bonds, and raise the money necessary on the security of the Government. At present prices it would cost about $8,000,000 to carry out the provision of the "implementing" guarantee. It was possible to save something of this by borrowing directly on the credit of the country, but it was impossible to forecast what the saving would be. A bill to carry this decision into effect was subsequently passed by both houses.

The G.T. Pacific Ry. reports that at Dec. 31 there were 440 miles of main line and 205.8 miles of branch lines under construction, on which considerable work had been done. The general contract on the main line is held by Foley, Welch and Stewart; and the branch lines, with the contractors are: —Harte-Brandon branch, 25 miles, Rigby, Hyland and Plummer; Regina-International Boundary, 19 miles, J. D. McArthur, Winnipeg; Talmage to Weyburn, 14.8 miles, J. Bradley; Regina to Moose Jaw, 3 miles, Rigby, Hyland and Plummer; Moose Jaw northwesterly, 50 miles, Rigby, Hyland and Plummer; Young to Prince Albert, 44 miles, J. D. McArthur; Battleford to Wainwright, 46 miles, Lamoreaux and Peterson; Tofield to Calgary, 4 miles, J. D. McArthur, sublet to Sieurs and Carey. In each case the mileage under construction is the uncompleted portion of the lines.

In a general report as to construction, B. B. Kelliher, Chief Engineer, states that during 1912 563 miles of main line and 688 miles of branch lines were under construction. Track was laid during the year on 128 miles of main line and 459 miles of branch lines. Track laying was completed on the main line to mileage 1,124 west of Winnipeg, and trains are being operated to Tete Jaune Cache, 1,096 miles from Winnipeg. Grading is so far advanced that it will be possible to lay track to mileage 1,190 early in the spring. Easterly from Prince Rupert the line is in operation to New Hazleton, track being laid to mileage 189. Active grading work is going on from mileage 189 to mileage 341 from Prince Rupert, or mileage 1,403 from Winnipeg.

Of the branch lines the report sets out as follows:—Harte-Brandon—There are 10.8 miles out of the 25 ready for track laying; Regina boundary branch—track has been laid for 106 miles, and there are 19 miles yet to be completed; Talmage to Weyburn—under contract, with 39% of the grading completed; Regina-Moose Jaw—nearly completed, and terminal layout in Moose Jaw in progress; Moose Jaw northwesterly—grading practically completed, but no track laid; Oban-Battleford branch —48.5 miles completed; Cutknife branch—grading completed and four miles of track laid; Young to Prince Albert—track laid to Wicklaw, 67 miles, and grading completed into Prince Albert; but line will not be completed until bridge is built across Saskatchewan river; Biggar towards Calgary—grading completed to Saskatchewan-Alberta boundary, and a few miles of grading has yet to be completed, track has been laid for 37 miles out of Biggar; Tofield-Calgary branch—grading practically completed on the 202 miles, track laid to mileage 165.3, and trains are operated to mileage 65, some steel bridges are to be built.

The Board of Railway Commissioners has authorized the opening for traffic of the Regina-Moose Jaw branch from mileage 0 to 34.1.

The Saskatchewan Minister of Railways informed the Legislature recently that under an arrangement with the Government the company is building an extension of the Moose Jaw-Riverside branch into the Duck Lake country. It is expected to have it completed to the Saskatchewan river during this year, and arrangements are being made for carrying on construction west of the river so that track laying can be carried on throughout the whole length of the branch on completion of the bridge over the river.

The Saskatchewan Legislature has passed an act guaranteeing the bonds of the G.T.P. Branch Lines Co., and the G.T.P. Saskatchewan Ry., for building terminals as follows:—In Saskatoon, $1,200,000; in Regina, $850,000; in Moose Jaw, $850,000; in Prince Albert, $350,000; in Battleford, $100,000. It has also passed an act extending the time within which the branch lines being built under contract with the Government may be completed. The Minister of Railways stated in the Legislature Jan. 9, that the 105 miles of lines which had to be built under the 1908 contract have been completed, and are in operation, and of the 475 miles to be built under the 1909 contract about 300 miles had been completed.

Telegraph, Telephone and Cable Matters.

The Canadian Northern Telegraph Co. has opened an office at Leask, Sask.

It is reported that the Dominion Government has opened a wireless telegraph station at Alert Bay, on the north of Vancouver Island, thus making 10 stations along the coast, under Government control.

The Great North Western Telegraph Co. has opened an office at Donnacona, Que., and closed its offices at Burgessville, Foxboro, Grimsby Beach, Muskoka Wharf, Ont., Chaudiere Basin, Little Metis Lighthouse and Matane Lighthouse, Que.

P. T. Hawkins has been appointed Manager, Great North Western Telegraph Co., at Guelph, Ont., vice R. G. Davidson, resigned; J L. Murphy, heretofore Manager at Ingersoll, Ont., has been appointed Manager at Peterboro, Ont., and I. Labrie has been appointed Manager at Ingersoll, Ont.

A telegraph machine has been invented in Spain, which is claimed to be a distinct advance on the Hughes machine in use at present, in that it will transmit 1,820 words a minute, a speed three times greater than that obtainable on the Hughes machine.

A press report states that communication took place recently, between two wireless telegraph stations, situated at Nauen, Germany, and New York, and it is said that this is the first time that direct wireless communication has been established between Germany and the U.S.

A. B. Smith, Manager of Telegraphs, G.T. Pacific Ry., Winnipeg, has had his jurisdiction extended over the whole G.T.R. System, with office at Montreal. We are officially advised that no change will be made in the position of Superintendent of Telegraph, Montreal, held by W. W. Ashald.

During the storms in the early part of January, considerable damage was done to telegraph lines east of Toronto, the Great North Western Telegraph Co. losing nearly 700 poles. Communication was interrupted in the Brighton and Belleville district, for some time, the repairs being quickly carried out under the supervision of W. J. Duckworth, Superintendent of Construction.

The Saskatchewan Legislature has fixed the taxes, under the amendments to the Corporation Tax Act, for every telegraph company owning, leasing and operating telegraph lines in the Province, and carrying on a general commercial business, as follows,—for every branch office in any incorporated city, $125; in any incorporated town, $50, and in any incorporated village, $20.

The Montreal Telegraph Co.'s report for 1912, being the 66th annual report, shows assets of $2,307,582. The property is maintained and operated by the Great North Western Telegraph Co., under lease, and dividends guaranteed by the Western Union Telegraph Co. The lease is for 97 years from July 1, 1881. The total distribution to shareholders, comprising the guaranteed dividend of 8%, and a bonus, amounted to $165,000.

The Great North Western Telegraph Co., at the adjourned annual meeting, Dec. 30, elected Z. A. Lash, K.C., a director of the Canadian Northern Ry., to be President, vice H. P. Dwight, deceased. The other directors and officers for the current year are: Vice President, Adam Brown; other directors, J. Hedley, Hon. J. K. Kerr, Aemilius Jarvis, F. B. Hayes, Toronto; J. B. VanEvery and N. Carlton, New York; General Manager, G. D. Perry; Secretary and Auditor, A. C. McConnell; Treasurer, D. E. Henry.

The Great North Western Telegraph Co. announces effective, Jan. 1, the rate on deferred cable messages between Canada and the United Kingdom, is reduced to 9c, subject to delivery within 24 hours of the time filed. The rate for cable letters is also reduced to 75c for 12 words and 5c for each additional word. These latter are to be delivered on the day following, and weekend letters on Mondays, in each case 24 hours earlier than at present. These charges include transmission to the cable terminal at Montreal, but if the messages are addressed to other places in the United Kingdom than London or Liverpool, an extra charge of 1c a word is made.

The Chicago, Burlington and Quincy Ry. is sending a medical examiner over its lines to inspect the water and ice used in passenger cars, dining cars and station restaurants, and to investigate the sanitary conditions along the line.

Railway Development.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta Interurban Ry.—The route map of the second of the lines proposed to be built by this company has been approved by the Minister of Railways. The first line is projected easterly and northerly from Calgary to Carbon; the second one is westerly and northerly from Calgary to near Cochrane, on the Bow River. (Jan., pg. 20.)

Alma and Jonquieres Ry.—The Quebec Legislature has incorporated a company with this title to build the railway previously described. (Dec., 1912, pg. 604.)

Athabasca and Grande Prairie Ry.—The Dominion Parliament is being asked to incorporate a company with this title to build a railway from the junction of the Solomon and Athabasca Rivers northwesterly to the junction of the Smokey and Muskeg Rivers, thence northwesterly to Dunvegan, passing through Grande Prairie west of Bear Lake, Alta. Pringle and Guthrie, Ottawa, are solicitors for applicants.

Calumet and Northern Ry.—The Quebec Legislature has incorporated a company with this title to build the railway previously mentioned. (Nov., 1912, pg. 557.)

Canada Western Ry.—Application is being made to the Dominion Parliament for an act extending the time for the building of the railway authorized by chap. 69 of the Dominion statutes, 1909, and varying the route as set out in sec. 7 by striking out the last four lines of sub sec. A and substituting the following:—"From near Coutts on the International boundary, Alta., in a northerly and westerly direction to Cardston, and thence northwesterly to Pincher Creek, Alta." Hough, Campbell and Ferguson, Winnipeg, Man., are the solicitors. (Jan., pg. 20.)

Canadian Central and Labrador Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to build a railway from Cochrane, Ont., northeasterly to Cape St. Lewis, on the Atlantic Coast, with a branch line to Quebec and another to the Hamilton River. Smith and Johnston, Ottawa, are solicitors for applicants.

Chinook Ry.—Application is being made to the Alberta Legislature to incorporate a company with this title to build a line from the Chinook Coal Co.'s mines at sec. 12, tp. 10, range 22, west 4th meridian, to the C.P.R. Crowsnest Branch near Kipp, Alta. Shepherd and Dunlop, Lethbridge, Alta., are solicitors for applicants.

Coal Coulee Ry.—The Alberta Legislature is being asked to incorporate a company with this title to build a railway from Barnwell on the C.P.R. Crowsnest 10, tp. 10, range 17, west of 4th meridian, thence to branch out in several directions, with such branches and spurs as may be necessary to reach the coal properties being developed. Johnstone and Ritchie, Lethbridge, Alta., are solicitors for applicants.

Dominion Atlantic Ry.—Since the C.P.R obtained control of the D.A. Ry. a considerable amount of betterments has been put in hand. The bridge work proposed to be done was described on pg. 843 of our issue of Sept., 1911, and details of the work to be done on the Smiths Cove bridge was given on pg. 557 of our issue of Oct., 1912. This bridge work has either been completed or in process of completion. We are advised that a wharf, 518 ft. long, has been completed at Yarmouth, N.S., and 570 ft. of trestle work has been built in connection with it, so as to take the cars alongside the steamships. On the new wharf is a building, 150 by 50 ft., provided with slips, freight, customs and express offices. It is expected that considerable further work, which, with that done last year, will practically mean a rebuilding of the line, will be gone on with during this year. (Dec., 1912, pg. 604.)

Duluth and Northern Minnesota Ry.—Press reports state that this line, which now terminates at Cramer, Minn., is to be extended to the International boundary, and thence to Fort William, Ont. — Hare, Civil Engineer, is reported to have been in Fort William recently, completing arrangements for the making of surveys for the section of the line in Canada. (Jan., pg. 20.)

Edmonton, Dunvegan and British Columbia Ry.—In connection with the construction of this line, an issue of $3,500,000 of 4% bonds has been listed on the London, Eng., stock exchange.

The Board of Railway Commissioners has approved location plans from mileage 68.30 out of Edmonton to the east side of the Athabasca River, Alta., mileage 130.

The Minister of Railways has approved revised route map for the line in tps. 62-70, range 27 west of the 4th, and ranges one and two west of the 5th meridian, Alta., about 50 miles. (Jan., pg. 20.)

Gananoque, Perth and Lanark Ry.—The Ontario Legislature is being asked to incorporate a company with this title to build a railway from Gananoque to Lanark, with a branch from Morton northerly to Portland, and other branches as may be expedient. J. C. Judd, Ottawa, is solicitor for applicants. (See Gananoque to Elgin, Dec., 1912, pg. 604.)

Hudson Bay, Peace River and Pacific Ry.—Application is being made to the Dominion Parliament to extend the time within which the railway authorized by chap. 93 of the statutes of 1911 may be built. Lewis and Smellie, Ottawa, are solicitors for applicants.

The Minister of Railways has approved route map from near Winnipeg, at the crossing of the Winnipeg River, towards Port Nelson, Man., for 7.50 miles.

The route of this projected railway extends from Winnipeg to where the Winnipeg River flows into Lake Winnipeg, and thence to Port Nelson, Hudson Bay. The directors of the company are:—President, R. M. Simpson; directors—Hon. D. C. Cameron, F. W. Heubach, D. E. Sprague, R. C. MacDonald, F. W. Drewry, W. S. Evans, and R. D. Waugh, all of Winnipeg. (Mar., 1912, pg. 120.)

Huntingdon and Hemmingford Ry.—The Quebec Legislature has incorporated a company with this title, to build the line previously mentioned. (Nov., 1912, pg. 558.)

Intercolonial Ry.—We are officially advised that the following new structures were completed during 1912:—Freight shed, Halifax, N.S.; brick freight shed, Truro, N.S.; six stall engine house, Point Tupper, N.S.; passenger stations, Mulgrave, Sayabec and Nelson, Chatham, Fredericton; and an extension to the general office building at Moncton. The following works were started during the year, and are also under construction:—Concrete pile pier at Halifax, N.S.; passenger stations at Truro and Point Tupper, N.S. (Jan., pg. 20.)

Intermarine Ry. and Navigation Co.—Application is being made to the Manitoba Legislature to incorporate a company with this title. The notice, over the name of W. S. Boyd, Winnipeg, solicitor to the applicants, does not disclose any further particulars.

Kettle Valley Lines.—J. J. Warren, President, in a recent interview is reported as stating that everything is favorable to seeing the completion of the line to a junction with the C.P.R., near Hope, B.C., by the autumn of 1914. Track laying has been completed for 46 miles out of Midway, and a limited train service is being operated thereon. The 90 miles from track end to Penticton is under construction, while steel has been laid from Penticton to Trout Creek. At this point a large steel bridge is under construction. Grading has been completed on the 30 miles from Trout Creek to Osprey Lake, and another 30 miles from Otter Summit to Merritt has been completed, and a train service put in operation. The extension to Hope branches off some 26 miles south of Merritt and grading is being pushed forward on the first 13 miles.

J. J. Warren, President, K.V.L., and officers of the Great Northern Ry. have recently been in conference with reference to the construction and operation of what is known as the Hope Mountain division. It is said an agreement has been reached for the construction by the K.V. Ry. of the line and for its joint operation.

Press reports state that a contract has been let to G. Chew for the grading of 12 miles. (Jan., pg. 20.)

Kootenay River to Blue Joe Creek, B.C.—The British Columbia Legislature is being asked to incorporate a company to build a standard or narrow gauge railway to be operated by steam, electricity or any other motive power, from the International boundary about nine miles west of the Kootenay River, westerly along the river valley, to the International boundary, where it is crossed by Blue Joe Creek, B.C. F. A. McDiarmid, Victoria, B.C., is solicitor for applicants.

L'Avenir and Melbourne Ry.—The Quebec Legislature has extended the line within which the company may build its projected line. (Dec., 1912, pg. 605.)

Little Nation River Ry.—The Quebec Legislature has extended the time for the building of this line. (Jan., pg. 20.)

Minneapolis, St. Paul and Sault Ste. Marie Ry.—Press reports state that a contract has been let to Foley, Welch and Stewart for the building of an extension from Ambrose, N.D., westerly for 75 miles. Ambrose is immediately south of the International boundary, and the line will run parallel to the C.P.R.'s Estevan and Weyburn-Lethbridge line. (Nov., 1912, pg. 558.)

Newfoundland.—Press reports state that the Newfoundland Government has entered into a contract for building railway from Green Bay on the east coast to Bay of Islands on the west coast of the island, 88 miles. The projected railway is said to be part of a project for the shortening of the time taken in making the trip from Great Britain to Canada. It is proposed to run a ferry service from Bay of Islands to Gaspe, Que., and negotiations are said to be in progress with various shipping companies for the inauguration of a steamship service between a British port and Green Bay. (Jan., pg. 28.)

North Ry.—The Dominion Parliament is being asked to declare the railway which this company has been authorized by the Quebec Legislature to build to be a work for the general advantage of Canada; to

confirm so far as Dominion Parliament can do all the rights, powers and privileges granted by the Quebec Legislature; to build additional lines to Ottawa, from Montreal to Quebec; and from Montreal and Quebec to the International boundary in the states of Maine, New Hampshire and Vermont, with power to build a bridge across or a tunnel under the St. Lawrence River.

The Quebec Legislature has passed an act varying the subsidy voted last year in aid of the building of the line from Montreal to the mouth of the Nottaway River on Hudson Bay. The original grant was of 4,000 acres of land a mile for the line from Montreal to the junction with the National Transcontinental Ry. at mileage 837 west of Moncton, N.B., and 5,000 acres of land a mile for the remaining mileage, the total length of the line being 650 miles. The act recently passed doubles the land subsidy, provides that it may not be converted into money by the province, gives the company the right of the ownership of mines and minerals in one-fifth of the land, provided the selection is made within five years; gives the company power to apply to the government for the grant of any water power along the route of the line as may be necessary for its purposes, at a rental of 50 cents a year per horsepower developed, provided the application is made within 15 years. (Jan., pg. 21.)

Pacific and Peace River Ry.—The Dominion Parliament is being asked to extend the time within which the company may build the line authorized by chap. 127 of the statutes of 1911. J. A. Ritchie, Ottawa, is solicitor for applicants. (April, 1912, pg. 182.)

Pacific Great Eastern Ry.—The land held by the Howe Sound and Northern Development Co., at Newport, B.C., has been transferred to the P.G.E. Development Co. It is proposed to develop the property by the erection of docks and wharves for ocean going vessels, and extensive railway terminals. In a recent speech the Premier of British Columbia is reported to have said that the terminals of the line would be in North Vancouver, where it had been arranged to lay out $10,000,000 in providing terminal facilities. D'Arcy Tate, Vice President, is reported as stating that at present it is more advantageous to spend money on construction northerly from Newport, than between North Vancouver and Newport. The entire line, however, will be built within contract time, although the North Vancouver-Newport section of 45 miles will be the last piece to be built.

The Premier of British Columbia is reported as having stated, Jan. 2, that arrangements will probably be completed during the year with the P.G.E. Ry. for the extension of the line beyond Fort George into the Peace River country, and probably on to the Alaskan boundary. (Jan., pg. 21.)

Quebec and Northeastern Ry.—The Quebec Legislature has incorporated a company with this title to build the railway already mentioned. (Nov., 1912, pg. 558.)

Roberval and Saguenay Ry.—The Quebec Legislature has extended the time within which this projected railway may be built, and has changed its name to that of La Compagnie de Chemin de Fer Le Nord, and authorized to acquire the Ha Ha Bay Ry. line, charter, etc. (Dec., 1912, pg. 605.)

St. John and Quebec Ry.—A. R. Gould, President, is reported as having stated, Jan. 9, that construction on the line from near St. John to Grand Falls, N.B., is being proceeded with satisfactorily. Eleven steam shovels are at work on the Gagetown-Centreville section, where the principal work is in progress. Orders have been placed for 16,000 tons of 80 lb. rails for delivery in June and July. These with the orders previously placed will be sufficient to lay the 120 miles between Gagetown and Centreville.

A survey is being made by the Aroostook Valley Ry. for a line across the state of Maine and through the province of Quebec to the bridge now under construction across the St. Lawrence River, near Quebec city. This work was started two years ago, and Mr. Gould added, the work now in progress is merely a continuance. He is President of both companies. (Nov., 1912, pg. 558.)

Saskatoon Transfer Ry.—This projected line will commence on the C.P.R. just west of the city limits of Saskatoon, Sask., and run south, connecting with the main line of the G.T. Pacific and the Goose Lake Branch of the Canadian Northern Ry. where these two lines cross. It will also extend eastward parallel with he C.N.R. to where the C.N.R. and the C.P.R. run parallel, and there connect with the C.P.R. again. The total length of the line will be about four miles, and connections will be made with the other railways by means of 12 degree curves. The line running south from the C.P.R. to the diamond permits of easy gradients and follows closely the level of the ground. The land on both sides of the line is being laid out for factory sites, and the gradients are such as to render it easy for spurs to be laid to the proposed manufacturing plants to be established there. The Saskatoon Land and Investment Co. is largely interested in the project. Brown and Loucks, civil engineers, Saskatoon, are the company's engineers. (Nov., 1912, pg. 558.)

Southampton Ry.—The Dominion Parliament is being asked to declare this railway (built under an act of the Nova Scotia Legislature) to be a work for the general advantage of Canada, and to authorize the lease of the line and undertaking to the C.P.R. Pringle, Thompson and Burgess, Ottawa, are solicitors for applicants. (Sept., 1912, pg. 451.)

Timiskaming and Northern Ontario Ry.—The bridge over the Montreal River, on the Elk Lake Branch, has been completed, and it was expected that track laying on the remaining 6.50 miles of the branch into Elk Lake, Ont., would b completed by Jan. 27. Work trains are being operated over the line as far as the Montreal River, and it is expected to have a regular train service in operation by Feb. 3. (Jan., pg. 21.)

J. L. Englehart, Chairman of the T. and N.O. Ry. Commission, is reported as stating that it is proposed to lay sidings 4,000 or 5,000 ft. in length, about seven miles apart on the line. Several of these sidings have already been laid, and others will be laid during the current year.

A spur line of seven miles from Iroquois Falls, to the Abitibi River Falls, is to be built at an early date. This line will start about half a mile north of Iroquois Falls station and will terminate at the site of the mills of the Abitibi Pulp and Paper Co's mills now being built.

Vancouver, B.C.—An offer was submitted to the Vancouver city council, Jan. 6, to lease the False Creek flats for 99 years, and to lay out terminals similar to those proposed by the Canadian Northern Ry. The C.N.R. is negotiating for a lease of the flats in perpetuity. The offer, press reports state, is being made on behalf of a company which proposes to lay out terminals which will be open to all railways entering Vancouver. (See also Canadian Northern Ry. Construction, etc.)

