

Canadian Railway and Marine World

August, 1914.

Rolling Lift Bridge at Fort William for Canadian Pacific Railway.

By J. G. Seyfried, Engineer, Bridge Department, Canadian Allis-Chalmers, Ltd.

There has recently been completed for the C.P.R. a lift bridge across the McKellar River, at Fort William, Ont., to enable it to reach its new terminal yards on Island No. 1. It is a single leaf, four track, Scherzer rolling lift bridge. The movable span is 120 ft. c. to c. of supports, giving a clear channel of 114 ft., while the track for the segmental girder is 32 ft. long. The total width of the bridge out to out is 61 ft. Two of the tracks are for the C.P.R.; the other two are for electric cars. There are three trusses $31\frac{1}{2}$ ft. c. to c. and $31\frac{1}{2}$ ft. deep. The segmental girders have a radius of 25 ft., and when the bridge is rolling or opening they travel approximately 30 ft.

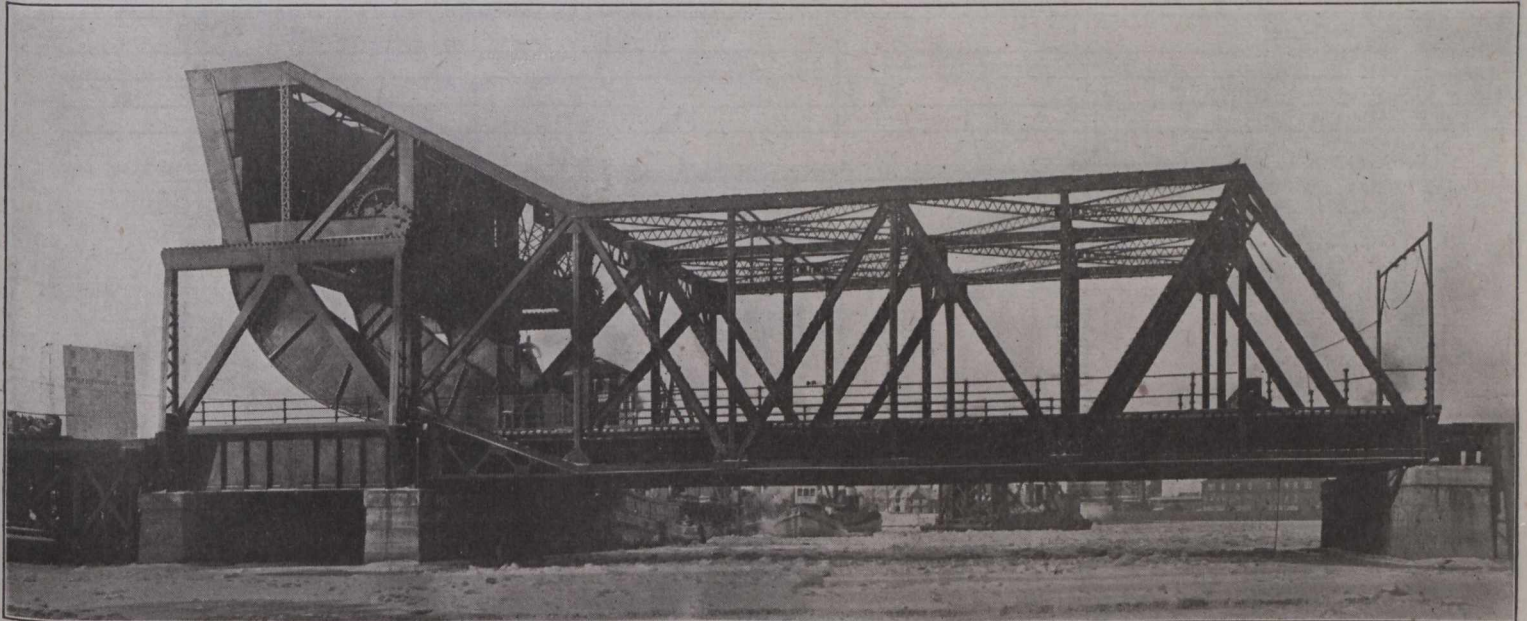
There are two operating motors, which

same reason it was not possible to fit the solenoid brakes in the usual manner on the end shield, but the solenoid brake has been turned through 45 degrees. This arrangement avoids the solenoids being in a horizontal position when the bridge is open. They are provided with release attachment and automatic trip.

For the operating motors two controllers geared together have been used.

The two end locks are motor operated by a 2 h.p. 1,200 r.p.m. 550 volt, 60 cycle motor. It is fitted with solenoid brake and operates the end locks through worm gearing. It only operates in the horizontal position, but as it moves with the bridge, it was necessary to provide it with special bearings.

follows: Assuming the main brake is set, to release the brake the triple pole line switch on the emergency brake circuit is closed. The motor immediately starts and makes a few revolutions, bringing the crank disc pin to the upper position. When it reaches this point, the limit switch opens the motor circuit and at the same time energizes the solenoid, thus setting the brake on the motor. This holds the motor and prevents it from rotating backwards. So long as the solenoid brake is energized, the main brake is kept in release. To set the brake, the triple pole switch is opened. This deenergizes the solenoid and releases the brake on the motor. The force of the spring on the main brake then immediately



Rolling Lift Bridge Across McKellar River, Fort William, Ont.

are not fixed on the stationary part of the bridge, but move with the bridge when it opens. They are connected by gearing to pinions which mesh with racks on the rack girder, which is stationary. When the bridge opens, it merely rolls backward, and in order to ensure this the segmental girders are meshed into the track girders by means of a form of gearing consisting of square projections about 1 in. high on the track girders, with corresponding recesses in the segmental girders. The angle through which the bridge leaf moves between the closed and open position is approximately 74 degrees. No equalizing gear is interposed between the operating pinions and the motors to balance up the stress of each of the pinions, but two couplings have been provided on the main shaft which had to be drilled in the field after all the gears had been adjusted.

There are two operating motors 37 h.p. 680 r.p.m. 550 volt, 60 cycle, fitted with solenoid brakes. As the motors turn through approximately 74 degrees around an axis parallel to the motor shafts, the bearings have been specially designed. For the

Provision was also made for operating the end locks by hand, by means of a lever in the operator's cabin. When the end locks have been withdrawn, they are held back by means of catches, and remain in that position during the whole time the bridge is raised. Provision is made for the catches to be knocked out by a stop as the bridge again reaches the nearly closed position. The position of the end locks is indicated in the operator's cabin by means of an indicating lamp, operated through a lock signal switch.

The emergency brake is operated by a 3 h.p. 550 volt, 60 cycle motor, which is geared to a crank disc. A pin on this disc is connected to a lever, which releases the brake mechanism. The brake is normally set by a spring. There is a small solenoid brake on the motor, which sets when current is applied, and releases when current is off, thus operating in the reverse manner to the usual solenoid brake. A drum type limit switch mounted on top of the motor and driven by a sprocket chain from the back shaft of the motor is used to make proper connections. The operation is as

pulls around the crank disc and resets the brake.

When the bridge is closed and ready for traffic, the arm of the lock signal switch and the arm of the bridge signal switch are in the position marked "Closed," and the contactors in the circuits of the main operating motors and the lock are open. To open the bridge the first step required is to set the railway signals at "Danger." Until this is done, the lock motor contactors remain open and the end lock cannot be withdrawn. Until the end locks are withdrawn, the contactors of the operating motors remain open and these motors cannot therefore be started.

The action of moving the lever to set the railway signals at "Danger" closes the switch in the railway signal cabin. When this switch is closed, the contactor coils of the lock motor are energized and close the contactors. The circuit breaker is then closed, the controller handle of the lock moved around and the lock withdrawn. As the lock bar moves out it operates the lock signal switch, and this in turn changes the signal lights in the railway signal cabin

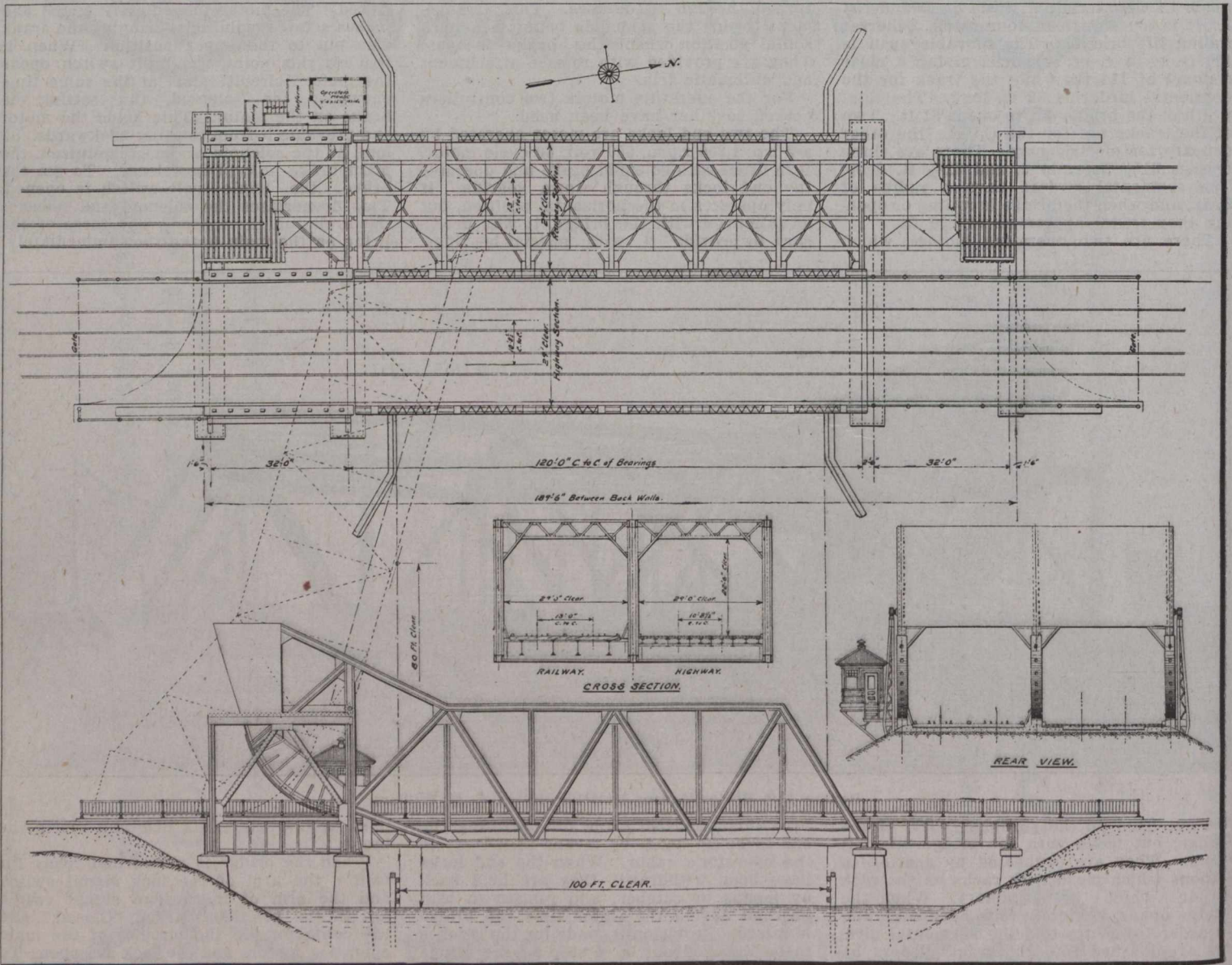
from white to red, thus indicating that the bridge is closed to traffic. A similar change in lights takes place on the bridge operator's signal lamp panel, the lights changing from "Lock Closed" to "Lock Open." At the same time the lock signal switch closes the circuit of the operating coils of the contactors in the circuit of the main operating motors.

As soon as the "Lock Open" signal light has shown up, the handle of the controller should be moved to the "off" position and the circuit breaker opened. If the controller handle is not thrown to the "off" position in time, the low voltage release coil of the circuit breaker will be short circuited through a set of contacts on the lock signal

The first notch on these controllers releases the solenoid brakes only on the motors and this notch can be used at any time when it is desired to allow the bridge to coast. As soon as the bridge starts to open, the arm of the bridge signal switch moves from the position marked "Closed" and thereby opens the contactors in the lock motor circuit. This prevents the end lock being operated while the bridge is open. As long as the bridge is closed the "Fully Closed" light (white) on the signal lamp panel shows up, but as soon as the end of the bridge lifts off the pier this light is extinguished. An auxiliary indicator switch mounted on the end of the moving leaf of the bridge was used for this

bridge signal switch in series with contacts in the controller. This arrangement trips the oil switch, cutting off current from the motors and setting the solenoid brakes. If through any cause the switch mechanism should fail to operate and open the switch, an alarm bell, which is connected in place of the usual series resistance of the low voltage release coil, rings continuously until the operator throws the handle of the controller to the "off" position.

In closing the bridge the handle of the main controller is, of course, moved around in the reverse order. No automatic cutoff is used when closing the bridge, as a set of air buffers are provided to prevent shock to the structure when the end of the bridge



Rolling Lift Bridge Across McKellar River, Fort William, Ont.
The dotted lines indicate the position of the bridge when open for the passage of vessels.

switch in series with a set of auxiliary contacts on the controller. It will be noticed that the circuit breaker of the lock motor must either be opened by hand or tripped automatically as above, before the oil switch for the main operating motors can be closed, for the auxiliary switch on the circuit breaker opens the circuit of the low voltage release coil on the oil switch when the circuit breaker is closed.

After closing the oil switch, the emergency brake is released by closing another switch. The main operating motors can then be started and the bridge raised by moving around the handle of the controllers.

light, as it was found impossible to obtain a definite indication of the "Closed" position of the bridge by means of the bridge signal switch operated by the movement of the bridge. The remaining lights, however, on the signal lamp panel, which show up in turn as the bridge opens, are operated from contacts on the bridge signal switch. The channel lights, which change from red to green when the bridge opens, are also operated from this switch. If the operator fails to throw the controller handle to the "off" position after the "Nearly Open" signal light has shown up, the low voltage release coil of the oil switch is short circuited by means of a set of contacts in the

strikes the pier. If the bridge is travelling too fast, these air buffers will cause the motors to be overloaded and so trip the oil switch. The bridge can, if necessary, be held down on the pier by keeping the controller on the second or third notch until the emergency brake is set, thus holding the bridge in position. The controller handle is then moved to the "off" position and the oil switch is opened. The circuit breaker of the lock motor is then closed and the lock moved into place. In closing the lock, the circuit breaker will also be tripped out, unless the controller handle is moved to the "off" position as soon as the "Lock Closed" signal light shows up.

When the lock is closed all signal lights show up white, indicating that the bridge is safe for traffic. During the times when the bridge is closed and the locks in place, the lock motor circuit breaker is closed so that the auxiliary switch disconnects the alarm bell and low voltage release coil of the oil switch from the 110 volt busses. A set of emergency knife switches is provided on the switchboard panel, which, when closed, cuts out the main motor and lock motor contactors, respectively. These switches are normally sealed in the open position and would only be made use of in case of damage to any of the contactors, or some other emergency condition requiring operation of the bridge independently of the interlocking system.

The bridge signals described above are interlocked with the railway's interlocking system, in such a way that a train would be derailed if it attempted to cross while the bridge was in the open position.

The bridge was erected in the open position by means of a stiff leg derrick mounted on top of a wooden erection tower 125 ft. high. The pouring of the concrete for the counterweight was carried on simultaneously with the erection of the steel, so as to balance the structure at all times during erection.

is composed of concrete extending across the bridge from truss to truss. It adds to the rigidity of the entire structure, as it is rigidly attached to the trusses. The segment upon which the bridge rolls, the counterweight and the truss spanning the channel are rigidly riveted together, forming a

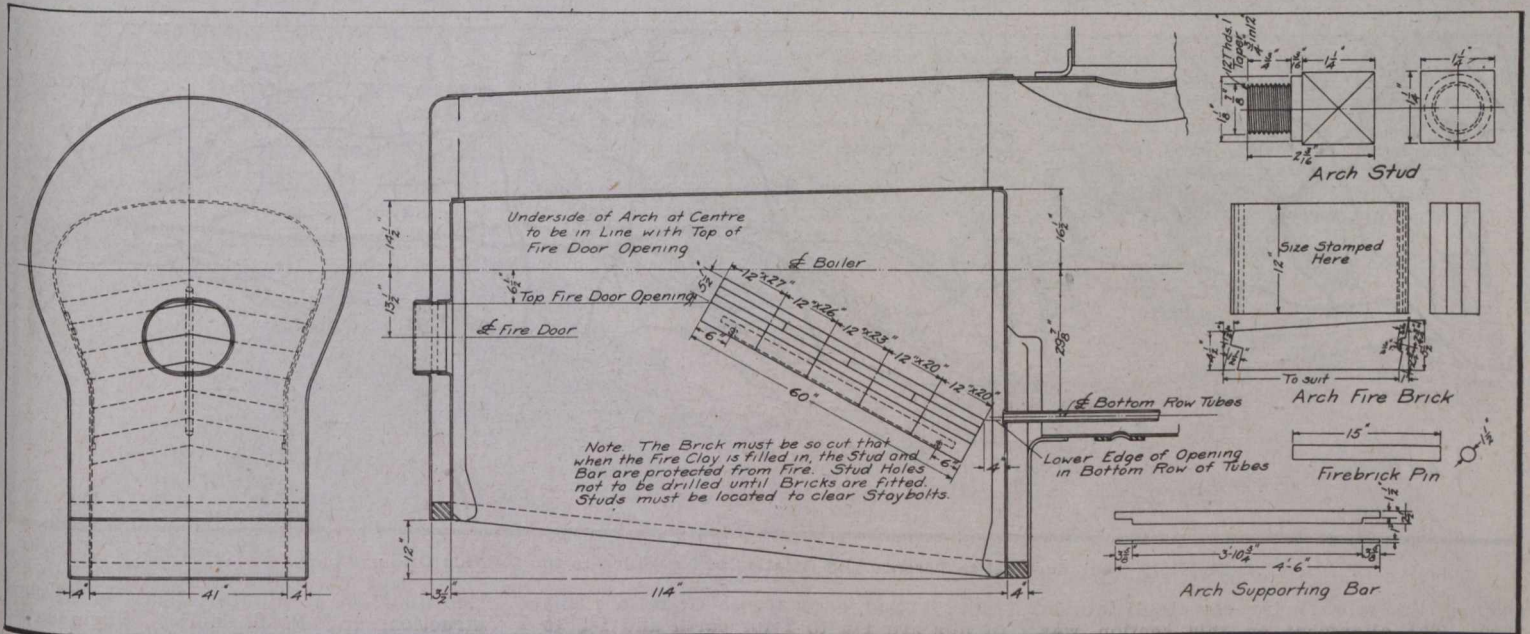
one piece structure. The bridge operates on the principle of a wheel resting upon a track, except that only a quarter of the wheel or segment is required, because the bridge moves only a comparatively short distance. This makes it unnecessary to have a journal or axle."

Brick Arch for Canadian Northern Railway Locomotives.

The accompanying illustration shows a brick arch arrangement used on the C.N.R. eastern lines for locomotives having narrow fireboxes set on top of the locomotive frames. It contains many points of excellence over the more elaborate arch types, and is used on fireboxes having widths up to 66 ins. The most apparent changes between this type and the more usual design, lie in the elimination of the arch bars, the bricks being of such size and shape as to form the arch in themselves. Each arch consists of 10 bricks, in a row of 5 on each side, slightly arching towards the centre on each side of the firebox. There are two arch studs, fitted to clear the staybolts, on which rest two arch supporting bars, the outer ends of the brick being so formed as to fit on the narrow shelf thus provided.

crevices, the stud and bar are protected from direct contact with the fire. From its construction, it is a very simple matter to apply the arch, and, if required, to remove it, leaving the firebox in its former condition. To date 16 sizes of brick have been used, on two classes of locomotives.

The C.P.R. "better farming" special trains, operated in connection with the Manitoba Government, which went on duty recently, contain specimens of noxious weeds most troublesome in the province, and lectures are given to teach the effectual methods of eradication. There are models of weed seeds, so that identification is easy; Manitoba birds, with instructions as to their habits, whether destructive or beneficial; injurious insects are illustrated



Brick Arch for Canadian Northern Ry. Locomotives, Showing Details of Construction.

The current for operating the bridge is obtained from the Kaministiquia Power Co. and is 2,200 volts, 3 phase, 60 cycle a.c., stepped down to 550 volts for use on the bridge.

The electrical control apparatus described is housed in an operator's house on one side of the bridge. The bridge is also equipped with a hand operating mechanism for use in case of an emergency.

The total weight of the steel work and machinery is approximately 660 tons. The bridge was designed by the Scherzer Rolling Lift Bridge Co. of Chicago, under the direction of P. B. Motley, M. Can. Soc. C.E., Engineer of Bridges, C.P.R. It was fabricated by the Bridge Department of Canadian Allis-Chalmers, Ltd., in its Toronto works and all calculations in regard to counterweight, etc., were worked out in its engineering department after the shop drawings were made. The entire electrical equipment was furnished and installed by the Canadian General Electric Co.

The designers of the bridge, in some information sent Canadian Railway and Marine World, say:—"The counterweight

The inner end of each brick is channeled to receive the half of a 1½ in. firebox pin, securely locking the arch together by its own weight. The bricks have a width of 12 ins., forming an arch 60 ins. deep. The locking pins are 15 ins. long, locking each pair of pins to its adjoining mates. Another type of central mating joint is employed in special cases, of the tongued and grooved type, dispensing with the locking pins. This tongue and groove are of the same dimensions as the locking pin.

The good points claimed by the railway officials for this type of arch are that flat bricks are used, which are easily made, have a low initial cost, pile readily and are easily packed in cars without damage in transit. The same bricks are used on all locomotives, apart from the length, which varies. The arch is supported on each side by a bar, and two studs instead of four, reducing the risk of leaking to a minimum. It is 15% lighter in weight than the usual arched type, and it is easily applied and maintained.

In applying, the bricks are so cut that when the fireclay is filled in the side

on the moving films; a car with cattle, sheep and pigs in connection with which lectures will be given to young men, especially; a car devoted to home economics for women, where lady demonstrators teach nursing, sewing, and so forth. Field crops and miniature lay-outs of farm buildings are shown in two cars, while instruction is given as to the protection of such buildings. In Saskatchewan two large cars are devoted to stock, and instruction will be given in everything practically appertaining to farm life.

The Pennsylvania Rd. has issued an order prohibiting train employes from manipulating the lower hand brakes on freight cars by means of brake clubs, investigation having proved that the careless use of clubs on the lower brakes, or "tunnel" brakes as they are called in railway parlance, resulted in one employe being killed.

The C.P.R. pension fund now has at its credit nearly \$750,000, and there are 605 pensioners. Last year the payments to pensioners were \$169,329, and during the year the C.P.R. contributed \$125,000 to the fund.

The Construction of the Campbellford, Lake Ontario and Western Railway.

A new line 182.6 miles long is the main feature of an improvement just completed which, in conjunction with double tracking done during the last five years, gives the C.P.R. two tracks all the way from Montreal to Toronto. The new line, built as the Campbellford, Lake Ontario & Western Ry., has ruling gradients of 0.4% each way, and takes the place of a second track along the old route through Havelock and Peterboro, which has ruling grades of 1.1% in each direction that could not be reduced to 0.4% except at a prohibitive cost. Incidentally the new line taps some new territory and touches a number of good-sized places on the shore of Lake Ontario that the C.P.R. has not hitherto reached.

From Montreal to North Toronto via the old line is 335.7 miles. The territory is shown on the accompanying map. For operating purposes there are three subdivisions, namely, from Montreal to Smiths Falls, 128.7 miles; from Smiths Falls to Havelock, 109.2 miles, and from Havelock to North Toronto, 97.8 miles. The first or Smiths Falls subdivision was first double

these 34 miles is the heaviest grading. Reaching an arm of Lake Ontario at Belleville, the route is near the shore until within 20 miles of Agincourt, and is situated in what is considered one of the best farming districts in Ontario. Seven important towns are reached, and particular attention has been paid to securing in each place a location favorable from a traffic standpoint.

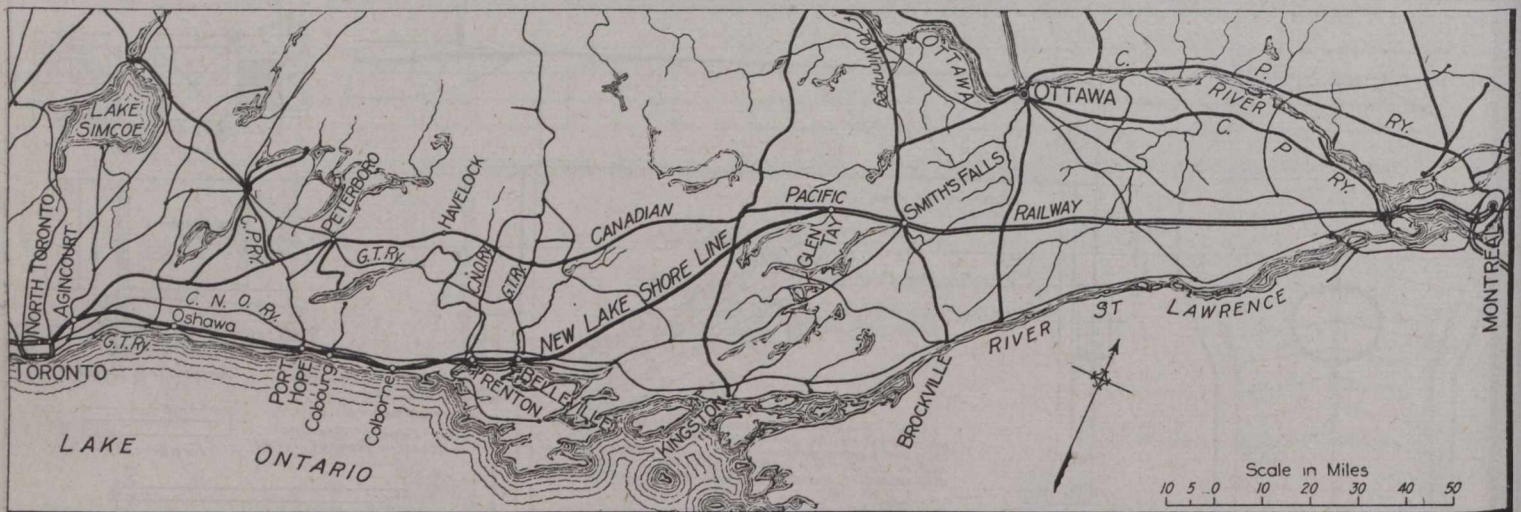
This line is built with a maximum curve of 4 deg., spirals of 100 ft. in length per degree of curve being used in all cases. The average curvature is 20 deg. per mile. While the ruling gradients are virtually 0.4% in each direction, velocity grades were used where economy suggested them. Curves are compensated 0.04 ft. per degree of central angle. Vertical curves are 100 ft. long per 0.05% change of grade in sags and per 0.1% change on summits. All grades at, approaching and leaving passing sidings are reduced to 0.3% compensated for a distance of 3,000 ft. from either end of the siding.

In general the right of way is 100 ft. wide. Embankments up to 16 ft. high are 16 ft.

deep, under which a thick stratum of blue clay, very soft at the top, and thin layers of sand, gravel and hardpan made it necessary to carry the centre pier down to a depth of 103 ft. below the water level to reach solid rock. The pier on the west shore also had to be carried down 56 ft., and the next one 30 ft. These three piers were sunk under air pressure, using reinforced concrete caissons with steel cutting edges.

The objection to grade crossings on this line is naturally not as acute as in more populous regions. Of 17 railway crossings and 293 highway crossings, 7 and 225 respectively are at grade. For operating purposes Trenton, which is midway between Smiths Falls and North Toronto, has been made a division point, and a yard and shops have been built there. Passing sidings are 3,000 ft. long and are about 6 miles apart. The track is laid on cedar, hemlock, tamarack and jack pine ties in 18 in. of gravel ballast with 85 lb rail.

Quantities on the work include 7,500,000 cu. yd. of grading, of which 1,300,000 cu. yd. were solid rock, 100,000 cu. yd. of masonry and 15,200,000 lb. of steel. The cost has conformed closely to the estimate, which was \$11,000,000, or approximately \$60,000 a mile. The work was done under the direc-



Territory from Montreal to Toronto and Relation of New Line to the C.P.R.'s Original Line.

tracked, this work being completed late in 1909. The alignment on this section was already good and the ruling gradient of 1% was reduced to 0.3% eastbound and 0.4% westbound.

Growth of business made some relief of the single track between Smiths Falls and Toronto imperative. Surveys completed in 1911 developed the fact that even with long diversions it was impossible to reduce materially at any reasonable cost the gradients on the existing line, but it was found that on the new location shown between Glen Tay, 15.5 miles west of Smiths Falls, and Agincourt, 10.5 miles east of North Toronto, a new line 1.6 miles longer than the old, but with 0.4% ruling grades each way, was feasible. The section from Smiths Falls to Glen Tay was double tracked in 1911, the work being fairly light. Heavy grading was necessary between Agincourt and North Toronto in order to get the grades down to the desired maximum, and this portion of the double tracking also entailed the construction of two large viaducts. This work was started in June, 1913, and is nearing completion.

Starting from Glen Tay, the new line, after traversing a few miles of agricultural country, strikes into a rocky section, lightly timbered and abounding in lakes. In

wide; higher ones are 18 ft. wide. Slopes of fills are 1½ to 1 for earth and 1¼ to 1 for rock. Earth and rock cuts are respectively 22 ft. wide, with 1½ to 1 slope, and 20 ft. wide, with ¼ to 1 slope. Both in the purchase of right of way and in the grading account was taken of the probability of future double tracking, sufficient land for the purpose being bought where possible, embankments and cuts being made for the additional track in preference to wasting or borrowing material.

All bridges and culverts are of concrete and steel construction. Of the steel structures the principal ones are that over the Ganeraska River at Port Hope, 1,800 ft. long; that over the Trent River and Canal, 1,493 ft. long; that over Mud Lake, 964 ft. long, and that over Dixie Creek, 916 ft. long. Most of these are of viaduct construction, with few spans greater than 90 ft.

The greatest difficulties were encountered at Mud Lake crossing, near the eastern end of the new line. Two 241 ft. trusses span the lake proper with a pier in the centre. A short girder span leads to the top of the east bank, several viaduct spans constituting the west approach. The lake itself is only 2 or 3 ft. deep, but the bed is a mass of semi liquid mud some 20 ft.

tion of C. W. P. Ramsey, Engineer of Construction, and P. B. Motley, Engineer of Bridges, C.P.R.—Engineering Record.

A Conductor's Excusable Repartee.

Howard Elliott, Chairman of the New York Haven lines, said at a dinner in New York recently:—

"I don't encourage back talk among our employes—far from it—but I must say my sympathies are rather with one of our conductors who ventured under great provocation, on a little back talk the other day.

"As the conductor was punching tickets, a man said to him, with a nasty sneer:—

"'You have a lot of wrecks on this road, don't you?'

"'Oh, no,' said the conductor. 'You're the first I've seen for some time.'"

Locomotive Rescued.—In the autumn of 1913 a C. P. R. locomotive left the track near Rossport, Ont., and ran into Lake Superior, sinking in 60 ft. of water. The Canadian Towing and Wrecking Co. undertook to raise the locomotive, and replace it on the tracks. This novel piece of salving work was reported accomplished recently, and repairs are now being made in the locomotive shops.

Seventy-Five Ton Pit Car for Canadian Pacific Railway.

The accompanying illustrations show a 75 ton pit car, which the C. P. R. has had built recently to handle heavy structural and machinery parts. The Canadian General Electric Co. had requisitioned the C.P.R. for special cars to transport electrical machinery, such as transformers, etc., designs for which were prepared. Before actual work on these cars had commenced, the St. Lawrence Bridge Co. also applied to the C.P.R. for some heavy cars to handle the heavy steel members to be used in the Quebec bridge, all of which are being fabricated in the bridge company's shops at Lachine, Que., and must be transported to Quebec. The initial designs for the heavy cars were therefore modified so as to produce a car that would meet the requirements of both services, and are now such that they may be employed in ordinary heavy traffic when the special requirements for which they have been built are met. An order of six has been completed.

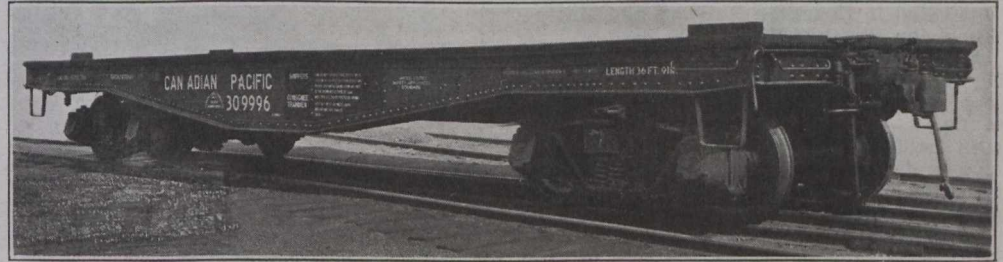
The bridge requirements called for a car that would carry members weighing 130,000 lbs., and 16 ft. high. The clearance limit made necessary the pit construction. Following are the principal dimensions:—

Length	36 3/4 ft.
Width	10 ft.
Top of rail to top of deck	4 ft. 2 1/4 ins.
Truck centres	26 1/2 ft.
Truck wheel base	5 1/2 ft.
Length of pit	18 ft. 1 in.
Width of pit	6 ft.
Wheels	33 in. rolled steel
Journals	6 by 11 ins.
Draft gear	Twin M.C.B. class G springs
Load limit	150,000 lbs.
Average tare weight	48,000 lbs.

The pit cover is made in two pieces, and

data on which the foregoing information was compiled, and they were built by the Canadian Car and Foundry Co.

We are officially advised that the four 75 ton pit cars, which the Intercolonial Railway has ordered from the Eastern Car Co., Ltd., will be exactly the same as the C.P.R. cars above described.



C.P.R. 75 Ton Pit Car for Carrying Heavy Bridge Members Up to 16 ft. Deep.

Work Train Service at a Gravel Pit.

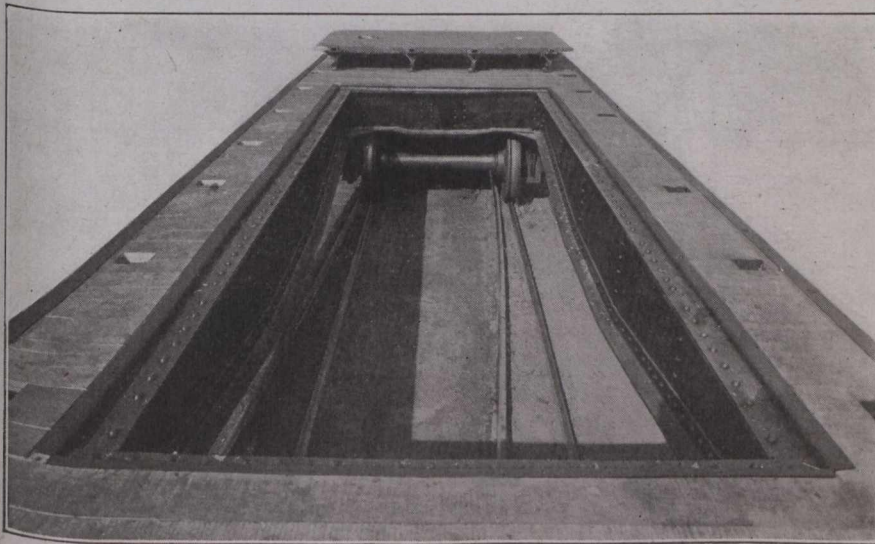
By T. Hickey, Roadmaster, Michigan Central Road, St. Thomas, Ont.

The cars and appliances necessary for proposed work should be switched on some track together, where they can be readily picked up by the work train crew at the time ordered. Cars are liable to get blocked in large yards, causing serious delay both to the train crew and to laborers expected to do the work. I arrange, when necessary, for an auxiliary tank to be attached to the work train locomotive, to serve as an additional water supply. I find this to be a saving in time, that may otherwise mean

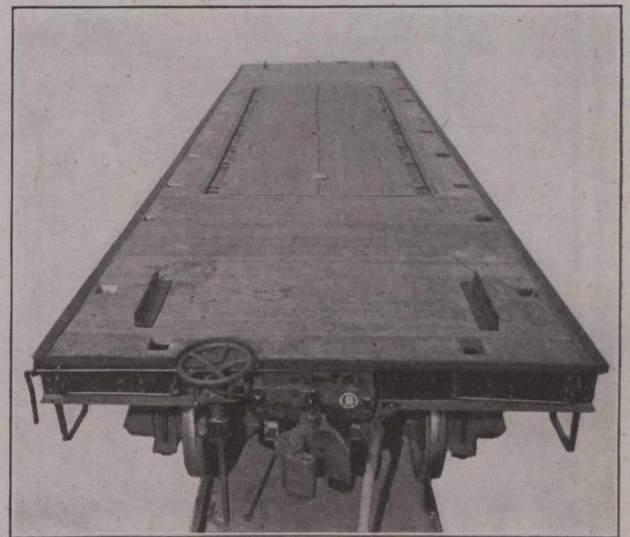
plant is provided at the pit sufficient to supply the steam shovel and pit locomotive, and occasionally one of the road locomotives, when necessary. A telegraph office is also located in the pit, from which all conductors leaving the pit receive train orders. A car repairer is stationed here to do the necessary oiling of cars and make other light repairs. One locomotive and crew is stationed in the pit with the steam shovel and two crews are assigned to haul-

ing, each train containing 50 cars. The shovel loads 150 cars each day, or about 2,250 cu. yds. There is scarcely any failure in making this daily average, and each hauling crew makes 135 miles a day, or a trip and a half.

The time that the first train leaves the pit each morning, as well as the place of unloading, is well understood, not only by the train crews, but by all others interested in the work, with the result that each crew makes its trips regularly. The pit conductor is in full charge of the work in the pit. He makes a daily inspection of material and supplies on hand and orders additions in sufficient time to prevent the



Open Pit in C.P.R. 75 Ton Pit Car.



C.P.R. Pit Car as Ordinary Flat Car.

when the open pit is required, the two parts of the cover are carried on the ends of the car, where they are held in place by stakes and large steel angles rivetted to the deck. The covers are composed of heavy wooden decking attached to steel I beams, the ends of which are equipped with cast steel lugs, resting on the top of longitudinal sills. The entire top of the car is covered with heavy wooden decking, and is provided with holes for bolting down blocking for the loads. When the pit covers are in place, the car presents the appearance on top of the ordinary flat car.

Each car has two complete sets of brakes, one for each truck. They are of the Canadian Westinghouse Co.'s schedule K.D. 812. The cars were designed in the office of R. W. Burnett, General Master Car Builder, to whom we are indebted for the

considerable delay to the work. All work should be done under the direction of an assistant roadmaster, or an experienced foreman, understanding fully the work to be done.

The proper handling of the work and work trains depends primarily upon the amount and kind of work to be done, as well as the length of haul of material and other general conditions. I have a gravel pit, 2 1/2 miles from the main track, from which a great deal of material has been taken for the past 12 years, and more particularly during the past 4 years. The haul on this material was 45 miles, over 15 miles of single and 30 miles of double track.

A certain class of locomotives suitable for the work are requested and also certain enginemen and train conductors who have been tried before in this service. A water

supply becoming entirely exhausted.—Railway Age Gazette.

Life of Locomotives and Passenger Cars.—It is estimated by the Pennsylvania Rd. that passenger cars and locomotives have a useful life of 20 years, at the end of which time their value as scrap will be only about 20% of their original cost. An allowance of 3% for depreciation and renewal is made for freight cars and of 4% for locomotives and passenger cars. Because of the absence of sufficiently lengthy experience in steel cars, an allowance of 4% is made for depreciation and renewal.

The Royal Canadian Humane Association's medal was presented recently to L. B. O. Wakelam, a C.P.R. employe, for saving two lives at a railway crossing accident at Port Burwell, Ont., in January last.

Coaling Plants on the National Transcontinental Railway.

The National Transcontinental Ry. Commission placed a contract recently for six coaling stations at Monk, Bridge, Fitzpatrick, Parent, Doucet and O'Brien, Que. The plants will be of the mechanical type, as illustrated herewith, which has been adopted as a standard on the N.T.R., displacing the previously accepted standard coaling plant, of the ramp type, which was described and illustrated in Canadian Railway and Marine World for March, 1913.

Fig. 1 shows the coaling station as it will be actually built, the completed structure to a slightly different design being shown in fig. 2, which shows a U.S. installation built by the same contractors. The structure is entirely of reinforced concrete, the intention being to make them absolutely fireproof. The coal pockets are 23 ft. square, with an average depth of coal of 17 ft., the capacity being 200 tons of run of mine coal, without trimming. The coal pocket is a concrete shell, the floor of which slopes at an angle of about 30 degrees to the horizontal, towards the outer side, and with the top covered with a steel framing sheathed galvanized iron. The 6 supporting columns for this pocket are also of reinforced concrete, at 21 ft. 5 in. centres across the tracks, and 10 ft. 10 in. centres parallel with the track. The coal pocket spans one delivery track, the other delivery track being along the depressed side of the

over top of the receiving hopper, on tracks supported on I beams, and dumped into it. This hopper is 20 ft. long and 15 ft. wide, the slope of the bottom being in three directions, all tending to throw the coal towards an opening at the front. Immedi-

opening of which there is a roller attached to it, which bears against a guide extending from the bottom of the pit to the dumping point over the bin. As the bucket descends into the pit in front of the revolving hopper, it engages a bar which operates the revolving feeder, causing the feeder to cut off the flow of coal from the receiving hopper and discharge its contents into

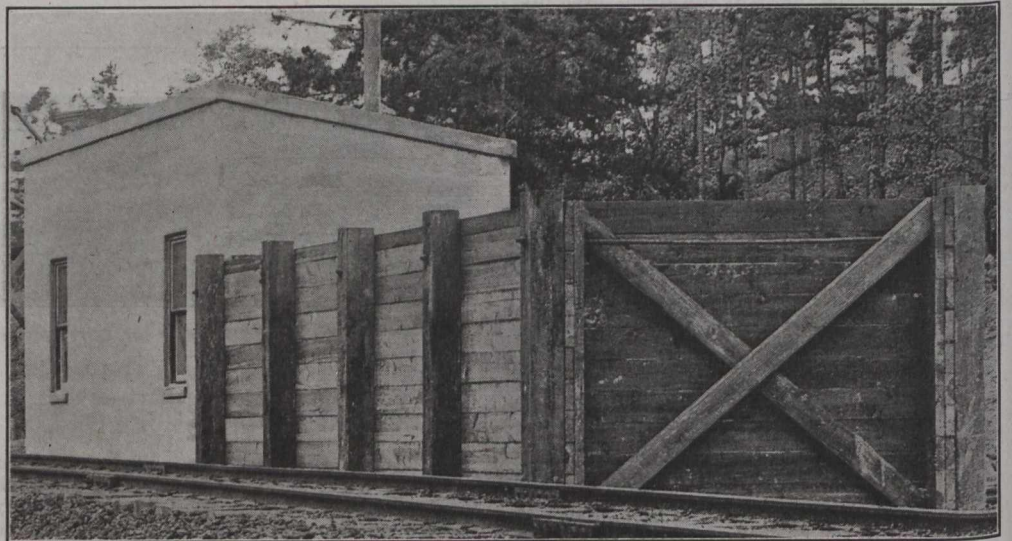


Fig. 3.—Sand Drying Auxiliary to Coaling Plant, N.T.R.

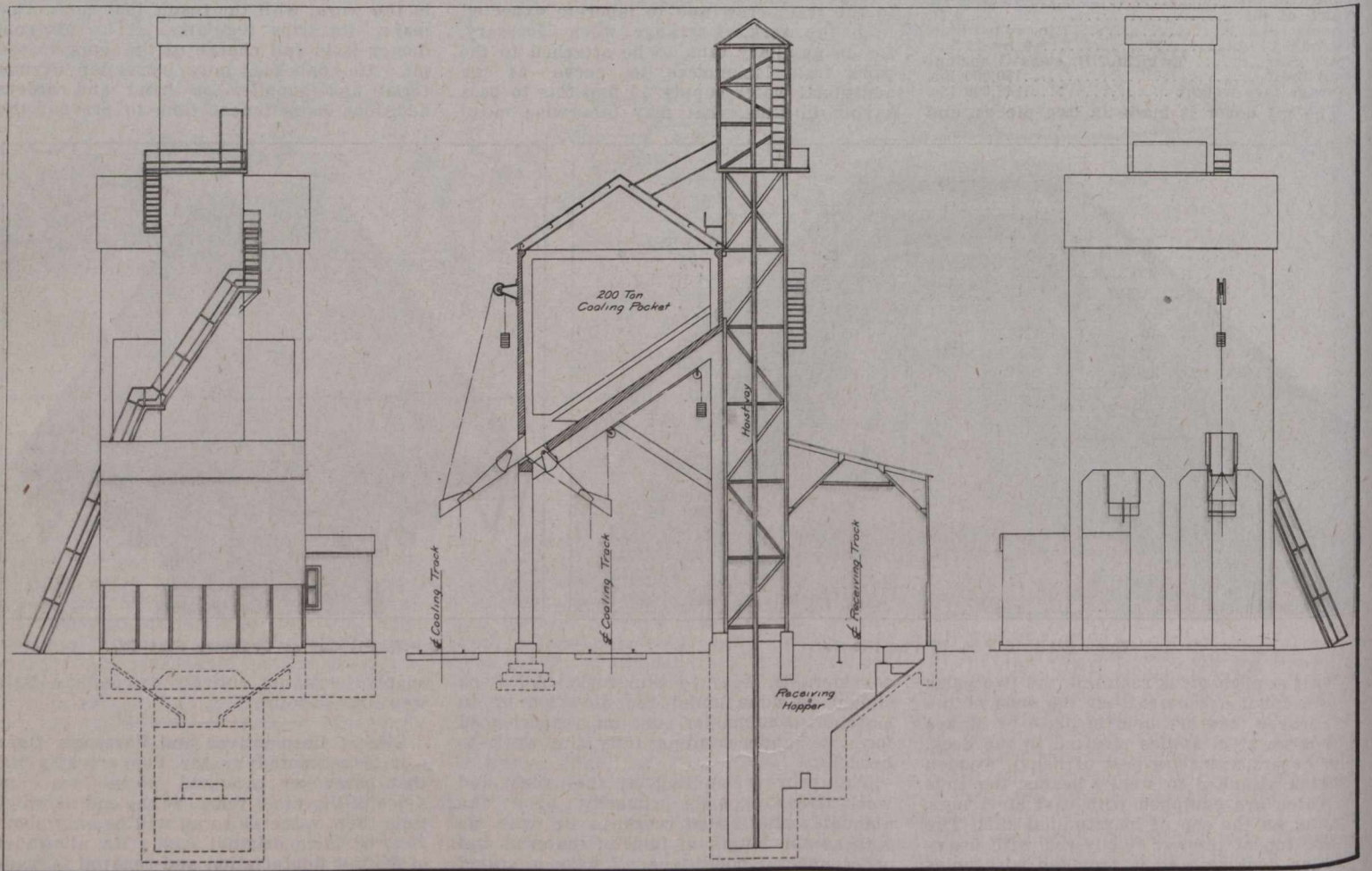


Fig. 1.—Typical Coaling Plant on the National Transcontinental Ry., Six of Which Are Being Built.

coal pocket bottom. The delivery spouts are in either end of the pocket depression.

At the back of the pocket is located the receiving hopper, consisting of a concrete lined, sloping floor hopper, the slope of which corresponds with that in the upper hopper. The coal intended for the coaling plant is delivered on cars, which are run

ately in front of this opening in the receiving hopper there is located a large steel revolving feeder, which is in reality a gate, a chute and a feeder. This feeder delivers coal in measured quantities automatically to a 2½ ton bucket. The bucket is 5 ft. square and has an apron or folding chute on the front side, to prevent the accidental

the bucket. As the bucket rises in the hoistway it revolves the feeder, allowing the coal to flow into it from the receiving hopper.

The hoistway is a structural steel frame, entirely enclosed in galvanized sheathing, and has a total height of 70 ft. above the ground, as well as extending to the bottom

of the receiving hopper pit. The bucket travels in this hoistway, between vertical steel guides, and as it reaches the top of the pocket the folding apron opens out over the bin, and the load of coal is discharged down a chute into the bin. The hoist cable is a $\frac{7}{8}$ in. steel rope, running over sheaves.

The power used is electrical, derived from a hoist motor of heavy construction, which has on one end an electrically operated or solenoid brake, and on the other end a cut cast steel pinion of the herring-bone type, which reduces noise at high speed, and eliminates end motion in the motor. The motor is automatically operated and reversed by means of a special automatic skip hoist controller. This makes the operation of the hoist continuous for as long a period as it is desired to hoist coal, once the controller has been thrown into engagement, thereby leaving the operator free to work about the plant while the coal is being elevated, reducing the operating cost. This equipment is all contained in a reinforced concrete house.

Beneath the lower edge of the upper hopper there are two undercut gates and steel aprons, one to the under track, and the

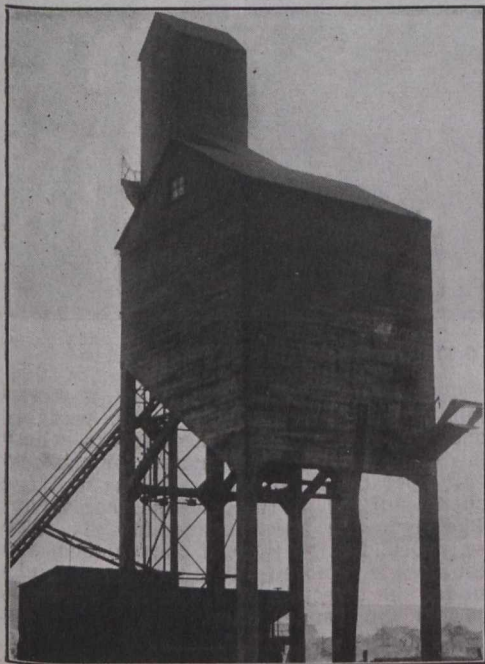


Fig. 2.—Coaling Plant Similar to N.T.R. Design.

other to the outer track, one at each end of the hopper. These aprons are both counterweighted for ease in handling, and are provided with hoods so that the coal may be deflected downward into the centre of the tender.

Each coaling plant has a sand drying equipment, similar to that shown in fig. 3. This equipment consists of a wet sand storage, drying building, and dry sand storage. The wet sand storage bin is made of heavy posts and planking, cross braced with tie rods, and will hold 50 tons of wet sand. Adjacent to the wet sand bin there is a reinforced concrete sand drying house, equipped with a sand dryer, into which the wet sand is shovelled. The dryer has a capacity of about 10 tons a day. After drying, the sand is shovelled into a steel air drum, of about one cubic foot capacity, from which it is forced up through a $2\frac{1}{2}$ in. pipe by compressed air at from 80 to 100 lbs. pressure, into a concrete pocket, formed by cutting off one corner of the coal pocket.

We are indebted to W. J. Press, Mechanical Engineer, N.T.R., for the information on which this article is based.

Birthdays of Transportation Men in August.

Many happy returns of the day to:—

V. T. Bartram, ex-Purchasing Agent, Timiskaming and Northern Ontario Ry., now of Toronto, born at Ottawa, Aug. 2, 1880.

C. B. Brown, A.M. Can. Soc. C.E., Chief Engineer, Canadian Government Railways, Moncton, N.B., born at Ithaca, N.Y., Aug. 27, 1879.

J. F. Chapman, Manager, Thousand Islands Ry., and Oshawa Ry., Gananoque, Ont., born at Frankford, Hastings Co., Ont., Aug. 25, 1863.

A. E. H. Chesley, General Accountant, Dominion Atlantic Ry., Kentville, N.S., born near Annapolis Royal, N.S., Aug. 27, 1877.

A. B. Chown, Travelling Passenger Agent, G.T.R., Pittsburg, Pa., born at Belleville, Ont., Aug. 4, 1887.

C. H. N. Connell, Engineer Maintenance of Way, Canadian Northern Quebec and Quebec and Lake St. John Rys., Quebec, born at Woodstock, N.B., Aug. 26, 1876.

E. L. Desjardins, Assistant Superintendent, Montreal and Ste. Flavie District, Intercolonial Ry., Riviere du Loup, Que., born at St. Jean Port Joli, Que., Aug. 1, 1859.

L. C. Fritch, Assistant to President, Canadian Northern Ry., Toronto, born at Springfield, Ill., Aug. 11, 1869.

G. H. Ham, Head Office Department, C. P.R., Montreal, born at Trenton, Ont., Aug. 23, 1847.

W. P. Hinton, Assistant Passenger Traffic Manager, G.T. Pacific Ry., Winnipeg, born at Hintonburg, Ont., Aug. 30, 1871.

R. Kerr, ex-Passenger Traffic Manager, C. P.R., born at Toronto, Aug., 1845.

J. D. McDonald, Assistant General Passenger Agent, G.T.R., Chicago, Ill., born at Toronto, Aug. 27, 1855.

T. McHattie, Master Mechanic, Eastern Division, G.T.R., Montreal, born at Duftown, Banffshire, Scotland, Aug. 8, 1854.

M. K. McQuarrie, Resident Engineer, District 1, British Columbia Division, C.P.R., Revelstoke, born at Sault Ste. Marie, Ont., Aug. 17, 1884.

J. A. Marsh, Trainmaster, British Columbia Electric Ry., New Westminster, B.C., born at Dresden, Ont., Aug. 16, 1876.

J. M. Maver, Contracting Freight Agent, Northern Pacific Ry., Montreal, born at Toronto, Aug. 9, 1884.

W. J. Meakin, Locomotive Foreman, C.P.R., Coronation, Alta., born at Toronto, Aug. 22, 1869.

C. Montgomery, Master Mechanic, Pere Marquette Rd., St. Thomas, Ont., born near London, Ont., Aug. 29, 1860.

W. E. Mullins, General Manager, Costa Rica Division, United Fruit Co., San Jose, Costa Rica, born at Stratford, Ont., Aug. 13, 1870.

H. R. Naylor, Division Car Foreman, Eastern Division, C.P.R., Montreal, born at Hull, Eng., Aug. 30, 1885.

F. H. Phippen, K.C., General Counsel, C. N.R., Toronto, born at Belleville, Ont., Aug. 26, 1862.

W. M. Porteous, District Freight Agent, C.P.R., St. Louis, Mo., born at Edinburgh, Scotland, Aug. 3, 1857.

J. F. Richardson, Superintendent Telegraphs, British Columbia Division C.P.R., Vancouver, born at Granby, Que., Aug. 23, 1861.

W. G. Ross, Chairman Montreal Harbor Commissioners, born at Montreal, Aug. 6, 1873.

W. Le B. Ross, Local Treasurer, G.T. Pacific Ry., Winnipeg, born at Ottawa, Ont., Aug. 9, 1868.

Major Salt, Car Foreman, C.P.R., Toronto, born at Lichfield, Eng., Aug. 12, 1859.

F. C. Salter, European Traffic Manager, G.T.R., and Canadian Ex. Co., London, Eng.,

born at Sarnia, Ont., Aug. 31, 1863.

C. R. Scoles, General Manager, Quebec Oriental Ry., New Carlisle, Que., born at Grantham, Lincoln, Eng., Aug. 27, 1856.

S. A. Simpson, Superintendent, Sleeping, Dining and Parlor Cars and News Service, District 3, C.P.R., Winnipeg, born at Toronto, Aug. 22, 1880.

W. Stitt, General Passenger Agent, C.P.R., Eastern Lines, Montreal, born in Kirkcudbrightshire, Scotland, Aug. 3, 1855.

J. F. Sweeting, Industrial Agent, Natural Resources Department, C.P.R., Calgary, Alta., born at Worthing, Eng., Aug. 20, 1872.

W. F. Taylor, General Storekeeper, Intercolonial Ry., Moncton, N.B., born at Hillsboro, N.B., Aug. 20, 1855.

Capt. F. J. Thomson, s.s. Royal George, Canadian Northern Steamships, Ltd., born in Cheshire, Eng., Aug. 20, 1876.