Vancouver Island-Mainland Bridge.—The project for the erection of a railway and general traffic bridge to connect Vancouver Island with the mainland of British Columbia is again to the front. The proposed site of the bridge is at Seymours Narrows, a point which was recommended as a probable site for a bridge during the early Government surveys for the C.P.R. The Minister of Public Works recently announced that he was making arrangements for the sending out of a survey party to investigate the matter as soon as possible in the spring.

Western Dominion Ry.—The Board of Railway Commissioners has approved of location plans of the line from sec. 34, tp. 6, range 1 west of the 5th meridian, at a junction with the located line of the projected Pincher Creek, Cardston and Montana Ry. to the Sarcee Indian Reserve, 130 miles. (Dec., 1912, pg. 605.)

Winnipeg to Hudson Bay.—At the opening of the current session of the Manitoba Legislature, Jan. 9, the Lieut.-Governor announced that it was the intention of the Government to secure connection with the main line of the Hudson Bay Ry., now being built by the Dominion Government, by the extension of one of the railway systems of the province, thereby providing most direct communication to Hudson Bay for the benefit of the people of the province.

Toronto Viaduct Proposals.

Representatives of the C.P.R. and G.T.R. waited on the Government at Ottawa, Jan. 13 to obtain a stay in the putting in operation of the Board of Railway Commissioners' order for the building of a viaduct along the Toronto water front from Bay St., east to the Don river. The object for which the stay was required was to have new plans considered for the work, and the companies promised to go ahead with the work immediately upon the decision of the Board whatever it might be. They abandoned their previous suggestion that a series of bridges be built, instead of a viaduct, and suggested the building of a six track viaduct, for the most part on filled land south of the present tracks, directly along the water front, extending from Bay to Cherry Sts., and thence across the Don river to a junction with the viaduct as originally proposed. The new plan does not contemplate any alteration in the viaduct plans west of Bay St., nor any material alteration as it affects the proposed new Union station. Counsel for the City of Toronto opposed the new proposals, on the ground that they would necessitate greatly increased damage for interference with properties, and ignore the wharves, etc., on the water front.

The Premier stated that a decision would be given at an early date. There had already been a delay of three and a half years in carrying out the original order. The present application should more properly have been directed to the Board of Railway Commissioners, who had power to reopen the question if they saw fit on the presentation of new objections or of an alternative plan, "but at the present moment," added Mr. Borden, "I would not be prepared to direct the Commissioners on such a matter."

C. P. R. Hotels.—In an interview in Winnipeg, Jan. 20, Hayter Reed, Manager in Chief C.P.R. Hotel, is quoted as stating that about 260 rooms with other necessary additions will be added to the Royal Alexandra Hotel there. Work will be started in the spring, and will be completed during the year. It is intended during the year to add to the hotels at Montreal, Banff, Glacier, and other places, but just exactly to what extent he could not state. The roof is being put on the new hotel at Calgary; and the extensions to the hotels at Vancouver and Victoria are in progress.

Electric Railway Department.

New Cars on the Winnipeg Electric Railway.

So successful has the type of car in use on the Winnipeg Electric Ry. proved during the past two years, that a considerable number have been and are being added to the equipment, 40 having been added in 1911, and the same number in 1912, all built in the company's Fort Rouge shops. The fact that the design has in no way been altered in the last two years is proof positive of their particular adaptability to the Winnipeg conditions of operation. The car and its details are shown in the accompanying five illustrations.

In general arrangement, figs. 1 and 2, these cars differ from those to be found under normal conditions of operation, but the severe winters to be considered in the operation of the Winnipeg line demand a modification of conventional designs if the comfort of the passengers is to be considered, and if the traffic is to be handled expeditiously. It will be noticed that the principal point of difference in construction demanded by this severe weather is the arrangement of entrance and exit both through the rear end. The front end is permanently closed to egress except by the motorman, and for his convenience there is a two step metal ladder dropping sheer from the side of the car from the front vestibule door.

A general impression gathered is that the car is rather higher set than conventional practice dictates elsewhere, but any inconvenience in entering or leaving, from the fact that the car body is high, is eliminated by the convenient arrangement of steps at the rear, these being so set into the rear vestibule as to make it possible to have two well proportioned steps, which, in addition to having the vestibule on a lower level than the car interior, makes entrance and egress very easy. The entrance and exit are separated by a pipe post and brass hand rail, the entrance being next the car body and the exit at the rear of the vestibule.

The interior arrangement is shown in fig. 2. The seats are arranged lengthwise of the car, permitting of easier internal movement of the passengers and conductor. From the rear, there is a central wide, double door entrance, whereas at the front there is only a single narrow door for the convenience of the motorman, passengers not having access to the front vestibule. The interior arrangement of the front vestibule is shown in fig. 2.

The seat cushions and backs are finished in green plush. The interior woodwork finish is in cherry and oak, the outside being finished in cherry sheathing, with the posts, etc., finished in yellow as fig. 1 shows. The deck sashes open by levers from the inside, the front ones opening to the front, and the rear ones to the rear, making ample provision for a good circulation of air through the car, from front to rear, when desired. The heating is from a hot air heater in the front vestibule, from which a pipe passes under the seats on the left side of the car, with outlets arranged at convenient intervals. The interior lighting arrangement consists of 6 lights down the centre of the car and 5 down each side under the deck.

The length of car body is 33 ft., and it is 45 ft. over bumpers, with an overall width of 8 ft. 4¾ ins., made possible by the wide devil strips used in Winnipeg. The car body frame is built up around two centre sills of 8 in. I beams, filled out with wood fillers in the channel recess on each side of the I beam, and on two 6 by 8 in. wooden side sills. Under the centre of the car, at 7 ft. centres, are two needle beams,—8 in. I beams—on the under side of which, below the sills, are queen posts 3 ins. high, up against which the truss rods bear. These truss rods, 1⅛ in. diameter, with centre turnbuckle, pass up through the end sills of the car along the face of the sills, coming out through the end sill just above the vestibule floor level, where they may be easily got at. The ends of the side sills are also trussed up by means of inside truss rods, shown in fig. 3. Each of these side truss rods is a single length of ½ by 2 in. flat iron, resting on the top of the side posts of the body, as will be noted on the sides in fig. 3, in the notches shown in fig. 4. This rod bends downward at the second post from each end, connecting to a 1⅛ in. rod through a pin connection, the rod coming out through the end sills, just in front of the step side as shown in fig. 1, where the end is accessible for tightening up. The side construction of the car body is shown to advantage in fig. 5, where it will be noted that the frame is thoroughly braced, which with the trusses makes for a very solid construction.

The side posts are 5¼ by 2¼ ins., to top of each of which is connected a carline, formed of 1¼ by ½ in. bar stock. The roof is solidly supported thereby, and in addition, it is trussed under the sashes as shown in fig. 2.

The front vestibule is 3½ ft. deep, and the rear one 6½ ft. deep, both 6 ins. below the level of the car floor. Both vestibules are supported on 5 by 5 by ½ in. angles,

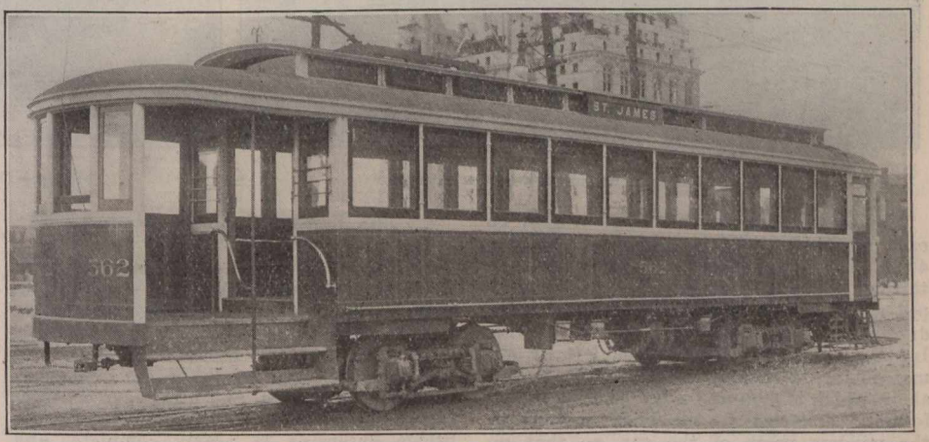


Fig. 1.—Latest Type of Car on Winnipeg Electric Railway.

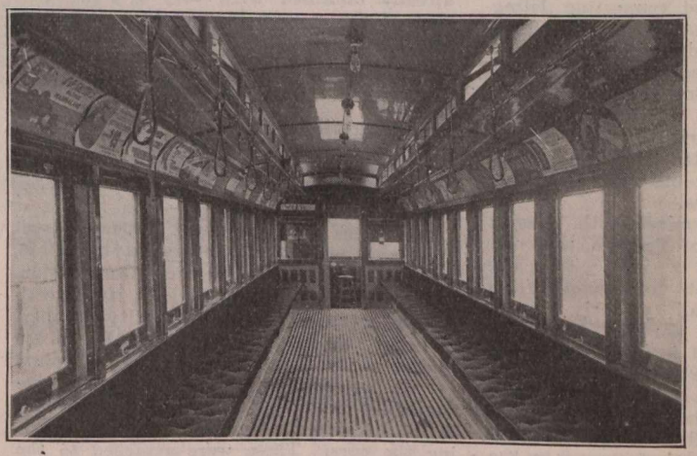


Fig. 2.—Interior of Winnipeg Electric Ry. New Car.

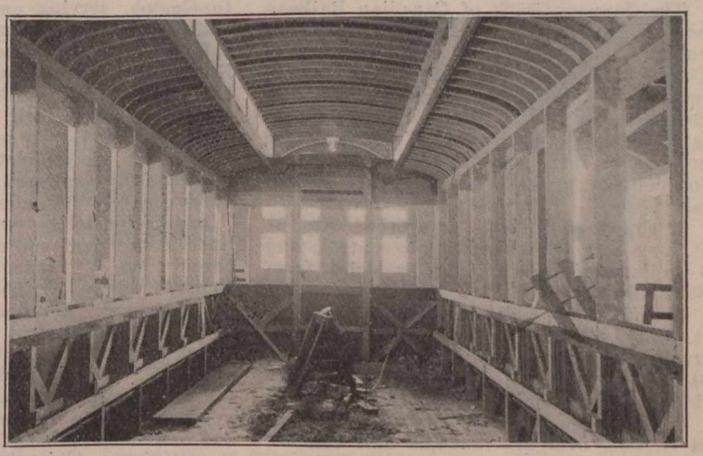


Fig. 3.—Unfinished Interior of New Car.

four in each case, connecting to the sills of the car. The centre angles have a leg turned upward, this leg attached to the wood filler of the centre sill, and the outer angles with a leg downward, the other leg being attached to the lower face of the side sill. The angles on the step side are given an offset.

30 Westinghouse 1,200 volt passenger equipments, 125 h.p. motors, multiple unit field control, for cars already in operation, from Canadian Westinghouse Co.

65 semi-convertible city p.a.y.e. cars, single ended, 30 ft. body, 44 ft. long over all, for 1913 delivery, from Preston Car and Coach Co.

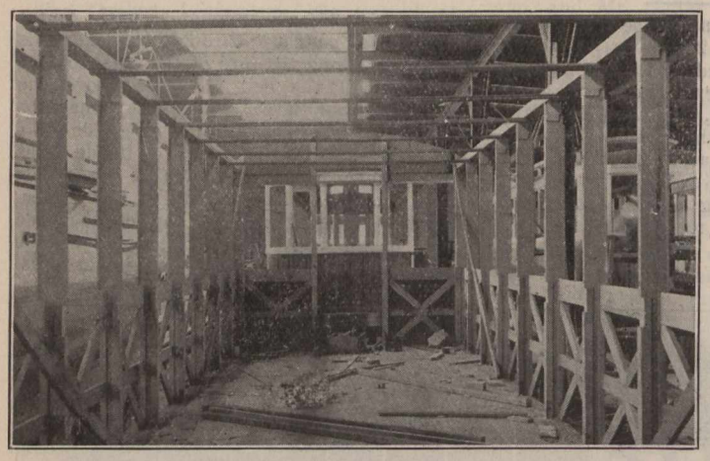


Fig. 4.—Skeleton Framework of Car Interior.

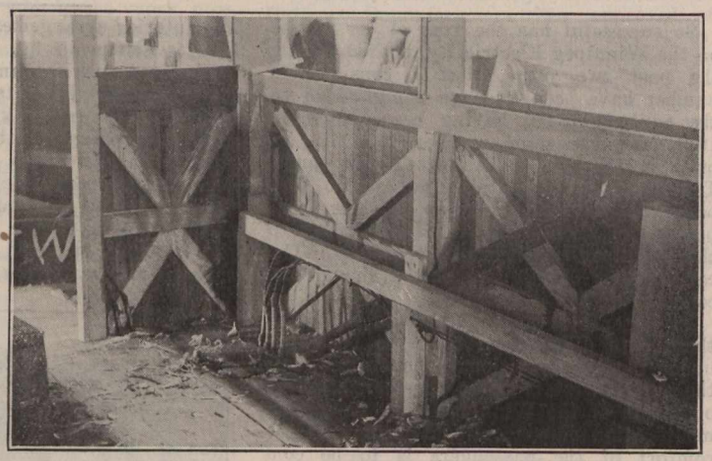


Fig. 5.—Detail View of Car Corner Framing.

The car is mounted on Brill trucks, on each of which there are two G80 motors, 40 h.p. each, operated by the motorman through a K6 controller. The car is equipped with air brakes, supplied from a motor driven air compressor unit under the car. In the front vestibule, to the left of the motorman, is located the hot air heater, above which is mounted a bell ringing transformer, connected to the push buttons in the window posts of the car, so that no batteries or dry cells are required to be carried, power being drawn from the line.

The foregoing information was obtained through the courtesy of Wilson Phillips, Superintendent, and G. Garrett, Master Mechanic, Winnipeg Electric Ry.

British Columbia Electric Railway Company's Equipment Orders.

The January issue of Canadian Railway and Marine World contained mention of rolling stock orders placed by the British Columbia Electric Ry., consequent on the increase of mileage put into operation, and the increased traffic generally. Following is a complete list of the rolling stock ordered in 1912, some items of which are for delivery in 1913, as mentioned in our last issue:—

22 closed, 40 ft. body, interurban cars, 51 ft. long over all, multiple unit control; and 6 similar cars, with toilet room added, from St. Louis Car Co.

35 semi-convertible, p.a.y.e. city cars, 30 ft. body, 43 ft. long over all, single end trucks and bodies; one closed stepless car, 34 ft. body, 44 ft. long over all; one near side city car, from J. G. Brill Co.

4 interurban baggage and express cars, 54 ft. long over all, multiple unit control, from Niles Car Co.

70 freight box cars, 60,000 lbs. capacity, 40 ft. long over all; 45 flat cars, 60,000 lbs. capacity, 41 ft. long over all, from Seattle Car and Mfg. Co.

6 Hart-Otis dump cars, all steel, 60,000 lbs. capacity, 28 ft. long over all, from Hart-Otis Car Co., Montreal.

2 double broom snow sweepers, single truck, 28 ft. long over all, from Ottawa Car Co.

5 electric locomotives, 60 tons capacity, 1,000 h.p., 600-1200 volt, 33 ft. long over all, from Westinghouse Co.

The Toronto Suburban Railway.

During 1912 substantial progress was made in the construction of the extensions planned, but work was delayed considerably by the scarcity of labor, by the difficulty in getting delivery of materials, and by wet weather. The whole of the extensions have been surveyed, and are under contract to be constructed. Grading on the Woodbridge extension is nearly complete, and grading is progressing vigorously on the Toronto to Cooksville, Georgetown and Guelph lines.

The present terminus of the existing railway lines is situated well within the limits of Toronto at Bathurst St., where the company's lines connect with the Toronto Ry. From this terminus the company's line runs northwesterly to Weston and Lambton Mills, and it is being extended from Weston to Woodbridge, and from Lambton Mills to Guelph, serving and connecting Islington, Summerville, Dixie, Cooksville, Erindale, Streetsville, Meadowvale, Churchville, Huttonville, Norval, Georgetown, Glen Williams, Acton, Milton, Brampton and Guelph. These extensions will be constructed for the most part upon private right of way. When they are completed the company will own a fully equipped electric railway of approximately 90 miles.

In addition to the terminal of the present lines in the west end of Toronto, the company has, under its franchise rights, secured right of way from the present terminal easterly to a point in the central portion of the city near St. George St. It is proposed that a terminal will be provided adjoining the C.P.R.'s North Toronto station and the terminus of the Toronto and York Radial Ry., and one of the principal Canadian Northern Ry. stations. This right of way into the city will enable passengers to transfer from the company's line to six different lines of the Toronto Ry. running north and south, thus affording every facility to passengers entering Toronto on the company's lines to reach any part of the city within a few minutes.

The company has already in operation, or in course of erection, 30 miles of transmission lines in Toronto and surrounding districts. Electric current for light, heating and power purposes is obtained from one of the large Niagara water power companies. The company intends to utilize the right of way in connection with the railway for the purpose of extending its transmission lines and taking advantage of the large demand for electric current for lighting, heating and power purposes in the districts which will be served by the railway.

From their knowledge of the districts to be served, the directors anticipate a profitable revenue immediately on the opening of the new lines, which are expected to be completed this year. Although only a small portion of the total railway mileage mentioned above is yet in operation, the results are entirely satisfactory. For the year ended June 30, 1912, the number of passengers carried was 1,462,656, compared with 1,047,191 for the previous year, an increase of 39.67%, and the gross earnings per mile of railway were $6,389.64 a mile, compared with $5,484 for the previous year. It is anticipated that when the proposed lines are completed and the business fully developed, the gross earnings from the railway alone should amount to $500,000 a year, in addition to which a substantial revenue should be derived from the light, heat and power business. However, taking the figures on the basis of the results already obtained with only a small portion of the system in operation, the gross earnings would amount to $460,800 a year; the working expenses are estimated at $275,000, leaving estimated net earnings of $185,800.

The directors are Sir Wm. Mackenzie, President; A. H. Royce, Vice President; L. W. Mitchell, F. H. Phippen, G. C. Royce, Toronto; R. M. Horne-Payne, London, Eng.

Turnstiles on Prepayment Type of Street Cars have been prohibited in Dayton, Ohio, by the Ohio Public Service Commission. The Commission began, in May, an investigation of the safety and security of operation of the People's Ry., especially in the matter of the use of turnstiles at the points of car entrance. It was found that the turnstiles were wood and metal devices used for registering the number of persons entering the cars. These were attached to the vestibules of the cars so as to form a rigid obstacle and an impassable barrier in the way of passengers or persons seeking to enter or leave the car until the machinery was released, allowing the arms to turn or fall. It was found that this at times resulted in bruising or injuring passengers attempting to enter when passenger and conductor failed to act in exact unison. It was also found that the turnstiles created an additional element of danger in case of accident or other emergency necessitating prompt unloading of passengers.

Electric Railway Statistics for Year Ended June 30, 1912

The following abbreviations are used in the names of railways:—E., electric; E.R., electric railway; E.S.R., electric street railway; Ry., railway; S.R., street railway. The minus mark (—) in the column for net income or deficit, shows there was a deficit in the operation of the line to the extent of the figures given.

	First Main Track Mileage	Gross earnings from Operation	Miscellaneous Earnings	Operating Expenses	Taxes, Funded Debt, etc.	Net Income or Deficit	Total Car Mileage	Fare Passengers Carried
Berlin S.R. (1)	3.20	$ 43,336	$.....	$ 26,637	$ 12,206	$ 4,491	115,113	873,432
Berlin and Northern Ry.	2.40	7,993	.....	6,166	925	891	32,000	191,992
Brantford and Hamilton Ry. (2)	23.00	130,935	.....	83,508	68,396	—21,609	323,355	486,329
British Columbia E.R. (3)	200.22	3,629,048	.....	2,543,382	.....	.....	10,804,532	62,154,116
Calgary Municipal Ry. (4)	42.00	472,240	.....	282,600	47,264	149,375	1,643,328	11,578,130
Cape Breton E.R. (5)	30.52	212,924	111,191	126,783	100,789	96,543	622,140	4,044,092
Chatham, Wallaceburg and Lake Erie Ry. (6)	38.94	117,492	.....	70,287	37,768	9,436	236,751	374,816
Cornwall E.R. (7)	4.00	32,253	.....	23,948	.....	8,305	217,028	411,016
Edmonton Radial Ry. (8)	27.50	354,549	.....	314,696	83,941	—44,089	953,054	8,385,178
Galt, Preston and Hespeler E.R. (9)	17.81	179,606	80	104,271	5,954	69,460	289,642	1,110,725
Grand Valley Ry. (10)	38.29	95,772	.....	75,867	3,384	16,521	402,386	1,338,776
Guelph Radial Ry. (11)	8.00	34,182	.....	25,105	1,627	7,449	279,000	820,836
Halifax Electric Tramways Co.	5.41	241,424	157,065	129,293	42,023	227,172	915,239	5,428,495
Hamilton and Dundas E.R. (2)	7.00	59,291	.....	42,178	6,096	11,016	133,119	645,059
Hamilton, Grimsby and Beamsville E.R. (2)	22.00	128,449	.....	109,363	10,762	8,322	364,900	632,341
Hamilton Radial Ry. (2)	25.00	173,761	.....	123,024	40,381	10,355	557,770	2,289,947
Hamilton S.R. (2)	22.00	512,496	.....	297,439	78,770	136,286	1,817,946	12,322,744
Hull E.R. (9)	14.12	125,467	33,818	102,668	1,001	55,616	819,313	2,028,249
International Transit Co. (12)	3.68	104,958	.....	41,429	15,052	48,476	291,829	1,957,225
Kingston, Portsmouth and Cataraqui E.R.	8.00	36,285	.....	13,716	5,920	—351	199,680	856,540
Levis County Ry.	10.25	71,523	557	61,370	13,519	—2,808	371,760	1,448,541
London S.R.	26.73	293,614	15	194,637	34,253	64,638	1,452,351	7,908,572
London and L. Erie Ry. and Transport. Co. (13)	27.50	130,350	78	80,200	37,747	12,480	406,434	637,056
Moncton Tramway	2.06	6,675	.....	6,631	.....	.....	35,476	145,025
Montreal Park and Island Ry. (14)	29.37	387,999	.....	251,245	161,143	—24,388	1,358,357	4,999,336
Montreal S.R. (14)	76.67	4,670,827	130,852	2,664,148	577,579	1,560,452	16,117,398	115,455,205
Montreal Terminal Ry. (14)	18.22	134,019	.....	122,116	48,693	—36,789	678,643	1,917,795
Montreal and Southern Counties Ry. (15)	9.10	105,793	216	91,365	1,351	13,292	268,697	1,354,510
Moose Jaw E.R.	6.00	37,794	.....	28,982	.....	.....	216,074	793,486
Nelson S.R. (16)	1.25	12,574	.....	13,080	1,897	—2,404	53,664	308,823
Niagara Falls Park and River Ry. (17)	11.91	379,802	10	268,445	83,812	27,554	316,683	1,339,458
Niagara, St. Catharines and Toronto Ry.	47.76	149,500	8,349	80,387	33,500	43,967	947,859	3,499,613
Nipissing Central Ry. (18)	5.01	55,308	438	34,367	19	21,360	146,847	715,315
Oshawa Ry. (19)	7.81	92,519	347	69,844	4,316	18,706	61,708	197,931
Ottawa E.R. (20)	23.56	908,305	.....	510,460	56,890	340,955	4,366,284	20,891,122
Peterborough Radial Ry.	6.04	39,187	.....	34,962	4,314	—89	256,662	864,785
Picton County Ry.	7.90	56,253	34,415	31,480	40,545	18,643	135,662	1,171,470
Port Arthur and Ft. Wm. E.R. (21)	25.33	196,679	2,374	122,396	.....	.....	948,900	4,541,011
Quebec Ry., Light and Power Co. (22)								
Citadel Division	17.22	379,491	.....	223,737	.....	.....	1,782,928	8,795,995
Montmorency Division	28.00	198,512	.....	140,530	.....	.....	397,412	1,445,165
Sandwich, Windsor and Amherstburg Ry. (23)	36.63	217,765	47,179	122,413	35,760	106,771	923,257	3,769,603
Sarnia S.R.	8.25	49,931	.....	33,153	4,444	12,333	143,990	878,765
Sherbrooke S.R.	9.00	42,928	46,512	36,400	54,392	—1,352	423,200	1,064,003
St. John Ry. (24)	12.50	191,412	96,030	148,266	51,613	87,561	1,033,454	4,330,339
St. Stephen E.R. (25)	4.00	31,484	1,078	26,512	5,649	400	183,960	617,091
St. Thomas E.R. (26)	7.00	20,988	.....	26,398	.....	.....	281,700	470,609
Suburban Rapid Transit Co. (29)	19.61	48,422	8,016	53,051	26,417	—23,030	304,900	973,663
Toronto Ry. (27)	57.98	5,160,448	.....	2,703,747	1,071,277	1,385,424	18,543,297	128,317,403
Toronto Suburban Ry. (27)	9.84	78,763	2,729	54,570	6,384	23,538	248,675	1,462,656
Toronto and York Radial Ry. (27)	72.43	469,700	.....	293,140	122,123	54,535	1,264,693	4,532,504
Windsor, Essex and Lake Shore Rapid Ry. (28)	36.16	128,823	.....	76,642	54,914	—2,732	358,603	419,786
Winnipeg E.R. (29)	79.95	1,937,216	935,659	1,035,779	412,886	1,424,211	6,801,865	45,181,690
Winnipeg, Selkirk and Lake Winnipeg Ry. (29)	21.44	95,483	.....	50,615	23,595	21,272	170,200	355,576
Yarmouth E.R.	3.00	20,908	.....	19,229	2,730	—1,045	63,976	151,694
	1308.17	$23,499,250	$1,617,017	$14,266,674	$3,533,655	$6,097,722	82,070,064	488,865,682
						—160,690		
						$5,937,032		

Notes to Electric Railway Statistics.

(1) The B.S. Ry. is owned by the City of Berlin, Ont.; it has 0.78 mile of double track and 0.41 mile of sidings.

(2) The B. and H. Ry., the H. and D. Ry., the H.G. and B.E.R., the H.R.R., and the H.S.R. are owned by the Dominion Power and Transmission Co. The B. and H. Ry. freight car mileage was 29,538, and 4,978 tons of freight were carried. The H. and D. Ry. freight car mileage was 98, and 227 tons of freight were carried. The H. G. and B.E. Ry. freight car mileage was 48,878, and 64,160 tons of freight were carried. The H.R. Ry. has 8.69 miles of double track; its freight cars ran 21,819 miles and carried 11,951 tons of freight.

(3) The B.C.E. Ry. has 59.40 miles of double track lines, and 27.59 miles of sidings; it leases 140.66 miles of track, including the Vancouver and Lulu Island Ry. from the C.P.R., and the Vancouver, Fraser Valley and Southern Ry. Its freight cars ran 905,027 miles and carried 256,083 tons of freight.

(4) The C.M.R. is owned by the City of Calgary, Alta.; it has 10 miles of double track, and one mile of sidings.

(5) The C.B.E.R. is owned by the Cape Breton Electric Co., which operates an electric lighting, and power, service and a ferry service. It has 1.05 miles of sidings.

(6) The C.W. and L.E. Ry. has six miles of sidings. Its freight cars ran 39,270 miles and carried 71,347 tons of freight.

(7) The C.E. Ry. has 2.50 miles of sidings.

(8) The E.R.R. is owned by the City of Edmonton, Alta.

(9) The G.P. and H.E.R. is controlled by the C.P.R., as also is the Hull E.R. The G.P. and H.E.R. has 1.36 miles of double track, and 2.25 miles of sidings. Its freight cars ran 39,565 miles, and carried 153,729 tons of freight. The H.E.R. has 10.60 miles of double track, and 1.12 miles of sidings, and it leases 1.82 miles of track. Its freight cars ran 26,864 miles and carried 5,719 tons.

(10) The G.V.R. owns also the Brantford E. Ry. and the Woodstock, Thames Valley and Ingersoll, and its mileage includes these three lines. There are 1.95 miles of double track on these lines. It carried 264 tons of freight.

(11) The G.R. Ry. is owned by the City of Guelph, Ont.; it has 0.33 mile of sidings. It carried 7,000 tons of freight, running 7,000 miles of freight car mileage.

(12) The I.T. Co. is owned by the Lake Superior Corporation, which also owns the Trans St. Mary E. Ry., in Sault Ste. Marie, Mich., with which the I.T. Co. is connected by a bridge. It has 0.22 mile of sidings.

(13) The L. and L.E. Ry. and T.C. reports freight car mileage, 42,454 miles, and 6,995 tons of freight carried.

(14) The Montreal Tramways Co. owns the M.P. and I. Ry., the M.S. Ry., and the M.T. Ry. The M.P. and I. Ry. has 16.03 miles of double track, and 4.68 miles of sidings. It carried 111,005 tons of freight, with 21,579 miles of freight car mileage. The M.S. Ry. has 60.10 miles of double track, and 17.59 miles of sidings; it also leases 8.64 miles of track. It operated freight cars over 171,217 miles, and carried 100,000 tons of freight. The M.T. Co. has 4.28 miles of double track, and 6.55 miles of sidings. It carried 91,302 tons of freight, its freight car mileage being 62,363.

All the figures given for these three companies are those for the year ended June 30, 1911, the companies not having reported for 1912.

(15) The M. and S.C. Ry. is controlled by the G.T.R.

(16) The N.S.R. leases 2.12 miles of track.

(17) The N.F.,P and R. Ry. is owned by the International Ry., which also owns electric lines on the U.S. side of the Niagara frontier. It has 11.20 miles of double track, mile of sidings. It carried 261,390 tons of tons of freight.

(18) The N.C. Ry. is owned by the Ontario Government, through the Timiskaming and Northern Ontario Ry. Commission. It has 0.27 mile of double track, and 0.19 mile of sidings. It carried 261,090 tons of freight.

(19) The O. Ry. reports 26,254 miles of freight car mileage, 127,388 tons of freight being carried.

(20) The O.E. Ry. has 21.42 miles of double track, and 0.50 mile of sidings, and operates over 2.22 miles of branch lines.

(21) The P.A. and F.W.E.R. is owned by the cities of Port Arthur and Fort William, Ont., and is operated by a joint commission representing those cities. It carried 49,827 tons of freight.

(22) The Q. Ry., L. and P. Co. also operates a steam service over a portion of its lines, the statistics of which will be found under Steam Railway Statistics. There are 9.80 miles of double track, and three miles of sidings. It carried 4,500 tons of freight on the Citadel Division.

(23) The S.W. and A. Ry. owns the Windsor and Tecumseh E. Ry., and the figures given include those for the latter line. The S..W. and A. Ry. is controlled by the Detroit United Ry. Co.

(24) The St. J. Ry. has 6.50 miles of double track. The figures given are those for the year ended June 30, 1911, the company not having reported for 1912.

(25) The St. S. E. Ry. operates three miles of leased lines.

(26) The St. T.E. Ry. is owned by the city of St. Thomas, Ont.

(27) The Toronto Ry. owns the T. and Y.R. Ry., and interests allied with it; also owns the Toronto Suburban Ry. The T. Ry. has 55.39 miles of double track, and 7.07 miles of sidings. The T. and Y.R. Ry. has 9.57 miles of sidings. Its freight cars ran 88,317 miles and carried 60,490 tons.

(28) The W.E. and L.S.R. Ry. has 3.90 miles of sidings. Its freight cars ran 85,223 miles and carried 26,781 tons of freight.

(29) The Winnipeg Electric Ry. also owns the Suburban Transit Co., and the Winnipeg, Selkirk and Lake Winnipeg E.R. The latter company carried 4,556 tons of freight.

Advance in Fares on the Hull Electric Railway.

Canadian Railway and Marine World for December contained the award by a board of conciliation between the Hull Electric Co. and its employes, in which the board made the following recommendation:—"The members of the board are of the opinion that in view of the proposed increase of wages and considering the financial condition of the company, as shown by its annual statement, and the evidence given before the board, the company would be justified in increasing its charge for fares."

The company has since announced the following changes in its tariff. The fare to a section having an average distance of five miles from Ottawa has been increased from 5c. to 6¼c., e.g., 4 tickets for 25c. The fare to a section having an average distance of eight miles from Ottawa has been increased from 6¼c. to 8 1-3c., e.g., three tickets for 25c. The city fares remain unchanged.

The Electric Railway Statistics for the Year Ended June 30, 1912.

The statistical returns for the operation of electric railways for the year ended June 30, 1912, have been issued by the Department of Railways, having been compiled by the Comptroller of Railway Statistics, J. L. Payne. In the table given on another page, while figures are given for all the railways, it is to be noted that those for the three companies owned by the Montreal Tramways Co., and for the St. John Ry., are the figures for the previous year ended June 30, 1911, these companies not having reported for the recent operating year.

The total length of first main track is 1.308.17, while there have been 294.50 miles of second main track, and 120.84 miles of sidings. There was an increase of 84.44 miles of first main track, 34.76 miles of second main track, and 17.30 miles of sidings during the year.

The common stock liability of the several companies was $70,829,118, and the funded debt $52,018,828, a total of $122,-841,946, an increase of $11,309,599 over the amount reported June 30, 1911.

The total earnings for the year were:—Passenger receipts, $22,007,750.15; freight receipts, $1,025,371.93; mail and express receipts, $78,818.66; other car earnings, $67,-022.30; miscellaneous earnings, $320,287.27; gross earnings from operation, $23,499,250.-31, against $20,356,952 for the previous year ended June 30, 1911. The operating expenses were $14,266,674.63, distributed as follows:—Maintenance of way and structures, $1,228,972.10; maintenance of equipment, $1,859,919.21; operation of power plants, $2,535,576.10; operation of cars, $6,-770,560.47; general, $1,871,626.75. The net operating income was therefore $10,849,-593.40, out of which was paid $1,581,802.81 for taxes; $1,570,202.02 for interest on funded debt; $193,068.26 interest on floating debt; $188,582.57 for other deductions, and "undistributed," $1,378,906.56, leaving net income for dividends to stockholders, etc., of $5,937,562.24. The "undistributed" amount refers to the British Columbia Electric Ry., which operates an electric lighting and power plant in addition to an electric railway.

The total number of fare passengers carried was 488,865,682, exclusive of 125,453,320 transfer passengers, showing an increase of 62,568,890, as compared with 1911. The total passenger car mileage was 80,402,089, and the freight and miscellaneous car mileage 1,667,975, an increase of 8,867,961 passenger car mileage, and of 583,297 in freight car mileage. The number of tons of freight handled was 1,435,525, compared with 1,228,-362 for the previous year. The growth of freight business has steadily increased since 1901.

The total number of cars of all classes in service during the year was 4,478, against 4,325 in the previous year.

Following is a comparative table:—

	1910-11	1911-12
Mileage	1,224	1,308
Capital liability	$111,532,347	$122,841,946
Earnings	$20,356,952	$23,499,250
Operating expenses	$12,096,134	$14,266,075
Fare passengers carried	426,296,792	488,865,682
Employes	13,671	14,760
Salaries and wages	$8,559,215	$9,261,370
Tons of freight	1,228,362	1,435,525
Persons killed	102	110
Persons injured	2,670	3,128

Windsor, Essex and Lake Shore Rapid Railway.

The differences between the W.E. & L.S. Rapid Ry. and the town of Leamington, Ont., have been amicably settled. Under the franchise given the company by the town in 1907 the company was to build a spur line of 4,500 ft. to Lake Erie and to operate a car on it in June, July, August and September each year. The company did not build the spur, not being financially able to do so, and a bylaw was introduced in the town council recently to cancel the franchise unless the spur line was constructed and operated as required.

Finally the council accepted a proposition made by A. Eastman, General Manager, W.E. & L.S.R.R., to postpone the building of the spur for five years, the company in the meantime to operate a 20 passenger motor car between the town and the lake and to move into the centre of the street, at its own expense, a portion of the track that was built along the side of the street by order of the town.

Calgary Municipal Railway's New Equipment.

The commission operating the municipally owned electric railway in Calgary, Alta., has placed orders with the Ottawa Car Co. for cars and trailers, and with the Canadian Westinghouse Co. for motor and air brake equipment, as follows: 12 car bodies, each 46½ ft. long, at $3,165 each; 12 car bodies, each 41½ ft. long, at $3,420 each; 6 trailers, with side entrances, each 44 ft. long, at $3,467 each; 30 sets of complete trucks, type 22-G-1, $925 each; 24 complete quadruple motor equipments, $2,350 each; 24 complete air brake equipments, $236.90 each. Tenders were also considered at a recent meeting for a snow sweeper, and it was recommended that the tender of the Ottawa Car Co., at $1,500 f.o.b. Ottawa, be accepted, for immediate delivery, the amount to be paid out of the revenue chargeable against the amount to be raised by bylaw, as soon as the bylaw is passed. The cars just ordered, we are advised, are chiefly intended to be used between the city and the C.P.R. Ogden Shops, during rush hours.

The Victorian Legislative Council (Australia) has authorized the electrification of the Melbourne suburban lines. The plans provide for a 1,500 volt direct current.

The Gateshead and District Tramways Co. is reported to have decided to equip its entire service in the neighborhood of Gateshead, Eng., with pay-as-you-enter cars. Several of these cars have been in use on the system for some time, and it is claimed that an increase of 7% in the receipts is attributable to their adoption.

Electric Railway Track Laid in 1912.

Below is a table showing track laid on electric railways in Canada during 1912, as officially reported to Canadian Railway and Marine World. The table is not published as a complete one, owing to the fact that some of the companies have not replied to the circular sent, but it is believed to be approximately correct. The total mileage of new tracks given in our last issue was 107.16, and the revised figures reduced this to 106.56, owing to second track work work having in some cases been reported as new mileage. In addition to the new mileage the British Columbia Electric Ry. laid 8.54 miles, the Halifax Electric Tramways Co., 3.42 miles, and the Winnipeg Electric Ry. about 8 miles of second track on previously existing lines.

	Miles.	Miles.
Brandon Municipal Ry.—		
Extensions		7.20
British Columbia Electric Ry.—		
Various extensions:—		
Vancouver	4.32	
South Vancouver	0.36	
Point Grey	4.20	
New Westminster	9.28	
North Vancouver	0.50	
Victoria	9.2	
		27.86
Calgary Municipal Ry.—		
Various extensions		17.50
Edmonton Radial Ry.—		
Three extensions		2.49
Guelph Radial Ry.—		
York road to City Limits		0.60
Halifax Electric Tramway.—		
One extension		0.80
International Transit Co.—		
Extension in Steelton, Ont.		0.41
Lethbridge Municipal Ry.—		
Lines in city		10.50
Levis County Ry.—		
St. Romauld to Garneau's Bridge, Que..		1.50
Moncton Tramways Electricity and Gas Co.—		
Three lines in Moncton, N.B.		0.74
Niagara, Welland and Lake Erie Ry.—		
Line in Welland, Ont.		1.00
Nipissing Central Ry.—		
Haileybury, Ont., to spur line	1.32	
Liskeard, Ont., to Wabis River	1.61	
		2.93
Oshawa Ry.—		
Line to brick yard, Oshawa, Ont.		1.50
Peterborough Radial Ry.—		
Extensions		0.75
Saskatoon Municipal Ry.—		
New lines		10.50
Toronto Eastern Ry.—		
Bowmanville, Ont.		0.36
Toronto Civic Lines—		
St. Clair Ave. Line	3.20	
Gerrard St. Line	1.85	
Danforth Ave. Line	1.12	
		6.17
Western Canada Power Line—		
Ruskin to Stave Falls, B.C.		6.00
Winnipeg Electric Ry.—		
Various extensions		8.47
Winnipeg, Selkirk and Lake Winnipeg Ry.		0.92
Total		106.56

Changes in International Ry.—The reorganization of the International Ry. Co., of Buffalo, N.Y., has been effected, the company having filed a mortgage of $60,000,000 given to the Bankers' Trust Company, of New York. Bonds to the amount of $8,176,000 will be issued to take up outstanding notes and other obligations of the International Ry. Co. and the Crosstown St. Ry. Co., which are merged in the reorganization. T. Penney, who has been president of the I.R. Co. for the past four years, has resigned, in order to attend to his own commercial interests, but remains a director. T. E. Millen continues as Chairman of the Board of Directors.

London Street Ry.—Gross earnings for Nov., $25,442.84; expenses, $18,371.43; net earnings, $7,071.41; deductions, $2,371.25; net income, $4.700.16. Aggregate gross earnings for 12 months ended Nov. 30, $278,217.98; expenses, $192,203.29; net earnings, $86.014.59; deductions, $26,461; net income, $59,553.69.

Montreal Tramway Co.'s Betterments and New Rolling Stock.

In answer to press criticisms that the Montreal Tramways Co. is not spending the money it should on track improvements and in providing new cars, the following figures have been given out.

The Montreal St. Ry. and its subsidiaries made the following expenditures for new equipment, betterments, etc.: 1908, $842,884.60; 1909, $729,368.36; 1910, $755,950.51; 1911, $871,193.04. The Montreal Tramways Co., in the 11 months to Nov. 30, 1912, spent $1,238,240.38 for similar purposes.

New cars have been put in service as follows:—

	No.	Seating capacity.
1908	19	836
1909	nil.	
1910	18	720
1911	41	1,707
1912-13	99	3,960

Cars have been scrapped as follows.

	Summer.		Winter.	
	No.	Seats.	No.	Seats.
1908	2	90	2	48
1909	3	135	8	192
1910	15	675	16	384
1911	7	315	11	264
1912	26	1,170	25	600
	53	2,385	62	1,488

In reference to these figures the company's statement says:—The cars scrapped were 53 summer cars with seating capacity of 2,385, and 62 winter cars with seating capacity of 1,488. As the summer cars never ran in winter and the winter cars never ran in summer, for the purpose of comparison with the statement showing cars put in service, the total number of cars scrapped, namely, 115, and the seating capacity of 3,873, should be divided in half, as that shows the net reduction in carrying capacity in cars scrapped for the period covered by statement. In other words the net result would be as follows:—

	Cars.	Seating capacity.
New cars added since Jan. 1, 1911	140	5,667
Cars scrapped since Jan. 1, 1911	34½	1,175
Balance added in two years.	105½	4,492
Average per year	52	2,246
New cars added in five years	177	7,223
Scrapped during same period	57½	1,937
Balance added	119½	5,286
Average per year	24	1,057

The company has on order 210 cars of the latest p.a.y.e. type, with a seating capacity of 40 per car, or a total seating capacity of 8,400. These cars, some of which are being delivered weekly, will afford 35% additional seating capacity, while Montreal's population is only growing at the rate of 10 or 15% a year.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for Nov., 1912, $591,127; operating expenses, $371,051; net operating earnings, $220,076; renewal funds, $51,620; net earnings, $168,456; approximate income from investments, $35,000; net income, $203,456, against $488,699 gross earnings; $302,489 operating expenses; $186,210 net operating earnings; $37,935 renewal funds; $148,275 net earnings; $25,000 approximate income from investments; $173,275 net income for Nov., 1911. Aggregate gross earnings for five months ended Nov. 30, 1912, $2,822,812; net earnings, $982,461, against $2,278,391 aggregate gross earnings; $788,417 net earnings for same period, 1911.

Calgary Municipal Ry.—Gross earnings for October, $54,618.15; operating expenses, $35,396.67; net operating earnings, $19,221.48; contingency, interest, etc., $9,944.38; net profit, $8,277.10, against $35,591.70 gross earnings; $18,027.17 operating expenses; $17,564.63 net operating earnings; $7,042.91 contingent, interest, etc.; $10,521.62 net profit for Oct., 1911. Passengers carried, 1,322,902, against 865,005 in 1911.