F. E. Warren, General Car Foreman, C.P.R., Winnipeg, born at Chelsea, Que., Aug. 29, 1872.

W. B. Way, Superintendent District 1, Eastern Division, C. P. R., Farnham, Que., born at Bowmanville, Ont., Aug. 22, 1867.

E. H. Williams, Locomotive Foreman, Canadian Northern Ry., Brandon, Man., born at West Toronto, Ont., Aug. 26, 1844.

Dominion Expenditures on Railways and Canals.

The Minister of Finance in his budget speech in the House of Commons recently, stated that the capital and special outlays for the financial year totalled \$32,396,816.37, of which the following amounts were expenditures on railways and canals:—National Transcontinental Ry., \$13,767,011.44; Quebec bridge, \$1,512,825.96; Hudson Bay Ry., \$1,099,063.15; other railways, \$2,509,988.00; railway subsidies, \$4,935,507.25; canals, \$2,259,257.45. The Government invested, under parliamentary authority, over \$11,000,000 in Grand Trunk Pacific Ry. bonds, and \$2,000,000 in Montreal harbor debentures. During the year \$19,000,000 was expended on special railway subsidies to the lines included in the Canadian Northern Ry. system, and a loan of \$15,000,000 was authorized to the Grand Trunk Pacific Ry. The estimated expenditures for 1913-14, on capital account, for railways, canals and other special accounts is \$57,000,000. The special outlays and investments for which it was necessary to borrow during the past fiscal year were:—Railway subsidies and other charges, \$20,000,000; investment in G. T. Pacific Ry. bonds guaranteed by the Dominion, \$12,872,333.27; G. T. P. loan, \$8,500,000; advances to Montreal and Quebec Harbor Commissioners, \$5,312,000.

Level Crossings Elimination Fund.—On the third reading of the bill amending the Railway Act having reference to the administration of the fund for the elimination of level crossings, in the House of Commons recently, the acting Minister of Railways said the total amount paid out of the fund to April 1, under orders of the Board of Railway Commissioners was \$87,640.03. The Commissioners had ordered payments to be made in connection with the elimination of 94 more crossings. The bill provides for the provision of \$200,000 a year for five years, from April 1, out of which is to be paid such sums as may be directed by the Board in aid of the elimination of level crossings. The amount to be expended in any one year is not to exceed \$200,000, and not more than \$5,000 can be paid in respect of any one crossing.

Railway Mechanical Methods and Devices.

Hydraulic Jack Pit in Toronto, Hamilton and Buffalo Railway Shops.

The use of a drop pit in locomotive houses, for the dropping out of a pair of driving wheels for repairs, is quite general practice at points some distance from the back shop, as there are minor repairs which can be attended to, such as renewing the driving wheel brasses. To handle this work the drop pit is usually of the hydraulic type, with a travelling carriage on which the hydraulic cylinder is mounted.

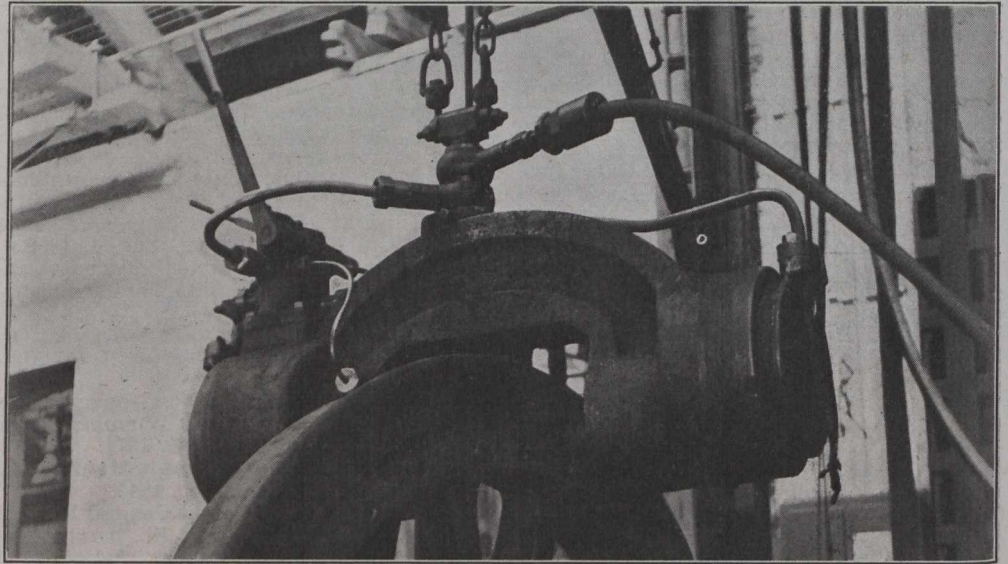
In some of the smaller shops, where it has been found necessary to make the most of limited facilities, from the fact that conditions would not warrant the installation of expensive overhead travelling cranes, such as are found in large railway repair shops, or special wheeling cranes, to be found in a number of the medium sized shops, the locomotive house arrangement includes a pit with wheeling jack therein, which is sometimes employed as a satisfactory substitute. This is the case in the Toronto, Hamilton and Buffalo Ry. shops at Hamilton, Ont., where the repair track drop pit is equipped with a hydraulic wheeling jack, located in a cross pit to the repair pit track, so that the wheels can be run out on the jack truck, and run on track to the wheel lathe.

The operation of a hydraulic lift jack by hand is a slow and tedious task for the workmen, especially when lifting a pair of wheels from a very large locomotive. The hydraulic jack in the accompanying illustration, when hand operated, required two men on the end of a 4 ft. lever to raise a

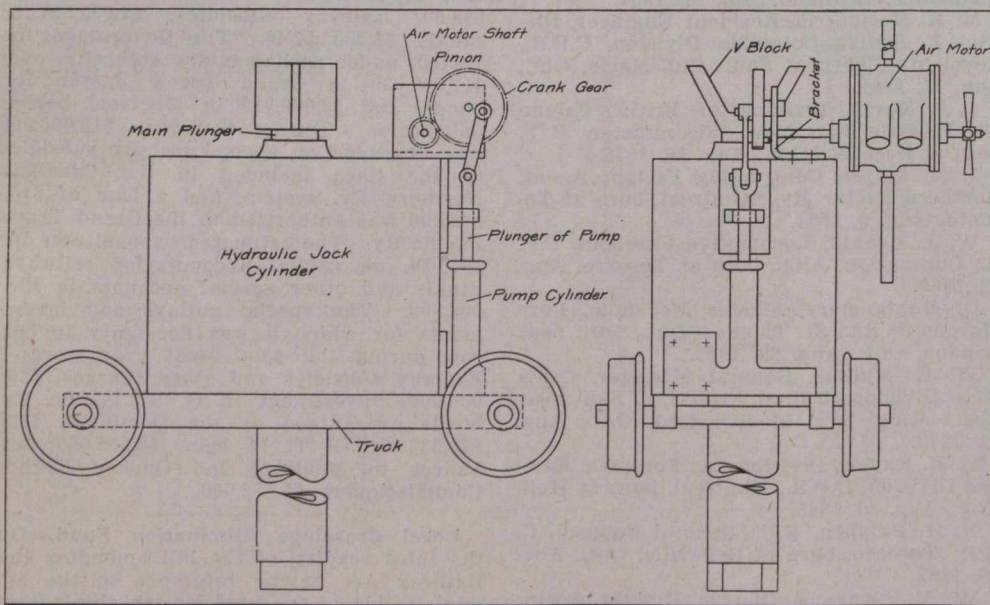
shaft which passes through the bracket, the other end of this shaft having a no. 3 Morse taper. An air motor on the end of this shaft provides the motive power. With but one operator under this scheme, the jack operates five times as fast, introducing a considerable saving.

While the use of air directly, in large area cylinders, as a means of lifting the driving wheels, has been employed in many shops, there appears to be a general opinion

removing tire rivets and rivetting the new ones. It is of a punch frame construction, with a throat opening just large enough for convenient working over the tire. It is a steel casting, heavy, not only in the flanges, but also in the web, designed throughout for heavy service. Both ends have hydraulic plungers, controlled from a valve over the cylinder on the far end of the casting, as shown, the control levers being conveniently located thereon.



Hydraulic Tire Rivetter in G.T.R. Locomotive Shops.



Air Operated Hydraulic Drop Pit Jack.

heavy pair of wheels into position. The jack was converted from hand to power operation by M. J. Hayes, General Foreman, the manner of converting the jack being clearly shown in the illustration. The hand lever arrangement connecting to the top of the pump plunger was removed. To the top of the hydraulic jack cylinder was attached a bent sheet steel bracket, to which were pinned an intermeshing gear and pinion, in a 4 to 1 ratio. The gear has a crank pin with a 1 in. throw, connecting through a connecting rod with the top of the plunger rod. The pinion was keyed to the end of a

against its use, on account of its non-dependability, the lifting or lowering of weights by such a jack being more or less jerky, owing to the changeable volume of the lifting medium. With water as the medium no jerky movements occur.

Hydraulic Tire Rivetter in Grand Trunk Railway Shops, Montreal.

The accompanying illustration shows a hydraulic locomotive tire rivetter in use in the G.T.R. locomotive shops at Montreal, for

The rivetter is suspended by a swivel joint from an overhead jib crane, swinging over top of one of the wheel tracks, where it can be readily manipulated for the several operations, without requiring the frequent shifting of the wheels, themselves. The hydraulic hose connection is also swivelled, for the sake of convenience, and the hose is armored. This rivetter is in use under the direction of J. Hunter, Foreman, Wheel and Tender Shop.

Preventing Wear of Concrete Floors.

About the only objection to the ordinary concrete floor is the fact that the wear to which it is subject—that is, the purely mechanical attrition—causes dust. This may, however, be avoided by scrubbing the floor with a stiff brush or broom, letting it dry, and then laying on a coat of a solution of water glass, in three to four times its volume of water. The solution is applied with a long handled whitewash brush. The more dense the concrete, the thinner the solution may be, and no more of it should be made than can be applied in an hour. When the floor is again dry, it should be scrubbed with water and a coarse cloth. Then a second and a third coat of water glass solution should be applied, each time letting the floor dry, scouring it with clean water and a heavy cloth. The water glass should soak into the pores of the concrete and form with the alkali therein an insoluble chemical compound. Any water glass that remains on the surface is unchanged, and can be washed or scrubbed away. This treatment will increase the durability of the concrete, and make it much more desirable as a floor material.—R. Grimshaw, in Machinery, N.Y.

Slotter Kinks in Quebec Central Railway Shops.

In small railway repair shops many makeshifts are required from time to time, if all the sundry repair jobs that must be encountered are to be successfully dealt with. The machine tool equipment must, of necessity, be much smaller than in a large shop, the same machine being used for a multiplicity of duties, whereas in larger shops there are special machines for most of the important operations. In the smaller shops the equipment in many cases was provided originally for the smaller motive power in use a few years ago. In the larger shops this lighter and smaller equipment still can be successfully used, by placing in some department where lighter work is to be handled. In the small shop all classes must be handled with a very limited number of machines, there being no special departments. Such is the case of the Quebec Central Ry., a line handling a very heavy freight traffic, which has been developed rapidly within recent years, through the opening up of the numerous asbestos mines along the route. To meet this traffic, much of which can be run through in heavy trains, some fairly heavy motive power is used, which taxes the shop facilities to the limit.

The shaper used in the shops is rather too small for the larger work, especially as it is used for cutting the keyways in the large locomotive driving wheels. For the ordinary run of work the member to be machined can be placed in the machine manually, but for the larger members, as there happened to be no overhead crane, special provision had to be made. This consists of a small wooden trestle, about 7 ft. high and 8 ft. long, which can be shifted from point to point with facility. When necessary to lift a driving wheel into the slotter the trestle is placed straddling the slotter table, and with a block and tackle the driving wheel can be lifted into place.

For the larger driving wheels the throat depth of the slotter is not quite sufficient to take in the wheel for slotting the keyway. In consequence it was found necessary to increase the throat depth by the expedient of using an offset tool holder, which for the largest size of wheels is about 6 ins. offset. This handles the largest work satisfactorily. E. M. Green is General Foreman, Machine Shop.

Safety Valve Tester on Canadian Northern Railway.

For testing of safety valves the C.N.R. mechanical department has developed an apparatus that, from the standpoint of simplicity, has much to commend it. In the arrangement there is nothing but standard equipment, or parts that can be readily made in any shop.

In testing safety valves it is essential that a high pressure be available, and as this is seldom to be had in the ordinary shop, from the fact that but little occasion to use high pressure arises, it is necessary to have it generated. The method employed in this C.N.R. arrangement is to use a standard locomotive air compressor unit, and bush the air cylinder so as to secure the high pressure desired, this high air pressure being utilized to test the safety valve, air being equally as satisfactory as steam for this purpose.

By bushing the air cylinder to a diameter of about half, the air pressure produced is about four times as great, using the same steam end. In this installation the air end has been reduced in diameter by pressing

in a cast iron sleeve, within which is a pressed bronze sleeve, $\frac{3}{8}$ in. thick, the inner diameter of which is 5 ins. The piston is of similar design to that replaced, but of smaller diameter. Most shops have a steam line shop pressure of about 100 lbs., which makes possible a pressure in the air cylinder in the neighborhood of 400 lbs., which is in excess of that required to test the usual safety valve, allowing a certain degree of reserve capacity.

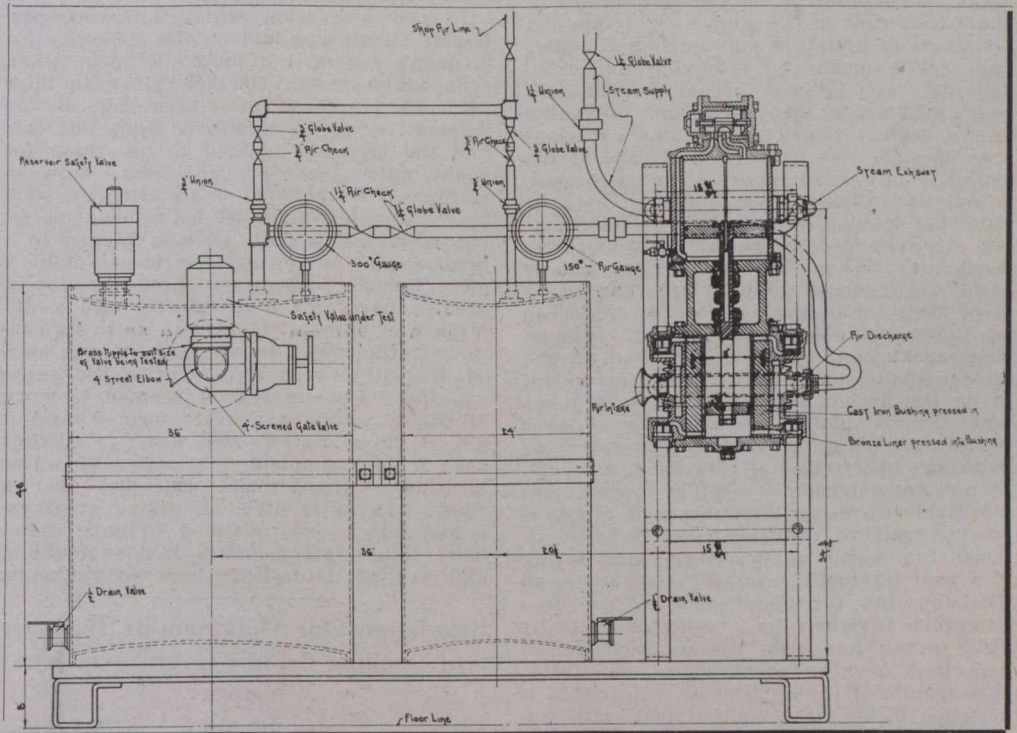
The air reservoir space consists of two $\frac{3}{8}$ in. steel plate cylinders, one 20 $\frac{1}{2}$ ins. diameter, and the other 36 ins., both 48 ins. long, standing on end. While this provides

New Books, Etc.

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

APPLIED METHODS OF SCIENTIFIC Management. By F. A. Parkhurst, M. E., Organizing Engineer, Assoc. A.S. M.E. 325 pgs., 8vo., 48 figures and 9 plates, cloth. John Wiley & Sons, New York. \$2 net.

This book gives the actual detailed application of the methods of scientific management to a manufacturing plant, illus-



Safety Valve Testing Installation on Canadian Northern Ry.

a fairly large air reservoir, it has been found to be not quite sufficient to provide the uniformity of pressure necessary to correctly test the valve. In consequence, it is the intention to increase the size of the reservoir space in the next design evolved.

The shop line, containing a control valve, divides, with a connection to each reservoir cylinder, each branch containing a control valve and a check valve. Air from the pump is delivered to the branch into the larger cylinder. In operation the tanks are first filled from the shop air line, to the pressure in that line. Then, the connection from the air pump is opened, and the cylinders filled to the desired pressure, when the valve may be tested by attaching to the 4 in. elbow, which connects to the cylinder through a 4 in. globe valve. The rapidity with which the pressure reduces in the cylinder when the valve is under test is the reason a larger reservoir space is in contemplation.

trating the process of installation and the results obtained by data, forms and statistics taken from actual records. The plant used as an example throughout the book employs normally about 150 men in its manufacturing departments and the methods described in the book have proved a paying investment. Production has been increased 3.4 times under the former possible quantity and the labor cost has been reduced 50%. The book tells how and why this was accomplished.

Safety First on the G.T. Pacific Ry.—

Following on the favorable results achieved by the adoption of the safety first movement on the G.T.R., Morley Donaldson, Vice President and General Manager, G.T.P.R., has issued a circular announcing the introduction of the movement on that railway. Geo. Bradshaw, Safety Engineer, G.T.R., has been engaged to install the necessary organization, for which purpose he has headquarters at Winnipeg, as well as at Montreal, reporting to the Vice President and General Manager. He will confer with the officers of the various departments, who will render all assistance needed in working out the details to the best advantage. In order that employees, upon whose cooperation the success of the movement depends, may have an opportunity to understand fully what is required of them, meetings will be held at all important centres, at which the nature and purpose of the movement will be explained, and instruction given by means of illustrated lectures and otherwise, in approved methods of preventing injuries.

Railway Lands Patented.—During May letters patent were issued respecting Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Alberta Central Ry.	4.76
Calgary and Edmonton Ry.	815.36
Canadian Northern Ry.	1,292.82
Canadian Pacific Ry.	19.48
Canadian Pacific Ry., roadbed and station grounds	11.19
Manitoba Ry.	6.38
Manitoba and Northwestern Ry.	2.83
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.	1,275.64
Total	3,428.46

Water Treatment on Canadian Pacific Railway Western Lines.

Following is a report made to the Master Boilers Makers' Association, at its annual convention at Philadelphia, Pa., recently, by H. W. Armshaw, Foreman Boiler Maker, Locomotive Shops, C.P.R., Winnipeg:—

During the past 24 years the C.P.R. has experimented on its Western Lines with many different methods of water treatment. The chemicals used were principally lime, soda ash and caustic soda, and although all of them mixed with the water in various ways before entering the boiler, only one of them took care of the sludge. This method consisted of agitating and settling chamber tanks, with means for removing sludge before the water entered the boiler. This was very satisfactory at times, and prevented heavy scale formation, providing sufficient caustic soda was used to take care of the majority of the sulphate of lime and magnesia, but when treated sufficiently to do this, the locomotive foamed so badly that we were obliged to resort to round trip washouts. When the quantity of caustic soda was reduced to alleviate foaming, a hard flinty scale developed around the tubes at the back tube sheet end, and rosettes and stockings of scale accumulated around the staybolts, together with a formation of it on the firebox plates. The life of tubes and firebox plates was lengthened over what was obtained with crude water, or with any other class of treatment, although it was not determined whether it was more profitable to renew the tubes and fireboxes at intervals to prevent boiler failures or treat the water as described, and during the past 18 months on the Saskatchewan Division and for about one year on the Manitoba Division, the treating of water by this means has been discontinued and a polarized metallic preparation substituted. The results of the application are, that it is possible to keep the boilers clean with sufficient and proper washing out, to run between general repairs without the removal of any tubes and without failures because of leakage. In no case has it necessitated more frequent washing out than with other methods of treatment. It has in all cases permitted 100% more mileage between washouts and in many cases it is possible to run 200%. So far as we have been able to discover, pitting or corrosion does not follow application of this treatment. It does not aggravate foaming. Its action on the removal of old scale and new formation appears to be more mechanical than chemical in that it does not create a pasty sludge next to the fire plates and tubes, which is common with other treatments and which prevents the water getting into proper contact with the plates, being most difficult to wash off, thus producing overheating of the plates and tubes, which frequently results in boiler failures. By correctly regulating the period between washouts, with a strict observance of the best practices, accompanied by good water pressure, it is possible to do better than we have previously, inasmuch as the reduction in boiler maintenance and washing out expense has been greatly reduced, together with economy in water consumption, rubber hose, boots, etc., and less general wear and tear on the tool equipment for boiler washing and boiler making. There is also a large saving in coal and lighting up material because of boilers being hot, due to less washing out, and also an increasing earning power of the locomotive because it is available any time without boiler-washing or boiler maker's work. Taking into consideration the many advantages, I feel quite satisfied in saying that it is more profitable

from a mechanical standpoint than any other treatment experimented with during my experience. It is very conveniently applied after each washout, being distributed in bars over the crown and tubes, or arranged to suit what the inspection indicates to be the proper place to locate it, according to the condition and design of the boiler. It is too early in our experience to say what percentage of saving is effected in boiler maintenance and boiler repairs because it takes several years to arrive at an intelligent estimate of its use compared with what was formerly obtained. However, my experience with it so far demonstrates that it is a great money saver.

In the discussion which followed, particular stress was laid on the necessity for frequent use of the blow off cock, when soda ash is used. On one railway a blow off cock is placed on either side of the locomotive, to be operated from the cab, and the men are obliged to use them for each mile run, or at least between stations. A number of experiences were given in using different boiler compounds, but in all cases their success hinged to a great extent on the systematic use of blow off. Polarized mercury came in for a greater part of the discussion, and a difference of opinion was shown as to its continued efficiency. In one case, it was stated, that it cleaned the boiler of old scale, and for a time thereafter seemed to work all right, when hard scale formed, and it did not do so well as soda ash. In another case it had supplanted a series of water treating stations which extended over a whole bad water division, saving great expense, and it was claimed to have saved many thousands of dollars, besides doubling and trebling the mileage between washouts.

Regulations for Operation by Railways of Opening Bridges Over Navigable Waters.

The Board of Railway Commissioners passed general order 124 dated April 30, as follows:

1. Every swing or draw bridge over a navigable water shall be marked at night by a white light on each side of the navigable channel, by a white light on each end of the swing protection, and by a lantern surmounting the swing span, showing a red light up and down the channel when the passage is closed, and green when the swing is open.

2. In the case of a bascule bridge of any description, it will suffice that a light showing green up or down a channel when the leaf or leaves are lifted, and red when the bridge is closed, be shown from one side or the other of the opening, or, preferably, carried on the end of the leaf. The white lights above described for a swing bridge also to be maintained.

3. The signal to be given by a steamboat to have a swing opened shall be two long followed by two short blasts of the whistle.

4. Every swing or draw shall, whenever it is desired to have a vessel pass through the bridge, be in charge of some competent person present thereat, whose duty it shall be, upon being notified by whistle or in any other manner, that a vessel desires to pass through the bridge, to open the same as promptly as possible; and no such vessel shall pass through the bridge until the swing or draw is fully open.

5. Where, as in the case of the Canadian Northern Ry. bridge over the Red River, at Winnipeg, and the freight bridge of the same railway over the Assiniboine River, at Winnipeg, traffic is so slight that a bridge is required to be opened not more than once or

twice a year, the lights provided for under clause 1 and 2 of this order are required to be lit at night only when a vessel desires to pass through the swing or draw.

6. The Fraser River bridge, covered by order 18626, Feb. 6th, 1913, and any other bridge covered by special order whose terms differ from this order, shall be exempt from the provisions herein.

The Largest Owner of Dining Cars.

The Railway Review stated recently that a purchase of 6 dining cars by the Southern Pacific Co. caused the latter to claim the distinction of owning and operating more dining cars than any other railway in America, and that the company now owned 105 dining cars, 5 more than the nearest rival in America, and 40 more than its nearest rival in the U.S., for the same distinction. As the C.P.R. is probably the largest line outside the U.S. operating its own dining cars, it was inferred that the C.P.R. was the rival line referred to. The Official Railway Equipment Register for June gives the Southern Pacific Co. credit for 85 dining cars, which, with the recent purchase of 6, totals 91. The same record shows the C.P.R. with 100 dining cars and 24 cafe-parlor cars, making a total of 124. Even crediting the Southern Pacific Co. with the figures appearing in the Railway Review, there is still a decided balance in favor of the C.P.R., as the Southern Pacific appears to have no cafe-parlor cars, and only 2 cafe-observation cars.

A Suit Between Railway Contractors.

An action brought by A. B. Cook, of Helena, Mont., for a declaration that G. S. Deeks, T. R. Hinds, G. M. Deeks and the Dominion Construction Company are trustees for the Toronto Construction Co. of a contract with the C.P.R. for the construction of the Campbellford, Lake Ontario and Western Ry., has been dismissed by Mr. Justice Middleton in Toronto. Plaintiff was associated with Deeks and Hinds in the formation of the Toronto Construction Co. in 1906, and shared with them in a great deal of work. Though the capital of the company was only \$200,000, in six years the dividends amounted to \$1,562,500. Plaintiff's associates became dissatisfied with him, and said he was doing too much independent work. They held 75% of the share value of the Toronto Construction Co., and decided to do without Cook in a new C.P.R. contract. In his judgment the Judge said: "While I could wish that greater candor had been displayed towards Cook, on the whole I think his claim is absolutely devoid of merit. He has no moral claim to share in the earnings of the defendants."

Canadian Collieries (Dunsmuir), Ltd.—A press report from London, Eng., states that the Privy Council judgment in the litigation between the company and Jas. Dunsmuir, relative to the acquirement of the property, decides that the company, in addition to the purchase of the coal mines, also purchased the steamships and other assets, including the current bank account. It is estimated that the judgment involves about \$1,500,000. Sir William Mackenzie and Sir Donald Mann, of the Canadian Northern Ry., are chiefly interested in the company.

Car Ferry Service for Lake Ontario.—The Canadian Northern Railway is making arrangements to establish a car ferry service between Wellers Bay, Ont., and Sodus Point, N.Y. It is probable that a car ferry barge will be used, to be towed by a powerful tug.

Recording and Handling Correspondence in Operating Department.

By A. P. Thompson, Chief Clerk, Superintendent's Office, Canadian Pacific Railway, Medicine Hat, Alberta.

[EDITOR'S NOTE.—Some little time ago, with the object of standardizing and, if possible, improving the general office systems on the Alberta Division, C.P.R., it was suggested that a meeting be called of all the chief clerks on the division to discuss the best steps to be taken. At a preliminary meeting in Calgary, it was decided to ask certain of the chief clerks to prepare papers and to hold a general meeting, at which the same could be read and discussed. At the general meeting subsequently held, D'Alton C. Coleman, General Superintendent, gave an address and a number of papers were read, one of which, on recording and handling correspondence, by A. P. Thompson, Superintendent's Chief Clerk, Medicine Hat, Alberta, is given in full, as follows:—]

There are several methods of recording correspondence, but I will only deal with the system used in the superintendent's office at Medicine Hat, and the others will, no doubt, come up in the discussion.

We have in use, inward and outward loose leaf registers and classified card index of important files, with each clerk handling correspondence keeping an indexed memo. book record of any files pertaining to his work that he is liable to require at any time. One series of numbers is used for all records, it being part of the register clerk's duty to keep a supply of file backs on hand numbered on top centre face of the file back (form 123) and the lower right hand corner of reverse side with automatic numbering machine. Anyone requiring numbers for new files takes enough of the numbered file backs for his or her immediate requirements, and starts the file properly, stenographers being advised if a new file is to be started. This prevents duplication of file numbers and uses numbers currently. The numbering of the file back on the reverse side is for quick and accurate check of the original file number against the number on any letter of the correspondence, as numerous errors creep up if the stenographers are not careful, and it saves turning the complete file over, with possible disarrangement, if not securely fastened together.