Gross earnings for November, $55,233.34; operating expenses, $37,802.09; net operating earnings, $17,431.25; contingent, sinking fund, etc., $9,975.14; net profit, $7,456.11, against $35,422.85 gross earnings; $21,401.15 operating expenses; $14,021.70 net operating earnings; $7,034.47 contingent, sinking fund, etc.; $6,987.23 net profit for Nov., 1911. Passengers carried, 1,339,428, against 853,144 in Nov., 1911.

Cape Breton Electric Co.—Gross earnings for October, $31,133.27; operating expenses and taxes, $16,339.61; net earnings, $14,793.66; interest charges, $4,412.50; balance, $10,381.16; sinking and improvement funds, $1,206.67; net balance for reserves, etc., $9,174.49; for Nov., gross earnings, $34,562.72; operating expenses and taxes, $15,809.76; net earnings, $18,752.96; interest charges, $4,475; balance, $14,277.96; sinking and improvement funds, $1,206.67; balance for reserves, etc., $13,071.29. The construction charges for 12 months ended Nov. 30, 1912, were $26,605.85.

Saskatoon Municipal Ry.—The report for the first week of operation of the electric railway in Saskatoon, Sask., shows that 37,543 passengers were carried. The total revenue was $1,877.15.

Toronto Ry., Toronto and York Radial Ry., and allied companies.—Gross earnings for Nov., 1912, $742,156; operating expenses, maintenance, etc., $358,371; net earnings, $383,785, against $676,791 gross earnings; $507,252 operating expenses, Maintenance, etc.; $369,539 net earnings, for Nov., 1911. Aggregate gross earnings for 11 months ended Nov. 30, 1912, $7,717,303; net earnings, $3,951,504, against $6,888,788 aggregate gross earnings; $3,624,013 net earnings, for same period, 1911.

The gross receipts from passengers for 1912 are given in press reports as $5,373,784, an increase of $572,556 over 1911, the approximate number of passengers carried during the year being given as 132,000,000, compared with 120,997,844 in 1911. The percentage of earnings paid to the city during the year was $798,958.56, against $687,650, for 1911. In addition to the percentage on earnings, $90,950.40 was paid to the city for mileage, thus making $889,908.96 paid to the city during the year.

Winnipeg Electric Ry.—Gross earnings for Nov., 1912, $345,091; operating expenses, $181,051; net earnings, $164,000, against $355,825 gross earnings; $181,446 operating expenses; $174,379 net earnings, for Nov., 1911. Aggregate gross earnings for 11 months ended Nov. 30, 1912, $3,403,683; net earnings, $1,595,755, against $3,509,848 aggregate gross earnings; $1,778,002 net earnings, for same period, 1911.

Toronto and York Radial Railway.—In the two cases of Waddington vs. Toronto and York Radial Ry. Co. the town of North Toronto and the city of Toronto appealed recently from paragraphs one and two of the Ontario Railway and Municipal Board's order of Oct. 2, 1912, declaring that the railway company has the right under the agreement of April 6, 1894, between the county of York and the Metropolitan Ry. Co. to put in and maintain such switches and turnouts as may be necessary for operating the line, and that the Ontario Railway and Municipal Board has the right to make such an order. The Court of Appeal gave judgment Jan. 15, dismissing the appeal.

Electric Railway Projects, Construction, Betterments, Etc.

Brandon Municipal Ry.—The city engineer of Brandon, Man., reported, Jan. 2, that track had been laid on 7.2 miles of the electric railway. (Dec., 1912, pg., 622.)

The city council has entered into a contract with the Brandon Electric Light Co. for the supply of power to operate the municipal electric railway now being built.

Brandon Radial Ry.—Application is being made by the Brandon City Council to the Manitoba Legislature for authority to build a system of electric railways radiating from Brandon.

British Columbia Electric Ry.—We are officially advised that the company has under construction extensions of its lines on the mainland as follows: In South Vancouver, 1.34 miles; in Point Grey, 3.35 miles.

Plans have been submitted to the New Westminster City Council showing the lay out of the proposed new yard in the west end, between Fourth and Fifth Avenues and Fourteenth and Fifteenth Streets. The estimated cost is $200,000.

Judgment was given in the British Columbia High Court, Jan. 4, in favor of the B.C.E.R. Co., in the action in which the Burnaby Municipality sought to annul a 40 year franchise under which the Vancouver, Fraser Valley and Southern Ry. (a subsidiary of the B.C.E. Ry.) was built. The municipality will appeal. (Jan., pg. 39.)

Calgary Municipal Ry.—Tenders are being asked, we are officially advised, for the supply of materials for the building and equipment of 10 miles of new track and seven miles of second track on existing lines during the current year. Private interests are offering the council 10 miles of fully equipped line as a gift, with a guarantee of operating expenses for five years. When these lines are completed there will be a total of 85 miles of electric railway operated by the city. T. H. McCauley is Superintendent. (Jan., pg 39.)

Cape Breton Electric Co.—We are officially advised that the company has in contemplation the building of the following additional lines:—From Sydney to New Waterford, N.S., via Grand Lake, 8 miles; from Sydney to New Waterford, via Cow Point, 14 miles; from Dominion to New Waterford, via Lurgan Beach, 5 miles. E. L. Milliken, Sydney, N.S., is Manager. (April, 1912, pg. 196.)

Fort Garry, Man.—R. A. C. Manning, Reeve of Fort Garry Municipality, Man., recently said that the whole question of the building of an electric railway by the municipality will be considered at an early meeting of the council. The project has been under consideration by the council's officials for some time, and the Manitoba Legislature will be asked to pass the necessary act. A spur track, connecting with the Canadian Northern Ry., has been built to facilitate the getting in of material for this and other civic works. (Jan., pg. 39.)

Grand Valley Ry.—A contract is reported to have been signed by the Receiver for the company, which is in liquidation, for 100 h.p. of Niagara hydro electric power from the City of Galt, Ont., for the operation of the Paris-Galt section of the line. (Jan., pg. 39.)

Halifax Electric Tramway Co.—The Halifax, N.S., City Council is being urged by local interests to take the necessary steps to obtain power to take over the property and rights of the H.E.T. Co. (Dec., 1912, pg. 622.)

Halifax Electric Tramway Co.—We are officially advised that the construction programme for the current year includes the laying of about a mile of single track. J. W. Crosby, Halifax, N.S., is Manager. (Dec., 1912, pg. 622.)

Hull Electric Ry.—We are officially advised that the company is building by its own staff an extension of 0.72 of a mile to the Connaught Park Jockey Club, Hull, Que. G. G. Gale, Hull, Que., is General Superintendent. (Jan., pg. 39.)

Hydro Electric Commission's Projected Electric Railway.—Press reports from St. Thomas, Ont., state than an engineering party in the employ of the Ontario Hydro Electric Commission started work, Jan. 2, near that city on a survey for an electric railway to Windsor, Ont. The line will, it is stated, run went to Dutton, West Lorne, Rodney, Ridgetown, Chatham and Kingsville, and on to the Detroit River.

Humber Valley Electric Ry.—When the act incorporating this company was passed, a section was inserted providing that it should not come into effect if the City of Toronto should file plans for the building of an electric line on the proposed Humber Boulevard, or should have obtained the consent of the taxpayers to the raising of money for the building of such a line by Jan. 14, 1913. The city having failed to do anything in the matter, the company has filed its plans with the Ontario Railway and Municipal Board, and is arranging to start construction immediately after the plans are approved. The route of the projected line is from Dundas street, near Islington, Ont., along the Humber river valley to the Lake Shore road, and then on to Sunnyside, either by running rights over the Toronto and York Radial Ry. R. Home Smith, Toronto, is the principal man in the project. (June, 1912, pg. 308.)

The Lacombe and Blindman Valley Electric Ry. Co. proposes to build a line from Lacombe to Gull Lake, Alta., 10 miles, and thence to Rimbey, a total distance of 30 miles. Press reports state that some capital has been subscribed locally, and that it is expected to start construction early in the spring. E. R. Strathy, of Winnipeg, and J. C. Gibson, Toronto, are interested in this company, which also owns the charter of the Lacombe, Bullocksville and Alix Electric Ry. (June, 1912, pg. 308.)

Lake Erie and Northern Ry.—A trust deed dated Oct. 1, 1912, made between the company and the Montreal Trust Co., securing an issue of 30-year 5% gold bonds, was on Nov. 29, 1912, deposited with the Secretary of State at Ottawa.

A contract is reported to have been let to P. H. Secord and Sons, Brantford, Ont., for all the concrete work on the line. It is estimated that this work will involve the expenditure of about $150,000.

Moncton Tramways, Electricity and Gas Co.—We are officially advised that the company has under consideration the building of an extension of a mile along Church St. to Sunny Brae, and another of nearly a mile from the overhead bridge to Main St., Moncton, N.B. H. N. Price, Moncton, N.B., is Superintendent. (Jan., pg. 39.)

Montreal and Southern Counties Ry.—The Board of Railway Commissioners has approved of location plans for the company's line in St. Antoine de Longueuil, Que., to a junction with the Central Vermont Ry., 2.25 miles.

The Montreal Board of Control decided, Jan. 10, to recommend the city council to refuse the company's application to extend the tracks to Youville Square. (Dec., 1912, pg. 622.)

Niagara, Welland and Lake Erie Ry.—We are officially advised that the company has in contemplation the immediate construction of the following lines:—From the G.T.R., Welland, Ont., to Rosedale, one mile, and from the Michigan Central Rd., Welland, to Dainvill's, about two miles. T. F. Swayze, Welland, Ont., is Superintendent. (Nov., 1912, pg. 574.)

The Board of Railway Commissioners has authorized the opening for traffic of the line between the Michigan Central Rd. and the G.T.R. stations in Welland, Ont., 1.52 miles.

Niagara, St. Catharines and Toronto Ry.—Press reports state that plans have been prepared for a new power house to be built in St. Catharines, Ont., at an early day. E. F. Seixas, St. Catharines, is General Manager. (Jan., pg. 39.)

The Northwestern Electric Ry. Co. has, according to press reports, applied to the Vancouver City Council for a franchise for electric railway lines on certain city streets.

Ontario West Shore Ry.—H. W. Middlemist, Toronto, recently informed the Goderich, Ont., Town Council that his report as to the cost of completing and putting in operation this partially built line would be ready for presentation Jan. 30. (Nov., 1912, pg. 574.)

Ottawa Electric Ry.—We are officially advised that the following extensions are projected:—From Somerset St. to Carling Ave., on Preston St., one mile, and from Wilton Crescent to Sunnyside Ave., on Bank St., one mile. F. D. Burpee, Ottawa, is Superintendent. (Jan., pg. 39.)

Port Arthur and Fort William Electric Ry.—On Jan. 6 the ratepayers of Port Arthur, Ont., voted in favor of the following bylaws:—To extend the electric railway along Algoma Street from Arthur Street to Cameron Street, at a cost of $6,550; to lay heavier steel rails on Cumberland Street from Van Horne Street to Current River, at a cost of $32,400. We were officially advised, Jan. 17, that this work has been completed. (Oct., 1912, pg. 521.)

Portage la Prairie, Man.—In connection with the project under consideration for the building of an electric railway from Winnipeg to Portage la Prairie, Man., a site of 10 acres is reported to have been purchased in the latter city on which to erect car barns, car shops, etc. (See Winnipeg to Portage la Prairie, Jan., pg. 40.)

Prince Albert, Sask.—The Stone and Webster Engineering Co., Boston, Mass., has submitted a proposition to Prince Albert, Sask., for the construction of eight miles of electric railway for $275,000. The company has just completed the building of a line in Saskatoon for the city council, financing construction as well as doing the work.

The city of Prince Albert is developing 15,000 h.p. on the Saskatchewan River, and the council has had under consideration the building of an electric railway as a public utility.

Regina-Moose Jaw Interurban Ry.—The Saskatchewan Legislature has incorporated a company with this title intending to build a railway to be operated by any other motive power than steam from the western limits of Regina to Moose Jaw, Sask. The act provides that while the city of Regina may extend its electric lines outside the city, it may not build a line from Regina to Moose Jaw, and that in the event of the boundaries of Regina or Moose Jaw being extended to bring any part of the railway within them, the cities shall have the right to purchase such portion of the trackage as comes within the limits. The provisional directors are J. Friedman,

Saskatoon, Sask.; J. G. Boyd, J. R. Cathcart, Regina.

Saskatoon Municipal Ry.—The municipal street railway was opened for traffic Jan. 1. Cars are being operated over three routes, two cars of the pay-as-you-enter type being on each route. The line was built and financed for the city council by the Stone and Webster Engineering Corporation, Boston, Mass., and is being operated under the charge of Superintendent White. (Jan., pg. 39.)

Ratepayers of the south side, Jan. 11, endorsed a proposal to offer the city $50,000 to build a line east on 8th avenue, from Broadway, Saskatoon, out to Sutherland, Sask. The proposition is to be considered at the February meeting of the Saskatoon city council.

Stratford Ry.—The ratepayers of Stratford, Ont., on Jan. 6, passed by a very large majority a bylaw granting the S. Ry. Co. a 25 year franchise for the construction of an electric railway in the city. While the franchise is granted to the S. Ry. Co. the Canadian Northern Ry., or interests allied with it, are behind the project. Confirmation of the bylaw is being asked from the Ontario Legislature. Work is to be started on the line in July, provided the bylaw is ratified. (Jan., pg. 39.)

Toronto and York Radial Ry.—The Ontario Railway and Municipal Board declined, Dec. 16, to grant an order approving of certain modifications of the plans for the proposed diversion of the Metropolitan Ry. south of St. Clair avenue, Toronto. The Board's engineer will go over the plans, and if he approves of them the company may proceed with construction at its own risk, subject to the judgment of the Court of Appeal on the question of the company's right to make the diversion, which is opposed by the city.

Toronto and York Radial Ry.—The question of the price at which the section of the Lake Shore division of the line, from Sunnyside to the Humber river, is to be taken over by the city of Toronto is under consideration. The Ontario Railway and Municipal Board has directed the engineers representing the two interests to agree upon an inventory of the property to be taken over as far as possible, and to go to the Board on points of difference only.

Toronto Civic Car Lines.—We are officially advised that the City Council is having built a double track electric railway on Danforth Ave., from Leslie St. to Luttrell Ave., 2.35 miles. (Jan., pg. 39.)

Toronto Eastern Ry.—We are officially advised that in addition to the 19 mile section from Bowmanville to Pickering, Ont., under construction (Ewen Mackenzie having the contract), on which 0.36 mile of track has been laid at Bowmanville, the company has under survey an extension from Pickering westerly for a distance of 12 miles. E. W. Oliver, Toronto, is Chief Engineer. (Dec., 1912. pg. 623.)

The Toronto Suburban Ry. is being asked to build about two miles of new track in West Toronto, Ont., now known as Ward 7. It is proposed to build a single track a little on one side of the centre line of the street, so as to permit of the building of a second track when traffic warrants. (Dec., 1912, pg. 623.)

The Vancouver Island Hydro-Electric and Tramway Co. has been incorporated in British Columbia, with offices in Victoria, and an authorized capital of $500,000.

Windsor and Tecumseh Ry.—A franchise for the extension of the line from Tecumseh to Belle River, Ont., about 10 miles, is reported to have been granted to the company, which is a subsidiary of the Sandwich, Windsor and Amherstburg Ry., which in its turn is owned by the Detroit United Ry. It was stated that work on the new line is to be started at once. Jas. Anderson, Windsor, Ont., is General Manager. We are officially advised, Jan. 17, that there is no authority on the company's part for this report. (Mar., 1911, pg. 261.)

Windsor, Essex and Lake Shore Rapid Ry.—We are officially advised that there is no foundation in the daily press report that the company was about to extend its line from Kingsville to London, Ont. (July, 1912, pg. 368.)

Winnipeg Electric Ry.—Application is being made to the Manitoba Legislature to ratify an agreement made between the company and the St. Vital Council, granting a franchise for the building of an electric railway in the municipality. (Jan., pg. 40.)

In a report presented to the Winnipeg City Council, details are given of the extensions projected to the various lines in the city. There are only ten of these in all, and the report adds that the company has advised the city authorities that while all the extensions are planned, it is not likely that all of them will be built this year.

Joseph D. Evans, M.Can.Soc.C.E., who has resigned his position as Chief Engineer and Superintendent of Construction, Montreal Tramways Company.

Sunday Car Operation in Ontario.

The appellate division of the Ontario High Court, on Jan. 14, heard the appeal in the case of Kerley v. London & Lake Erie Ry. and Transportation Co., an appeal by defendants from the judgment of the Chancellor of June 25, 1912, in the action by W. Kerley, of St. Thomas, to recover $1,200 penalties from defendants for running electric cars upon their railway on Sundays, Dec. 11, 18 and 25, 1910. At the trial judgment was given for plaintiff for $1,200 as a penalty and costs of action, $600 of which was to be appropriated by plaintiff and $600 to go to the city of London. Judgment on the appeal was reserved.

The Toronto city council has had under consideration a proposition to engage J. W. Mcyes at a fee of $1,000 and expenses to report upon the suburban service on the steam railways.

Personal Paragraphs.

R. H. SPERLING, General Manager British Columbia Electric Ry., returned to Vancouver, Dec. 29, after an extended visit to London, Eng.

N. P. BAKER, heretofore Superintendent Niagara Division International Railway, Niagara Falls, N. Y., has been appointed Treasurer of the company, at Buffalo, N.Y., a position he occupied once before.

R. M. HANNAFORD, M. Can. Soc. C. E., Assistant Chief Engineer, Montreal Tramways Co., is at present in charge of the engineering and construction department, consequent on the resignation of J. D. Evans.

A. H. DION, Superintendent, Moose Jaw Electric Ry., was married at Listowel, Ont., Jan. 16, to Miss R. Livingston. Mr. and Mrs. Dion have gone to Europe, expecting to return early in March and take up their residence in Moose Jaw, Sask.

E. A. ROBERT, President; F. H. Wilson, J. W. McConnell, M. Wilson, W. E. Finlay and G. McIntyre, directors of the Montreal Tramways Co., have taken action individually against the Montreal Herald Publishing Co., to recover $100,000 damages in each case, for libel on them in their capacity as directors of the company.

JOS. D. EVANS, M. Can. Soc. C.E., whose portrait appears in this issue, has resigned as Construction Engineer, Montreal Tramways Co., on his appointment as Construction Manager, Electric Bond and Share Co., New York, in charge of plants under construction in Utah and Idaho. He was born at Lowell, Mass., and graduated as a civil engineer from the Massachusetts Institute of Technology, and has been associated with engineering work on the Nicaraguan and Panama canals, and with railway construction in Ecuador, electric railway construction in Pennsylvania, Massachusetts and Connecticut; the Great Northern Power Co.'s plant at Duluth, Minn.; the construction of the Buffalo, Lockport and Rochester Ry. between Rochester and Lockport, N.Y., and the Canada Light and Power Co.'s plant at St. Timothee, Que.

Advance in Wages by Quebec Railway, Light and Power Company.

A board of conciliation was appointed recently to settle differences between the Quebec Ry., Light & Power Co. and its street railway conductors and motormen, which resulted in an agreement between the company and the men by which the wages were advanced 1½c. an hour from Nov. 1, 1912, and an additional 1c. an hour from Nov. 1, 1913. The new scales of wages per hour are as follows:—

	Nov. 1, 1912.	Nov. 1, 1913.
1st year employes	17½ cents	18½ cents
2nd year employes ...	18½ "	19½ "
3rd year employes	20½ "	21½ "
8th year employes	21½ "	22½ "
13th year employes	22½ "	23½ "

The company does not recognize the union (National Brotherhood of Street Railway Employes no. 1 of Quebec) but declares that it has no objection to its employes belonging to this union. The company has reinstated two employes who were dismissed on reports which, on enquiry, proved to be erroneous, but which had been accepted in good faith, and distinctly states that the dismissals were not made because the employes were members of a union.

The board of conciliation states that the greatest cordiality prevailed throughout the proceedings between the company's representatives and employes, and that both parties were evidently animated with the desire to adjust their differences amicably.

Electric Railway Notes.

The Hamilton St. Ry. has received 12 single truck cars from the Preston Car and Coach Co.

The Calgary Municipal Ry., Alta., has received 3 pay-as-you-enter cars, with 28 ft. bodies, from the Preston Car and Coach Co.

A vote will be taken in Saskatoon, Sask., Feb. 11, on the question of operating cars on the municipal electric railway on Sundays.

It is reported that during 1912 the British Columbia Electric Ry. carried 10,976,690 passengers, an increase of 2,746,482 over 1911.

The City of Toronto is promoting a bill in the Dominion Parliament to empower the operation of the civic street railway on Sundays.

The Montreal Tramways Co. has ordered 50 car bodies from the Canadian Car and Foundry Co., and has received six from the same company.

The Toronto City Commissioner of Works is negotiating for 20 electric railway cars for the civic lines on St. Clair and Danforth Avenues.

The Ontario Railway Act and the Ontario Railway and Municipal Board Act are to be revised at the Ontario Legislature's ensuing session.

A preliminary report on the electric railway traffic in Winnipeg has been prepared for the Public Utilities Commissioner by R. M. Fenstel, C.E., and was made public, Jan. 8.

The Ontario West Shore Ry. is being sued by the C.P.R. for $6,274, claimed to be due for material, labor and repairs supplied in the construction of a span bridge near Goderich, Ont.

The Mount McKay and Kakabeka Falls Ry. which has hitherto been closed down during the winter, is being operated this winter, mainly for the purpose of carrying sand and gravel for building purposes.

The Calgary, Alta., City Council is considering the question of adopting trackless trolley cars or motor busses in the residential districts where tracks are objectionable, as an adjunct to the municipal electric railway system.

The Board of Railway Commissioners has approved the Niagara, Welland and Lake Erie Ry. standard passenger tariff C.R.C. 1, showing a cash fare of 5c. for each passenger, or six tickets for 25c., between any two points on the railway.

The London St. Ry. recently complained to the City Council that its service is frequently blocked at crossings by G.T.R. trains, and in this connection a train conductor was fined $15 and costs, at London, Ont., Jan. 16, at the instance of local citizens.

The Montreal Board of Control decided Jan. 8, that it would not take up with the Montreal Tramways Co. the question of the haulage of freight on the company's lines, except on the understanding that the company was willing to enter into an entirely new contract.

The city of Calgary, Alta., has under consideration the adoption of a few trackless trolley cars, or motor busses, in the residential district, where there is objection to the use of tracks. We are officially advised that no definite decision has been arrived at in the matter.

The Edmonton Radial Ry. has ordered 35 cars, 33 ft. 4 ins. long over bodies, single ended, pay-as-you-enter type, turtle back roof, mounted on standard 0-50 trucks, from the Preston Car and Coach Co. Three of these cars will be equipped with Allis-Chalmers-Bullock 301 motors, ten with Canadian General Electric 80 motors, and 22 with Westinghouse 101 B2 motors.

The Montreal Tramways Co., in publishing a number of statistics relating to its development during 1912, states that $1,238,240 was spent in new equipment and improvements during 11 months of the year, against $871,193 for the whole of 1911. Since Jan. 1, 1911, the company has added 140 cars to its rolling stock, and has scrapped 34 cars. It has now 210 pay-as-you-enter cars in operation.

H. A. Robson, Manitoba Public Utilities Commissioner, issued an award Jan. 9, as to the terms of an agreement to be entered into between the Winnipeg Electric Ry. and the Winnipeg City Council for the joint use of poles in the city for the distribution of electrical energy. Arbitrators were appointed in July, 1912, but these failed to agree, and the matter was finally referred for settlement to the Commissioner.

The Montreal Tramways Co. was recently called upon by the Quebec Public Utilities Commission to submit reports and books as to traffic, etc., in order that the commission might decide upon the application of the City Council for an order directing the company to improve its service. The company filed a declinatory exception to the jurisdiction of the commission Jan. 9, and the matter was argued Jan. 17, judgment being reserved.

The city of Brandon, Man., has ordered for its municipal railway, from the Niles Car and Manufacturing Co., 10 cars, 34 ft. long over all, 21 ft. bodies, mounted on 21E trucks, full arch type roof equipped with electric ventilation, forced ventilation hot air heating, all steel underframes, and sheathed with steel and double wires. Five of these cars will be equipped with Westinghouse 101B motors, and five with General Electric 80A motors. The price of the cars is reported as $2,165 each.

The new regulations as to traffic on the street railways in British Columbia, issued by the Provincial Government are being put in force by the British Columbia Electric Ry. The regulations provide that cars shall only carry a certain number of passengers, that when full they shall not stop except to let passengers off, and that only such number of new passengers can be taken on as have got off; that riding on the steps, etc., is forbidden, and that gates shall be provided on the platforms of all cars.

The Fort William city council recently passed a resolution urging the joint railway board operating the Port Arthur and Fort William Electric Ry. to establish a five minutes service between the two cities, but it is announced that at present the board is unable to give such service on account of lack of cars and power. Cars have been ordered, and a part of the extra power required will be available about April 1, but it is not anticipated that a five minutes service will be commenced until about July 1. The cars are now run between the two cities at intervals of 10 minutes.

Actions have been entered in the Supreme Court, at Montreal, by E. A. Robert, President; F. H. Wilson, J. W. McConnell, M. Wilson, W. C. Finlay and G. McIntosh, directors of the Montreal Tramways Co., against the Montreal Herald for libel, in connection with comments in that paper on the affairs of the company, which, it is alleged, reflect on the directors. The Herald has for some time carried on a campaign against the company's service, and alleges manipulation of stocks, misuse of the proceeds of various stock issues, and the obtaining of increased legislative privileges by false pretences. Each of those taking action claims $100,000 as damages.

Mayor Hocken, in his recent inaugural address to the Toronto City Council, expressed his satisfaction at the successful operation of the Gerrard St. car line and the hope that it would form the nucleus of a complete system of public owned and operated street and radial railways. He stated that work was proceeding on the St. Clair and Danforth Ave. lines and that they might be in operation by July 1. He deplored the successful effort of the Toronto Suburban Railway Company for the construction of a single track line on Annette St. and Pacific Ave. and pointed out that it now rested with the city to build a line to serve the High Park district. The effort of the Metropolitan Ry. Co. to divert its line on Yonge St. was also commented upon and vigorous opposition was urged. He contended that 35% of the Toronto Ry. Co.'s tracks should be rebuilt, according to additional information given out in connection with the report of the traffic experts.

Automobiles to Stop When Electric Cars Are Standing.

An enquiry has been received from British Columbia as to the regulations in force requiring automobiles not to pass electric cars which are stopped to embark or disembark passengers.

The Motor Vehicles Act, Ontario Statutes, 1912, chap. 48, sec. 15, provides as follows:—"When a motor vehicle meets or overtakes a street car which is stationary, for the purpose of taking on or discharging passengers, the motor vehicle shall not pass the car on the side on which passengers get on or off, until the car has started, and any passengers who have alighted shall have gotten safely to the side of the street."

The Motor Vehicles Act, sec. 54, as amended by Manitoba Statutes, 1911, chap. 28, sec. 14, provides as follows: "In approaching or passing a car of a street railway which has stopped or is about to stop to allow passengers to get on or off, the operator of every motor vehicle shall low down, and, if necessary, he shall bring said motor vehicle to a stop and not proceed until the car has started and all passengers who have alighted shall have gotten safely clear of the motor vehicle."

As the question has been dealt with by the Ontario Legislature, apparently nearly all of the municipalities in that province have not thought it necessary also to pass bylaws on the subject, but the City of St. Catharines has a bylaw worded almost identically with the Ontario statutory provision given above. The City of London, Ont., has a bylaw requiring all vehicles to come to a full stop, rather than overtake and pass an electric railway car which has stopped for the reception or discharge of passengers.

The Toronto City Board of Control had under discussion recently the passing of a bylaw to compel all vehicles to stop for electric cars embarking or discharging passengers, and the matter was referred to the City Solicitor for report.

The City of Montreal, in its bylaw concerning street traffic, provides as follows:—"Every driver of a vehicle going in the same direction as a street car shall, when such car stops, also stop his vehicle at a distance of at least 10 ft. from said car, and shall keep such vehicle at a standstill until the said car has been again set in motion."

Steps are being taken to secure the passage by the Saskatchewan Legislature of provisions similar to those enacted by the Ontario and Manitoba Legislatures.

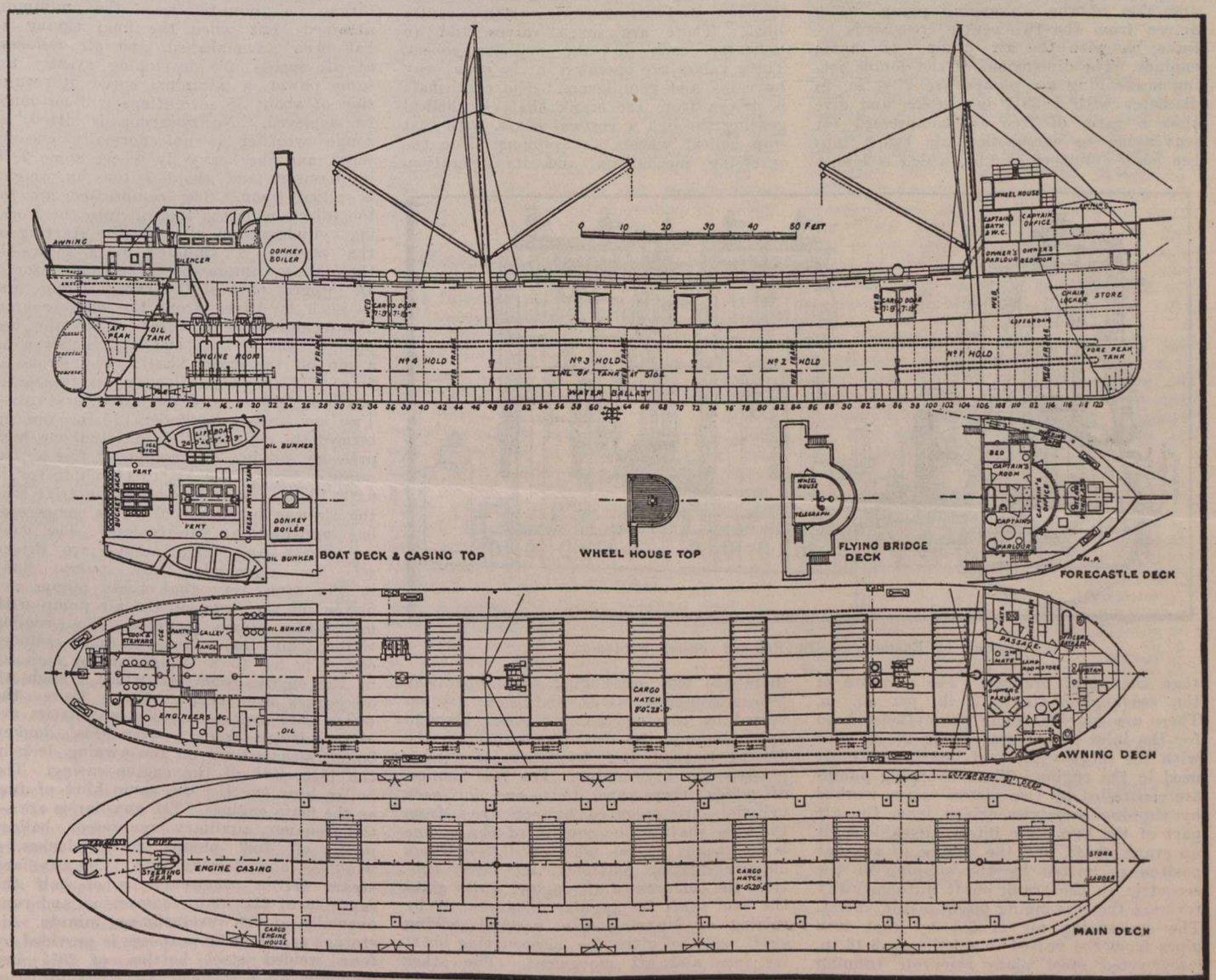
Marine Department.

The Oil Engined Vessel Fordonian.

The trials of the Canadian lake type ship Fordonian, which was built at Port Glasgow, Scotland, for the Canada Interlake Line Ltd., of Toronto, have been described in a previous issue. Drawings of this ship and her Diesel machinery are given herewith. The Fordonian has the following leading dimensions:—250 ft. long, 42½ ft. beam, 16 ft. 10. in. moulded depth to the main deck, and 26½ ft. to the awning deck. She has a 2 ft. frame pitch, and a deadweight cargo carrying capacity of 3,300 tons on 16½ ft. draught. The draught on service is restricted to 14 ft., and the deadweight capacity is thus reduced to 2,200 tons. She is built to Lloyd's highest class for grain carrying on the Great Lakes, and conforms to the standards of Canadian lake practice in that she has a steering pole out forward to make quite handy the control from the forward bridge, a large number of hatches, and inward opening cargo doors on the port and starboard sides to facilitate the rapid removal of cargo. The cofferdam at the forward end of the fore hold is unusual in such vessels, and is intended to preserve the cargo from damage should the ship spring a leak as a result of coming in contact with any one of the many locks through which she passes in her regular trading. There are two independent controls from the bridge to the engine room telegraph, and the steam steering engine is operated by rods from the bridge. As with the sister ships, D. A. Gordon and A. E. McKinstry, there are two masts with derricks on each, and the chart house and navigating bridge are situated right forward. The rudder is balanced and is of large area. In the trials the vessel turned almost in her own length, and when the helm was put hard over she almost came to a dead stop.

The propeller is 11 ft. 9 in. in diameter by 9 ft. pitch.

The main propelling engine is a four-cylinder two-stroke cycle single acting Carels type of Diesel oil engine. The cylinders are 18.1 in. diameter by 32.25 in. stroke, and the engine runs normally at about 100 revolutions per minute. In the main features of the structure steam engine marine practice has been closely followed. The columns of the engine are of the box section, bolted rigidly together at the top, and are very thick, to withstand the tension stresses consequent upon the high pressures of the Diesel cycle. The cylinders have separate liners pressed in, and the liners have exhaust ports round the whole of their periphery, and communicate with an exhaust belt of large cross sectional area, running round the cylinder. The water spaces are large and ribs are cast on the inside of the cylinder to aid water circulation and to give to the cylinder wall strength to resist the direct pull passing through it. On each cylinder there are six bolted doors, of about 9 in. diameter, permitting of ready inspection and cleaning of the water cooling space. At the bottom of the cylinder there is a lantern ring, which serves to keep the joint between the cylinder and liner water tight, and,



Profile and Deck Plans of Oil Engined Vessel Fordonian, for the Canadian Lake Trade.

further, to prevent the escape of cylinder gases into the engine room. Any leakage of gases goes into an annular chamber, which is connected to the scavenging pump suction, and is thus kept at a pressure below that of the atmosphere. The cylinder head is of cast steel, and has large cooling water spaces, with seven valve openings; one fuel, four scavenging, one starting air, and one safety. The piston of the Carels engine is in two pieces. The top piece is carried by a shoulder on the piston rod, and the bottom piece, or shroud, is carried at its bottom by another shoulder on the piston rod. Water cooling is adopted for the piston, and the water is circulated by the action of the plungers. The arrangement of the engine into two units of two cylinders each permits of a two piece crank shaft in interchangeable halves, of the vertical spiral drive for the valve gear being taken from the centre of the engine, and also of the scavenging pumps being driven from the two centre crossheads by links, as with the air pump of steam engines. The dimensions of the double acting scavenging air pumps are 27½ in. in diameter with a 23½ in. stroke, and give thus a ratio of free air compressed for scavenging to combustion air taken into the main cylinders of 1.65, which is higher

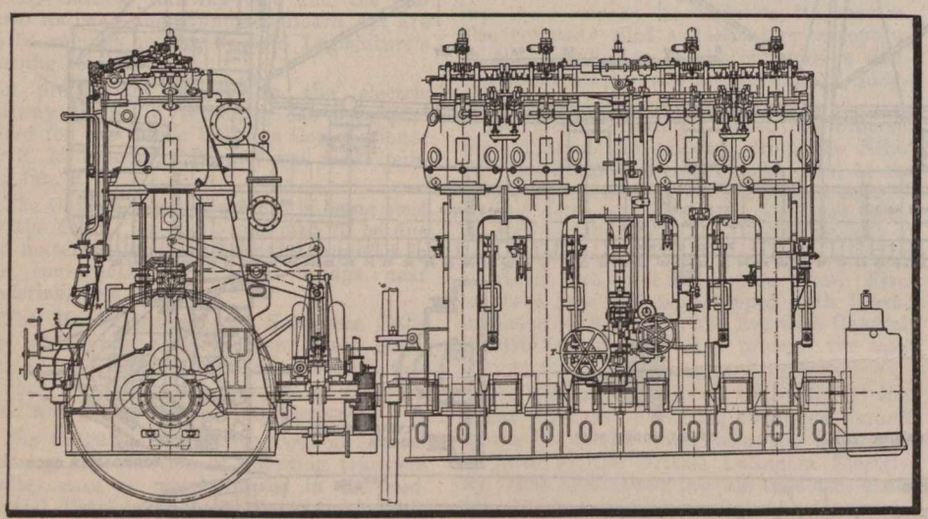


Diagram of Engines on Oil Engined Vessel Fordonian.

than the usual practice. The pressure of the scavenging air is 3 lb. per sq. in. There are four valves in the cylinder head for the inlet of the scavenging air to cope with the large volume of low pressure air used in the engine. The scavenging pumps are controlled by two piston valves worked by slipping eccentrics driven from the aft part of the two piece interchangeable built up crank shaft, and the change of angular positon permitted by the slipping of the eccentric on the crank shaft automatically reverses the scavenging pump piston valves. The scavenging air is led by cast iron pipes from the valves to a built up 3-16 in. lap riveted steel plate reservoir running along the cylinder top and supplying the four scavenging valves on each cylinder. The exhaust is led down by bent cast iron pipes from the cylinder belt to the main exhaust pipe running along the engine to the cast iron silencer. These bends have internal water injection, and the silencer is also internally water cooled and is of the cascade design. The exhaust is led overboard under the counter. The funnel is for the exhaust gases from the donkey boiler. Separate leads are provided from the water cooling pumps worked off the links driving the scavenging pumps, and cocks are provided on all these leads to regulate independently the amount of cooling water supplied to each part. The temperature of this cooling water may be felt, as there are open discharges into funnels leading to the bilges. As regards lubrication, for the main bearings solidified oil is used, for the crank pin bearings the ordinary drip feed suffices, and the bearing pressures for the main and crank pin bearings are respectively about 300 and 650 lbs. per sq. in. For the lubrication of the cross head bearing, a small lubricating oil forcing pump is attached to each cross head, and worked by the swing of each connecting rod. This system of lubrication permits of an open crank case, and the bottom end bearings can always be easily felt by the engineer on watch. There are two guides for each. The piston is lubricated by four Mollerup lubricators, which force the oil between the piston and the cylinder; there are four inlets to the cylinder, and they are arranged to enter on the fore and aft and athwartship centre lines. There are seven valves and an indicator cock in the cylinder covers. These valves are operated in the usual way by cams and cam levers. The cam shaft is driven from the crank shaft by helical gearing through a vertical shaft, with cast iron helical wheels and pinions. For the reversing mechanism and its operation, there are two scavenging cams operating four scavenging valves, and these are reversed by turning the cam shaft through approximately 30 deg. by extending the driving vertical shaft by means of a compressed air servo-motor. The fuel pumps, of which there are four—one for each cylinder—are operated by eccentrics from the cam shaft. The control of the engine is by means of one wheel and two levers on the starting platform; one lever controls the compressed air engine, which gives the cam shaft its angular displacement by raising or lowering the vertical driving shaft, and also gives the manoeuvring shaft its fore and aft movement. The other lever controls the fuel. A wheel, operated by hand, gives the manoeuvring shaft its rotary motion. The cams upon the manoeuvring shaft act upon the suction valves of the fuel oil pump. Hand control is also provided by the handle on the column, which actuates a shaft running fore and aft on the engine, and so sets all the fuel pump suction valves. Although compressed air is used for actuating the vertical shaft, causing the angular rotation of the cam shaft and the rotation and displacement of the manoeuvring shaft, hand gear, in emergency, may be used. This vessel on her regular route trip from Montreal to Port Arthur must pass, each trip, through some 30 to 40 locks, and this demands manoeuvring qualities far above the average, and that the engines must be capable of being stopped, started and reversed in a very short time. Stopping from full speed ahead was on trial accomplished in two or three revolutions of the main engines, and reversals from full ahead to astern took six seconds. A trial of manoeuvring was then made, and reversals were carried out from the bridge to correspond with the actual conditions in service of this vessel; 63 reversals were accomplished in 42 minutes, with more than half of the high pressure compressed air still unused. The auxiliary steam driven compressor was, of course, in use for this trial. The system of having one fuel pump for each cylinder makes for easy regulation of the quantities of fuel oils supplied, and so permits of a very slow speed of revolution. On the trial trip 46 revolutions a minute was the minimum attained; but when the final tuning up has been accomplished, and all cylinders at all speeds are developing exactly the same power, a minimum speed of revolution of about 35 revolutions will no doubt be achieved. No governor is fitted, as rough weather is not normally encountered, and the heavy fly wheel, some 9 ft. in diameter and about 7 tons in weight, is relied upon. The compressed air for the injection of the fuel oil into the working cylinders, and also for the starting of the engine, is supplied by a reversible three stage compressor. The compressor is an integral part of the Diesel engine, and as such is driven from the main engine. The compressor is bolted on to the bed plate at the forward end, and is driven by a pin off the crank shaft. The stroke is 8 in. (7¾ in. net), allowing for the ¼ in. auxiliary ports; and the diameters are:—Two low pressure cylinders, 15 in.; one intermediate cylinder, 9½ in.; and one high pressure, 4¾ in. The volume of free air per minute dealt with by this compressor is 6,200 litres, and it was noted on trial that the air was supplied cool. This compressor has multitubular intercoolers. The cooling water and bilge pumps are driven off the scavenging air pump links in the same way that these pumps are driven off the links of the air pump with mercantile steam engines. The cooling water from the cylinders and cylinder covers is led to a trough placed high up in the engine room, at which trough all discharges are visible. From there the water goes overboard. The auxiliaries are steam driven from a cylindrical donkey boiler, situated aft on the awning deck in the fore part of the engine casing. The boiler uses exactly the same kind of fuel as the main engines. The auxiliaries are:—the dynamo, auxiliary compressor, ballast pump, oil fuel pumps, three winches, a windlass, and steering gear. The auxiliary steam driven compressor is of half the capacity of the main compressor, and runs normally at 300 revolutions a minute. Air storage for starting purposes is provided by four welded steel bottles, of 23⅝ ins. diameter by 8 ft. long, and that for trial fuel injection by one bottle, 1 ft. in diameter by 3 ft. long. The pressure of the fuel injection air and the starting air is 850 lb. per sq. in. The time taken by the auxiliary compressor to fill up the air storage provided is about one hour. The remainder of the auxiliaries are similar to steam practice. The weight of the main engine alone is about 100 tons, and if the auxiliaries are included, all ready for work, 150 tons is the weight of machinery aboard. There is fuel storage in two oil tanks placed on both sides of the oil fired donkey boiler, and two ready use tanks are placed aft of the engine room, and are provided

with steam heating coils, while the oil is filtered, on its way to the fuel pumps of the main engines, through 15 gallon filters in the engine room. In all 105 tons of oil fuel is carried, whereas with the sister steamships 250 tons of coal is required. The consumption per day for all purposes is 5 tons of oil fuel, against 14 tons of coal. The fuel consumption of this engine is 0.47 lb. per brake horse power per hour. On the trials, it was shown that the indicated horsepower at 102 revolutions per minute and 90 lb. per sq. in. is 970; 10 knots were achieved with the engines doing 128 revolutions per minute. The maximum revolutions were 140, the normal about 102, and the minimum 46. The results will undoubtedly be improved upon when the engines are finally tuned up, as prior to the trial trip they had only been run in dock trials for twelve hours in all. The general arrangement of the engines and auxiliaries is well thought out to give the greatest possible immunity from breakdown. This type of engine seems quite suited to the propulsion of cargo boats, and the saving in space consequent upon the adoption of the Diesel engine for this ship is five frame spaces, aggregating 10 ft., or about 33% of the machinery space.—Shipping Illustrated.