All correspondence is filed in order in four drawer upright filing cases, with a working filing space in the office of 18,000 files. This covers nearly all the current correspondence, with the exception of some of the old files in connection with water supplies, spur tracks, etc., which are kept upstairs in a special filing case for ready access.

The inward register is the same as in use in other general offices, but we make it a practice to show the writer's file number in our register, which is of considerable assistance in tracing files and giving reference if the file itself is misplaced or lost. This is not supposed to happen, but the right kind of material has not yet been discovered from which to make the absolutely correct office boy or file clerk. All inward letters, with the exception of those in connection with accidents and personal injuries, which are recorded under the card index system, are entered under the name of the department or office from which they emanate, that is, general superintendent, master mechanic, car service, claims department, freight department, passenger department, etc., with letters from outside firms and persons under the letters of the alphabet.

The card index of important files is an ordinary card index, using 4 by 5 cards of three colors, classified by an 80 subdivision set of alphabetical guides.

The white cards, headed with station

names, bear numbers of all lease and agreement files in force at that station, such as coal sheds, elevators, private spurs, etc. This color of card is also used for new branches or subdivisions, and bears numbers of any files or matters general to the different branches or subdivisions, which cannot be designated under any particular station. Another color card could be used, but there are so few of them that it is not necessary.

The blue cards, headed with station names, bear numbers of all files with regard to important matters that are individual to the station, such as opening an agency, water service, stock yards, supplying a safe, sewer connections, gas well, new station, yard limits, additional trackage, extra land, etc.

The pink cards, headed with letters of the alphabet and one letter following, such as "C-O," bear numbers and subjects of all general matters and instructions as follows:—

- (C-O) Coal for stations and pumphouses-1914.
- Coal contracts,
- Coal scoop (standard),
- Constables (appointment of),
- Coal sides on Hart and flat cars.
- (M-A) Mangle regulations,
- Maintenance of way rules,
- Mail cranes.

It is important that care be used in entering only such files as are of importance, as an injudicious use of this cabinet for recording numbers of unimportant files will soon make it so bulky and unwieldy that a great deal of the benefit to be accrued from a compact index, easily checked, will be offset by having to wade through an accumulation of unimportant subjects, very probably never required after being entered.

The indexed memo books kept by the accountant, senior clerk, the superintendent's secretary and myself, contain some of the most important file numbers, as entered in card index, for ready reference in dictating without the file and getting files from the cabinet without having to disturb the register clerk. They include as well the file numbers of correspondence of less importance that may be in use during any month, then never referred to again, such as payroll expenses, delays to earnings, thefts, delayed cars, loading and unloading coal, running of snow plow, cars under repairs and others of like nature.

Another record of files that often saves hours of time looking through the register, is to have file numbers of any correspondence regarding an employe's staff or discipline record entered on staff card.

One minute taken at the time to enter a record will save hours of time endeavoring to locate the file from the register some months in the future.

The inward mail is opened by the office boy first thing in the morning, with the assistance of any member of the staff who has not got work to start on at 8.30 k. The values are placed on the senior clerk's desk and opened by him. These include the general superintendent's mail, which is given to the register clerk at once, who registers it in while the other mail is being opened and dated, thus getting the important mail early. Mail, as registered, is, in most cases, sorted by myself and distributed to the different clerks and officers.

There are eight file baskets on a table behind my desk in which the mail for the following officers is placed:—Trainmasters, District Master Mechanic, Resident Engineer, Bridge and Building Master, Telegraph

Inspector, Roadmasters, Gas Inspector.

The chief dispatcher, being in all the time, any mail for him is delivered. Only mail that requires personal attention of the officers is placed in the baskets, and as they come in off the line they go through it, dictate replies to stenographers, put on notes as to what they wish done, or in other cases advise the senior clerk or myself the way they wish it handled.

The greater part of the routine correspondence for the district master mechanic, trainmasters and other subordinate officers is handled by the senior clerk, pink copies being made of all such letters, which, after noting, I put in the basket for the personal information of the officer whose name is signed to the letter; after noting he destroys it. All other mail dictated by senior clerk, the accountant and others, after being proof read by the dictator, is placed on my desk for signature. Senior clerk proof reads all the mail written by my stenographer, as well as his own. I have found the signing of the accountant's mail to be a good preventive against a number of errors that might have crept into the files due to the accountant not being aware of all circumstances and conditions that come under my notice. Mail dictated by the superintendent when in the office is signed, then placed on my desk and I read it over before it is sent out. Carbons of mail written on the line are noted by me before being filed.

There is a great deal of correspondence that a chief clerk could handle on his own initiative which should be drawn to the attention of the superintendent, and I have found it better to go over the file, decide how I would handle it, then, instead of dictating the letter, take the file, or files, in to the private office and discuss them with the superintendent before dictating, as sometimes if a letter is already written and taken in for signature it will be signed, although it does not quite carry the meaning the officer would desire. If I sign any letters of instructions or send any wires on files the superintendent is interested in, the file is placed among his correspondence for noting.

We have adopted the system of filing abeyance as in use in the general superintendent's office, and have found it a marked success. The system is this, that no files, except telegrams, are kept separate waiting on replies, all being filed in the cabinets. As an example: A letter is written which requires a reply, the carbon on the file is marked, "Trace," with a date allowing sufficient time for the person addressed to reply. The number of each file so marked is entered up on a page in the tracing book under the date corresponding with that following the word "trace," and as each reply comes in the register clerk cancels the number in the tracing book, each day getting all files which show up under that date as not having been replied to, sends out a tracer and advances the tracing date two or three days. If reply is not received after the first tracer, file is given to the senior clerk or myself for special attention. Any file that you wish to take up at some later date can be marked "Hand me," with the date and initials following, the number being entered in the tracing book under the proper date. The tracing for replies to letters to superior officers is handled by senior clerk or myself.

The third copies of all letters, or the yellow copies as we call them, are sorted each day under the headings as used in the letter register, and filed temporarily in a loose leaf binder, the same as the standard tariff binder, and as the binder fills, about 500 letters are taken out and bound in the letter book backs supplied by the stationery department. Each page is numbered con-

secutively with the automatic numbering machine. We endeavor to keep the outward letters registered up to within three days of the current date, but this fluctuates according to the amount of work being handled.

There are a few little things that help in the handling of correspondence, and I will head them under the "don'ts."

Don't forget to quote correctly date and file number of any letters replied to.

Don't scatter subject all through the letter. Put it in the first paragraph. Better still, segregate it.

Don't include two subjects in one letter.

Don't overlook enclosing enclosures.

Don't use two pages when one will do. Save time and stationery.

Don't forget to acknowledge receipt immediately of all letters from private persons and outside firms.

The discussion on the above paper was led by W. L. Stone, of Calgary, and the following recommendations were adopted:—

The system of tracing correspondence outlined in Mr. Thompson's paper.

That the subjects of letters should be dictated to stenographers and written by them at the top of the letter.

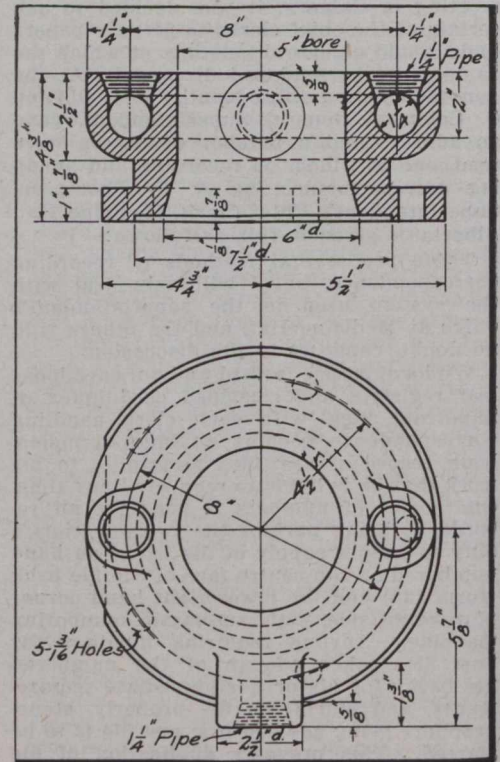
That a list of all unanswered letters be supplied the superintendents by the general

superintendent's office twice a month.

That the system of keeping track of files within the office now used in the general superintendent's office is a good one for unit offices and may be adapted to other offices. This system simply consists of entering on a sheet daily (form P.R. 1 is used) the file number of every file handed to any one in the office, and the initial of the person to whom handed. These file numbers are indexed according to the last figure in each. File 156421 handed J. Smith would be shown:

	1	3	5	7	9
JS	15642				
	0	2	4	6	8

carried into the firebox, over the top of the fire. The brick arch in the front of the firebox is built lower than usual, in order that the injected air may mix thoroughly with the smoke as it is given off from the bed of coals, and while it is hottest. The incandescent particles of carbon, in the form of smoke, meeting this extra supply of air, continue the uncompleted combustion that commenced in the bed of coal, and pass on through the flues as completed products of combustion. In a demonstra-



Double Nozzle Blower Ring.

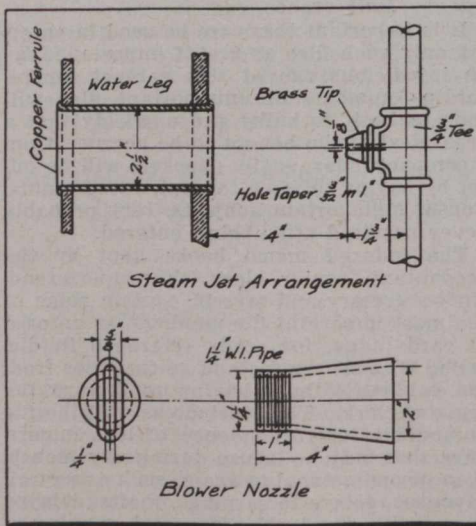
tion witnessed by the writer, dense black smoke was almost instantly reduced to an almost imperceptible vapor. In the test witnessed, a yard locomotive that had been standing on a siding for some time, with a normal fire, had several shovels of coal introduced, with the usual result of dense black smoke being given off from the stack. On turning on the steam through the side steam jets, the smoke almost immediately disappeared.

The G.T.R. is also experimenting with a circular blower in the stack, for creating

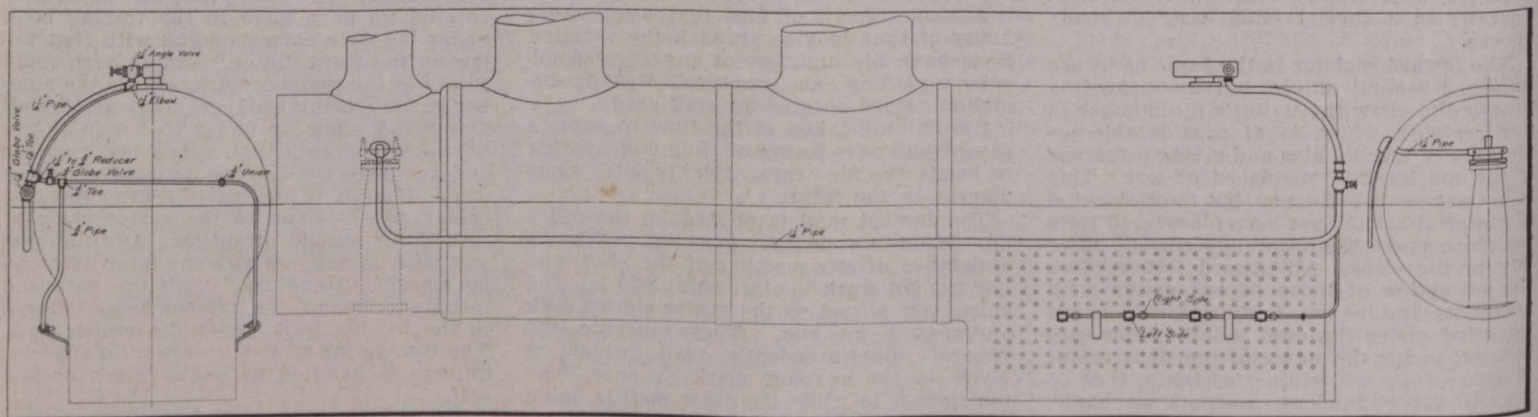
Smoke Consumers on Grand Trunk Railway Locomotives.

A brief description of the efforts being made by the G.T.R. to reduce the amount of smoke given off from locomotives appeared in Canadian Railway and Marine World for Oct., 1913. For some considerable time the G.T.R. has been experimenting, largely occasioned by the recent smoke ordinances in Chicago. The experiments proved such a success that a number of the yard locomotives at Windsor, Ont., were equipped with the device developed, which is illustrated herewith. Yard locomotives at other terminal points on the system are also being similarly equipped, but the installations have not been applied to road locomotives, as the same objectionable feature is not so apparent there, the principal objections to smoke arising in the larger communities, yard locomotives, especially if fired while standing, emitting great volumes of smoke.

The installation, as applied to a class F locomotive, is shown herewith. Along the side of the firebox, from 16 to 18 ins. above the fire, there are placed eight 2 in. tube ferrules through the water leg, four on each



Steam Jet Arrangement and Blower Nozzle.



Installation of Smoke Consumer and Blower on a G.T.R. Class F Locomotive.

side, the openings on opposite sides being slightly staggered, as shown. Back from each opening about 4 ins., and concentric with it, there is a small jet, connected to a 3/4 in. steam pipe, this latter braced from the side of the firebox. The jet consists of a small brass tip inserted in a 3/4 in. T, the tip hav-

ing a 1/8 in. hole, from which the steam blows into the water leg ferrule. The hole in the tip is slightly divergent at the outer end, so that the steam jet as it enters the ferrule completely fills the latter, creating a strong suction from the surrounding air, a considerable volume of air being thereby

draught when firing up, standing or drifting. This device, as applied to a locomotive of the same class, is shown herewith. It consists of a circular ring casting, encircling and secured to the exhaust tip, with two vertical blower nozzles in the upper face of the ring. The tips consist of 4 in. lengths of

1¼ in. pipe, flattened on one end, and threaded into the blower ring. These flattened tips are bent slightly inwards, so that their blasts, impinging on each other nearly midway in the stack, form a strong draught

cone. This new type, which is giving uniform success, replaces the bent pipe construction in former use, the draught from which, created as it was by a single nozzle, was not satisfactory.

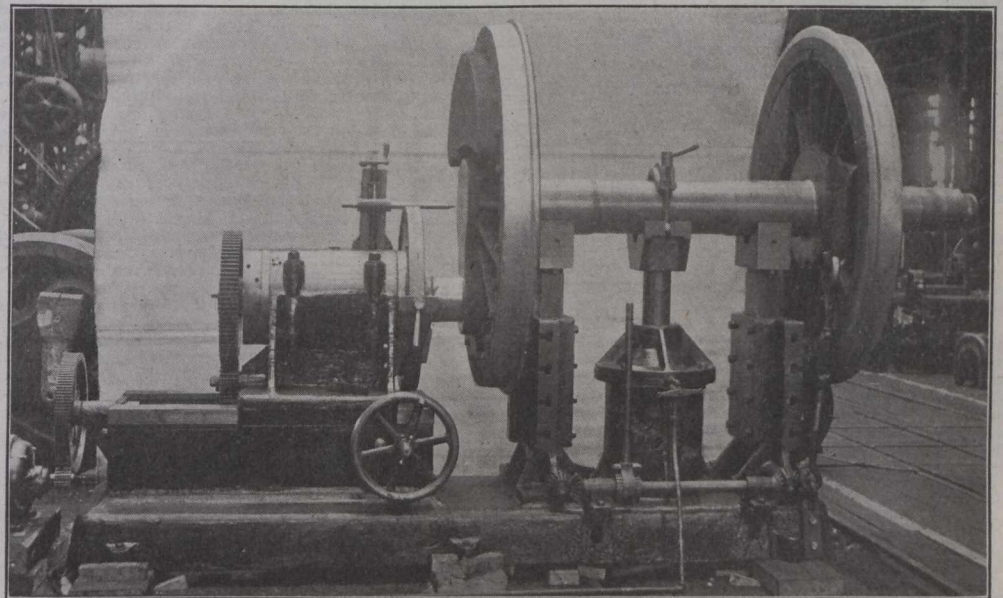
Crank Pin Turning Machine in Canadian Pacific Railway Shops.

The C.P.R. has in use in three of its shops a crank pin turning machine designed and built in its Angus shops, Montreal, and which is illustrated herewith. The first machine was placed in service at Angus shops about three years ago. This proved such a success, and was deemed to be such an improvement over existing practice that another one was built there for the West Toronto shops. The initial installation had been in service long enough to develop any weaknesses, so that the second machine had several important changes from the initial design, and it is this second design that is shown in the accompanying illustrations. The third installation in the Ogden shops is similar to this latter development, the Ogden machine being built just shortly after the one for West Toronto.

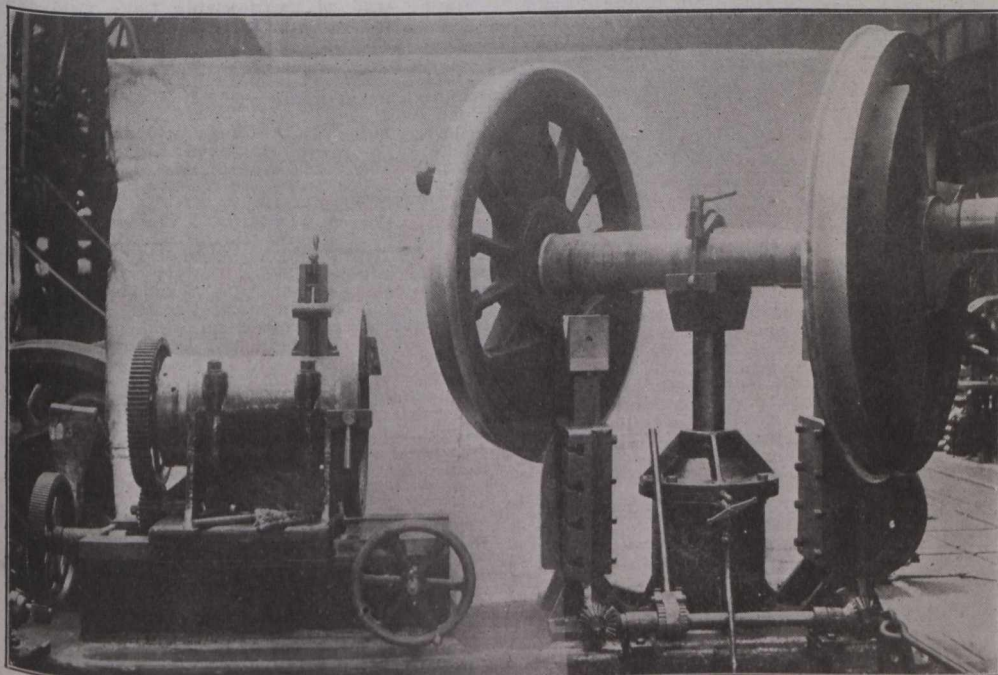
The machine consists essentially of a pair of vertically adjustable supports for the pair of wheels, with a horizontally adjustable head for the cutting tool, the whole supported on a cast iron bed plate extending the full length of the machine. The vertically adjustable supports are carried in castings bolted to the bed plate, and consist of square rods, having V block tops, guided in the main support castings, and moved vertically by worms, which connect through bevel gears to a shaft along the front of the bed plate, a ratchet arrangement forming the means of vertical adjustment of the V block supports. This shaft along the front is divided into two sections

axle to secure the latter in place. The air cylinder is used for turning the wheels end for end, when changing positions so as to machine the pins on the opposite sides. The cylinder lifts the wheels clear of the supports, when they can be swung around into

rear end of the sleeve. The tool is carried on a small carriage, which is adjustable radially through a screw, on the outer end of which there is a star wheel. On the front of the machine, above the handwheel for adjusting the head, there is an arm, projecting forward from the head casting, parallel with the face of the flange, with the vertical handle suspended from it as shown. In the head of this projecting arm there is a small block, free to move parallel to the centre line of the sleeve, and controlled by an eccentric on the handle. The inner face of the sliding block has a knife edge, radial to the sleeve, which, by a manipulation of



Crank Pin Turning Machine set up for Machining a Crank Pin.



Crank Pin Turning Machine having Wheels Shifted for Operating on the Opposite End.

inside the ratchet block, so that each support may be adjusted independently, or, as is usual, adjusted in unison by engaging the two ratchet dogs together. The outward faces of the support castings each have a vertical rib, against which the inner face of the flange bears, held in place by bolts in any of the four horizontal T bolt slots in the support casting face.

Midway between the supports there is a vertical air cylinder, the top of the plunger rod in which carries a V block head, with an encircling clamp over the top of the

the new position.

The quartering machine head resembles very closely the head of a lathe, the principal difference being in the fact that the quartering machine head is adjustable along horizontal ways, like a lathe carriage. The spindle in the head is in the form of a hollow sleeve, with a flange carrying the tool on the forward end, and a driving gear on the rear end. The sleeve is driven from a motor, through a pinion and gear operating a shaft in the bed of the machine, and thence through a train of gears to the gear on the

the handle in front, may be brought into such a position as to just touch the outer end of the feeding star teeth as the head revolves, or else into fuller engagement by sliding the block farther along. Any desired inward feed may be obtained in this manner while the machine is in motion.

On the back of the carriage there is a small carriage on vertical ways, this carriage carrying a horizontal rod, which may be slipped out towards the wheels, for centering the latter. The side of the vertical ways carries a scale, marked off to register the throw of the crank pin, so that by first adjusting the scale carriage to the correct throw, the wheels are raised in their supports to their proper position, with the indicating bar in line with the wheel centre.

After setting up for the correct throw, and levelling the wheels, the pin on one end is centred in the sleeve of the head for dressing down. For pulling around while adjusting, the turnbuckle arrangement attached to the right wheel is used, close adjustment being thereby secured. After correct setting of the wheels the feed of the head is thrown in, and the pin on the one end finished. The wheels are then raised by means of the air cylinder, and swung around, end for end. The wheels are turned around through a quarter turn, and lined up accurately for the exact 90 degrees, by means of quartering level. This latter consists of a long arm, in which a level is set. The foot of the arm is a square, which fits up against the finished crank pin. Levelling the arm with regard to the axle centre, finally adjusts the wheels into position for machining the crank pin on the other end. Very quick work is possible with a machine of this type. It can be utilized in small shops as a quartering machine, as provision has been made by which a boring bar can be inserted in the hollow sleeve or headstock spindle.

Orders by Board of Railway Commissioners for Canada.

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

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

General order 124, Apr. 30.—Approving regulations to govern operation by railway companies within legislative authority of Parliament of Canada, of draw, or swing, or bascule bridges over navigable waters.

General order 125, May 30.—Ordering that terms of judgment in Western Rate Case, which is hereby made part of this order, and tariff changes therein directed to be made, be complied with and become effective not later than Sept. 1; and that, for two years from date, no rates at present in effect west of Port Arthur, Ont., be increased without Board's approval.

General order 126, May 28.—Declaring that reports or reports submitted by railway companies in accordance with Circular 133, are privileged, and shall only be made public or given out upon application therefor by order of the Board.

21810. May 16.—Amending order 20002, Aug. 11, 1913, re Winnipeg, Selkirk and Lake Winnipeg Ry. subway at Middlechurch, Man.

21811. May 11.—Ordering that classification of maple cheese be made same as fixed by order 21745, May 2, for maple butter; addition to be included in Supplement 3 to Canadian Freight Classification 16.

21812. May 16.—Authorizing Canadian Northern Ry. to rebuild bridge over Sturgeon River, station 403, mileage 8.1, St. Albert Settlement, Alta.

21813. May 14.—Authorizing C.N. Ontario Ry. to build bridge over Indian River, Richards Tp., mileage 107.85 from Ottawa; and rescinding order 20888, Nov. 21, 1913.

21814. May 16.—Authorizing C.P.R. to open for traffic its Snowflake West Branch, Man., mileage 0 to 10.

21815. May 13.—Ordering C.P.R. within 60 days to install automatic bell at crossing of Lavolette Ave., Three Rivers, Que., 20% be paid out of railway grade crossing fund.

21816. May 14.—Authorizing C.P.R. to build spurs from main line, mileage 2.26, Muskoka Subdivision, in Lot 1, Con. 4, west of Yonge St., York Tp., Ont., on land owned by Canadian Kodak Co.

21817. May 14.—Authorizing G.T.R. to build siding for Brantford Industrial Realty Co., south of Alice St., Brantford, Ont.

21818. May 16.—Approving clearances as shown on C.P.R. plan of overhead pipe line crossing of Standard Paint Co. sidings, Lachine Parish, Que.

21819. May 11.—Authorizing Hamilton Radial Electric Ry. to build spur to and through lands of Sir Henry Pellatt and Dominion Power & Transmission Co., Saltfleet and Barton Tps., Ont.

21820. May 11.—Authorizing C.P.R. to build extension to trackage for Gordon, Ironside & Fares Co., Winnipeg, Man.

21821. May 11.—Ordering C.P.R. to build roadway 66 ft. wide, from north and south road allowance northwesterly to point of dam, and thence northwesterly joining east and west road allowance in centre of Sec. 17 and 8, Trosachs, Sask., and reserving apportionment of cost.

21822. May 18.—Approving revised location of G.T. Pacific Ry., mileage 220.60 to 230.30, Yellowhead Pass West, Cariboo District, B.C.

21823. May 18.—Authorizing G.T. Pacific Ry. to operate over crossing of Canadian Northern Ry. at Empire Ave., Fort William, without first stopping trains.

21824. May 18.—Authorizing G.T.R. to rebuild bridge carrying farm crossing over tracks in Lot 33, Con. 1, South Dumfries Tp., Ont.

21825. May 14.—Amending order 138, June 17, 1904, re crossing of G.T.R. by Sarnia St. Ry.

21826. May 18.—Authorizing C.P.R. to use bridge 144.6, Portal Subdivision, Sask.

21827. May 18.—Extending to June 30, time for C.P.R. to complete siding for McCormick Mfg. Co., London, Ont., authorized by order 20710, Nov. 4, 1913.

21828. May 11.—Rescinding order 21518, Mar. 18, which directed the C.P.R. to restore old clearance at bridge over north branch of Clyde River, just north of Flower station, Ont., by raising under side of top of culvert 11 ins.

21829. May 18.—Extending to Nov. 1, time for completion of subway under C.P.R., in Regina, authorized by order 12801, Jan. 20, 1911.

21830. May 19.—Authorizing Saskatchewan

Government to build highway crossing over C.P.R., in s. w. ¼ Sec. 21, Tp. 19, R. 18, w. 3. m.

21831. May 16.—Authorizing Cedar Rapids Mfg. and Power Co. to take certain lands in St. Ignace du Coteau du Lac Parish, Que.

21832. May 18.—Authorizing Town of Mont Laurier, Que., to build highway crossing over C.P.R. at mileage 134.45, Laurentian Subdivision, Campbell Tp., Que.

21833. May 19.—Authorizing Canadian Northern Ry. to cross public road between Secs. 14 and 15, Tp. 51, R. 12, w. 4. m.

21834. May 18.—Authorizing C.N. Quebec Ry. to build spur to Dansereau's Mill, and to cross Bay St., Grenville, Que.

21835. May 18.—Authorizing G.T.R. to build spur from Ferguson Ave., Hamilton, Ont., to its property west of Ferguson Ave.

21836. May 18.—Ordering G.T.R. to change grade of approaches to Bergevin's Crossing, between Danby and South Durham, Ont.

21837. May 18.—Authorizing G.T. Pacific Branch Lines Co. to build a bridge across South Saskatchewan River at mileage 86.5, on its Young-Prince Albert Branch, Sask.

21838. May 18.—Ordering C.P.R. within 60 days to install electric bell at crossing in Maple Ridge municipality, Port Hammond, B.C.

21839. May 16.—Approving change in location of C.P.R. station at Kreuzburg, Man.

21840, 21841. May 18.—Approving C.P.R. plans showing proposed subway at Anthony St., Strathcona, Edmonton, and clearances at its coaling plant at Aldersyde, Alta.