The Dominion Wreck Commissioner's Judgments Criticized.

Considerable comment is being made in Canadian and British newspapers respecting recent judgments by the Dominion Wreck Commissioner in regard to enquiries into marine casualties, and especially regarding a recent stranding on the St. Lawrence route.

The Journal of Commerce, Liverpool, Eng., says:—"A correspondent points out that much indignation has been aroused among navigators in the St. Lawrence trade by the extraordinary decisions and gross injustices of the Canadian Wreck Commissioners' Court in some recent cases of shipping casualties in the St. Lawrence. As these cases may be the subject of reinvestigation it would be wise to suspend comment, but nautical men consider that it is futile for the Canadian authorities to try to cover up the defects of their pilotage system and the lighting and marking of the river by making an onslaught upon the certificates of masters and officers."

Amongst some of the comments made, questions are raised as to the jurisdiction of the Dominion Wreck Commissioner, but there appears to be no doubt on that point. Sec. 21, chap. 35, 1 Ed. VII. (Snipping Casualties Act), provides that the certificate of a master, mate, or engineer may be cancelled or suspended by a court holding a formal investigation under the act, if the court finds that the loss or abandonment of, or damage to, a vessel has been caused by his wrongful act or default.

The question of what constitutes a wrongful act, or default, is clearly laid down in this and other acts, but an incorrect impression has seemed to prevail for some time as to the necessity for the presence of the master, or a competent officer, on the bridge when a licensed pilot is on board. The Dominion Wreck Commissioner has laid particular stress on this point during many of the recent investigations, and has commented very strongly on the growing practice of masters leaving the bridge as soon as the pilot takes charge. It is declared in sec. 57, chap. 80, R.S.C. (Pilotage Act), that "nothing in this act shall exempt any owner or master of any ship from liability for any loss or damage occasioned by his ship to any person or property, on the ground either of such ship being in the charge of a licensed pilot, or of such loss or damage being occasioned by the act or default of a licensed pilot, or any other ground." It would therefore appear that the master is not relieved of responsibility when a pilot takes charge, and in case of accident to the vessel, the question of the act or default of the master, as well as of the pilot, would come within the purview of those holding the enquiry into the casualty.

Those associated with the navigation interests in Canada hold strong views on this matter, and the rule that the master of a vessel shall be on the bridge the whole time when the vessel is navigating in narrow or dangerous waters is being strictly enforced on freight as well as passenger vessels.

Regarding the remarks made in connection with the pilotage, we have already announced what steps the Shipping Federation of Canada has taken in the matter, and the probability that the Dominion Government will shortly appoint a commission to enquire into pilotage generally, as well as aids to navigation. The statement alleging defects of the lighting and marking of the river, however, is so misleading that we are compelled to repeat what has frequently been stated by competent authorities, that the St. Lawrence ship canal is one of the best lighted and buoyed channels in the world, and is almost as easily navigable by night as by day.

Canada Interlake Line's Bond Issue.

In Canadian Railway and Marine World for January, considerable details were given as to the formation of this company, its vessels and finances. An issue of bonds has now been placed on the market, amounting to $200,000. They are 6% ten year serial gold bonds, dated Jan. 1, 1913, maturing in 10% amounts each year to Jan. 1, 1923, and are subject to redemption before maturity at 105 and accrued interest. They were offered at 98½ and accrued interest. These are the only bonds issued by the Canada Interlake Line, and are secured by first mortgage on the steel steamboats Regina, Kenora and Tagona, built and equipped at a cost of $442,242. The mortgage securing the bonds provides that insurance against all possible hazards to the extent of 125% of the amount of the bonds at any time outstanding shall be maintained continually, and that the policies shall be made payable to the National Trust Co., to protect the bondholders.

The Canadian Interlake Line Ltd. which has been taken over by the Canada Interlake Line Ltd. has outstanding bonds for $520,000 secured on the steamships Acadian, Canadian, A. E. McKinstry, Renvoyle, Indian, Hamiltonian and Calgarian.

The Canada Interlake Line's preferred and common stock have been listed on the Toronto Stock Exchange.

Prevention of Harbor Pollution.

The regulations for the government of public harbors in Canada have been amended by the addition of the following section:—

36a. No oil, tar or other like substance or any inflammable or otherwise dangerous substance shall be thrown or discharged or drained or allowed to fall, flow or leak into the waters of any harbor, and any person violating the provisions of this regulation or any person in charge of or owning any ship, vessel, manufactory, works, house or other premises violating the provisions of this regulation shall be liable to a penalty of $50, and in case of a continuing violation to a further penalty of $10 for every 12 hours during which such violation continues.

St. Lawrence and Chicago Steam Navigation Company, Limited.

The following report was presented at the annual meeting in Toronto, Jan. 17:—

The season of 1912 was a satisfactory one to vessel interests on the lakes. The active demand for coal and ore, coupled with an exceptionally large grain crop in the United States and good crops in Canada, established the highest rates of freight since the autumn of 1905.

Your directors continued the policy of insuring a proportion of the risks on vessels under a modified form of policy, crediting insurance fund with amount of premiums saved. The vessels met with no accidents during the season, and we now have at credit of that fund $109,290.47. It is the intention of your directors to continue this policy until insurance can be obtained at what they may consider reasonable rates and terms.

As the business of the country continues to grow, and it was necessary to secure additional tonnage to take care of the company's business, your directors took advantage of the low price of steel last spring to contract for a large modern, side tank, bulk freight steamer, which is promised to be ready for the opening of navigation, 1913. As our s.s. Algonquin was too small to supplement our larger vessels in upper lake trade, your directors decided to dispose of her, and this leaves our fleet now composed of steamers of modern construction, large carrying capacity, and all maintained in the highest state of efficiency.

The directors from the earnings of the season have paid a dividend of 8%, and, after providing for same and writing off $35,000 from vessels' account, have carried forward $17,169.24 to the credit of profit and loss, making a balance at credit of that account of $158,645.96.

ASSETS.

Four Vessels, viz.: Iroquois, W. D. Matthews, G. R. Crowe and E. B. Osler	$900,000 00
New Vessels, expended to date	142,839 60
Bills and accounts receivable	41,910 60
Balance in Dominion Bank	43,278 23
	$1,128,028 43

LIABILITIES.

Capital stock	$860,000 00
Accounts payable	92 00
Insurance fund	109,290 47
Balance of profit and loss	158,645 96
	$1,128,028 43

PROFIT AND LOSS ACCOUNT.

Balance, Jan. 2, 1912		$141,476 72
Steamships' earnings	$134,031 69	
Interest	2,382 95	
		136,414 64
		$277,891 36
Cost of management, viz.: salaries, taxes, office rent, directors' and auditors' fees, etc.		$15,445 40
Written off steamships' account		35,000 00
Dividend, 8 per cent., payable Jan. 2, 1913		68,800 00
Balance carried forward		158,645 96
		$277,891 36

The directors who were re-elected for the current year are:—President, W. D. Matthews; Vice President and Secretary, J. H. G. Hagarty; Managing Director, A. A. Wright; other directors, Jas. Carruthers, Capt. S. Crangle, G. R. Crowe, C. S. Gzowski and Sir Edmund Osler.

J. and J. T. Mathews, Toronto, have placed on the Canadian register the steamship Masaba, acquired from the U.S. She was built in Chicago, Ill., in 1891, and is screw driven by engine of 156 n.h.p. Her dimensions are:—Length, 240 ft.; breadth, 40 ft.; depth, 25 ft.; tonnage, 1,913 gross, 1,267 register.

The Launching of the Steamship Calgarian.

The Canada Interlake Line's steamship Calgarian was launched at Port Arthur, Dec. 28. She is built of steel on the Isherwood system of longitudinal construction, which, while permitting of a lighter build, gives a greater cargo carrying capacity, by at least 5% over that obtained by the ordinary methods. Her dimensions are:—Length, 244 ft. between perpendiculars, and 257 ft. over all; beam, 42½ ft.; depth, moulded, 26½ ft. She is equipped with triple expansion engines with cylinders 18, 29 and 48 ins. diar., by 40 ins. stroke, supplied with steam by two Scotch boilers, 11½ ft. diar. by 11½ ft. long, at a pressure of 180 lbs., steam steering gear, etc.

The vessel has been built as a cargo carrier entirely, and the most up to date appliances have been installed for the expeditious handling of freight. It is anticipated that she will be handed over to the owners early in February.

Vessels Removed From the Register.

The following vessels were removed from the register during December, for the reasons assigned:—Steam,—Aloha, Vancouver, 11 tons, lost; Babine, Vancouver, 16 tons, burnt; Bessie Ardella, St. Andrews, N.B., 12 tons, sold to foreigners; Blandford, Quebec, Que., 27 tons, broken up; Cecilia L, Montreal, 115 tons, foundered. Sailing,—Aaron, Ottawa, 144 tons, broken up; Bessie G., Parrsboro, N.S., 69 tons, wrecked; Black Prince, Yarmouth, N.S.; Calumet, Ottawa, 154 tons, broken up; Clarke, Ottawa, 145 tons, broken up; E. Merriam, Parrsboro, N.S., 331 tons, wrecked; Garnet, Yarmouth, N.S., 27 tons, broken up; Grant, Ottawa, 146 tons, broken up; Grenville, Ottawa, 154 tons, broken up; Hustler, Charlottetown, P.E.I., 13 tons, broken up; Joy Folger, Sydney, N.S., 17 tons, transferred to Newfoundland; Laura, Port Hawkesbury, N.S., 13 tons, broken up; P. Girard, Ottawa, 142 tons, broken up; Phantom, Chatham, N.B., 17 tons, lost; Strathcona, Windsor, N.S., 251 tons, transferred to Bahama Islands.

Aid Asked for Shipbuilding in Canada.

A deputation of shipbuilders from various points of the Dominion waited on the Premier and other members of the Government at Ottawa Jan. 21 to urge the desirability of subsidizing the trade in some way as a protection against outside competition.

The deputation pointed out that some $20,000,000 is invested in the business in Canada, and urged that a subsidy, or tariff equivalent, to the extent of 20% of the cost of building iron and steel vessels should be granted by the Government, in order to prevent the practical disappearance of the trade. It was claimed that with the tariff of 25% for repairs against the U.S., conditions on the Great Lakes still allowed most of the repair business to go to U.S. ports, and against British competition there was no protection, though the cost there on account of lower wages and lower cost of a great part of the raw material was much cheaper. In order to meet competition, a bonus per gross ton and a subsidy on contract cost were suggested as the only means of developing the industry. It was also stated that Canadian shipbuilding companies on the Great Lakes had to confine themselves to the building of such vessels as could not be built in Great Britain and sent through the St. Lawrence canals, and that on a vessel costing $120,000 to build, Canadian companies were taxed about $12,000 in duties on fittings and raw material.

The Premier stated that when in Great Britain last year, he was told that the cost of shipbuilding was steadily increasing there, and he was under the impression that in the course of the next decade or so it might approximate to the Canadian prices. He said that he had never been able to obtain from Canadian shipbuilders a statement as to how long a bounty would have to be paid before the industry could be said to be on a self supporting basis, but he was impressed with the importance of the situation, and with his colleagues would take the matter under serious consideration.

Essential Feature of the Diesel Engine.—In the course of a paper recently read at Berlin, Dr. Diesel denied that the essential feature of the Diesel process was the autoignition of the fuel. He stated that motors in which the autoignition of the fuel took place were in use before the Diesel process came into being; indeed, he had never laid a claim to autoignition in any of his patents. What he was aiming at was a process in which heat was utilized to the highest possible extent, and autoignition became embodied in the process incidentally during the evolution of the design. "The height of compression," said Dr. Diesel, "was not determined by the ignition limits of the fuel, but solely by the endeavor to obtain the highest possible figure for economical fuel utilization."

It is authoritatively stated that the German navy is having a twin screw Diesel marine engine, which will consist of two sets of six cylinder, double acting engines, each set giving 12,000 horse power, or 2,000 h.p. per cylinder.

List of Steam Vessels Registered in Canada during December, 1912.

No.	Name	Port of Registry	When and Where Built		Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc.	Owner or Managing Owner
126657	Alva D.	Midland, Ont.	1912	Penetanguishene, Ont.	43 4	10 2	5 6	22	15	7 n.h.p. sc.	P. Dupuis, Penetanguishene, Ont.
131200	Casarco No. 8.	St. Andrews, N.B.	1912	Comeauville, N.S.	45 3	12 6	5 7	16	11	1½ " "	Canadian Sardine Co., St. Andrews, N.B.
133781	Casarco No. 9.	"	1912	"	45 3	12 6	5 7	16	11	1½ " "	" " " "
130598	Evangeline	Halifax, N.S.	1912	Govan, Scotland	350 7	46 0	22 6	4360	2442	854 " "	Can. Atlantic & Plant Steamship Co., Halifax, N.S.
x133716	G. R. Hughes.	Vancouver, B.C.	1912	Oakland, Cal.	68 4	15 7	7 0	42	29	7½ " " sc.	S. Cullington, et al., Vancouver, B.C.
131014	Geo. Win. Smith	Quebec, Que.	1903	Levis, Que.	51 6	11 5	4 5	25	14	3 " " "	J. Ferguson & Co., St. Marie de Sayabec, Que.
131052	Hamiltonian	Port Arthur, Ont.	1912	Port Arthur, Ont.	257 0	42 5	23 4	2347	1277	119 " " "	Canadian Interlake Line, Toronto
133713	Hardy Bay	Vancouver, B.C.	1910	Vancouver, B.C.	26 5	6 0	3 0	5	3	3½ " " "	H. Browning, Vancouver, B.C.
131114	Henri R.	Montreal			78 3	25 1	5 7	101	63	4½ " " "	Harbor Commissioners of Montreal
131201	Dydia May	Liverpool, N.S.	1912	Shelburne, N.S.	70 4	17 7	8 2	41	39	2½ " " "	D. C. Mulhall, M.O., Liverpool, N.S.
131088	Masaba	Toronto	1891	Chicago, Ill.	240 1	40 0	25 0	1913	1267	156 " " "	J. & J. T. Matthews Co., Toronto
133714	Moose II	Vancouver, B.C.	1911	Vancouver, B.C.	33 2	7 8	3 0	8	5	⅜ " " "	E. Strong, Vancouver, B.C.
131091	Nellie Viola	Shelburne, N.S.	1912	Shelburne, N.S.	71 0	18 0	7 8	43	40	1½ " " "	J. T. McKenzie, M.O., Jordan Ferry, N.S.
131167	Ovila	Lunenburg, N.S.	1912	Tancook, N.S.	49 2	13 5	7 0	24	23	1 " " "	G. Henneberry, M.O. Sambro, N.S.
129587	Robert Dollar.	Victoria, B.C.	1911	Port Glasgow, Scotland	410 3	54 0	27 1	5356	3420	257 " " "	Dollar Steamship Lines, Ltd., Victoria, B.C.
130993	Shippegans Best	Chatham, N.B.	1912	Shippegan, N.B.	43 0	10 0	4 8	13	10	3 " " "	W. S. Loggie Co., Chatham, N.B.
133661	Una E. Hart	Halifax, N.S.	1912	Sambro, N.S.	49 2	14 0	7 0	24	22	1 " " "	J. L. Hart, Sambro, N.S.

x Foreign name "Rosine."

List of Sailing Vessels and Barges Registered in Canada during December, 1912.

No.	Name	Port of Registry.	Rig.	When and Where Built.		Length	Breadth	Depth	Reg. Tons	Owner or Managing Owner
133711	A. M. 10	Vancouver, B.C.	Scow	1909	Vancouver, B.C.	77 2	32 0	7 6	179	William W. White, Vancouver, B.C.
130597	Ajax H.	Halifax, N.S.	Dredge	1907	Halifax, N.S.	55 0	20 6	6 0	98	Nova Scotia Dredging Co., Halifax, N.S.
133715	Cullelva	Vancouver, B.C.	Sloop	1912	Hong Kong, China	50 2	11 0	5 4	27	W. Farrell, Vancouver, B.C.
133712	D. G. 4	"	Scow	1912	Eburne, B.C.	81 8	32 0	9 0	242	Dewdney Gravel Co., Vancouver, B.C.
130599	Ferguson	Halifax, N.S.	Dredge	1912	Welland, Ont.	80 3	36 4	8 0	387	Halifax Dredging Co., Halifax, N.S.
133686	G. Q. L. No. 1	Victoria, B.C.	Barge	1911	Victoria, B.C.	90 0	30 0	8 0	168	D. Leeming, Victoria, B.C.
133687	" 3	" "	"	1911	"	90 0	30 0	8 0	168	E. A. Carew-Gibson, Vancouver B.C.
133688	" 4	" "	"	1912	"	95 0	32 0	8 0	193	G. P. Roberts, Victoria, B.C.
133689	" 5	" "	"	1912	"	95 0	32 0	8 0	193	" "
133690	" 6	" "	"	1912	"	90 0	30 0	4 0	173	D. Leeming, Victoria, B.C.
133717	McB. No. III	Vancouver, B.C.	Scow	1912	N. Vancouver, B.C.	75 1	30 1	8 0	148	T. G. McBride, Vancouver, B.C.
131169	Mary D. Young	Lunenburg, N.S.	Schr.	1912	Lunenburg, N.S.	114 2	26 3	10 2	99	J. B. Young, Lunenburg, N.S.
131168	N. A. F.	"	"	1912	Tancook, N.S.	48 0	13 5	7 0	24	A. Coutilier, BHalifax, N.S.
115392	Nyanza	Sydney, N.S.	"	1902	Belleoram, Nfld.	43 1	13 8	5 0	15	G. Herridge, North Sydney, N.S.
131215	Quincy	"	Dredge			71 2	30 1	8 0	146	Atlantic Dredging Co., Louisburg, N.S
133691	Sadie No. 10	Victoria, B.C.	Barge	1911	Victoria, B.C.	90 0	32 0	8 6	183	Victoria Tug Co., Victoria, B.C.
133692	Sadie No. 11	" "	"	1911	"	90 0	32 0	8 0	183	" " "
131166	W. Cortada	Lunenburg, N.S.	Schr.	1912	Lunenburg, N.S.	117 2	26 3	10 4	108	E. Backman, M.O., Lunenburg, N.S.
130600	Willie Roy	Halifax, N.S.	"	1906	Tancook, N.S.	44 0	11 8	5 6	13	A. Sullivan, Herring Cove, N.S.

Atlantic and Pacific Ocean Marine.

The s.s. Zealandia, which left Victoria for Sydney, N.S.W., Dec. 26, was reported, Jan. 2, to have arrived at Honolulu with disabled engines. Repairs were to be made there.

The Cunard- Thomson Line is continuing the arrangement whereby its vessels will call at Plymouth, Eng., on their eastbound trips, sailing thence for London direct, as carried out during last summer.

In connection with the Titanic disaster of last year, claims are reported to have been filed in New York against the White Star Co. for over $10,000,000. It is claimed by the company that, under the U.S. laws, its liability is limited to approximately less than $100,000.

The Uranium Steamship Co.'s s.s. Uranium, when nearing Halifax harbor, Jan. 12, stranded on the shoals off Chebucto Head. It was reported that holes were punched in both port and starboard sides. She was floated Jan. 17, and entered Halifax under her own steam.

The Cunard-Thomson Line, which has been operating steamships Ascania, Ausonia and Ultonia between Canada and Great Britain during the past season, has decided to increase the fleet for next season by adding the Andania and Alaunia, each of 13,000 tons, and of the one class cabin type.

The Allan Line s.s. Carthaginian, which arrived at St. Johns, Nfld., Jan. 10, reported that three days out from Liverpool, Eng., fire was discovered amongst the cargo. This was extinguished after some hours work, but the damage to the vessel apart from the cargo, is said to amount to $10,000.

Ottawa dispatches of Jan. 2 state that arrangements are being made to secure such aids to navigation as will make Hudson Bay and Straits safe for navigation, and that the Government intends sending a party over the proposed route in the spring to arrange for the installation of lighthouses and beacons.

The Hamburg-American Line s.s. Abessinia arrived at Halifax, Jan. 15, in a damaged condition, having had her rudder broken during a storm in midocean. The Allan Line s.s. Armenian had had her in tow, but the cable parted, and in the fog the vessels lost each other. A temporary rudder was fixed, and she came to port under her own steam.

A Montreal press report of Jan. 16 states that it has been officially announced that the C.P.R. has decided to establish an Austro-Canadian service in the spring, with Montreal as the terminal summer port on this side, and St. John, N.B., in the winter, while Trieste will be the Austrian port. The steamships Lake Champlain and Lake Erie will, it is said, be utilized in the service.

The Canadian Northern Steamships' s.s. Royal George sailed from Halifax, N.S., Dec. 28, 1912, for Great Britain, for complete overhauling and repair. She has been docked at Birkenhead, Eng., where the repairs will be undertaken, the original arrangements for docking at Glasgow, Scotland having been changed. It is stated that the damage was less than anticipated, and that she will be able to resume service in the spring.

It is reported from Ottawa that the Government has decided to appoint a commission to investigate the method of appointing pilots for the St. Lawrence and other routes. As a result of enquiries by the Dominion Wreck Commissioner into recent marine disasters, in a number of which the blame was placed on the pilots, the Shipping Federation of Canada called upon the Government to enquire into the pilotage system, alleging, among other things, that it is a comparatively close corporation. It is stated that the commission will consist of two persons connected with the shipping interests and one of the Marine Department's officials.

Maritime Provinces and Newfoundland.

The British s.s. Evelyn, which ran ashore at St. Esprite, Jan. 8, and which was released, sank at the entrance to Louisburg Harbor, N.S., Jan. 9. The crew, numbering 33, were saved.