21842. May 19.—Authorizing C.N. Ontario Ry. to build crossing of concession road between Lot 10, Con. 5, and Lot 10, Con. 6, Nepean Tp., and rescinding order 17859, Nov. 6, 1912, in so far as it approved road division there, and rescinding order 20110, Aug. 18, 1913.

21843. May 20.—Authorizing rural municipality 342, Sask., to build highway crossing over G.T. Pacific Ry., Prince Albert Branch in n. w. ¼ Sec. 28-34-27, w. 2. m., Sask.

21844. May 20.—Authorizing C.P.R. to build spurs for White Falls Lumber Co., Ltd., Sudbury, Ont., at Blind River, Ont.

21845. May 20.—Authorizing G.T.R. to build siding for Aitken & Sons, Beeton, Ont.

21846. May 19.—Authorizing C.P.R. to build temporary sidings for Dominion Bridge Co., Montreal, for one year from date.

21847. May 19.—Ordering Campbellford Lake Ontario and Western Ry. (C.P.R.), to lay 12 in. pipe under its embankment, in west ½ Lot 30, Con. 2, Pickering Tp., Ont.; F. Roach, Cherrywood, Ont., to have right to lay water pipe through said 12 in. pipe for conveying water to pasture.

21848. May 18.—Dismissing Bell Telephone Co.'s application for leave to erect telephone wires on Concord St., Grey and Harvard Aves., Montreal; and authorizing it to erect overhead line on east side of Mountain St., pending construction of permanent pavement there, when wires shall be placed underground.

21849. May 20.—Amending order 21734, May 2, re Great North Western Telegraph Co.'s poles and wires on certain streets in Lindsay, Ont.

21850. May 18.—Ordering Canadian Northern Ry. to build a dam on creek diversion near north boundary of Sec. 16-31-15, w. 4. m., Alta., the crest to be 6 in. higher than top of pipe under railway embankment; work to be completed within one month, and rescinding order 21139, Dec. 31, 1913.

21851. May 22.—Authorizing C.P.R. to open for traffic its second main line track from Iberville station, to St. Johns, Que., mileage 19.2, to 20.02.

21852. May 16.—Approving location of G.T.R. station at Penetanguishene, Ont.

21853. May 22.—Amending order 10457, Apr. 28, 1910, re G.T.R. overhead bridge at Lachine Road, Rockfield, Que.

21854, 21855. May 22.—Approving location of Edmonton, Dunvegan and British Columbia Ry., through Tps. 77-78, R. 19-23, and Tps. 74-77, R. 18-19, w. 5. m., Alta.

21856. May 22.—Extending express collecting and delivery limits in Outremont, Que.

21857. May 23.—Dismissing application of Cleveland, Tp., Que., for order apportioning cost of work on highway crossings by G.T.R. about 3 miles east of Richmond station, by closing crossings and diverting road to north-east and along G.T.R. right of way.

21858. May 22.—Ordering G.T. Pacific Branch Lines Co. to divert crossing across its tracks at mileage 13.6, Caron, Sask., and to open north and south as well as east and west road allowances, mileage 8.5; work to be done 60 days from date.

21859. May 23.—Dismissing application of Federal Electric & Mfg. Co., Montreal, for order extending express collection and delivery limits there.

21860. May 19.—Dismissing complaint of Superior Sand & Gravel Co., St. Gabriel de Brandon, Que., against rate charged by C.P.R.

on sand and gravel to Montreal.
21861. May 22.—Dismissing application of J. H. McPherson, Beverley Tp., Ont., for order directing C.P.R. to build siding to his premises.

21862. May 23.—Ordering Canadian Northern Ry. to rebuild fence between Drumheller and Calgary, Alta., within 2 months from date, work to be done to satisfaction of Board's Engineer.

21863. May 23.—Authorizing Village of Beauport, Que., to build 2 highways over Quebec Ry. Light, Heat & Power Co.'s railway.

21864. May 23.—Authorizing C.P.R. to build double track, Farnham Subdivision, at grade across Champlain St., St. Johns, Que., mileage 19.9; to put back sidewalk as it was before construction, to reinstate original grade; and rescinding order 21714, Apr. 29, authorizing temporary crossing.

21865. May 20.—Ordering C.P.R., within 60 days, to install improved type of automatic electric bell at crossing of Albert St., Alliston, Ont., 20% to be paid out of the railway grade crossing fund, all train movements on sidings be flagged over crossing by C.P.R. trainmen.

21866. May 20.—Ordering C.P.R. to install gates at St. Maurice, St. Thomas and Bonaventure Sts., Three Rivers, Que., 20% to be paid out of the railway grade crossing fund, ¼ of cost of operating to be paid by City of Three Rivers.

21867. May 20.—Amending order 21691, Apr. 25, re land for Campbellford Lake Ontario and Western Ry. (C.P.R.) approaches to freight yards, etc., at Bowmanville, Ont.

21868. May 23.—Dismissing W. Watters' application for order directing G.T.R. to take his property on Ferguson Avenue, Hamilton, Ont.

21869. May 19.—Rescinding order 14964, Sept. 19, 1911, re lumber rates from Routhier, Que., to Montreal, for export.

21870. May 26.—Suspending Duluth, South Shore and Atlantic Ry. tariff C.R.C. 331, pending hearing at Ottawa, June 16., when D. S. S. & A. Ry. and C.P.R. will be required to show cause why same should not be disallowed.

21871. May 23.—Authorizing G.T.R. to rebuild bridges 239, milepost 209.45, near Powassan, and 247, milepost 222.12, near Nipissing Jet., Ont.

21872. May 23.—Authorizing Canadian Northern Ry. to build spur from Block 82, old plan 33, and described as subsidiary spur 4, with extension across 6th Ave., down Block 141, and across Cornwall St. and 5th and 6th Aves., Regina, Sask.

21873. May 26.—Authorizing Lake Erie and Northern Ry. to build at grade across G.T.R. at station 1281+58, Simcoe, Ont., interlocking plant to be installed by L. E. & N. R.

21874. May 23.—Approving clearances of awning on Toronto Dairy Co.'s premises, Woodstock, Ont.

21875. May 23.—Authorizing C.P.R. to use bridge 144.8, Portal Subdivision, Sask.

21876. May 26.—Approving C.P.R. detail plans showing overhead crossing at Eighth Ave. West, Moose Jaw, Sask.

21877. May 26.—Ordering Canadian Northern Ex. Co. to file joint tariffs showing express rates on fruits and vegetables from shipping point in Prince Edward County to points beyond or via Smiths Falls, reached jointly by it and Canadian or Dominion Ex. Cos., that shall not exceed rates on said commodities published by Canadian and Dominion Ex. Cos. from Niagara District, to same points.

21878. May 28.—Ordering C.P.R. to provide cabin close to crossing at Cherry St., Toronto, on south side of railway and west side of street, properly heated, and with windows giving clear view up and down railway for more than a block in each direction, for use of flagman to protect public using crossing between hours of 6.30 a.m. and 7.00 p.m.

21879. May 26.—Relieving C.P.R. from providing further protection at crossing of highway second east of Green Valley, Ont.

21880. May 26.—Authorizing C.P.R. to build road diversion in Sec. 14, Tp. 11, R. 10, w. 3. m., Sask., and to build its Swift Current South Easterly Branch across same at grade.

21881. May 26.—Authorizing Montreal and Southern Counties Ry. to build across 4 highways in St. Cesaire, Que.

21882. May 26.—Authorizing G.T.R. to operate jointly with C.P.R. over sidings for E. W. Gillett Co., south of Liberty St., over C.P.R. on north side of Liberty St. and between Liberty St. at which joint tracks end, and diamond crossing on Jefferson Ave., Toronto.

21883. May 26.—Authorizing G.T.R. to build siding for Dominion Foods, Ltd., St. Catharines, Ont.

21884. May 26.—Authorizing South Vancouver District, B.C., to build Main St., over Vancouver and Lulu Island Ry.

21885. May 27.—Approving location of Canadian Northern Ry. station at Mervin, Sask.

21886. May 27.—Approving location of C.N. Ontario Ry. station grounds at Clemow, mileage 133.26 from Ottawa.

21887. May 20.—Rescinding order 21217, Jan.

portion of its right of way between mileage 26 and 27, on south side of track, by June 1.

21888. May 26.—Authorizing Toronto Eastern Ry. temporarily, pending installation of interlocking plant, to operate over crossing of G.T. R. Port Perry Branch at Whitby, Ont., for construction purposes only; interlocking plant to be installed by July 20, all movements of applicant's trains to be flagged over crossing by its employes.

21889. May 27.—Dismissing complaint of Mrs. K. S. Massiah, Lachute, Que., alleging discrimination by C.P.R. against Lachute in issuing commutation tickets to St. Agathe, Vaudreuil, Hudson, and other points.

21890. May 27.—Authorizing C.P.R. to divert road s. w. ¼ Sec. 3-8-29, w. 2 m., Sask., and build its Weyburn-Stirling Branch at grade across same between s. w. ¼ Sec. 3 and s. e. ¼ Sec. 4-8-29, w. 2 m., mileage 105.23.

21891. May 27.—Authorizing C.P.R. to build siding for I. L. Lafleur, Notre Dame de Grace, from mileage 2.54, Windsor Street, to Montreal Jct., Que.

21892. May 27.—Authorizing Canadian Northern Ry. to build across and divert highway between Secs. 15 and 16-11-22, at Truax, Sask.

21893. May 26.—Authorizing C.N. Ontario Ry. to build, by a separation of grades, across G. T.R. and C.P.R. in Toronto.

21894. May 27.—Amending order 21508, Mar. 14, to allow G.T. Pacific Ry. to make certain changes in highway crossings in Tp. 34, R. 1 and 2, w. 3 m., Sask.; and extending for 30 days from May 31, time within which such work shall be completed.

21895. May 27.—Authorizing G.T. Pacific Ry. to build spur for Inland Lumber & Building Co., Edmonton, Alta.

21896. May 26.—Authorizing G.T. Pacific Ry. to build highway crossing at mileage 44.9, Sunset Ave., Whitewood Sands, Alta.

21897, 21898. May 27.—Authorizing G.T.R. to build siding and spurs therefrom, for Elias Rogers Co., and siding for United Drug Co., Toronto.

21899. May 26.—Authorizing G.T.R. to use branch line authorized to be built by Toronto, Hamilton and Buffalo Ry. to National Steel Car Co., Hamilton, Ont., under order 17562.

21900. May 27.—Ordering Dominion Atlantic Ry. to employ flagman to protect crossing of highway west of Port Williams station, N.S., when trains are passing without stopping.

21901. May 28.—Amending order 21243, Jan. 21, re prohibition of whistling by locomotives in Winnipeg, by decreasing the penalty from \$50 to \$10.

21902, 21903. May 29.—Approving agreement between Bell and Byron Telephone Cos. of May 14, and between Bell and Alnwick Rural Telephone Cos., of May 15.

21904. May 29.—Ordering C.P.R. to build subway under tracks crossing highway between Lots 5 and 6, Con. 5, Toronto Tp., Ont., subway to be built in line with highway so there will be clear view through it from highway at each end; headway 14 ft.; clear span of 20 ft. over crown of highway; 20% of cost, not exceeding \$5,000, to be paid out of railway grade crossing fund, 5% remainder by Streetsville, 15% by Toronto Tp., and balance by C.P.R.

21905. May 28.—Dismissing application of Town of Aylmer, Que., for reduction in fare between Ottawa and Aylmer on Hull Electric Ry.

21906. May 29.—Dismissing application of St. Marys Horse Shoe Quarry, St. Marys, Ont., to relieve it from maintenance and interest charged upon G.T.R. spur to its property.

21907. May 28.—Ordering Lake Erie and Northern Ry. to build level crossing on B. Bowlby's farm in Lot 5, Con. 2, Woodhouse Tp., Ont.

21908. June 1.—Amending order 21837, May 18, re G.T. Pacific Branch Lines Co.'s bridge across South Saskatchewan River at mileage 36.5, Young-Prince Albert Branch, Sask.

21909. June 1.—Extending to Aug. 15, time within which G.T.R. shall complete lighting of Victoria Bridge, Montreal.

21910. June 1.—Relieving G.T.R. from further protecting crossing of highway immediately west of Lorne Park station, Ont.

21911. June 1.—Amending order 21725, Apr. 29, re Campbellford, Lake Ontario and Western Ry. (C.P.R.) crossing of road allowance, mileage 88.62, Murray Tp., Ont.

21912. May 27.—Authorizing C.P.R. to divert Graham Ave., Stonewall, Man.; authorizing it to build at grade across Lilly St.

21913. May 29.—Ordering C.P.R. to install gates at crossing of Hurontario St., Toronto Tp., to be operated by day and night watchmen; and file detail plans for approval of Board within 30 days from date; 20% to be paid out of the railway grade crossing fund; 20% of maintenance, including wages, to be paid by Peel County; gates to be in operation by July 1.

21914. June 1.—Ordering that crossing of C.P.R. by St. John Ry., on Main St., be protected by half interlocking plant; details to be placed on St. John Ry. and home signals on C.P.R.; details to be interlocked with signals; normal position of signals at proceed for C.P.R.

and stop for St. John Ry., C.P.R. to have priority; St. John Ry. to pay cost of installing, maintaining and operating half interlocking plant.

21915. June 11.—Authorizing C.P.R. to open for traffic its second main line track between Agincourt, mileage 87.3, and Leaside Jct., mileage 95.6, Toronto subdivision.

21916. June 1.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to carry traffic over its line from Glen Tay to Agincourt, mileage 0 to 182.6, Ont.

21917. June 1.—Approving Montreal and Southern Counties Ry. location from westerly boundary of Granby, easterly along Main, Drummond, Irwin and St. Charles St.

21918. June 1.—Authorizing Nelson and Fort Sheppard Ry. (G.N.R.) to build spur for Benton Pole and Timber Co., West Kootenay Division, B.C.

21919, 21920. June 1.—Approving Montreal and Southern Counties Ry. location from boundary between St. Cesaire and St. Paul d'Abbotsford parishes to west boundary of Granby, mileage 35.05 to 45.61, and authorizing it to build across public highways between Lots 178 and 179, and between Lots 217 and 48-47, St. Paul d'Abbotsford Parish, Que.

21921. May 22.—Ordering Dominion Atlantic Ry. to fill in approaches to crossing of Grafton Road, Grafton, N.S., 300 ft. to south and 400 ft. to north.

21922. June 6.—Ordering C.P.R. to re-establish and maintain train service between Winnipeg and Gimli, that existed prior to June 1, until sittings of Board at Winnipeg, on June 26, when those interested shall be heard.

21923. May 29.—Ordering G.T.R. to build extension of interchange track with Hamilton Radial Electric Ry. near Burlington, Ont., to accommodate at least 10 cars; work to be completed within 60 days; cost to be borne equally by the two companies.

21924. May 28.—Dismissing application Board of Trade, Sheho, Sask., for order directing C.P.R. to remove station to town side of track.

21925. May 26.—Dismissing application of town of Gladstone, Man., for order directing Canadian Northern Ry. and C.P.R. to build highway over their lines at Dufferin St.

21926. May 26.—Dismissing application of residents of Lac du Bonnet, Man., for order requiring C.P.R. to build platform opposite the village, and requiring local train to stop there night and morning.

21927. June 2.—Certifying correction of Campbellford, Lake Ontario and Western Ry. (C.P.R.) plan to show division line between certain lands as shown on plan dated May 15.

21928. June 4.—Authorizing C.P.R. to build its Lake Louise Branch at grade across highways between mileage 0 and 3.55.

21929. June 4.—Authorizing C.P.R. to use bridge 30.5, Timiskaming Subdivision, Lake Superior Division, Ont.

21930. June 4.—Amending order 21706, Apr. 21, re C.P.R. clearances at West Toronto, Ont.

21931. May 29.—Ordering C.P.R. to build subway at crossing of Hurontario St., Toronto Tp., Ont., to be 20 ft. wide and 14 ft. clear-ance; work to be completed by Sept. 1, 20% of cost to be paid out of railway grade crossing fund, 15% of remainder by Toronto Tp., and balance by C.P.R.

21932. June 1.—Authorizing Bay of Quinte Ry. to open for traffic diversion of its line in Lots 32, 33 and 34, Con. 8, Camden Tp., Ont.

21933. June 4.—Authorizing Vancouver, Victoria and Eastern Ry. and Navigation Co. (G.N.R.) to rebuild bridges across C.P.R. at Grand Forks, B.C., subject to condition that should any additional tracks be built by C.P.R. at that point V.V. and E.R. and N. Co. shall pay for necessary changes for same.

21934. June 2.—Authorizing G.T.R. to build siding for Siemon Bros., Warton, Ont.

21935. May 26.—Dismissing application F. Yestran, Rosewood, Man., for order requiring Canadian Northern Ry. to stop its "flyer" train at Dufresne, Man.

21936. June 5.—Amending order 21913, May 29, re C.P.R. crossing gates at Hurontario St., Toronto Tp., Ont.

21937. May 29.—Ordering G.T. Pacific Ry. within 30 days to file plans of standard 1A station with 60 ft. platform between Tofield and Deville, stock pen with platform and loading chute, also spur for at least 4 freight cars; all to be completed by Sept. 1; also that way freight and passenger trains, other than through passenger trains, stop at said station.

21938. May 29.—Authorizing City of Edmonton, Alta., to open Spruce Ave. across Canadian Northern Ry., and to build its municipal railway across C.N.R. at grade on Spruce Ave.; pending installation of half interlocking plant, city is authorized to operate over C.N.R., crossing to be protected by watchmen to be appointed by C.N.R. and paid by city.

21939. May 29.—Ordering Canadian Northern Ry. to widen loading platform at Vegreville, Alta., to 20 ft., within one month.

21940. May 28.—Ordering Canadian Northern Ry. to build by July 1 a one-pen stockyard and loading chute at Wiseton, Sask.

21941. May 28.—Ordering Canadian Northern Ry. to file plan of fourth class station at Hugh-

ton, Sask., station to be erected and station agent appointed by July 15.

21942. June 5.—Authorizing Montreal and Southern Counties Ry. to build across parish line between St. Paul de Abbotsford and Granby Parishes, and public highways known as Little Road, Cannan Road and Robinson Road, Granby Parish, Que.

21943. June 5.—Authorizing Essex Terminal Ry. to open for traffic its line from C.P.R. to M.C.R. and Detroit Tunnel Co., Sandwich, Ont.

21944. June 5.—Authorizing Lake Erie and Northern Ry. to build reinforced retaining walls along Jubilee Terrace and Water St., Brantford, Ont., and span over its tracks for extension of Lorne Bridge.

21945. June 4.—Authorizing Okanagan Telephone Co. to erect its wires across Shuswap and Okanagan Ry. (C.P.R.) at Okanagan St., Armstrong, and at Gore St., Vernon, B.C.

21946. June 2.—Approving agreement between Bell Telephone Co. and Bobcaygeon Rural Telephone Co.

21947. June 4.—Extending collection and delivery limits of Dominion Ex. Co. in Banff, Alta., and rescinding order 18740, Feb. 20, 1913.

21948. June 4.—Authorizing G.T. Pacific Ry. to build across Government Road, B.C., at mileage 241 and 245, Yellowhead Pass West, Cariboo District, B.C.

21949. June 4.—Approving temporary diversion of C.P.R. at mileage 39.3, Sudbury Subdivision, Lake Superior Division, and to build at grade, for 5 months, temporary diversion across North Road, Parry Sound to Byng Inlet, Ont.

21950. June 2.—Authorizing C.P.R. to build its Weyburn-Stirling branch line across 15 highways at grade between mileage 253.35 and 277.78.

21951. June 5.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build 2 tracks at grade across Scugog St., Bowmanville, Ont., to proposed freight yard, all switching movements across Scugog St. to be flagged.

21952. June 5.—Authorizing C.P.R. to revise grade and build additional track by means of a bridge across Lorne St., Kamloops, B.C., and revise location from mileage 0.22 to 0.55.

21953. June 5.—Approving clearances at spur for Crown Feed and Produce Co., Calgary, Alta.

21954. June 5.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build spur across C.N. Ontario Ry. at mileage 1.05.

21955. June 5.—Authorizing City of Hamilton, Ont., to build Burlington St. across portion of road allowance claimed by Hamilton Radial Electric Ry. as forming part of right of way.

21956. May 22.—Ordering G.T.R. to build spur for Hepworth Silica Pressed Brick Co., Heworth, Ont.

21957. June 8.—Authorizing G.T. Pacific Ry. to build bridge across Phillips Creek, mileage 102.2, Prince Rupert east, B.C.

21958. June 8.—Ordering that joint rate on coke, in carloads of a minimum weight of 40,000 lbs. a car, from Consumers Gas Co. siding on Esplanade, Toronto, to C.P.R. sidings at North Toronto, be reduced from 95c. to 60c. a ton of 2,000 lbs. effective by June 22.

21959. June 9.—Ordering C.P.R. to build farm crossing for D. Coyette, Lemoynne, Que., at his expense, to be completed within 30 days.

21960. June 9.—Approving location of G.T. Pacific Branch Lines Co. station at Avonhurst, Sask.

21961, 21962. June 9, 8.—Authorizing G.T. Pacific Ry. to build bridges across Ksi-Den Creek, mileage 147.3; Fiddler Creek, mileage 127; Porcupine Creek, mileage 133.5; Lorne Creek, mileage 129, and Kitwanger Creek, mileage 152, Prince Rupert East, B.C.

21963. June 8.—Extending to Nov. 4, time for G.T.R. to complete spur for Dominion Stove & Foundry Co., Penetanguishene, Ont.

21964. June 9.—Authorizing C.N. Ontario Ry. to build spur to ballast pit across public road between Cons. 1 and 2, Pembroke Tp., and operate same for 3 years.

21965. June 9.—Approving location of C.N. Ontario Ry. station at Ste. Dorothee (Isle Jesus), Que., mileage 39, Hawkesbury East.

21966. June 6.—Authorizing Edmonton, Dunvegan and British Columbia Ry. to build across 13 highways in Alberta.

21967. June 9.—Relieving Michigan Central and Pere Marquette Rds. from erecting fence on boundary line between rights of way at points west of St. Thomas, Ont.

21968. June 9.—Ordering Dominion Ex. Co. to publish and file special tariff applicable to through shipments of milk or cream to Boston, Mass., establishing certain rates.

21969. June 11.—Dismissing applications of Sheldons, Ltd., Galt, Ont., and Sirocco Co., Windsor, Ont., for order reducing carload rating of heating and ventilating apparatus in Canadian Freight Classification from 5th to 6th class.

21970. June 5.—Authorizing Lake Erie and Northern Ry. to build railway across highway by subway between Cons. 8 and 9, mileage 37.36, Townsend Tp., Ont.