It is announced that the contract for the building of the new ferry terminals at Halifax, N.S., has been awarded to the Standard Construction Co., and that operations have been commenced on a temporary dock.

The Department of Railways and Canals has awarded the contract for the building of a car ferry steamship, to be operated between New Brunswick and Prince Edward Island, to Sir W. G. Armstrong, Whitworth and Co., Newcastle, Eng.

The Quoddy Coal Co. is applying for incorporation under the New Brunswick Companies Act, with $9,900, and office at St. Andrews, N.B., with power, among other things, to do a general towing, lightering, freighting and forwarding business.

A steel suction dredge is under construction at St. John, N.B., for Government use on the St. John River. It will be 110 ft. long, and will be equipped with triple expansion engine and 15 in. pump. It is anticipated that it will be completed and ready for operation by the reopening of navigations.

Province of Quebec Marine.

The Quebec Harbor Commission has ordered three six wheeled switching locomotives from the Montreal Locomotive Works, for delivery in April.

The Montreal Harbor Commission has awarded a contract for a 1,500,000 bush. addition to its elevator no. 1 to John S. Metcalf Co., Montreal. This will make the total capacity of this elevator 2,500,000 bush.; while the elevator no. 2, recently completed by the same firm, has capacity for 2,600,000 bush. The addition will be of reinforced concrete and steel, and will cost approximately $700,000.

Ontario and the Great Lakes.

At the Lake Carriers Association's annual meeting at Detroit, Mich., Jan. 16, W. Livingstone was re-elected President for the current year.

A proposal is being arranged in Fort William, to have cinematograph views taken of the loaded grain vessels leaving the harbor on the re-opening of navigation.

The Department of Public Works has awarded a contract for the building of the machinery for a dipper dredge, to Polson Iron Works, Toronto. The amount of the contract is $38,000.

The U.S. Government has ordered from the Safety Car Heating and Lighting Co. 16 type C spar buoys with mantle lanterns for lighting the Livingstone channel in the lower Detroit River.

The Peoples Line steamboat Frontier was offered for sale, by public auction, at Toronto, Jan. 25, on the order of the Marshal for the Toronto Admiralty District, to satisfy claims made by the captain, crew and others.

The Montreal Transportation Co.'s annual meeting was held at Montreal, Jan. 17. Following are the officers and directors for the current year:—President, B. McLennan; Managing Director, L. L. Henderson; other directors, A. E. Ogilvie, T. A. Crane, Farquhar Robertson.

The Farrar Transportation Co., operating the steamships Collingwood and Meaford in the bulk freight trade, has declared a dividend of 10% for the past year, with a bonus of 5%. The annual report shows gross earnings of $173,181, and net profits of $73,338. There is a paid up capital of $250,000.

The two bucket ladder dredges which are under construction at Collingwood, for the Marine Department, will be of the following dimensions:—Length, 218 ft. over all; keel, 210 ft.; beam, 37½ ft.; depth, 14 ft. They will be equipped with triple expansion engines with cylinders 15, 25 and 42 ins. diar. by 26 ins. stroke, supplied with steam by two Scotch boilers, 11½ by 10½ ft., at 180 lbs. pressure. A forced draught system is to be installed.

Capt. McInnes, for about 50 years prominent in navigation circles on the Upper Lakes and Lakes Couchiching and Simcoe, died at Orillia, Ont., Jan. 14. He sailed on Lake Simcoe as early as 1853, and built and ran the steamboat Islay, in connection with a summer resort at Strawberry Island, a number of years ago. Later he owned and operated the passenger steamboat Oneida between Collingwood and Chicago, and Chicago and Ogdensburg.

It is announced from Fort William, that the Chicago, Duluth and Georgian Bay Transit Co. will operate a passenger service beimportant ports en route, during the coming important ports enroute, during the coming season. The first trip is scheduled for June 21. The vessel which was launched in Jan., will have five decks with accommodation for 700 passengers in staterooms, and she will also have swimming pool, children's play rooms and other modern conveniences.

The U.S. Lake Survey reports the levels of the Great Lakes, in feet above tide water, for Dec., 1912, as follows:—Superior, 602.11; Michigan and Huron, 580.23; Erie, 571.47; Ontario, 246.11. Compared with the average December levels for the past ten years, Superior was 0.26 ft. below; Michigan and Huron, 0.07 ft. above; Erie, 0.25 ft. below; Ontario, 0.71 ft. above. It was anticipated that during January Superior would fall about 0.5 ft.; Michigan and Huron about 0.1 ft., and Erie and Ontario would remain stationary.

The St. Lawrence and Chicago Steam Navigation Co.'s steamship, which is under construction at Collingwood, will be, it is claimed, the largest cargo carrying boat on the Canadian Lakes. Her dimensions are as follows:—Length over all, 550 ft.; length between perpendiculars, 529 ft.; beam, 58 ft.; depth, moulded, 31 ft.; estimated carrying capacity, 10,000 tons. She will be equipped with triple expansion engines, with cylinders 24, 40 and 66 ins. diar., by 42 ins. stroke, supplied with steam by three Scotch boilers 13 ft. diar., by 11 ft. long, at 185 lbs. pressure. The furnaces, which will be equipped with forced draught, will have a grate area of 45 ft. to each boiler. She is being built with side tanks, six compartments, and there will be 31 hatches, spaced 12 ft. centres.

The ratepayers of Midland have voted in favor of a bylaw granting a bonus of $25,000 for the construction of a dry dock there. We are advised that a floating dry dock of steel is to be built in connection with the vessel repair plant operated there by Jas. Playfair and associates, and that it will be built in two sections, the first one being, approximately, 125 by 70 ft., additions being made as the business de-

velops. The first portion of the bonus will be paid on the completion of the first section, and the balance on the completion of the dock, or the second section. The work will all be done locally by the company's own men, and if the dock, when completed, comes within the Government's requirements, a subsidy will be applied for under the Dry Dock Subsidy Act.

At the recent annual meeting of the Muskoka Lakes Navigation and Hotel Co. in Toronto, a dividend of 5% for the past year was declared. This is the first dividend paid for 13 years, though the company has been materially improving its financial position year by year. The report was considered satisfactory. W. F. Wasley, Traffic Manager, stated that though the season was notoriously a poor one, the company's traffic had been practically equal to the previous year. It was stated that though there would be no immediate additions to the fleet, two vessels would be added in 1914, if the forthcoming season's traffic appeared to warrant it. The officers and directors were re-elected for the current year as follows:—President, H. C. MacLean; Vice Presidents, G. T. Somers and W. K. George; other directors, R. S. Wilson, F. F. Brintnell and A. McL. Macdonnell. The Traffic Manager is W. F. Wasley, and the Manager of the Royal Muskoka Hotel is L. W. Maxson.

Manitoba, Saskatchewan and Alberta.

The statistics of shipping passing through the St. Andrews locks, on the Red River, during the 1912 season of navigation, show a tonnage of 95,549 against 47,135 for the previous year, an increase of 48,414 tons. There was considerable increase in general shipping in the neighborhood of Winnipeg during the year. The total tonnage of steam vessels plying up the river was 48,748, and of sailing vessels 55,437, a total of 104,385, while down the river the tonnage was 106,538. The tons of freight carried up to Winnipeg were 94,866, and 683 tons were carried down.

British Columbia and Pacific Coast Marine.

The C.P.R. s.s. Princess Maquinna, which is under construction at Esquimalt, was fitted with her boilers early in January. They were brought from Great Britain.

The contract for the construction of a breakwater at Victoria has been awarded by the Dominion Public Works Department to Sir John Jackson (Canada), Ltd., Montreal, of which company A. Brooks is the resident director.

The C.P.R. s.s. Princess Sophia was recently taken off her route for an overhauling, and at the same time to have complete oil burning equipment installed. Oil tanks had already been installed at the time of building the vessel. It was anticipated that she would be ready to relieve the s.s. Princess May on the Skagway run, Jan. 24.

The Continental Shipping and Trading Co., Ltd., has been incorporated under the British Columbia Companies Act, with $200,000 capital, and office at Vancouver, to carry on the general business of merchant carrier by land and water, and in connection therewith to own and operate steam and other vessels, aeroplanes, airships, etc.

The work of surveying the harbors and making test borings, at Victoria and Vancouver, which has been undertaken by the Dominion Public Works department, and which is under the charge of H. M. Davy, engineer of the department, was completed, Jan. 8, so far as Vancouver is concerned, that in connection with Victoria, it was announced, would probably be completed early in February, and that before leaving for the east the party would make a survey of Prince Rupert harbor.

An Ottawa dispatch of Jan. 7 states that the Dominion Government is to proceed at once with the construction of a public wharf at Vancouver. It is stated that instructions have been given for the expropriation of several lots in the vicinity of the sugar refinery, and as soon as this is effected, the building of the dock will be proceeded with. The cost is estimated at $500,000.

A press report from Vancouver states that an English syndicate, with Mexican connections, is making an investigation of the wharfage facilities at Vancouver, Puget Sound, Californian and Mexican ports, with a view to the establishment of a steamship line. It is stated that a report is to be made to the Mexican Government in the matter, and certain land grants are to be made there in connection with the project.

J. W. Troup, Manager, C.P.R. British Columbia Coast Service, who sailed for England Jan. 10, is reported to have stated in Montreal that two additional vessels are to be ordered in Great Britain for the Coast Service, to be placed on the routes now covered by the steamships Princess Charlotte and Princess Victoria, which will be transferred to other routes. It is reported that the new vessels will be driven by turbines.

The Union Steamship Co.'s s.s. Cheslakee sank, Jan. 7, at the wharf at Van Anda, Texada Island, and four lives were lost. It is stated that the accident was due to the leaving open of an ash chute. The Cheslakee was built at Dublin, Ireland, in 1910, her dimensions being:—Length, 126 ft.; breadth, 28.1 ft.; depth, 17 ft.; tonnage, 526 gross, 261 register. She is equipped with engine of 65 n.h.p., driving a screw. Arrangements are being made for salving the vessel.

The North Vancouver Ferries, Ltd., for 1912 showed earnings of $137,794.16, an increase of $13,318.55 over those of the previous year, notwithstanding that a lower tariff came into force in April, 1912. There was a surplus over transportation charges of $61,417.84. The general charges and office expenses were $36,522.64, and the net profit was $7,467.06. During the year the company installed new boilers in ferry no. 2, and made general improvements to ferries nos. 2 and 3, equipped the vessels for burning oil fuel, and made extensions to its wharf at Vancouver.

The Georgian Bay Canal Project.—The Dominion Parliament is being asked to extend the time within which this projected waterway from Montreal to the Georgian bay at the mouth of the French river may be built, and to authorize the company, in lieu of the provisions of sec. 22, chap. 103 of the statutes of 1894 to issue bonds for $175,000,000.

John F. Pierce has been appointed District Passenger Agent of the Richelieu and Ontario Navigation, Niagara Navigation Co., Thousand Island Steamboat Co., and R. & O.N. Co. of the United States, with territory covering the New England states and the maritime provinces. His office is at Boston, Mass.

The Canadian Marconi Wireless Telegraph Co. has announced that it has completed a new agreement with the Newfoundland government, whereby the number of stations operated by it there will be increased from five to ten, until 1926, under an annual subsidy of $4,500 and other considerations involving exclusive rights during that period.

White Pass and Yukon Railway's River Service.

In his report for the year ended June 30, 1912, President O. L. Dickeson gives the following particulars of the company's river division:—

The fleet in 1911 carried 4,912 passengers and 15,825 tons of revenue freight. Eight steamboats and 10 barges were in operation on the river and lakes during the season, the remaining steamboats and barges being held in reserve for emergencies. The first boat left Hootalinqua for Dawson May 19, and the first through boat left Whitehorse for Dawson June 8. The first boat for Atlin left Caribou June 10. The last boat from Dawson reached Whitehorse Oct. 30, which is considerably later than the River Division steamers have operated since this service was established. The last boat from Atlin reached Caribou Oct. 28.

Some special work was done at the Whitehorse shipyards to facilitate the placing of the fleet in winter quarters and to carry on the necessary repair work before the opening of navigation. A new lathe was installed in the shops to replace the old one.

The River Division was operated without any accidents and there were, therefore, no repairs or renewals out of the ordinary to any of the boats except the Whitehorse and Selkirk. The repairs to the latter consisted of new cylinder timbers and about 35 ft. of her after hull was rebuilt. New cutoffs were installed in the engine of the Whitehorse at a slight cost, which resulted in a saving of approximately $3,000 in her fuel consumption during the past season.

The construction of the new Casca was commenced late in the season of 1910 and completed in 1911. She was launched Oct. 15, making a trial trip Sept. 2 from Whitehorse to Lower LeBarge and return, which proved successful. Her maiden voyage was made Sept. 15, carrying 250 tons of freight and mail. Her draft leaving Whitehorse was 3 ft. 5 ins. aft, 3½ ft. amidship and 3 ft. 10 ins. forward. Other steamboats on the same draft could only carry approximately 150 tons, illustrating the economical value of changes applied in the construction of the new boat. On this trip no special effort was put forth to make fast time, it being necessary for the captain and pilot to become familiar with handling her, but the speed was very satisfactory. Subsequent performances prove the Casca the most economical and best steamboat in the fleet. Following are brief particulars:—Length, 161 ft.; beam, 37 ft.; depth of hold, 5½ ft.; draft, light, 24 ins.; rooms for officers and crew, 11; rooms for passengers, 34; berths, 64; table seats for 40 passengers; registered tonnage, 790.

In respect to passenger arrangement and appearance she is practically a duplicate of the Whitehorse, except that she shows more breadth. There is an extra foot of width on each side of her promenade deck, making her an attractive boat for tourists.

A saving in operation of $77,994.72 was effected, as compared with 1910.

The company's fleet consists of 19 steamboats, 14 barges and one launch.

Pressures of from 4 to 35 lbs. per sq. in. of surface on work being ground on a disc wheel have been determined by experiments to be the proper pressures for grinding. A less pressure than 4 lbs. per sq. in. results in polishing and burnishing the work. For this reason it is necessary, when grinding light pieces on a horizontal disc wheel, to load them with weights when the weight of the piece does not impose a pressure of more than 4 lbs. per sq. in.

Lake Grain Shipments.

The following statement, prepared by F. Symes, acting Grain Inspector, Fort William, Ont., shows the bushels of each kind of grain shipped by each Canadian vessel, from Port Arthur and Fort William, to Canadian ports during the crop year of 1911-12:—

	Wheat.	Oats.	Barley.	Flax.
A. E. Ames	127,000	299,116	.....	80,546
A. E. McKinstry	274,505	264,546	.....	62,939
Acadian	474,194	281,500	15,592	76,004
Advance	185,000	56,845	.....	.....
Agawa	.....	269,078	.....	.....
Alberta	156,120	221,726	33,907	.....
Algonquin	164,784	56,000	163,958	.....
Arabian	249,812	.....	.....	.....
Assiniboia	143,890	514,263	.....	.....
Athabasca	223,888	382,139	49,954	.....
Beaverton	423,684	265,012	30,000	.....
Bickerdike	107,073	230,959	14,909	.....
C. A. Jaques	421,316	246,405	19,165	3,960
Canadian	465,243	150,280	88,903	59,250
Carleton	65,000	329,667	.....	.....
City of Montreal	57,340	.....	.....	.....
Collingwood	719,046	852,467	.....	.....
Corunna	227,819	3,603	19,452	19,892
Corunna	106,939	.....	.....	.....
D. A. Gordon	669,031	163,773	.....	47,870
Donnacona	230,436	172,625	.....	.....
Doric	879,130	183,888	37,333	.....
Dundee	414,086	227,264	.....	.....
Dunelm	327,235	421,410	10,000	.....
E. B. Osler	2,970,638	.....	.....	.....
Edmonton	453,735	223,648	32,302	.....
Emperor	2,696,058	170,000	.....	.....
Empress of Fort William	863,372	173,324	.....	.....
Empress of Midland	322,902	163,034	17,000	.....
Fairmount	594,386	231,284	77,377	.....
Forest City	181	.....	.....	.....
G. R. Crowe	1,222,922	60,560	.....	.....
Glenellah	631,174	103,472	.....	.....
Glenmount	731,401	.....	6,501	.....
H. M. Pellatt	128,195	206,702	22,303	49,975
Hamiltonian	101,057	111,970	57,935	.....
Ionic	427,115	285,137	42,028	49,120
Iroquois	820,654	165,338	.....	.....
J. A. McKee	1,354,417	398,375	95,955	103,086
J. H. Plummer	142,000	298,442	20,341	.....
Kaministiquia	954,164	629,492	.....	78,007
Keewatin	801,530	511,418	53,089	26,588
Kenora	392,395	351,986	.....	.....
Kinmount	609,427	125,900	.....	27,002
Leafield	192,782	.....	31,175	.....
Manitoba	307,823	292,563	41,411	.....
Mapleton	415,580	.....	.....	.....
Marina	63,433	.....	.....	34,238
Midland King	2,119,719	202,637	.....	.....
Midland Prince	1,943,768	412,278	.....	.....
Midland Queen	477,768	130,000	52,100	.....
Meaford	1,091,725	75,000	.....	.....
Neebing	598,664	300,000	.....	.....
Neepawah	238,031	206,220	.....	.....
Nevada	248,139	91,760	2,479	.....
Newona	2,167,803	615,440	64,834	.....
Paliki	188,718	59,999	.....	.....
Port Colborne	30,988	83,605	.....	.....
Prince Rupert	131,400	207,413	.....	34,385
R. R. Rhodes	111,200	102,134	.....	35,871
Regina	427,600	177,746	.....	.....
Renvoyle	164,126	85,696	35,000	.....
Rosedale	281,574	216,313	56,205	47,736
Rosemount	426,835	302,124	77	.....
Saskatoon	402,985	.....	.....	.....
Scottish Hero	1,043,302	1,005,123	36,844	81,460
Seguin	205,000	169,678	.....	.....
Senator Derbyshire	.....	168,458	.....	.....
Sindbad	7,029	20,531	.....	.....
Stadacona	300,000	.....	.....	.....
Stormount	609,863	127,000	.....	.....
Strathcona	227,000	264,227	.....	.....
Tagona	365,488	150,000	.....	.....
Turret Cape	75,400	261,783	85,000	.....
Turret Chief	706,636	552,658	.....	29,380
Turret Court	1,050,343	100,000	.....	.....
Turret Crown	877,235	406,776	.....	.....
Ungava	68,000	.....	.....	.....
W. D. Matthews	1,656,677	286,620	55,000	.....
Wahcondah	229,393	.....	.....	29,700
Westmount	678,992	241,000	.....	.....
Wexford	817,805	832,451	.....	71,974
Winona	1,043,875	334,748	.....	60,755
Yorkton	176,164	.....	.....	.....
Totals	45,499,197	18,284,629	1,367,159	1,108,838
Shipped in Canadian vessels to foreign ports..	684,654	.....	.....	78,007
Shipped in foreign vessels to foreign ports ..	39,468,316	2,315,629	1,660,888	2,783,295
Totals	85,652,167	20,600,258	3,028,047	3,970,140

In addition to the foregoing, 7.064 bush. of rye were shipped in the steamboats Edmonton and Manitoba, to Canadian ports.

Stranding of the s.s. Sindband.—The judgment in the enquiry into the stranding of the s.s. Sindbad at Cheticamp Harbor, N.S., Oct. 1, 1912, delivered recently by Commander H. St. G. Lindsay, Wreck Commissioner, and concurred in by Capts. F. Nash and M. E. Gillis, exonerates the master of the vessel from all blame for the casualty, which was due to the vessel striking on an unknown shoal, which was not marked on the charts and sailing directions used by him, although the shoal appears to have been pretty well known locally.

Grounding of the s.s. Vadso.

Judgment was delivered, Jan. 9, at Victoria, B.C., re the grounding of the Union Steamship Co.'s s.s. Vadso, in passing through Baynes Sound, Oct. 12, 1912, by Capt. G. Robertson, Agent, Marine Department, and concurred in by Capts. P. J. Hickey and J. W. Butler, as follows:—After carefully considering the courses set by the master and steered, we are of opinion that he did not realize the strength of the ebb tide, which was setting strong on his port bow, and that as his vessel was steaming but slowly, he did not make provision enough for this leeway in his last course. We are of the opinion that this was the cause of the grounding, and therefore find that the master, W. Noel, committed an error of judgment, but on account of his good record, we feel that he should be exonerated from all blame, and we hand him back his certificate.

We are of the opinion that a more definite understanding ought to exist between owner and master as to the very important question of sacrificing safety for time, and also would accentuate the necessity of masters keeping a night order book, in order that no misunderstanding may occur in the issuance of instructions having reference to the safe navigation of vessels. In view of the fact that the volume of passenger traffic has greatly increased on the coast during the last few years, it becomes of paramount importance that the owners should see that the rules and regulations issued by them appertaining to safe navigation be lived up to, and also every facility and support should be given masters in maintaining such discipline as will tend to minimize public criticism when accidents of this kind occur, and that masters themselves should see that the internal discipline and routine maintained on board their vessels should be such as to insure the utmost vigilance in order to contribute to safe navigation.

New Vessels for Canadian Pacific Railway Atlantic Service.

As announced in Canadian Railway and Marine World for January, the C.P.R. has placed an order in Glasgow, Scotland, for the construction of two steamships for its Atlantic service. These vessels will be of the one class cabin type, with accommodation for 532 cabin and 1,250 steerage passengers, and with cargo capacity of 8,000 tons.

The approximate dimensions will be:—Length, 500 ft.; breadth, 64 ft.; depth, moulded to shelter deck, 39 ft. The loaded draught will be about 28 ft., and the speed will be about 15 knots an hour. The machinery will consist of two sets of quadruple expansion engines, with cylinders 26, 37½, 53½ and 77 ins. diar., by 51 ins. stroke, supplied with steam by 8 single ended boilers, 15¾ ft. diar., by 11 ft. long, and driving twin screws.

The Lake Winnipeg Brick and Lumber Co. has been incorporated under the Manitoba Companies Act, with very extensive powers for the development of lands in the province, operating vessels, carrying on the business of a common carrier, the ownership of docks, wharves and terminal facilities, etc., but it is added:—"Nothing herein contained shall be construed as authorizing the company to operate a railway." The company's capital is fixed at $200,000, its chief offices are in Winnipeg, and the provisional directors are:—T. F. Shannon, W. Frank. S. L. Head, J. R. Little, E. A. Fletcher, Winnipeg.

The White Star Vessels Olympic and Britannic.

The White Star Line s.s. Olympic, which is being reconstructed at Belfast, Ireland, has been definitely scheduled to leave Southampton on April 2, sailing from New York on the return trip April 12, for Plymouth, Cherbourg and Southampton.

The chief object of the reconstruction work, which will entail an enormous expense, is the introduction of an inner skin of heavy steel plates, continuing, in effect, the present double bottom well above the water line and providing considerable additional protection throughout the hull. The recent published reports to the effect that oil fuel would be transported between the outer and inner plates of the Olympic is entirely unfounded. Coal will continue to be used as the only fuel.

Throughout the Olympic the builders are placing a number of additional water tight bulkheads of exceptional strength, several of them being carried through to the B deck which is 40 ft. above the water line. These new bulkheads and the new inner skin will largely increase the flotation capacity and enhance the margin of safety far beyond previously recognized standards.

Similar safeguards are being introduced into the new Britannic, the 50,000 ton triple screw steamer now in course of construction for the White Star Line.

The Proposed Enlargement of the Chicago Drainage Canal Refused.

The application of the Sanitary District of Chicago, Ill., to the U. S. War Department for permission to divert water from Lake Michigan, at the rate of 10,000 cub. ft. a second, instead of about 4,167 cub. ft. as at present, has been dismissed.

In the course of his judgment, the Secretary of the Department states that reports of commissions and engineers show that the withdrawal of such a quantity of water would substantially interfere with the navigation of the Great Lakes and connecting rivers, and that observations during the last 46 years show that the drain would reduce the lake levels from 4.8 ins. on the St. Lawrence River to 6.9 ins. in Lakes Huron and Michigan at mean lake levels, the lowering effect being much greater at low water periods, when the additional shortage would be most keenly felt. This reduction would substantially injure all the U. S. and Canadian harbors on the Great Lakes, and at Montreal the river level would probably be lowered by 12 ins. The U. S. Government has spent over $90,000,000 on its harbors in the district covered, and the Canadian Government has improved over 50 of its harbors, which would suffer. The reconstruction of the Sault Ste. Marie and other canals might even be necessary, owing to the reduction of the depth of water over the sills. The lowest estimate by engineers of the injury to U. S. vessels, by a reduction of their tonnage capacity, has been placed at $1,000,000 a year, while the International Waterways Commission places the loss at the interest on a capital of $37,500,000. The Secretary says that he can find nothing in the waterways treaty of 1909 bearing on the questions before him, for beyond the allowance of mutual rights of navigation, the question of the right of diversion at Chicago appears to have been carefully excluded, and he declares that the Canadian view, that the granting of the application would affect the material interests of their country, is quite sufficient to place it under the jurisdiction of the International Waterways Commission, rather than that of an administrative officer.

This matter has been before the Department some time, and various representations have been made by Dominion interests. The opposition to the application was dealt with at a hearing at Washington, Mar. 27, 1912, when it was stated that the water level at Montreal would be lowered 10¼ ins., and that under the low water conditions then existing at Montreal two ocean going vessels sacrificed 8,340 tons of cargo. Other information was also given, showing the probable effects at Kingston, Toronto and other harbors. Amongst those representing Canada at the hearing were:—F. King, Counsel, Dominion Marine Association, who also represented the Kingston Board of Trade; A. A. Allan, Allan Line Steamships; F. E. Meredith, Shipping Federation of Canada; D. Seath, Montreal Harbor Commission; R. W. Reford, Montreal Board of Trade; F. S. Spence, Toronto Harbor Commission; G. T. Blackstock, K.C., representing various Niagara interests, while the Minister of Marine had previously appointed John Kennedy, Consulting Engineer, Montreal Harbor Commission; J. Stewart, of the Hydrographic Department; and V. W. Forneret, St. Lawrence Ship Channel Engineer, in connection with the preparation of the case for the Dominion.

Canadian Notices to Mariners.

The Department of Marine has issued the following:—

319. Dec. 10. British Columbia, Strait of Georgia, Burrard inlet, Atkinson point, change in fog alarm.

320. Dec. 10. British Columbia, Queen Charlotte islands, Cape St. James, non-existence of rock southeastward of.

321. Dec. 11. Nova Scotia, south coast, Owlshead bay, Owlshead, hand fog horn at lightstation.

322. Dec. 11. Nova Scotia, Cape Breton island, east coast, Sydney harbor, southeast bar, change in characteristic of light.

323. Dec. 11. Prince Edward Island, south coast, Hillsborough bay, St. Peters island, light improved.

324. Dec. 11. Quebec, Gulf of St. Lawrence, Ste. Anne des Monts, bearing of range lights.

325. Dec. 20. Canada, list of official government publications useful to mariners.

326. Dec. 23. British Columbia, Strait of Georgia—Sandheads of Fraser River, lightship removed from her station temporarily for repairs.

327. Dec. 23. British Columbia, Strait of Georgia—Fraser River mouth, change in color of beacon lights.

328. Dec. 23. British Columbia, Queen Charlotte Islands—Graham Island, chart of Masset Sound and Inlet issued.

329. Dec. 23. Alaska, Dixon Entrance—Barren Island, light to be established.

330. Dec. 26. Ontario, River St. Lawrence—Thousand Islands, color of day beacon southeastward of Jackstraw Shoal.

331. Dec. 26. Ontario, Lake Erie—Port Burwell, change in color of front light of outer range.

332. Dec. 26. Ontario, St. Clair River—shoal north of Stag Island, gas buoy to be established.

333. Dec. 26. Ontario, Lake Superior—Thunder Bay, Port Arthur, gas buoy replaced by gas and bell buoy.

334. Dec. 26. Ontario, Lake Superior—Victoria Channel, Mink Island reef, beacon rebuilt.

335. Dec. 26. New Brunswick, south coast—Bay of Fundy, Passamaquoddy Bay, St. Aidrews Harbor, Tongue Shoal, light improved.

336. Dec. 26. New Brunswick, Bay of Fundy—Chignecto Channel, Grindstone Island, new lighthouse, change in character of light.

337. Dec. 26. Nova Scotia, south coast—Halifax approach, Chebucto Head, temporary light.

338. Dec. 26. Prince Edward Island, north coast—off entrance to Cascumpeque Harbor, color of bell buoy.

339. Dec. 26. Quebec, River St. Lawrence—Channel Patch, change in color of gas buoy light.

340. Dec. 26. Newfoundland, west coast—Gulf of St. Lawrence, Ferolle Point, fog alarm established, light to be established.

341. Dec. 28. Ontario, Winnipeg River, White Dog Island to Kenora, buoys established.

342. Dec. 31. British Columbia, Discovery Passage, Seymour Narrows, Maud Island, change in position of gas lighted beacon.

343. Dec. 31. British Columbia, Queen Charlotte Islands, Houston Stewart Chan-Stewart Channel, postponement of date of removal of beacon from Koya Point to Danger Rocks.

1. Jan. 7. Caution when approaching Canadian ports.

2. Jan. 3. British Columbia, Strait of Georgia, Galiano Island, Porlier Pass, Race Point, hand fog horn at light station.

3. Jan. 3. British Columbia, Burrard Inlet, Vancouver harbor, telephone cable laid across the harbor from Vancouver to North Vancouver, caution.

7. Jan. 16. British Columbia, Johnstone Strait, Cracroft Island, westward of Boat harbor, light to be established.

8. Jan. 16. British Columbia, Tolmie Channel, Swindle Island, Separation Point, gas lighted beacon established.

9. Jan. 16. British Columbia, Queen Charlotte Islnads, Houston Stewart Channel, Flat Rock, light discontinued, beacon removed.

10. Jan. 16. British Columbia. Queen Charlotte Islands, Hecate Strait, Skidegate Inlet, eastward of Deadtree Point, can buoy to be replaced by gas buoy.

11. Jan. 16. British Columbia, Queen Charlotte Islands, Hecate Strait, Skidegat Inlet, off Lawn Point, intended change in position of gas and bell buoy.

12. Jan. 22. Nova Scotia, south coast, Halifax harbor, eastern passage, buoys established.

13. Jan. 22. Nova Scotia, south coast, Halifax approach, Devil Island, easterly light improved.

14. Jan. 22. New Brunswick, Northumberland Strait, Tormentine Reefs, bell buoy re-established.

15. Jan. 22. Quebec, Chaleur Bay, Carleton, Tracadigash Point, change in character of light.

16. Jan. 22. Quebec, St. Lawrence River from Quebec to Father Point, first edition of the St. Lawrence Pilot (below Quebec) issued.

The appointment has been gazetted, of Capt. H. St. George Lindsay, Ottawa, to be Wreck Commissioner under the Department of Marine and Fisheries, from June 1, 1912, vice Capt. L. A. Demers, who resigned on his appointment as harbor master

The Colonial Secretary announced in the British House of Commons, Jan. 22, that in order to be in a position to cope with the demands of traffic on the opening of the Panama Canal, the Government of Jamaica was in negotiation with a Canadian syndicate for the provision of better facilities for coaling and docking. A site for a vessel repair plant is said to have been secured at Kingston, and harbor improvements are under way at Trinidad, Port of Spain and St. George, and oil bunkering stations at Barbadoes and St. Lucia.

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.

DEARBORN DRUG AND CHEMICAL Works, Chicago, has changed its name to Dearborn Chemical Co.

CALENDARS FOR 1913 for wall display have been received from Baldwin Locomotive Works, Philadelphia, Pa.; B. Greening Wire Co., Ltd., Hamilton, Ont.; Mussens, Ltd., Montreal; F. H. Hopkins & Co., Montreal; Hart-Otis Car Co., Montreal; Intercolonial Ry.

THE SAFETY CAR HEATING AND Lighting Co., New York, has received orders for 16 type C spar buoys with mantle lanterns for lighting the Livingstone channel in the Detroit River, Mich., and also four similar buoys for the Thimble Shoal dredge channel, Virginia.

HENRY D. BAYNE, Special Agent, Canadian General Electric Co., Toronto, has sent out his "Suggestions, 1913," in the usual wall hanger form in which they have appeared for a number of years. They contain some good home truths and are as interesting as ever.

THE SAFETY CAR HEATING AND Lighting Co. has received an order from the United States Lighthouse Department for seven type C Pintsch gas buoys, complete, with mantle lanterns, to be placed in the Elizabeth River, Norfolk, Va., to mark the channel to the Portsmouth Navy Yard.

CANADIAN GENERAL ELECTRIC COMpany.—W. R. Brock, who has been continuously President of the company since its organization 25 years ago, has been elected Honorary President and Chairman of the Board of Directors. Frederick Nicholls, who organized the company and has been Vice President and General Manager, has been elected President.

THE NATIONAL BOILER WASHING Co., Montreal, has received the following contracts recently:—From the Canadian Pacific Ry., double tank system boiler washing plant, to serve 30 stalls, in locomotive house at North Transcona, Man. From the Michigan Central Rd., a double tank system boiler washing plant for St. Thomas, Ont. From the C.P.R., single boiler washing systems for Chapleau and Schreiber, Ont. From the C.P.R., a National heating system for locomotive house, shops, etc., at North Transcoma, Man., and for locomotive houses at Winnipeg, Brandon and Souris, Man., and Coronation, Alta.

THE TALLMAN BRASS AND METAL Co., Hamilton, Ont., has issued a catalogue containing weights, measures, list prices and extras of brass and copper rod, sheet and tubing, Tobin bronze rod, etc. The company carries over 200,000 lbs. of this material in stock, and shows in the catalogue what sizes, tempers, and gauges are on hand for immediate shipment. The catalogue also shows the lines the company manufactures, such as brass, phosphor bronze, copper and aluminium castings. Arctic metal, a brand of babbitt for cool bearings, finished brass goods, metal stampings, spinnings, nickel plating, etc. Catalogues will be mailed upon request.

INTERNATIONAL ENGINEERING Works, Ltd., announces the purchase of the properties and complete reorganization of the business formerly owned by the Robb Engineering Co., with increased capital and manufacturing facilities. The extensive engine and boiler works at Amherst, N.S., Canada, will continue to build the full line of Robb engines and boilers. The facilities at Amherst, combined with those at South Framingham, Mass., will be at the disposal of the International Engineering Works, Ltd., which will maintain the reputation of the Robb products. The plant and stocks of raw and finished materials will be increased to meet the growing requirements of Canadian trade.

THE NATIONAL BOILER WASHING Co., Montreal, has installed recently a single tank double compartment boiler washing system for the Canadian Northern Ry. at Kamsack, Sask., with a capacity of 5,800 galls. in the washout section and 7,000 galls. in the filling section. This system is practically automatic throughout, there being full control of the temperatures of the water, both for filling and washing. It utilizes all the heat units from the locomotive, saves by filtration the blown out water, and at the same time heats a fresh body of water for refilling the locomotives. The system is similar to one installed for the C.N.R. at Winnipeg about a year ago. National heating systems have also been installed in the C.N.R.'s locomotive houses at Kamsack, Radville, Carlyle, Sask.; and Big Valley, Alta.

THE STANDARD UNDERGROUND Cable Co. of Canada Ltd., Hamilton, Ont., has established branch offices at Montreal and Winnipeg in order to facilitate the prompt handling of its growing business. The Montreal office will handle all business from the province of Quebec and the eastern part of Ontario. It is in charge of R. G. Harris, formerly connected with the general offices of the Standard Underground Cable Co., Pittsburgh, Pa., but more recently with its New York sales office. The Winnipeg office will handle all business from Alberta, Saskatchewan, Manitoba and the portion of Ontario west of Fort William. B. S. Stewart, who has charge of this office, was for some time in the general offices of the associate company at Pittsburgh, Pa., later going to the Chicago sales office, where he has been for a number of years. The general offices at Hamilton, Ont., will handle all business from the central and northern portions of Ontario. W. H. Marsh, Sales Manager and Secretary of the Company, has direct charge of the business, coming into this office as well as general supervision of the various branch offices. Business originating in British Columbia, Alaska and Yukon will be handled by the Seattle, Wash., office, and business from the Maritime Provinces will be handled by the Boston, Mass., office. This is a temporary arrangement in order to secure prompt service immediately for customers in those districts until the volume of business justifies the establishing of separate offices in the Dominion.

Buffalo Terminal Improvements.—The New York Central & Hudson River Rd. has applied to the New York State Land Board for permission to purchase 18.7 acres of land under Lake Erie, in the city of Buffalo, in order that it may immediately enlarge its facilities for the interchange of commerce at that port and provided additional trackage for the handling of merchandise. The application was referred to the Attorney General and to the State Engineer and Surveyor for investigation.

Among the Express Companies.

The Canadian Northern Ex. Co. has opened an office at Leask, Sask.

P. A. Keeler, heretofore chief clerk in Treasurer's office, Dominion Ex. Co., Toronto, has been appointed Assistant Treasurer.

W. M. Johnstone, heretofore in the General Agent's office, Montreal, has been appointed Route Agent, Dominion Ex. Co., St. John, N.B., vice F. W. Branscombe.

F. W. Branscombe, formerly Route Agent, Dominion Ex. Co., St. John, N.B., has been appointed Assistant Superintendent, Atlantic Division, Office, St. John, N.B.

The Board of Railway Commissioners has rearranged the express delivery and collections for Winnipeg, and has rescinded its former order in that connection, and has also defined, until further order, the delivery and collection limits for Megantic, Que.

The Saskatchewan Legislature has fixed the taxes under the amendments to the Corporation Tax Act, for express companies transacting business, directly or indirectly, within the Province, as follows,—for every head office in every incorporated city, $250, and for every branch office in any city, $50; for every branch office in any incorporated town, $100, and for every branch office in any incorporated village, $40.

W. H. Plant, heretofore Auditor, Dominion Ex. Co., has been appointed General Auditor in charge of all accounting. The Audit Office has been divided into departments, giving senior clerks titles and positions as follows:—O. E. Foote, Auditor of Express Receipts; D. Barron, Auditor of Transportation; H. H. Wheeler, Auditor of Money Orders; A. G. Fraser, chief clerk to General Auditor, and F. J. McBride, chief clerk to Auditor of Express Receipts, all located at Toronto.

Hon. H. R. Emmerson, M.P., formerly Minister of Railways, is asking Parliament to order a general enquiry by the Board of Railway Commissioners into express rates, on the ground that the present charges are said to be excessive, and in some instances, extravagant; the enquiry to include rates paid to railway and other transportation companies operating in the Dominion, to the Intercolonial Ry., and to the Government, in connection with the transportation of express traffic.

Reports are sent to the General Accounting Office, as heretofore, and correspondence, as follows:—Referring to remittances, agents' advice sheets, waybill settlements, vouchers and accounts, to General Auditor; referring to statements, abstract, waybills, and over and short bureau, to Auditor of Express Receipts; referring to distribution of earnings to railways over which shipments are carried, to Auditor of Transportation; referring to money orders, foreign cheques and reports therefor, to Auditor of Money Orders.

The World's Supply of Nickel comes practically all from Canada, which produces 90% of the total. Most of the remaining 10% is produced in New Caledonia, a French island in the southern Pacific. The only refineries are in the United States. In 1910, the value of nickel refined from Canadian ores was $12,000,000.

The Board of Railway Commissioners issued a circular, Jan. 13, asking railway companies to file, within 60 days, a statement giving the name of each point at which car repairers are located, and explaining the manner in which car repair tracks at such points are protected.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries.

Canadian Car Service Bureau, J. E. Duval, 401 St. Nicholas Building, Montreal.

Canadian Freight Association (Eastern Lines), G. C. Ransom, Canadian Express Building, Montreal.

Canadian Freight Association (Western Lines), W. E. Campbell, 502 Canada Building, Winnipeg.

Canadian Railway Club, J. Powell, St. Lambert, Que. Meetings at Montreal, 2nd Tuesday each month, 8.30 p.m., except June, July and August.

Canadian Society of Civil Engineers, C. H. McLeod, 413 Dorchester St. West, Montreal.

Canadian Street Railway Association, Acton Burrows, 70 Bond Street, Toronto.

Canadian Ticket Agents' Association, E. de la Hooke, London, Ont.

Central Railway and Engineering Club of Canada, C. L. Worth, 409 Union Station, Toronto. Meetings at Toronto 3rd Tuesday each month, except June, July and August.

Dominion Marine Association, Counsel, F. King, Kingston, Ont.

Eastern Canadian Passenger Association, G. H. Webster, 54 Beaver Hall Hill, Montreal.

Engineers' Club of Montreal, R. W. H. Smith, 9 Beaver Hall Square, Montreal.

Engineers' Club of Toronto, R. B. Wolsey, 94 King St. West, Toronto.

Great Lakes and St. Lawrence River Rate Committee, Jas. Morrison, Montreal.

International Water Lines Passenger Association, M. R. Nelson, New York.

Niagara Frontier Summer Rate Committee, Jas. Morrison, Montreal.

Nova Scotia Society of Engineers, A. R. McCleave, Halifax, N.S.

Quebec Transportation Club, J. S. Blanchet, Quebec.

Ship Masters' Association of Canada, H. O. Jackson, 376 Huron street, Toronto.

Shipping Federation of Canada, T. Robb, 526 Board of Trade, Montreal.

Western Canada Railway Club, W. H. Rosevear, 25½ Princess St., Winnipeg. Meetings at Winnipeg 2nd Monday each month, except June, July and August.

Transportation Conventions in 1913.

Mar. 18-20.—American Railway Engineering Association, Chicago, Ill.

May.—Association of Railway Claim Agents, Baltimore, Md.

May.—International Railway Fuel Association, Chicago, Ill.

May 6-9.—Air Brake Association, St. Louis, Mo.

May 19-21.—Railway Storekeepers' Association, Chicago, Ill.

May 20.—Association of Railway Telegraph Superintendents, St. Louis, Mo.

May 21.—American Railway Association, New York.

May 26-29.—Master Boiler Makers' Association, Chicago, Ill.

May 28.—Association of American Railway Accounting Officers, Atlantic City, N.J.

June.—American Society for Testing Materials, Philadelphia, Pa.

June.—Association of Railway Electrical Engineers, Atlantic City, N.J.

June 11-13.—American Railway Master Mechanics' Association, Atlantic City, N.J.

June 16-18.—Master Car Builders' Association, Atlantic City, N.J.

June 17.—Train Despatchers' Association of America, Los Angeles, Cal.

June 17-20.—American Association of Freight Agents, Buffalo, N.Y.

June 18.—Freight Claim Association, Bluff Point, N.Y.

July 22-25.—International Railway General Foremen's Association, Chicago, Ill.

Aug.—Travelling Engineers' Association, Chicago, Ill.

Aug. 12-15.—Railway Gardening Association, Nashville, Tenn.

Aug. 18.- International Railroad Master Blacksmiths' Association, Richmond, Va.

Sept. 8-12.—Roadmasters' and Maintenance of Way Association, Chicago, Ill.

Sept. 9-12.—Master Car and Locomotive Painters' Association of U.S. and Canada, Ottawa, Ont.

Oct. 14.—Railway Signal Association, Nashville, Tenn.

Oct. 21-23.—American Railway Bridge and Building Association, Montreal.

Oil Engines in the British Navy.—The fact that five different sets of marine oil engines are being constructed for the British Navy shows that the Admiralty is taking up the question of the best type of marine oil engine with characteristic thoroughness. One set will be of the Fiat type, another will follow the principle of the Nurnberg type, two of the other sets are to be low speed engines and the fifth is to be of the high speed type. In all cases the engine will be of the four stroke cycle, reversible type, and the power will range from 500 up to 2,500 brake horse power. Various types of auxiliary installation will be tried out. The auxiliaries on one ship will be driven by small tube steam boilers, and in the other cases compressed air or electricity will be utilized. The resulting data will be of the greatest value.