21971. June 9.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build spur, from main line, at mileage 87.46 from Glen Tay, to Lot 1, Ontario and Dundas Sts., Trenton, Ont.
21972. June 8.—Authorizing C.P.R. to build spur for Canmore Coal Co., Canmore, Alta.
21973. June 9.—Approving revised location of C.P.R. Swift Current Northwesterly branch from mileage 94.64 to 97.29, and from mileage 109.10 to 111.95.
21974. June 8.—Further extending time to Sept. 30 within which C.P.R. shall complete sidings for Godson Contracting Co., Darlington Tp., Ont.
21975. June 9.—Ordering C.P.R. to divert crossing into highway just west of Armilla, Sask.
21976. June 12.—Ordering G.T.R. to switch cars, when desired by the municipality, to and from track on Esplanade owned by Town of Cobourg, Ont.
21977. May 20.—Amending order 20507, Oct. 6, 1913, re siding for Dodge Mfg. Co., Toronto.
21978. June 15.—Ordering C.P.R., within 60 days, to install improved type of automatic bell at crossing of main approach to Hospital for Insane, London, Ont.; 20% of cost to be paid out of railway grade crossing fund.
21979. June 13.—Ordering Pere Marquette Rd., within 60 days, to install improved type of automatic bell at crossing of Head St., Chatham, Ont.; 20% of cost to be paid out of railway grade crossing fund; all train movements on siding to be flagged over by yardmen.
21980. June 8.—Approving agreement between Bell and King Telephone Cos.
21981. June 13.—Establishing collection and delivery limits of Dominion Express Co., in Morse, Sask.
21982. June 12.—Authorizing C.P.R. to open for traffic its line from Bassano to Empress, mileage 0.0 to 118.31, and from Empress, mileage 111.8 to 110.8, Swift Current Northwesterly Branch, trains from mileage 0 to 75, limited to 20 miles an hour; from mileage 75 to 118.3, and mileage 110.8 to 111.8, to 18 miles an hour.
21983. June 12.—Approving location of G.T. Pacific Branch Lines Co.'s station at Lorlie, Sask.
21984. June 13.—Authorizing G.T.R. to build siding for Sarnia Bridge Co., Sarnia, Ont.
21985. June 11.—Authorizing Dominion Atlantic Ry. to build siding for W. H. Chase & Co., Avonport, N.S.
21986. June 15.—Authorizing Lake Erie and Northern Ry. to connect temporarily with Michigan Central Rd. siding at Waterford, Ont.
21987. June 15.—Authorizing Esquimalt and Nanaimo Ry. to build siding for Spragge & Co., Victoria, B.C.
21988. June 13.—Authorizing C.N. Ontario Ry. to build temporarily across public road between Lot 19, R. 1, and Lots 23 and 24, North Front A, by spur to ballast pit, Westmeath Tp.
21989. June 13.—Authorizing C.P.R. to use bridges 30.8, near Kendry station; 33.5, near Cavan station, and 39.4, near Bethany Jct. station, Ont.
21990. June 15.—Amending order 21915, June 1, by substituting Ontario and Quebec Ry. for Campbellford, Lake Ontario and Western Ry.
21991. June 15.—Authorizing C.P.R. to rebuild bridge 34.6, Toronto Subdivision, at Cavan, Ont.
21992. June 8.—Authorizing G.T. Pacific Ry. to build bridges across creek, mileage 151; Shames River, mileage 79; Hardscrabble Creek, mileage 113.3; creek at mileage 115.8, and Sand Creek, mileage 115.1, Prince Rupert East, B.C.
21993. June 12.—Authorizing C.N. Ontario Ry. to open for traffic its Orillia Branch from Udney to Atherley, and rescinding order 11308, July 28, 1910.
21994. June 16.—Authorizing G. T. Pacific Ry. to build spur in s.e. ¼ Sec. 36-52-2, w. 5 m., for Alsip Brick and Supply Co.
21995. June 16.—Authorizing G.T.R. to rebuild bridge 301 across Indian River, near Thornbury, Ont.
- 21996 to 21998. June 16.—Amending orders 21114, Dec. 30, 1913, and 21495 and 21496, Mar. 17, 1914, re building of C.P.R. Bassano Easterly Branch across highways in Alberta.
21999. June 10.—Authorizing C.P.R. to build diversions in Secs. 19 and 29-7-27, w. 2 m., Sask., and to build its Weyburn-Stirling Branch, at grade, across north and south road allowance between Secs. 19 and 30, and Secs. 20 and 29-7-27, w. 2 m., mileage 94.36, and rescinding order 19746, July 4, 1913.
22000. June 15.—Ordering C.P.R. to build highway crossing in Lot 5, Con. 2, Rayside Tp., Ont.
22001. June 16.—Authorizing Winnipeg River Ry., to connect with C.P.R. at Lac Du Bonnet, Man.
22002. June 19.—Amending order 21890, May 27, re diversion and crossing of road by C.P.R. at mileage 105.23, Weyburn-Stirling Branch, Sask.
22003. June 19.—Amending order 21891, May 27, re C.P.R. siding for J. L. Lafleur, Notre Dame de Grace, Que.
22004. June 16.—Approving location of Canadian Northern Ry. through Tps. 18-20, R. 7, e.p.m., Man., mileage 48.56 to 62.72.
22005. June 10.—Authorizing Canadian Northern Ry. to build across and divert road in s.e. ¼ Sec. 7-43-19, w. 4 m., Alta.
22006. June 16.—Authorizing Canadian Northern Ry. to rebuild bridge across Red River, at Emerson, Man., subject to condition that it build guide pier or protection work should it be called upon to do so at any time by the Public Works Department of Canada, in the interests of navigation.
22007. June 8.—Approving agreement between Bell Telephone Co. and Brooke Tp., Ont.
22008. June 16.—Authorizing C.P.R. to build stringer opening at bridge 111.45, at crossing of Wellington St., Goderich, Ont.
22009. June 16.—Authorizing G.T.R. to rebuild bridge 35, over South Indian River, near South Indian, Ont.
22010. June 15.—Ordering Sarnia St. Ry. to pay cost of maintaining and repairing diamond to be installed at crossing of G.T.R., and rescinding order 21825, May 14, without prejudice to rights of either with reference to maintenance and repair under order 138.
22011. June 13.—Amending order 21751, Apr. 29, re C.P.R. and Ottawa and New York Ry. train service at Finch, Ont.
22012. June 16.—Relieving G.T.R. from providing further protection at crossing of Waterloo St., New Hamburg, Ont.
22013. June 17.—Approving proposed Supplement 3 to Canadian Freight Classification 16, as finally revised and submitted by Canadian Freight Association, June 10, and with which is consolidated Supplement 2, approved by order 20967, Dec. 10, 1913, to become effective with least delay necessary.
- 22014, 22015. June 17.—Authorizing G.T.R. to build siding for J. R. Booth, near Opeongo, Ont., and siding and spur for Ross Church Road Co., Godmanchester Tp., Que.
22016. June 17.—Approving City of Montreal plans B-1-1342-1 and B-1-1342-2, showing diagram of material and general details of steel-work and details of sidewalk brackets of subway to be built under C.P.R. at Park Ave.
22017. June 17.—Authorizing G.T.R. to build siding for Interprovincial Brick Co. of Canada near Cheltenham, Ont.
22018. June 15.—Authorizing Dominion Stock and Bond Corporation to build subways at Corporation and Government Sts. under G.T. Pacific Ry., Fort Fraser, B.C.
22019. June 16.—Authorizing Canadian Northern Ry. to operate between Saskatoon and Harris, Sask., 49.4 miles, at 25 miles an hour, instead of 20 miles, and relieving it from speed limitation of 15 and 20 miles an hour over portion from Harris to Kindersley, 76.7 miles.
22020. June 18.—Approving plan showing alterations and additions to C.N.R. station building at Alsask, Sask.
22021. June 16.—Approving clearances, as shown on plan of G.T.R. bridge over siding of Dominion Tire Co., Berlin, Ont.
- 22022, 22023. June 17, 18.—Authorizing G.T.R. to build sidings for Dominion Glass Co., Ltd., Toronto, and for Kirkfield Portland Cement Co., Somerville Tp., Ont.
22024. June 16.—Authorizing C.P.R. to build its Bassano Easterly Branch across 58 highways, mileages 0.82 to 50.95, with some diversions, in Alberta.
22025. June 17.—Extending to Aug. 1 time within which C.P.R. shall install electric bell at highway crossing at Port Haney, B.C.
22026. June 18.—Relieving Michigan Central Rd. from maintaining day and night flagmen at highway crossing about 2 miles west of Mull, Ont.
22027. June 18.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to include within limits of right of way shown on plans approved by orders 17204 and 17105, lands shown edged in red on plan referred to in book of reference dated June 8.
22028. June 10.—Authorizing City of Vancouver, B.C., to build highway over Vancouver, Victoria and Eastern Ry. at Venables St.
22029. June 8.—Ordering Esquimalt and Nanaimo Ry. to file plans showing culvert sufficient to drain lands of A. Gordon, Hillbank, B.C., for approval of Board's engineer, work to be completed within 2 months of approval, and upon completion A. Gordon to pay \$50 towards expense.
22030. June 22.—Authorizing C.P.R. to open for traffic its double track from Herbert to Notman, mileage 91.9 to 95.1, Sask.
22031. June 22.—Authorizing Saskatchewan Government to build highway over C.P.R. blind line north of Sec. 15-30-22, w. 2 m., Sask.
22032. June 22.—Authorizing G.T.R. to build siding for Welch Grape Juice Co., Grantham Tp., Ont.
22033. June 22.—Approving location of C.N. Ontario Ry. station grounds at Vaughan, mileage 151.1 from Ottawa.
22034. June 23.—Authorizing Canadian Northern Ry. to build across 37 highways, mileage 44.84 to 93.85, Sask.
22035. June 22.—Authorizing Winnipeg, Selkirk and Lake Winnipeg Ry. to cross, for construction purposes only, until Sept. 1, C.P.R. Selkirk Branch, on certain conditions.
22036. June 17.—Approving agreement between Bell and Caradoc-Ekfrid Telephone Cos. of June 9.
22037. June 22.—Authorizing Shale Products, Ltd., to build aerial tramway over G.T.R. near Inglewood Jct., Ont.
22038. June 18.—Authorizing Department of Railways and Canals to build construction railway across Niagara, St. Catharines and Toronto Ry., at Lake Shore Road, Port Weller, Ont., in connection with Welland Ship Canal; Department to pay cost of interlocking plant.
22039. June 19.—Amending order 20240, Sept. 2, 1913, re Alberta Government highway across Canadian Northern Ry. in n.e. ¼ Sec. 30, Tp. 29, R. 20, w. 4 m.
22040. June 20.—Authorizing G.T. Pacific Ry. to build across Government Road Diversion in n.w. ¼ Sec. 24-53-7, w. 5 m., mileage 60.2, North Alberta District.
22041. June 19.—Authorizing G.T.R. to build siding for Pilkington Bros., Wainfleet Tp., Ont.
22042. June 22.—Amending order 19199, May 6, 1913, re C.P.R. crossing of 18 highways in Edmonton, Alta.
22043. June 19.—Authorizing C.P.R. to build siding for G. A. MacIver, Sherbrooke, Que.
22044. June 20.—Authorizing Lake Erie and Northern Ry. to connect with Toronto, Hamilton and Buffalo Ry., between station 866-92.5, in Waterford, and station 58-95.4, Townsend Tp., Ont.
22045. June 11.—Dismissing British Columbia Express Co.'s application for order directing G.T. Pacific Ry. to remove temporary bridge across Fraser River below confluence with Nechaco River, and make openings in permanent steel bridge across Fraser River, at mileage 142 and 189.
22046. June 18.—Authorizing Canadian Northern Ry., until Oct. 1, to carry traffic over its Oakland Branch from mileage 42 to end of track, Man., 12 miles; trains limited to 12 miles an hour.
22047. June 23.—Authorizing Town of Hanover, Ont., to build team track across Maple Ave.
22048. June 23.—Authorizing G.T. Pacific Ry. to build road diversion in s.w. ¼ Sec. 27, and n.e. ¼ Sec. 21-53-8, w. 5 m., mileage 864.6 west of Winnipeg.
22049. June 23.—Approving location of G.T. Pacific Ry. station at Hubert, mileage 239, Prince Rupert East, B.C.
22050. June 24.—Authorizing Lake Erie and Northern Ry. to build bridge at mileage 29.7, over Oakland Creek, Oakland Tp., Ont.
22051. June 24.—Authorizing Montreal Light, Heat and Power Co. to lay 30 in. gas pipe across G.T.R. right of way and lands and Lachine Canal Reserve, under lease by G.T.R., near western end of G.T.R. Turcot Yards, including lands formerly leased to T. A. Trenholme, Lachine Parish, Que.
22052. June 23.—Ordering that cost of interchange tracks as follows be paid:—at Waterloo, Ont., 85% by G.T.R. and 15% by Galt, Preston and Hespeler St. Ry.; at Berlin, Ont., 90% by G.P. and H.S.R., and 10% by G.T.R.; at Preston, Ont., 80% by G.T.R. and 20% by G.P. and H.S.R.; whole cost of interchange track at Galt to be paid by G.T.R.
22053. June 23.—Authorizing G.T. Pacific Branch Lines Co. to build highway crossing over its Regina-Boundary Branch, at mileage 43.3, Sask., and rescinding order 12181, Nov. 5, 1910.
22054. June 24.—Approving station site and station of G.T. Pacific Ry. at Duncan, mileage 187, Prince Rupert East, B.C.
22055. June 26.—Ordering that, commencing July 1, G.T.R. establish train service on its Haliburton Subdivision, as indicated on schedule marked A; that service be maintained for three months from July 1, as a trial, and records kept showing returns; that G.T.R. be permitted to carry only carload freight on said trains, and be at liberty to arrange whatever other service it deems necessary for less than carload freight.
22056. June 25.—Authorizing C.N. Ontario Ry. to build across public road between Lots 78 and 80, St. Eustache Parish, Que., mileage 37.1, by a subway, and rescinding order 12663, Dec. 20, 1910.
22057. June 26.—Authorizing Canadian Northern Ry. to build across and divert Government road allowance between Secs. 33 and 32-28-28, w. 3 m., Sask.
22058. June 25.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to build its Trenton spur across certain streets in Trenton, Ont.
22059. June 24.—Authorizing Esquimalt and Nanaimo Ry. to open for traffic its Osborne Bay Branch from Osborne Bay to Westholme, B.C., about 2.5 miles.
22060. June 24.—Authorizing Vancouver and Lulu Island Ry. to open for traffic its branch from 3rd Ave., Vancouver, B.C., B.C. Electric Ry. property, adjoining 3rd Ave., and Granville St. bridge, to passenger and freight station.
22061. June 25.—Authorizing C.P.R. to open for traffic its double track from Oak Lake to Virden, mileage 32.2 to 47.5, Man.

22062. June 25.—Ordering that of 20% of cost of building foot subway, for overhead bridge at George St., Smiths Falls, Ont., not exceeding \$5,000, less contribution already made for overhead bridge there, be paid out of the railway grade crossing fund.

22063, 22064. June 25.—Extending to Dec. 1 time for approval of tolls of C.P.R. and Great North Western Telegraph Co.

22065. June 25.—Authorizing City of Montreal to divert traffic now crossing C.P.R. tracks in line with Park Ave., by a temporary crossing to be built in line with Hutchinson St., crossing at Park Ave. to be closed, and crossing at Hutchinson St. be protected by day and night watchman at expense of applicant, pending building of subway at Park Ave.

22066. June 22.—Rescinding order 21848, May 18, re Bell Telephone Co.'s overhead line on Mountain St., Montreal.

22067, 22068. June 25.—Extending to Dec. 1 time for approval of telegraph tolls of White Pass and Yukon Route, and G.T. Pacific Telegraph Co.

22069. June 25.—Suspending clause of order 20621, Oct. 18, 1913, re G.T.R. siding for St. Marys Portland Cement Co., Blanchard Tp., Ont., pending settlement of terms of user by G.T.R. as between St. Marys Portland Cement Co. and C.P.R.

22070. June 29.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to open for traffic its line from Glen Tay to Agincourt, mileage 0 to 182.6, Ont., and rescinding order 21916, June 1.

22071. May 28.—Ordering C.P.R. to install 18 in. corrugated iron pipe under its tracks opposite Block 4, Plunkett, Sask., work to be completed by Sept. 1.

22072. May 28.—Ordering C.P.R. to build highway crossing at west end of station grounds, Viscount, Sask., to be completed by Sept. 1.

22073. May 28.—Ordering C.P.R. to grade driveway from highway crossing at west end of yard along station grounds to approaches to elevators, Plunkett, Sask., to lay 8 in. corrugated iron pipe under approach to private crossing at east end of yard, and grade approaches to crossing, work to be completed by Sept. 1.

22074. May 28.—Dismissing application Viscount rural municipality 341, Sask., for order directing C.P.R. to build permanent crossing east of Plunkett.

22075. June 24.—Ordering C.P.R. to deepen partially made ditch through Viscount station grounds, Sask., to sufficient depth for a 0.2% grade, and lay 18 in. corrugated iron pipe under track and graded road, grade driveway from highway at west end of yard along station grounds to elevator approaches, work to be completed by Sept. 1.

22076. May 26.—Dismissing Winnipeg Electric Ry. application for order varying order 11393, Aug. 15, 1910, by dispensing with services of watchmen at Logan Ave.

22077. June 29.—Approving location of Canadian Northern Ry. station at Elross, Sask., to be in accordance with C.N.R. 3rd class station plan.

22078. May 29.—Authorizing Canadian Northern Ry. to carry traffic over its line between Avonlea and Gravelburg, Sask., 79 miles, until Oct. 1.

22079. June 24.—Approving location of G.T.R. signals in Union Station yard, Toronto.

22080. June 30.—Ordering G.T.R. to operate gates at crossing of Main St., Wyoming, Ont., between 7 p.m. and 7 a.m.

22081. May 26.—Dismissing application of Tuxedo Park Co., Canada Cement Co., and South Winnipeg, Ltd., for order directing G.T. Pacific Ry. to receive, forward and deliver traffic upon and from existing spur serving applicants' property in St. Boniface and St. Charles Parishes, Man.

22082. June 2.—Rescinding par. 2 of operative part of order 21731, May 1, re operation of G.T. Pacific Ry. ladder track on Kinistino Ave., Edmonton, Alta.

22083. June 10.—Ordering that Brunette St., New Westminster, B.C., be protected by gates, installed by Vancouver, Victoria and Eastern Ry. and Navigation Co. (G.N.R.), 20% of cost to be paid out of the railway grade crossing fund, 2-3 of remainder by V.V. and E.R., and 1-3 by City of New Westminster; cost of maintenance and wages of watchmen to be paid in same proportion; British Columbia Electric Ry. being relieved of payment of 1-3 of wages of watchman.

22084. June 25.—Ordering Canadian Northern Ry. to build grain loading siding between Dauphin and Ashville, Man.

22085. June 10.—Ordering that, until further ordered, certain trains shall continue to carry additional cars placed in service on June 5 between New Westminster and Vancouver, B.C.

22086. May 26.—Authorizing Canadian Northern Ry. to build spur for J. H. Carleton, Winnipeg, Man.

22087. May 26.—Ordering Great Northern Ry. to build good roadway from east and west road allowance at south end of station grounds to point opposite head block of present location of commercial track switch, about 1,000 ft., at Layland, Man., and grade and level to

width of 20 ft., and put in proper condition, loading platform there, work to be completed by Aug. 15.

22088. May 26.—Dismissing application of John Thomas, Winnipeg, Man., alleging excessive charges on cordwood from Richan, Ont., to Winnipeg, Man., and for rebate of at least \$7 a car on 435 cars.

22089. June 30.—Authorizing G.T. Pacific Branch Lines Co. to carry traffic over its Moose Jaw Northwest Branch between Mawer, mileage 44.9, and mileage 64.6, speed of trains limited to 15 miles an hour.

22090. June 27. Authorizing Canadian Northern Ry. to build bridge across Ochre River, mileage 164.26, Man.

22091. May 26.—Ordering C.P.R. to build spur from its "D" yard, across Sutherland Ave., Winnipeg, for E. Shragge Iron and Metal Co.

22092. June 29.—Authorizing Windsor, Essex and Lake Shore Rapid Ry. to build siding, crossing Pearl and Main Sts., Kingsville, Ont.

22093. June 30.—Dismissing application of Western Canada Stone Co. for extension of express collection and delivery limits in Calgary, Alta.

22094. July 2.—Authorizing C.P.R. to build its Bergen cutoff across its Lac Du Bonnet Sub-division at Murdock, Man.

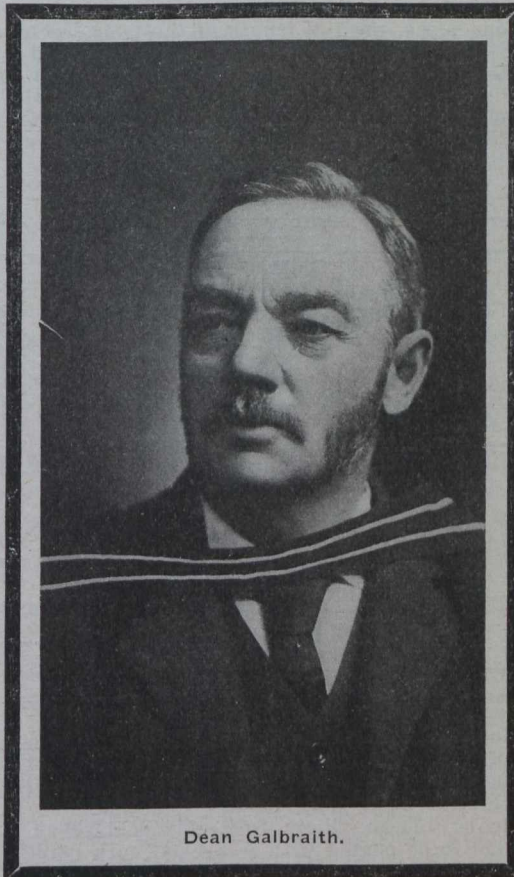
22095. July 2.—Dismissing application on behalf of estate of late Mary Silles for order

The Death of Dean Galbraith.

John Galbraith, M.A., LL.D., M. Can. Soc. C.E., Dean of the Faculty of Applied Science, University of Toronto, died at his summer home, Go-Home, Muskoka, July 22. He was born at Montreal, Sept. 5, 1846, and received his primary education at Port Hope Grammar School. He entered the University of Toronto in 1863 and took his B.A. degree with double scholarship in mathematics and general proficiency, and the gold medal in mathematics, as well as being Prince's prizeman in 1868. He received his M.A. degree in 1875, and the honorary degree of LL.D. in 1902. In addition the honorary degree of LL.D. was conferred on him by Queen's University in 1902. Following graduation he studied engineering and surveying under G. A. Stewart, Chief Engineer, Midland Ry. (Ontario), subsequently attaining the rank of P.L.S. and D.L.S. He was employed in the building of the Intercolonial Ry., the Midland Ry., and the Canadian Pacific Ry.

On the formation of the Ontario School of Practical Science, in 1878, he was appointed to the chair of engineering, as well as being Principal, and when that institution became the Faculty of Applied Science of the University of Toronto, he was given the title of Dean. To him, the old school as it was familiarly known by its graduates, owes much of its success, as it was his tireless energy in promoting the welfare of the institution from its early days when a small building and a staff of three comprised his entire charge, to the present day, when there are three large buildings, a large staff of instructors, and about 800 students. In the engineering profession he was well known. He was one of the founders of the Canadian Society of Civil Engineers, of which he was for many years a councillor, and President in 1908. He was also an associate of the Institute of Civil Engineers of England, and in 1907 he was a member of the Royal Committee appointed to investigate the failure of the Quebec bridge, then in process of erection.

The funeral, which took place at Toronto, July 25, was largely attended by members of the engineering profession, many of whom had graduated under the late Dean.



Dean Galbraith.

Freight and Passenger Traffic on the Intercolonial Railway.

Replying to questions in the House of Commons, recently, the acting Minister of Railways gave the following particulars regarding freight and passenger traffic on the I. R. C. for the year ended Mar. 31, 1913:—

FREIGHT.—Number of tons carried, eastbound, 2,182,084; westbound, 3,021,385; total, 5,203,469. Originating in Nova Scotia and including 99,308 tons delivered at seaports of the Province for furtherance by rail, 2,693,024 tons. Originating in New Brunswick, 799,824 tons. Originating in Quebec, 1,088,406 tons.

PASSENGER.—Total received for tickets sold to passengers, \$2,643,766.63. Traffic originating in Nova Scotia, \$1,128,640.07; traffic originating in New Brunswick, \$670,343.47; traffic originating in Quebec, \$844,783.09.

Rails for Canadian Northern Ry.—The Dominion Iron and Steel Co., Sydney, N. S., commenced making deliveries early in July of the 45,000 tons of steel rails ordered by Mackenzie, Mann & Co., Ltd., for July to September delivery. They are being supplied in 60, 65 and 80 lb. weights, deliveries being made at Port Arthur, Ont., Port Mann, B. C., and on Vancouver Island.

directing Canadian Northern Ry. to pay for damages sustained by building of spur across Lot 3, Con. 3, Neebing Tp., now in Fort William, Ont.

22096. July 3.—Approving Kootenay Central Ry. revised location from southern boundary of Lot 6615, East Kootenay District, B.C., mileage 47.04, to northern boundary of Shuswap Indian Reserve, mileage 96.16.

22097. July 3.—Approving revised location of C.P.R. Moose Jaw Southwesterly Branch from mileage 43.97 to 46.56, Sask., and authorizing building of its Swift Current Southwesterly Branch at grade across highways between mileage 43.97 and 46.56.

22098. July 2.—Dismissing application of Board of Trade, Lawson, Sask., for order directing C.P.R. and G.T. Pacific Ry. to install transfer track in Moose Jaw, Sask.

22099. July 2.—Dismissing application of Board of Trade, Calgary, Alta., for order directing building of spur on C.P.R. at Nightingale, Alta., to connect C.P.R. with Canadian Northern Ry. for interchange of traffic.

22100. July 2.—Dismissing application of A. Low, Calgary, Alta., complaining of refusal of C.P.R. to allow him privilege of chartering train for Sunday school excursion to Banff.

22101. June 30.—Ordering Canadian Northern Ry., within 60 days, to erect third class station at Craigmyle, Alta.

Steel Multiple Unit Cars for Mount Royal Tunnel.

The C.N.R. has ordered 8 all-steel, electrically operated, multiple unit cars for suburban service through its tunnel under Mount Royal, Montreal.

In the underframing, a plan of which is given herewith, the central box girder construction will comprise two 9 in. 15 lb. channels, 64 ft. 4 1/4 ins. long, spaced 16 3/4 ins. back to back, and fitted with a top cover plate, 28 by 1/4 ins. by 62 ft. 11 7/8 ins. long, a main bottom cover plate 24 by 3/8 ins. by 60 ft. 8 1/2 ins. long, and two platform cover plates 24 by 3/8 by 13 ft. 11 3/4 ins. long. This box girder will extend from end to end of the car, with cast steel buffer castings on the ends. Where the webs of the channels are cut, the cross-sectional area of the original girder will be maintained by the use of four 2 3/4 by 2 3/4 by 3/8 in. angles. This construction is all shown in the plan. The centre filler at the centre plate is to be of cast steel, and the centre plate is to be of C.N.R. standard contour, to take the standard malleable iron centre plate used on C.N.R. passenger trucks. This centre girder will be assembled with the bottom of the sills upwards, and allowed to deflect, so that when reversed the camber will be allowed to straighten out by the weight of the metal. The body end sills will be built up of structural shapes.

which are to be 1 3/4 by 4 1/8 in. long leaf yellow pine, B.C. fir or white ash. At the belt rail, the sheeting is to be further stiffened and tied in conjunction with the 3-16 in. pressed steel sash rests, by a 4 by 1/2 in. bar, extending the full length of the body in one place. Above the belt rail, the main piers will be fitted with steel casings, with the outer end portions rivetted on and formed to serve as sash stops. The window posts are to be encased on the outside with a U-shaped plate of 1/8 in. steel, forming the sash stop.

The corner posts are to be built of 3 by 2 in. angles, with 3-16 in. pressed steel cover plate, extending around and over the side and end sheets. The door posts will consist of 4 in. channels, having casings of 3-16 in. pressed steel, which will include and secure the end sheets and door finish inside the car. The belt rail will be of 3-16 in. pressed steel plate. The side plate will be of 3 by 3 by 3-16 in. angles, continuous in one piece, the full length of the body, each side, and fitted with extensions each end, to include and form the vestibule face carline. The letter board is to be 1/8 in. steel plate, rivetted to the side plates, and stiffened on the lower edge by a 1 by 1 3/8 by 1/8 in. angle.

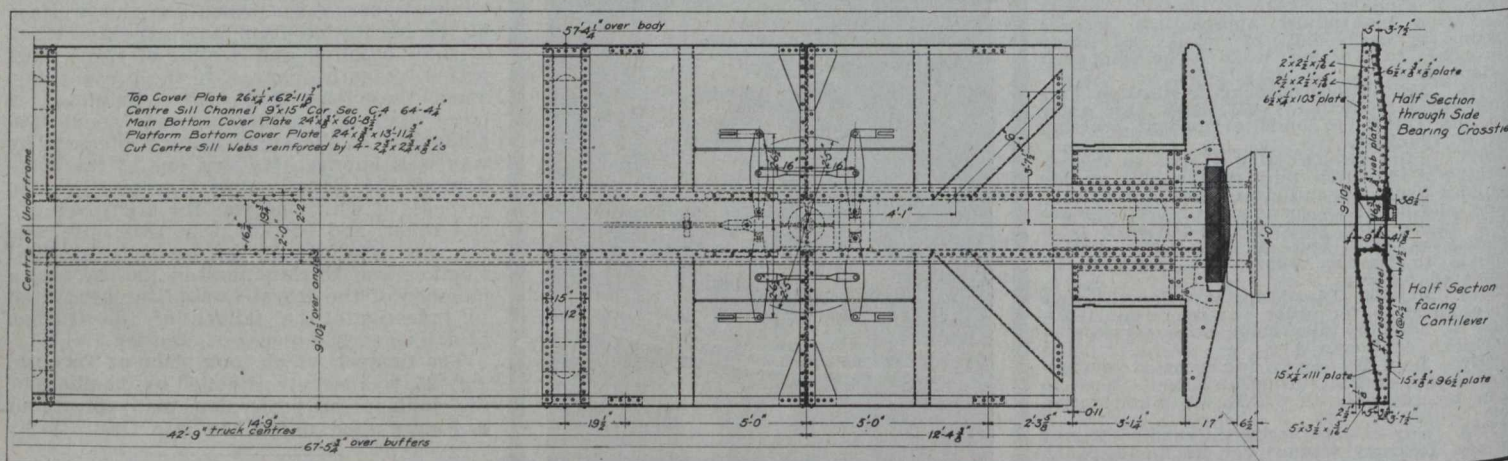
The sash rests will be of 3-16 in. plate, hav-

also the body end sheets. The floor plates will be 1/4 in. thick. The diaphragm posts will be 5 in. 9 lb. channels. The vestibule floor covering will be of 5-16 in. pebbled dot rubber. The vestibule windows will be circular, of double thickness, 19 ins. diam., 7-16 in. thick, of heat resisting clear glass.

There will be 8 windows per car. The two end doors will be fitted with round stationary sash, the glass in which is to be heat resisting and wired, 19 1/2 ins. diam.; two body end doors, with drop sash and double lights of heat resisting glass, 15 by 17 ins.; and four vestibule side doors with drop sash and two lights of 1/4 in. plate glass, one 10 1/4 by 25 ins., and the other 23 1/2 by 25 ins. The door trimmings will be C.N.R. standard. The car lighting will be from a 600 volt generator under the car, the lighting circuits from which will be divided into five lines.

The cross seats of the cars are to be of the C.N.R. low back style, with corner diagonal style of grab handles, and upholstered in canvas backed rattan. The interior woodwork is to be birch natural finish, with the ceiling of 3 ply poplar veneer, canvas faced. The end finish will be of 0.06 in. steel plate.

Each of the cars will be supplied with 4 CGE-239 motors, of the commutating pole type, fully ventilated, wound for 1,200 v. and insulated for 2,400 v. Two of these motors will be permanently connected in series for 2,400 v. operation. Their standard rating will be 125 h.p. each, or a total of 500 h.p. per



Underframe of Multiple Unit Steel Cars for Mount Royal Tunnel.

The body bolsters will have a web plate, 9 1/2 by 3/8 ins., and double top stiffener angles 2 1/2 by 2 1/2 by 5-16 ins., and bottom angles of 2 by 2 1/2 by 5-16 ins., with top cover plate extending across top of centre girder, 6 1/2 by 1/4 by 103 ins., and a bottom one, 6 1/2 by 3/8 by 78 ins., with the stiffener angles cut and bent around to form angle connection to the side sill angles and centre sill channels.

The cantilevers, of which there will be three, are to be located at 14 ft. centres, and will be formed of double pressed steel diaphragms, 1/4 in. thick, with flanges formed to take a top cover plate, 15 by 1/4 by 111 ins., and a bottom cover plate, 15 by 3/8 by 96 1/2 ins., with the rivet gauge set at 12 ins. There will be about 35 cross supports of 5 in. 6 1/2 lb. channels, to support the electrical and air brake apparatus under the car.

The side sills, of 5 by 3 1/2 by 5-16 in. angles, will extend from end sill to end sill, and form a connection for the sheeting, bolsters, cantilevers and equipment supports. A pressed steel channel brace, 3/8 in. thick by 9 ins. wide, secured to the end and centre sills, will be located at each corner of the underframe.

In the side framing, the main side posts, which are to be continuous from side sill to the plate, will be 3 by 2 by 5-16 in. angles, acting as stiffeners for the side sheeting, suitably connected to the wooden side posts,

ing a continuous stiffener the full length of the body in one piece of 4 by 1/2 in. steel bevelled on the top edge to suit the slope of the sash rest. The side sheets or plates are to be 0.11 in. thick, preferably cold rolled, and to be coated with a layer of cork paint on the inside when applied. The outside roofing is to be of steel plate, 0.09 in. thick, coated inside with cork paint, and supported on channel shaped pressed steel carlines 1/8 in. thick, except the three carlines supporting the pantograph, which will be of 3-16 in. pressed steel. The roof plates will be secured by 1/4 in. rivets, with the plate edges butted and welded together, and all the rivets sweated and soldered so as to be watertight. The eaves moulding will be of 1/8 in. pressed steel. The roof frame will be braced longitudinally by seven stringers, 1 in. thick by 1 3/4 in. wide. There will be a stringer, 2 by 3 in., in the roof framing, 2 3/4 ft. each side of the car centre line, to form a support for the lamps. The end plates, extending from side plate to side plate in one piece, will be of 4 in. channels. There will be safety chain hooks, links and brackets in accordance with C.N.R. standards.

The vestibule corner posts and diaphragm post casings will be 3-16 in. pressed steel, and the vestibule end sheeting will be the same as the body sheeting, as will

car. In the construction of these fully ventilated motors, the pinion end frame will be provided with a ring which will divert the air discharge from the armature fan through the openings in the head, while the incoming air will be drawn through a screened intake. This construction will insure a definite longitudinal circulation of air through the whole interior of the motor.

The Sprague GE type M multiple unit control will be provided, the design arrangement and construction being such that it will be equally well adapted for either single car or train operation. The control equipment will include a motor generator set for supplying 600 v. current for the control circuits, air compressor and lights. This set will consist of two 1,200 v. motors, operating in series at 2,400 v., direct connected to a 600 v. generator. The construction of the motors and the control apparatus will be essentially of the same general type as for the corresponding items used on the electric locomotive equipments, which were fully described in Canadian Railway and Marine World for June.

The method of heating the cars will be very satisfactory on account of the excellent distribution of hot air secured. The heating equipment will consist of a heating unit, blower and regulating mechanism, the controlling switch and thermostat of the regu-

lating mechanism being arranged for operation from the 600 v. supply. Air will be forced over the heating unit and distributed to the car through 4 by 10 in. air ducts along the sides of the car.

The following will be the principal dimensions of the cars:—

Length over buffers	67 ft. 5¼ ins.
Length over body corner posts.....	57 ft. 6¼ ins.
Length over body	57 ft. 4¼ ins.
Truck centres	42 ft. 9 ins.
Cantilever centres	29 ft. 6 ins.
Width over side sill angles.....	9 ft. 10½ ins.
Width over cantilevers	9 ft. 10¾ ins.
Width over eaves	10 ft. 2¾ ins.
Height, top of rail over roof	13 ft. 0 ins.
Height, top of rail to underside of side sill	3 ft. 7½ ins.
Height, top of rail to underside of centre sill channels	3 ft. 5¼ ins.
Height, top of rail to underside of body centre plate	3 ft. 2½ ins.
Height, underside of side sill to top of side plate angle	7 ft. 3 5-16 ins.
Centre to centre of body side bearings	4 ft. 10 ins.
Centre to centre of deck sills	5 ft. 6 ins.
Approximate weight of car under working conditions	120,000 lbs.

The cars will be built by the Pressed Steel Car Co. We are indebted to A. L. Graburn, Mechanical Engineer, C.N.R., and W. G. Gordon, Transportation Engineer, Canadian General Electric Co., for the data on which this article is based.

National Transcontinental Railway Construction.

The work of completing the N. T. R. has, owing to the resignation of R. W. Leonard, who has been the sole commissioner in charge of construction since 1912, passed under the control of the Minister of Railways, as provided for by the act passed last session of the Dominion Parliament. The various officers of the commission are being retained by the Department.

The filling, ballasting, bridgework, station building and other finishing up work is expected to be completed by Sept. 30, when the entire line will be ready for taking over by the Grand Trunk Pacific Ry. It is reported that arrangements for this are under discussion, and that a board of arbitration will be appointed to definitely fix the capital cost of the line, on which the rental to be paid by the G. T. P. R. is to be fixed. The Department of Railways has power to operate the line in whole or in part up to the time of the transfer. The only part of the line at present operated by the G. T. P. R. is that from Winnipeg to Lake Superior Jct., Ont., where connection is made with the branch G. T. P. R. line running to Fort William.

Pending the completion of the Quebec Bridge connection will be made between Levis and Quebec, by means of a car ferry. The ships and the connecting lines for this are practically completed. The car ferry, which has been named Leonard, had her trial trips at Liverpool, Eng., July 20, and it is expected she will be delivered at Quebec by the end of August.

Construction is being steadily progressed with on the Quebec Bridge. The substructure work is completed, and the contractors for the steel work have the approach spans erected, and are erecting the anchor spans. The construction of the different members for the two cantilevers, and the connecting link for the 1,800 ft. central span, is being proceeded with. The laying out of the yards, and other work at the bridge site is being done by M. P. and J. T. Davis.

A contract is reported to have been let to W. J. Gosselin, Levis, Que., for the erection of a station building and covered platform on the Champlain Market site, Quebec, at an estimated cost of \$46,000. It was originally intended to build the main station on this site, but it was subsequently decided to

use the site for a station for local traffic only, and to have the main terminals elsewhere.

In connection with the projected line from Montreal to the N. T. Ry., we are officially advised that it is expected surveys will be commenced this year, although it may not be possible to do any construction. The total cost of the line is put at about \$15,000,000. No definite ideas have been formed as to the possible route, but reports state it is not impossible that the one laid out from Montreal to Belle River, partly surveyed by the North Ry., will be utilized.

Tenders will be received to Aug. 4 for building of a Y track at Cap Rouge, about 2.5 miles westerly from Quebec bridge, and for the repair and completion of the line to the St. Malo shops.

Grand Trunk Pacific Railway Construction.

Collingwood Schreiber, General Consulting Engineer to the Dominion Government, arrived in Vancouver, July 4, from Prince Rupert, having completed a trip of inspection over the line. He is reported to have stated that he found the line to be in excellent shape between Winnipeg and Edmonton; in fair shape between Edmonton and McBride, and rapidly assuming a finished condition on the other sections to Priestley, whence a train service is being operated to Prince Rupert, 337 miles, over a good road-bed. A train service is in operation westerly from Winnipeg to McBride, 342 miles west of Edmonton; and several trains are in operation thence to Fort George, 144 miles further west. The intervening distance to Priestley, 140 miles is being ballasted, and only work trains are being operated over it. The line, he added, is expected to be in good running order throughout by the middle of August.

The bridge over the Fraser River was reported completed July 3, sometime after Mr. Schreiber's visit, and it is reported that trains are now being run through from Winnipeg to Fort George, 1,729 miles.

M. Donaldson, Vice President and General Manager, who returned to Winnipeg, July 3, from Montreal, is reported as stating that the line would be ready for freight traffic, right through, Aug. 1, and that arrangements were being made for starting through traffic on that day.

Grand Trunk Pacific Branch Lines.—The question of the entry of the line from Hartle into Brandon, Man., was recently before the Board of Railway Commissioners, when the Brandon Board of Trade asked for an order to compel the company to use the Canadian Northern Ry. line and terminals. The C. N. R. objected, on the ground that it was acquiring additional land to enlarge its terminal for accommodation of its own traffic, and the G. T. P. Ry. objected on the ground that it had an agreement to use the Great Northern Ry. terminals, and the transfer track. The city objected to the use of this track. The Commissioners subsequently went over the ground and deferred judgment.

A train service has been put in operation from Talmage into Weyburn, Sask.

The Mayor of Moose Jaw, Sask., received a cheque for \$30,000, July 6, from the company for six acres of the exhibition grounds for terminal purposes.

Work is in progress in clearing the site of the North West Mounted Police Barracks in Calgary, Alta., and it was expected that the whole of the grading of the cleared area would be completed by July 30. Track laying is to be started at once in the yards. (July, pg. 336.)

Petroleum Railway Rate Cases Decided by Privy Council.

A London, Eng., cablegram, of July 14, says: "The Privy Council to-day delivered judgment in the consolidated appeal of the Canadian Pacific Ry. versus the Canadian Oil Co. and the British American Oil Co. The dispute arose over through rates charged by railways on petroleum from Ohio and Pennsylvania to Toronto and other Canadian centres, when the official tariff classification did not specify a certain rate for petroleum. The Privy Council, in its judgment, says: 'It is admitted that the joint tariff was filed, and it is admitted that the companies did not, so far as the classification is concerned, make use of the classification which the Board of Railway Commissioners has prescribed or authorized, but availed themselves of the liberty given them to use a classification in use in the United States. What, however, the railway companies sought to do by means of their so-called supplements was to introduce a classification which was neither the classification in use in the United States nor a classification authorized by the board, for no one says the board ever authorized the charges proposed by the so-called supplements.'

"This, in their Lordships' judgment, was quite beyond the railway companies' powers, with the result that they proceeded to exact charges which were not sanctioned by any joint tariff framed with classification in a way in which the statute permits it to be framed. Upon this ground, and without entering into the other matters argued, their Lordships are of the opinion that the Supreme Court was right in upholding the jurisdiction of the Board to make the order it did. The appeal was, therefore, dismissed."

The original orders made by the Board of Railway Commissioners in these cases, no. 14386, May 16, 1911, on application of British American Oil Co. Ltd., and 14387, May 16, 1911, on application of Canadian Oil Companies, Ltd., were published in Canadian Railway and Marine World for Oct., 1911, pg. 951. In those orders it was declared that the legal rates chargeable on petroleum and its products from Illinois, Ohio, and Pennsylvania to Toronto were the 5th class joint through rates in effect at the time the shipments moved, as shown in the joint through tariffs published and filed with the Board, and in accordance with official classification 29 and subsequent issues thereof. The Board passed orders 15297 and 15309 Nov. 9, 1911, allowing the C.P.R. and G.T.R. to appeal to the Supreme Court on questions of law. The Supreme Court upheld the Board's decision and the railway companies then appealed to the Privy Council.

The Minaki Inn, built by the Grand Trunk Pacific Ry. at the crossing of the Winnipeg River by the National Transcontinental Ry. main line, 115 miles east of Winnipeg and 334 miles west of Fort William, was opened July 2. It is under the Canada News Co.'s management and has accommodation for 350 guests. Morley Donaldson, Vice President and General Manager, G.T.P.R., presided at the opening dinner, and there were also present J. E. Dalrymple, Vice President, G.T.P.R. (traffic), and W. P. Hinton, Assistant Passenger Traffic Manager, G.T.P.R., who, in speaking, said that the hotel was built to supply a holiday home for Winnipeg business men and their families. A feature of the opening was an exhibition of moving pictures, depicting scenes during the construction of the G.T.P.R., and the linking up of the track on the Mountain Division last spring.

Mainly About Transportation People.

SIR THOS. TAIT and his wife and daughter are staying at Rockland, Me.

SIR EDMUND OSLER, M.P., director C.P.R., left Toronto early in July for Europe.

G. A. E. Bury, son of GEORGE BURY, Vice President, C.P.R., was operated on at Winnipeg, July 9, for appendicitis.

D. CAMPBELL, Local Manager, Elder Dempster Co., Montreal, was in Great Britain during July.

R. M. BOYD, General Agent, Chicago, Milwaukee and St. Paul Ry., Seattle, Wash., was reported to be seriously ill there during July.

SIR WILLIAM VAN HORNE, according to a London cablegram of July 7, has been motoring in Holland and France with his son.

W. H. CLANCY, City Ticket Agent, G.T.R., Montreal, sailed on the s.s. Megantic, July 4, for Europe, on a three months holiday trip.

A. L. HERTZBERG, M.Can.Soc.C.E., Division Engineer, C.P.R., Toronto, and Mrs. Hertzberg, are spending some time in Europe.

J. J. HILL, formerly President and Chairman of the Great Northern Ry., was in Montreal early in July, on his annual yachting cruise.

SIR WILLIAM MACKENZIE, President, Canadian Northern Ry., sailed from New York on the s.s. Aquitania, July 22, for England.

A. J. STONE, heretofore General Manager, Erie Rd., has been appointed Vice President, in charge of operation. Office, New York, N.Y.

Mrs. C. E. E. USSHER, wife of the Passenger Traffic Manager, C.P.R., and the Misses Ussher, are spending the summer at Gloucester, Mass.

SIR WILLIAM VAN HORNE, who was in Paris, France, in July, is reported to have said that he intended visiting Cuba before returning to Canada.

D. O. WOOD, General Western Freight Agent, Allan Line Steamships, Toronto, and Mrs. Wood, are at their summer cottage at Honey Harbor, Georgian Bay.

SIR THOMAS TAIT, President, Fredericton and Grand Lake Coal and Ry. Co., Montreal, has been elected a director of Ames, Holden, McCready, Ltd.

R. MCGILL, one of the magistrates of Flesherton, Ont., and formerly for about 20 years C.P.R. agent there, died suddenly, during the course of a case, June 26.

Mrs. A. D. MacTIER, wife of the General Manager, Eastern Lines, C.P.R., with her daughter and son, returned to Canada at the end of July, after a visit to Europe.

LOUIS KON, Immigration Agent, Grand Trunk Pacific Ry., Winnipeg, has been elected Secretary of the Western Canada Railway Club, Winnipeg, vice W. H. Rosevear, resigned.

Mrs. HUGH SUTHERLAND, wife of the Executive Agent, Canadian Northern Ry., returned to Winnipeg from England, July 12, Mr. Sutherland remaining in London for a little longer.

MRS. D. B. HANNA left Toronto, July 20, with her daughter, mother and a sister, to spend some weeks at Kennebunkport, Me. Mr. Hanna accompanied them, but returned to Toronto in a few days.

W. WOOLLATT, of Walkerville, Ont., formerly General Superintendent, Buffalo Division, Pere Marquette Rd., is Vice President of the Albert Residence for men, a recently organized semi-charitable institu-

tion for providing respectable living accommodation in Windsor, Ont., for men earning small wages.

The will of the late HON. W. GIBSON, railway contractor, etc., Beamsville, Ont.,



D. H. Mapes,
Superintendent of Building Construction, Eastern Lines, Canadian Pacific Railway.



J. K. McNeillie,
Superintendent, District 3, Eastern Division, Canadian Pacific Railway.

which was filed for probate recently, disposes of an estate of between \$800,000 and \$900,000 between his widow and five daughters.

SIR ROBERT W. PERKS, who is interested in the proposed Georgian Bay ship canal, was presented with the silver medal of the Royal Society of Arts, in London,

Eng., recently, for his paper on the Montreal, Ottawa and Georgian Bay Ship Canal.

In the list of birthdays of transportation men published in our July issue, by an uncorrected error in our records, the birthday of GEORGE STEPHEN, General Freight Agent, Canadian Northern Ry., Winnipeg, was given as July 5, 1870 instead of July 5, 1876.

W. DOWNIE, General Superintendent, Atlantic Division, C.P.R., St. John, N.B., who has been travelling during a 12 months leave of absence, accompanied by Mrs. Downie, was a passenger on the s.s. Empress of Britain, arriving in Canada from Great Britain, early in July.

BION J. ARNOLD, of Chicago, has been retained by the Jersey City Chamber of Commerce as consulting engineer on projected improvements in the city's commercial and industrial facilities. The work contemplated includes the construction of docks and a connecting railway.

R. M. BOYD, General Agent, Freight Department, Chicago, Milwaukee and St. Paul Ry., Seattle, Wash., died there, July 6, aged 45. He was born at Brockville, Ont., and entered railway service with the C.P.R., at the age of 14, and subsequently went to Seattle in Northern Pacific Ry., later transferring to the Chicago, Milwaukee and St. Paul Ry.

The Prince Rupert, B.C., Board of Trade is arranging for a presentation of a souvenir to E. J. CHAMBERLIN, President, G.T.R. and G.T. Pacific Ry., in commemoration of the opening of the road to that city. Silver has been obtained from a mine at Hazelton, B.C., as it is intended that the souvenir shall be manufactured from the natural products of the locality.

When the Governor General was visiting in Newfoundland recently, he laid the corner stone of the tuberculosis sanatorium which was given by W. D. REID, President, Reid Newfoundland Co. This was supplemented by gifts from H. D. REID, Vice President, and R. G. REID, Superintendent, R. N. Co., of 17 smaller hospitals for the preliminary treatment of patients, in various parts of the colony.

DEMAREST HARING MAPES, whose appointment as Superintendent of Building Construction, C.P.R., Montreal, was announced in a recent issue, was born at Monroe, Orange County, N.Y., Aug. 18, 1869, and entered C.P.R. service, July 16, 1912, as assistant to Superintendent of Building Construction, which position he held until May 16, 1914, when he was appointed to his present position.

L. C. FRITCH, Assistant to President, Canadian Northern Ry., Toronto, who is a past president of the American Railway Engineering Association, is chairman for this year of that Association's committee to outline work for the standing committees. W. McNAB, Principal Assistant Engineer, G.T.R., Montreal, another past president of the Association, is chairman of the library committee and of the special committee on the Manual.

JAMES B. GAUT, whose appointment as Superintendent of Bridges and Buildings, Western Lines, G.T.R., Chicago, Ill., was announced in our last issue, was born at Marietta, Ga., Sept. 25, 1872, and entered railway service Sept. 1, 1900, since when he has been, to Sept. 1, 1912, Assistant Engineer, Illinois Central Rd., Chicago; Sept. 1, 1912, to Dec. 1, 1913, General Bridge Inspector, G.T.R., Montreal; Dec. 1, 1913, to Apr. 22, 1914, Assistant Engineer on Valuation, Western Lines, G.T.R., Montreal.

ALLYN O. SEYMOUR, who has been appointed General Tourist Agent, C.P.R., Montreal, was born at Ogdensburg, N.Y.

Aug. 14, 1887, and entered C.P.R. service in Aug. 1903, since when he has been, to Dec., 1904, clerk in general ticket department, Montreal; Jan., 1905, to Dec., 1909, clerk and assistant chief clerk, Passenger Traffic Manager's office, Montreal; Jan., 1910, to Oct., 1911, chief clerk to General Tourist Agent, Montreal; Nov., 1911, to June 30, 1914, General Travelling Passenger Agent, Montreal.

J. N. SUTHERLAND, who died at Oakville, Ont., July 18, was born at Sydney, N.S., in 1843, and entered railway service in 1866 as ticket clerk on the Great Western Ry. at Suspension Bridge, Ont., subsequently becoming joint ticket agent for the G.W.R. and M.C.R. at Rochester, N.Y., and afterwards station master, G.W.R., St. Catharines, Ont. He entered C.P.R. service on the opening of the Montreal-Toronto line at the Toronto Union station, subsequently becoming Local Freight Agent, Queen's Wharf, Toronto, and afterwards General Freight Agent, Ontario Division; and on Jan. 1, 1896, he was appointed General Freight Agent, Atlantic Division, St. John, N.B., which position he held until his retirement from railway service in April, 1907.

ERNEST BAXTER, who was recently appointed Purchasing Agent, St. Louis Southwestern Ry., St. Louis, Mo., was born at Delmer, Ont., Oct. 11, 1882, and entered railway service as messenger Michigan Central Rd., in Mar. 1903. From May to Sept. 1903 he was clerk, Algoma Central and Hudson Bay Ry., Saulte Ste. Marie, Ont.; Oct. 1903 to Mar. 1905, secretary to Superintendent, G.T.R., London, Ont.; Apr. 1905, to Feb., 1906, in operating department, Cincinnati, Hamilton and Dayton Ry., Indianapolis, Ind., and Missouri Pacific Ry., St. Louis, Mo.; Feb. 1906 to Apr. 1909, secretary to General Manager, St. Louis Southwestern Ry., St. Louis, Mo.; Apr. 1909 to June 22, 1914, chief clerk to President, same road.

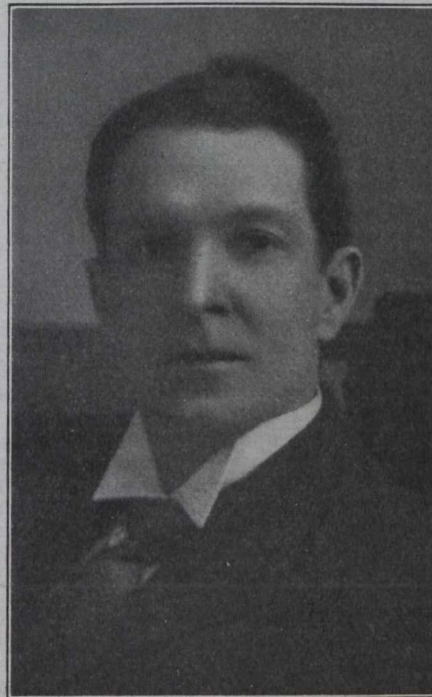
JOHN D. EVANS, M. Can. Soc. C.E., who has been appointed Division Engineer, Ottawa Division, Ontario Grand Division, Canadian Northern Ry., Trenton, was born in Goderich Tp., Ont., May 27, 1843, and was educated at private schools, the Toronto Grammar School, and Upper Canada College. In March, 1860, he was articled with a firm of land surveyors in Toronto and obtained his certificate as Provincial Land Surveyor in July, 1864. He practised as a land surveyor, civil engineer and architect at Belleville, Ont., until Feb., 1882, when he was appointed Chief Engineer, Central Ontario Ry., in charge of the survey and construction of the line from Trenton to Coe Hill, and on the completion of that work he was appointed Engineer of Maintenance of Way, which position he held until his present appointment.

N. R. DES BRISAY, who has been appointed General Travelling Passenger Agent, C.P.R., Montreal, was, from June 14, 1904, to May 31, 1905, clerk in District Passenger Agent's office, C.P.R., St. John, N.B.; June 1, 1905, to June 7, 1907, ticket clerk, City Ticket Office, St. John; June 14, 1907, to Dec. 5, 1908, ticket clerk, s.s. Empress of Ireland; Dec. 5, 1908, to May 24, 1909, exchange ticket agent, Halifax, N.S.; May 5 to Nov. 19, 1909, exchange ticket clerk, Quebec; Nov. 19, 1909, to May 4, 1910, exchange ticket clerk, Halifax, N.S.; May 5 to July 15, 1910, exchange agent, Quebec; July 15, 1910, to Nov., 1912, Travelling Passenger Agent, St. John; he resigned that position to enter private business for a short time, resuming his duties in the early part of 1913, and held the same position until his present appointment.

WILLIAM T. KUHN, whose appointment as Superintendent of Motive Power, Toronto, Hamilton and Buffalo Ry., Hamilton, Ont.,

was announced in our last issue, was born at East Radford, Va., in 1872. He was educated at the Radford public schools, and took a complete mechanical course with the International Correspondence Schools, Scranton, Pa. He entered railway service in 1888 as apprentice machinist, Norfolk and Western Ry., and until 1890 served as machinist, roundhouse foreman and assistant air brake instructor. In 1900 he was appointed roundhouse foreman, Lake Shore and Michigan Southern Ry., and was subsequently appointed Mechanical Inspector. In Mar., 1911, he was appointed Assistant Master Mechanic, Lake Erie and Western Rd., and in Oct., 1911, was appointed Master Mechanic, Toronto, Hamilton and Buffalo Ry.

HON. H. R. EMMERSON, M.P., who died at Dorchester, N.B., July 8, was born at Mauderville, N.S., Sept. 25, 1853, and became an attorney of the Supreme Court of New Brunswick in 1877. He entered the New Brunswick Legislature in 1888, was defeated in 1890, and became a member of the Legislative Council in 1891, and then advocated the abolition of that body, which



H. Foster Chaffee,
Passenger Traffic Manager, Canada Steamship
Lines, Ltd.

took effect in 1892. Prior to the abolition of the Legislative Council, he was appointed President of the Executive Council, and was Commissioner of Public Works in 1892, and from 1897 to Sept. 1900, was Premier of New Brunswick. He entered the House of Commons in 1900, and was, from 1904 to 1907, Minister of Railways and Canals. Probate of the will was granted at Dorchester, July 14, the estate being valued at about \$100,000, and left to his family, with the exception of \$5,000 to J. Frill, his solicitor and friend.

H. FOSTER CHAFFEE, Passenger Traffic Manager, Canada Steamship Lines, Ltd., Montreal, has resigned, effective Oct. 1, owing to the condition of his health necessitating a complete change of climate. Jas. Caruthers, President, in making the announcement recently, expressed regret at the retirement. Mr. Chaffee was born at Knowlton, Que., Dec. 18, 1868, and entered transportation service in 1883, since when he has been, to 1884, ticket clerk, South Eastern Ry., Montreal; 1884 to 1885, ticket clerk,

C.P.R., Montreal; 1885 to 1895, City Passenger and Ticket Agent, Richelieu and Ontario Navigation Co., Montreal; 1895 to 1900, also in charge of the company's transfer books; 1900 to Feb., 1907, Western Passenger Agent, same company, Toronto; Feb., 1907, to June, 1912, Assistant General Passenger Agent, same company, Toronto; June, 1912, to Feb. 27, 1913, General Passenger Agent, same company, for lines west of Prescott, Ont.; Feb. 27, 1913, to the taking over of the various properties merged as Canada Steamship Lines Ltd., Passenger Traffic Manager, Richelieu and Ontario Navigation Co., Montreal.

Canadian Northern Railway Earnings, Etc.

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

	Gross Earnings	Expenses	Net Earnings	Increase
July	\$1,928,800	\$1,414,500	\$514,300	\$19,700
Aug.	1,824,800	1,416,200	408,600	37,500
Sept.	1,994,900	1,470,000	524,900	101,400
Oct.	2,687,100	1,683,000	1,004,100	298,800
Nov.	2,673,300	1,708,500	964,800	87,000
Dec.	2,256,000	1,682,000	624,000	43,000
Jan.	1,570,900	1,218,000	352,900	82,700
Feb.	1,324,600	1,086,000	238,600	x29,900
Mar.	1,533,400	1,173,000	360,400	x71,100
Apr.	1,610,000	1,195,800	414,200	x88,900
May	1,641,600	1,160,000	481,600	x98,600
June	1,655,300	1,192,000	463,300	x79,200
	\$22,700,700	\$17,349,000	\$6,351,700	\$302,700
Incr.	\$ 381,900
Decr.	\$ 279,100	\$ 581,800

x Decrease.
The mileage operated at the end of June was 4,670, against 4,297 at the same period 1913.

Canadian Pacific Railway, Earnings, Etc.

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

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	\$11,093,062.27	\$7,876,260.09	\$4,116,793.18	x\$331,333.72
Aug.	11,434,459.88	7,473,320.64	3,961,139.24	x756,786.42
Sept.	12,157,082.17	7,741,503.48	4,415,578.69	165,274.84
Oct.	14,480,216.73	8,877,358.94	5,602,857.79	541,970.60
Nov.	13,407,015.31	8,518,769.25	4,888,246.06	630,107.02
Dec.	11,814,325.67	7,557,503.96	4,226,821.71	x168,897.80
Jan.	7,916,216.25	6,916,042.19	1,000,174.06	x662,199.72
Feb.	7,594,172.73	6,122,596.27	1,471,576.46	x1,048,492.88
Mar.	9,447,461.24	6,348,222.37	3,099,238.87	x756,178.02
Apr.	9,720,461.58	6,375,596.56	3,344,865.02	x600,212.53
May	9,795,928.94	6,832,917.24	2,963,011.70	x541,018.16

\$119,760,402.77 \$80,670,099.99 \$39,090,302.78 x\$3,527,816.79
Decr. \$7,960,866.79 \$ 4,433,050.09 \$ 3,527,816.79

x Decrease.
Approximate earnings for June, \$9,561,000, against \$11,187,000 for June, 1913. At the end of June the mileage under operation was increased to 12,039.

Grand Trunk Railway Earnings, Etc.

The following figures show the earnings of the G.T.R., C.A.R., G.T.W.R., and D.G.H. & M.R., from Jan. 1 to June 30, compared with those for the same period 1913:—

	1914	1913	Increase	Decrease
G.T.R.	\$19,189,816	\$21,218,907		\$2,029,091
C.A.R.	1,159,713	1,151,877	\$ 7,836	
G.T.W.R.	3,453,634	3,642,809		189,175
D.G.H. & M.R.	1,177,703	1,143,189	\$34,514	
Totals	\$24,980,866	\$27,156,782		\$2,175,916

Grand Trunk Pacific Railway Earnings.

The approximate earnings for the Prairie Section and Lake Superior Branch, 1,104 miles, for June, was \$427,104, against \$504,063 for June, 1913. The aggregate earnings for six months ended June 30 were \$2,482,512, against \$2,659,678 for the same period 1913.

F. M. SPAIDAL, General Superintendent, Quebec Grand Division, Canadian Northern Ry., writes:—"I would like to say that Canadian Railway and Marine World is very much appreciated in this province and that each copy is looked forward to with a great deal of interest."

Railway Development.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta and Great Waterways Ry.—Tracklaying is reported to be in progress on this line, which starts from the Edmonton, Dunvegan and British Columbia Ry., near Sturgeon River, and as the grading is light and is being rapidly pushed forward, it is expected to have the steel laid to Lac la Biche by the end of the year. J. D. McArthur is President and general contractor. (July, pg. 323.)

Burrard Inlet Tunnel and Bridge Co.—After several meetings to consider the alternative plans and tenders for the building of a bridge across the Second Narrows of Burrard Inlet, at Vancouver, B.C., the directors decided, July 7, to refer the whole matter to the British Columbia Government. The Premier stated, July 9, that the Government merely desired to be consulted before a definite decision was arrived at, and that it had no intention of taking the responsibility for letting the contract. This information was given the directors the same day, and at a meeting held July 11, it was decided to invite R. Mojeski, Chicago, Ill., one of the engineers who reported on the Quebec Bridge, to examine the three plans and report on them.

The B. C. Legislature has granted a subsidy of \$400,000 in aid of construction. The plans and tenders under consideration were submitted by the Dominion Bridge Co., the Canadian Bridge Co., and by C. A. P. Turner in connection with the Western Foundation Co. and local steel manufacturers. The principal difficulty has arisen from the fact that the Vancouver Board of Trade and other interests have been bringing pressure to bear on the directors to give the contract to local firms. (July, pg. 323.)

Calgary and Fernie Ry.—The Board of Railway Commissioners has approved of location plans from mileage 40 out of Calgary, Alberta, to sec. 5, tp. 19, range 8, west of the 5th meridian, mileage 95. The Board has also approved of plans from lot 8493, Kananaskis Pass, southerly to lot 4135, 0.63 mile. The latter order reserves to the Board the right to have this piece of line operated by companies interested as a joint section. The line is projected to extend from Calgary through the Sarcee Indian reserve and the oil districts, along the valley of the south branch of the Sheep River, and through the Elbow and Kananaskis passes to Fernie, B.C. (July, pg. 323.)

Erie and Ontario Ry.—The Dominion Parliament, at its last session, incorporated a company with this title to build a railway from Port Maitland, on Lake Erie, Ont., to Smithville, on the T. H. & B. R., 21 miles from Hamilton, and also from Port Maitland to Port Colborne. The provisional directors were W. J. Aikens, of Dunnville; J. S. Hamilton, W. T. Henderson, Lloyd Harris and A. J. Wilkes, of Brantford. The authorized capital is \$500,000, and the head office at Hamilton. This company was incorporated in the interest of the Toronto, Hamilton and Buffalo Ry., and a board has been elected as follows:—J. N. Beckley, President, Rochester, N.Y.; who is President, T. H. & B. R.; W. J. Aikens, Dunnville, Vice President; E. D. Cahill, Hamilton, Secretary, who is solicitor, T. H. & B. R.; W. T. Henderson, Lloyd Harris, Brantford; J. W. Eber, General Manager, T. H. & B. R.; and H. F. Backus, General Traffic Manager, T. H. & B. R. W. E. Hackett, Local Treasurer, T. H. & B. R., Detroit, Mich., has been appointed Treasurer, E. & O. R.

Surveys were made recently under the direction of R. L. Latham, Chief Engineer,

T. H. & B. R., from Smithville to Dunnville, 15 miles, and the survey is now being made from Dunnville to Port Maitland, 4 miles. The line will pass Elco and Port Davidson, crossing the Michigan Central Rd. and the G. T. R. air line near Attercliffe. The maximum gradient, we are officially advised, will be 0.4%, and the maximum curvature 5 degrees. There will be no bridges of any consequence except the crossing of the Twenty Mile Creek at Smithville, the Welland River, Oswego Creek, and the Dunnville feeder. None of these will be large structures, but the last mentioned will be a draw span.

The Minister of Railways has approved of the route map from Smithville to Port Maitland, and the Board of Railway Commissioners has approved of location plans from Smithville to the northerly limit of Dunnville.

(See Toronto, Hamilton and Buffalo Ry, June, pg. 267, and July, pg. 324; and Erie and Ontario Ry., April, pg. 165.)

Edmonton, Dunvegan and British Columbia Ry.—The permanent steel bridge across the Athabasca River, at Smith, Alta., is reported to be practically completed. The work in hand on the line for this year is light, involving the handling of only 15,000 cubic yards of material a mile. It is expected to have track laid to Big Turkey River by the end of the year. (July, pg. 323.)

Esquimalt and Nanaimo Ry.—It was expected to open the extension of the line from McBride Jct. to Courtenay, Vancouver Island, for traffic, July 30. (July, pg. 323.)

Gananoque and Arnprior Ry.—The rate-payers of Gananoque, Ont., have voted \$25,000 towards building this projected railway. (April, pg. 168.)

The Glengarry and Stormont Ry. is under construction from about a mile west of St. Polycarpe station, Que., on the C.P.R., Smiths Falls subdivision, to Cornwall, Ont., 28 miles. It will pass through St. Telephore, Bridgend, and Williamstown. The contract for the construction complete is held by Glengarry Construction Co., Montreal, which has sublet portions, as already noted. A. A. Mellor, A. Can. Soc. C. E., is Chief Engineer.

Local reports state that work is being rapidly pushed ahead all along the line, a large proportion of the scraper work being completed. The concrete work on the bridge foundations was started July 9. The two most important structures are the bridges across the Beaudette River and the southern branch of the same in Stormont County, but neither are large bridges. It is expected to have grading completed so as to commence tracklaying in September. The station, etc., at Williamstown, the only point at which there will be buildings of any size, are being erected.

Copy of a trust deed securing an issue of \$825,000 of 5% 30 year mortgage bonds has been filed with the Secretary of State at Ottawa. The deed is made between the company, the Royal Trust Co., and the C.P.R. The filing of this deed confirms the reports that the line is built in the C.P.R. interests. (July, pg. 323.)

Intercolonial Ry.—On a recent visit to Pictou, N.S., F. P. Gutelius, General Manager, is reported to have stated that soundings will soon be taken in connection with a project to build a bridge from Browns Point to Sylvester, as a part of the work of reducing gradients and getting a better line between Pictou and Westville. The building of a new bridge with connecting lines,

it is claimed, would shorten the distance between Sydney, N.S., and Moncton, N.B., by 37 miles, besides enabling great improvements to be made in the harbor accommodation at Pictou. The matter will be fully discussed with the department at Ottawa as soon as the necessary information is obtained.

Negotiations for the elimination of level crossings in Moncton, N.B., have been resumed. A city council committee met Mr. Gutelius, July 13, and discussed several matters arising out of the proposals. It is said that practically all the points are agreed upon, and that another meeting, to be held in August, will probably close out the whole question.

Contracts for the erection of substructures for steel bridges at various points have been let as follows:—W. M. Leacy, Prescott, Ont.—District 1—Kamouraska bridge, \$2,938; St. Jean Port Joli bridge, \$4,326; crossing over N. T. R., \$9,548; Black River bridge, \$4,424. R. S. & J. H. Henderson, North Bay, Ont.—District 1—River Bras, St. Nicholas, \$24,252; River du Sud bridge, \$37,905. W. R. Fawcett, Temperance Vale, N.B.—District 2—Kouchibouguacis River, \$7,182; Barnaby River, 2nd crossing bridge, \$2,425; bridge ½ mile west Sayabec, \$2,773; Black River bridge, \$1,699. R. B. Stewart, Derby Junction, N.B.—District 4—French River bridge, \$6,448; District 2—Barnaby River, 3rd crossing bridge, \$11,288. McDonald & McIntosh, Antigonish, N.S.—District 4—Barney's River, east crossing bridge, \$2,397; Barney's River, west crossing bridge, \$2,959. (July, pg. 323.)

Kettle Valley Lines.—In a recent statement, J. J. Warren, President, is reported to have said that all the contracts for the uncompleted portions of this line between Midway and the Fraser River, B.C., have been let and the work is progressing at a good rate. Track has been laid on the 134 miles between Midway and Penticton, with the exception of about 12 miles, on which some bridge work is yet uncompleted. About 40 miles have been graded between Penticton and Osprey Lake and are ready for the steel; and grading is in progress on the 32 miles between Osprey Lake and Princeton. The line connects at Princeton with the Vancouver, Victoria and Eastern Ry., and will run over it to Otter Summit, from which point the K.V.R. has been completed to the Coquihalla Valley section, which is under construction by the K. V. R., to the Fraser River, at Hope. Over this Coquihalla section to V., V. and E. Ry. will have running rights. A branch extends from Otter Summit to Merritt, where connection is made with the C.P.R. Nicola Valley branch running from Spences Bridge. This branch is expected to be opened for traffic by Oct. 1. At Hope a bridge is under construction across the Fraser River, to give connection with the C.P.R., so that when the entire line is in operation it will be possible for the C.P.R., which has a lease of the K. V. Lines, to give a through connection from its Crownsnest Pass line with Vancouver, and to provide a new connection between the Pacific coast and various U.S. points. (July, pg. 323.)

Lake Erie and Northern Ry.—A special meeting of shareholders will be held at Montreal, Aug. 4, to pass resolutions leasing the line to the C.P.R.; cancelling a mortgage securing \$500,000 of second mortgage bonds; authorize an issue of bonds in aid of construction, and enter into a necessary mortgage to secure any new issue of bonds authorized.

Construction is progressing. The section between Brantford and Galt is almost ready for operation. Considerable work is being done in Brantford, the principal portion of which is in the vicinity of the Lorne bridge.

where considerable alterations are required to give the line a right of way. There is a good deal of work yet to be done between Brantford and Waterford, owing to the fact that construction was held up on account of negotiations, which proved fruitless, being on for the use of the section of the Toronto, Hamilton and Buffalo Ry. between these points. The work on this section has been resumed, and rapid progress is being made with the grading and bridge work. The section between Waterford and Port Dover is nearly ready for tracklaying, but it is not expected that this will be started until the Brantford-Waterford section is completed.

U.S. press reports state that it is proposed to run a car ferry service to Port Dover in connection with the line, from Erie, Pa., and that negotiations are in progress with the Pennsylvania Rd. for water front and dock space. (July, pg. 323.)

New Brunswick Coal and Ry. Co.—Plans have been deposited with the Minister of Public Works showing temporary repairs and reinforcement to existing substructure at bridge 20.6, over the Washademoak River, N.B. A. Sherwood, Fredericton, N.B., is in local charge of this line, which is being operated by the C.P.R.

Pacific Great Eastern Ry.—J. W. Stewart, President, is reported to have stated recently that the line from North Vancouver to Fort George, B.C., is entirely under contract, and that such progress is being made with the grading that it is expected to have the grading completed from Squamish to Fort George and ready for tracklaying this year. It is further expected to have track laid from Squamish to Lillooet, 120 miles, this year.

The ocean terminals are to be laid out at Squamish, and the plans for the extensive works to be undertaken there are being prepared by J. Cumming. They include the changing of the courses of the various channels of the river, the filling up of a large area of low lying land, and the clearing of the Indian reserve.

A train service has been put in operation from North Vancouver to Horse Shoe Bay, 13 miles, and construction is in progress between that point and Squamish, 20 miles. It is not expected to complete this section until the end of 1915, the construction being heavy.

We are officially advised that the following sub contracts have been let on the line southerly from Fort George:—Fort George to mileage 29.5, H. E. Carleton & Co., Prince George; mileage 29.5 to Cottonwood Crossing, mileage 62, A. E. Griffin & Co., Prince George; mileage 62 to 10 miles south of Quesnel, 35 miles, Burns, Jordan & Co., Quesnel; 10 miles south of Quesnel to mile 15 south of Quesnel, 4.00 miles, H. McLeod, Quesnel; mileage 15 south of Quesnel to Four Mile Creek, 12.5 miles, Kullander & Smith, Quesnel; Four Mile Creek to mileage 40 south of Quesnel, 13.5 miles, Shoreby & Co., Soda Creek; mileage 40 south of Quesnel to Soda Creek, 8 miles, N. McLeod, Soda Creek; Soda Creek to Williams Lake, 17 miles, Stewart Bros., Soda Creek. We have already published the facts that subcontracts had been let to these firms, but the present information gives the names and addresses of all the subcontracts let south of Fort George, together with the mileages upon which each is working.

The Minister of Railways for British Columbia has approved of general location for this line now under construction from Ten Mile Lake to Soda Creek, Cariboo district, on the Vancouver-Fort George line; and from Azzuzetta Lake, Pine Pass, to the boundary between British Columbia and Alberta, on the line from Fort George,

which is to connect with the Edmonton, Dunvegan and British Columbia Ry. at the provincial boundary line. (July, pg. 324.)

Pacific, Peace River and Athabasca Ry.—J. Anderson, with a party of engineers, has completed a survey of the route from Stewart to the Groundhog River mining district for the British Columbia Government, with a view of constructing a Government road. The present route to the river is via Hazelton, and reaches an elevation of 5,200 ft. The surveys show that a route 40 miles shorter, and reaching an elevation of only 3,200 ft., can be obtained from Stewart. A survey for a railway through this district is being made by the P., P. R. and A. Ry. (July, pg. 324.)

Prince Albert, Sask.—Press reports state that the Prince Albert Board of Trade has received a prospectus of the Great North Western Ry., which proposes to build a railway from that city to Athabasca Landing, Alta., and another easterly, either to connect with the Dominion Government railway to Hudson Bay, or direct to the Bay itself. The report suggests that the Board should, if it takes any action at all, advocate the building of a line from Prince Albert to a junction with the Dominion Government railway at Pas, Man.

Quebec Central Ry.—Press reports state that about five miles of grading have been completed on the extension of the line from St. Sabine to English Lake (also called Lac la Frontier), 26 miles, and that a second five miles will be completed this year. P. J. Wolfe, Sherbrooke, Que., is the contractor for the grading. J. T. Morkill, Chief Engineer. It is expected that the contract for the remaining 16 miles will be let in 1915.

A contract has been entered into with the Dominion Government, under the act granting aid for the construction of certain railways for the building of a line from St. Sabine parish, mileage 31.34 from St. George, to mileage 50, in the Devoire Tp., L'Islet County.

St. Francis Valley Ry.—This projected line will have a total length of 140 miles if built. It will extend from Sorel, via Drummondville, Melbourne and Magog, to the International Boundary near Stanstead, with a branch from Cherry Valley to Granby, Que. The only work yet done is the survey of a proposed route from Drummondville to Melbourne, 30 miles. The officers and directors are:—President, A. P. Frigon; Vice President, C. B. Hibbard; Treasurer, G. Gauthier; other directors: A. St. Cyr, Hon. F. L. Beique. (May, pg. 215.)

St. John and Quebec Ry.—Press reports state that track has been laid on 110 miles of line, and that a train service will be put in operation over a considerable mileage at once. This mileage is between Gagetown and Centreton, N.B. Other portions of the line are under construction, and a contract is reported let for the remaining mileage. The Dominion Government will build the three big bridges necessary to finally complete the line. The exact location of some small portions of the line will not be fixed until the sites for these bridges have been definitely agreed upon. (July, pg. 324.)

Skye Mountain Ry.—The Nova Scotia Legislature has incorporated a company with this title to build a railway in the Skye Mountain district of Inverness County. It is projected in connection with the opening up of some collieries in the vicinity of Orangedale.

Western Dominion Ry.—Press reports state that construction will be started early in August on this projected railway from Calgary, via the Old Man River valley, Pincher Creek and Cardston, to the International Boundary, in range 23 west of the 4th

meridian, Alberta. The approximate quantities involved in the construction are:—Earth excavation, 3,636,069 cu. yds.; rock excavation, 106,501 cu. yds.; embankment, 3,568,980 cu. yds.; trestles, 5,490 lin. ft.; masonry, 19,830 cu. yds.; steel bridges, 5,530 lin. ft. J. N. H. Cornell, 29 Broadway, New York, N.Y., is Chief Engineer. (July, pg. 324.)

Winnipeg, Man.—At a recent meeting of the commissioners for the Greater Winnipeg water supply, it was reported that satisfactory progress was being made by the Northern Construction Co. with the building of the railway from St. Boniface to Shoal Lake, Man. The commissioners authorized the N. C. Co. to drain the wet area in the vicinity of the Brokenhead River, and to construct ditches in certain other areas, as extras to the general contract. Construction has been practically completed as far as range 7.

The Board of Railway Commissioners has authorized the physical connection of the line with the Canadian Northern Ry. at three points, and the making of a temporary connection at another point. (July, pg. 324.)

Toronto Terminal Railway and Union Station.

The contract for the erection of the station building has been let to the P. Lyall and Son Construction Co. at a cost of about \$4,000,000. A full description and plans of the building were given in our June issue, pg. 262. The plans were prepared by Ross and Macdonald and H. G. Jones, Montreal, with M. Lyle, Toronto as associate architect. H. R. Safford, Chief Engineer of the G.T.R., and J. M. R. Fairbairn, Assistant Chief Engineer of the C.P.R., are consulting engineers for the T.T. Ry., and J. R. W. Ambrose is Chief Engineer.

Indications are that active work on the viaduct across the Toronto waterfront will soon be under way, as tenders have been invited for a temporary trestle for general construction work and filling on part of this work. The trestle will be of the 4 pile construction, single track, about 20 ft. above the existing grade, and will extend from Eastern Ave., on the east, to Church St., on the west, about 8,000 ft. There will be only one approach, at the Eastern Ave. end.

The Board of Railway Commissioners has approved of the location of the line of the T.T. Ry. from York St. to the Don River, mileage 1.50 to 3.26, and has authorized the expropriation of certain lands necessary for its purposes.

G.T. Pacific Ry. Hotel at Edmonton.—The latest of the hotels to be placed in operation by the company is the Macdonald Hotel at Edmonton, Alberta. It is located on McDougall St., near the crossing of Jasper Ave., and opposite the Edmonton Club, and there is a fine outlook over the Saskatchewan River valley. Louis Low, who was for some time at the Chateau Laurier Ottawa, and latterly Assistant Manager, Fort Garry Hotel, Winnipeg, has been appointed Manager.

The Canadian Ticket Agents' Association will hold its annual meeting in Chicago, Oct. 6 to 8. Many of the members are much disappointed at not being able to accept the invitation of a number of western U.S. lines to meet in San Francisco in October, owing to unexpected opposition which they encountered from the passenger management of their employing lines. It is stated that the C.P.R. passenger management subsequently withdrew its opposition.

Railway Finance, Meetings, Etc.

Algoma Central Terminal Co.—In connection with the recent failure of the Canadian Agency, Ltd., of London, Eng., which had been dealing with this company's bonds, and with the view of protecting the interests of the scrip holders, a committee has been formed in London, as follows.—Beckwith Smith, F. L. Govett, T. F. Lardelli and E. G. Ridpath.

The committee of scrip holders report that possession has been obtained of the majority of the total bond issue of \$527,300, which have been lodged with the Bank of Montreal in London, Eng., for safe keeping, and hopes shortly to be in a position to make a statement regarding the balance.

Algoma Central Terminals, Ltd.—A London, Eng., cablegram, July 23, says:—"The committee of scrip holders of the Algoma Central Terminals, Ltd., have issued a circular announcing an agreement with the company regarding the bonds which were undelivered owing to the Canadian Agency failure. The scrip holders will, on the payment of 10% of the face value of the scrip, receive bonds for the full £100 duly stamped. The bonds were issued at 96, and thus 106 will be the real price. The other part of the loss of £127,300 remaining unpaid falls on the company, but the latter assigns all its legal rights against the Canadian Agency to the trustee for the scrip holders."

Canada Atlantic Ry.—A meeting of the shareholders was held at Ottawa, July 21, for the purpose of passing a resolution assenting to the provisions of the act passed last session of the Dominion Parliament authorizing the amalgamation of the C. A. Ry. with the G. T. R. The G. T. R. shareholders have already passed a resolution authorizing the amalgamation. With the passing of this resolution the C. A. R. as a separate company ceases to exist, and becomes finally merged in the G. T. R.

Canadian Northern Ry.—A cablegram from London, Eng., July 20, said:—"The underwriting is proceeding of an issue of \$15,000,000 4% stock of the Canadian Northern Ry. The principal and interest are guaranteed by the Dominion Government. The stock is redeemable in 1944, and the price is 94."

The issue referred to is £3,000,000 sterling of 4% debenture stock, to be issued under the authority of legislation passed at the Dominion Parliament's last session. It will be redeemable in 1934, not 1944.

A London cablegram of July 22 says Lazard Bros. are offering an issue of £3,000,000 at 94, it being said that it is part of a total authorized issue of £9,246,576. The stock is unconditionally guaranteed, as to principal and interest, by the Dominion Government.

Canadian Northern Ry.—The interest warrants on the 3½% first mortgage debenture stock of the C. N. R., C. N. Alberta Ry., and C. N. Ontario Ry., were paid July 20.

Grand Trunk Pacific Ry.—A meeting of shareholders was held in Montreal, July 21, for the purpose of approving of a mortgage deed securing the new issue of bonds to be made by the company under the guarantee authorized by the Dominion Parliament. The amount of the guaranteed bond issue authorized is \$16,000,000. The proceeds of this issue will be used to retire the \$10,000,000 of one year notes recently issued by the G. T. R., to secure funds for the completion of the G. T. P. R., and for the provision of rolling stock, etc., for the line. The following officers were elected directors to fill vacancies:—J. E. Dalrymple, Vice President, G. T. R. and G. T. P. R.; F.

Scott, Treasurer, G. T. R. and G. T. P. R.; W. H. Ardley, General Auditor, G. T. R. and G. T. P. R.; H. R. Safford, Chief Engineer, G. T. R.

Grand Trunk Ry.—Recent press reports in the United States state that the G. T. R. is negotiating with the Chicago Great Western Ry. either to take it over entirely, or to operate it under lease. It was subsequently stated in Montreal that there is no foundation for the reports as to the purchase.

An issue of \$10,000,000 of one year bills is said to have been placed on the London, Eng., market, on the basis of 4¼%. The money is required for the completion of the main line and branches of the G. T. Pacific Ry., at present under construction.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—At the annual meeting of the shareholders in Minneapolis, Minn., Sept. 15, a proposal will be submitted to increase the capital stock from \$42,000,000 to \$63,000,000, retaining the same ratio of preferred and common stock as now exists.

North Shore Ry.—The Beersville Coal and Ry. Co. was incorporated by the New Brunswick Legislature in 1904, and a railway was subsequently built connecting the collieries at Beersville with the Intercolonial Ry. at Adamsville, N. B. The line was sold under a writ of fi. fa in 1907, and the purchasers were incorporated under the New Brunswick Companies Act as the North Shore Ry. The original owner, the Imperial Coal Co., has ceased to exist, and a new company has been formed to take over and operate the coal properties at Beersville, with the title of the Thompson Coal and Brick Co. The railway has not been operated for some time, and in order to provide railway accommodation for the district, the Legislature passed an act authorizing the Government to appoint some one to take charge of the railway and operate it for the public benefit. The act provides that after payment of operating expenses any surplus shall belong to the N. S. Ry. Co., but that if there is a deficit it shall become a first charge on the railway and rolling stock. The Thompson Coal and Brick Co. undertakes to efficiently and continuously operate its colliery, to provide traffic, under pain of forfeiture of its leases. The holders of any securities issued by the railway company, valid at the time of passing this act, shall be entitled to full benefit of the same, subject to the lien created by the present act.

Pacific Great Eastern Ry.—The Yorkshire Guarantee and Securities Corporation is offering, in England, \$300,000 6% debentures of the Howe Sound and Northern Development Co., Ltd., secured by the assignment of moneys, to the Guarantee Co., which acts as trustee for the debenture holders, due under an agreement of sale between the Howe Sound and Northern Development Co. and the Pacific Great Eastern Ry.

Pere Marquette Rd.—The U. S. Court at Detroit, Mich., has authorized the receivers to issue \$2,000,000 receiver's certificates, with prior lien to divisional mortgages, and \$2,000,000 prior to system mortgages but junior to divisional mortgages. The court stated that certificates used to pay taxes would rank ahead of all other obligations and therefore be marketable at once. The amount needed for taxes, including interest and penalties, is \$1,718,000 while other claims to be cared for total another \$2,000,000. The divisional bondholders have entered an appeal, objecting to the unpaid taxes being placed ahead of their claims. The court indicated its determination to sell the system with the least possible de-

lay, probably in October, when the work of appraisal will be complete.

Temiscouata Ry.—Net earnings for April, \$13,871; aggregate from July 1 to Apr. 30, \$50,555.

White Pass and Yukon Route.—Gross earnings from Jan. 1 to June 21, \$326,094, against \$309,899 for the same period, 1913.

White Pass and Yukon Route.—Interest on the 5% consolidated first mortgage debenture stock, was paid on July 1, and also interest coupon 27, on the 6% debentures.

Grand Trunk Railway Betterments, Construction, Etc.

Montreal Track Elevation.—The city railway engineer, G. R. McLeod, is preparing a special report on the elevation of the G.T.R. tracks between Bonaventure station and St. Henri, Montreal, for consideration at a conference between the city engineer, the G.T.R. engineer, and the Chief Engineer of the Board of Railway Commissioners, Aug. 29.

St. Lambert Yards.—The work on the extension of the yards at St. Lambert, near Montreal, which has been in progress for about three years, is reported completed. The yard is auxiliary to that at Point St. Charles, but is, at the same time, self contained and distinct. There are included in the general scheme a new locomotive house with 18 stalls; storage tracks which proceed as far as St. Hubert, a distance of six miles, east and west receiving and distributing tracks, electric interlocking devices, operative over the whole yard, block signals, semaphores—a most complex network of trackage and dovetailing lines criss-crossing over a wide area; and a railway Y.M.C.A. The trackage can be extended beyond St. Hubert should the demand arise for increased accommodation. The total cost of the work is said to have been \$1,000,000.

Tweed Yard.—The extension work at the Tweed yards, near Montreal, is being proceeded with, but considerable work will have to be done before it is completed.

The laying out of this yard and that at St. Lambert were necessary in order to relieve the congestion at the Point St. Charles yard, and formed a portion of the whole scheme of terminal improvements at Montreal, part of which, including the track elevation and the erection of a new station at Bonaventure, is still under consideration.

Detroit, Mich.—Press reports state that the G.T.R. is considering plans for the erection of a new station in Detroit, Mich., to replace the present Brush St. station. (June, pg. 253.)

A Canadian Northern Ontario Ry. Arbitration.—The Imperial Privy Council has given its decision in the appeal of the old James Bay Ry., now C. N. Ontario Ry., against the arbitration awards in respect of the value of the land of R. Davies, of the Don Valley brickyards, Toronto, taken for railway purposes. The proceedings were started in 1905, the company first offering \$3,000 and finally \$15,000 for the land. Mr. Davies claimed that the shale should be paid for at the value to him for his brick yards. The arbitrators put the value at \$230,820, but the Court of Appeal reduced this to \$110,000 on the ground that the railway ought not to be made to pay for the shale until the brickyard was ready to develop it. When first argued in the Privy Council the court disagreed, but on the present occasion they decided that the railway company should pay the larger sum with 5% interest.

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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:—

Freight Rates West of Port Arthur.

General Order, 125. May 30. Re com-
plaint of Vancouver Board of Trade, alleg-
ing discrimination in freight rates by rail-
way companies operating in British Colum-
bia; and the consideration of the matter
of rates for the carriage of freight traffic
upon railway lines in Canada west of Port
Arthur, Ont. Upon the hearing of the mat-
ter at various sittings of the board, held in
the presence of counsel for, and representa-
tives of, the railway companies affected, the
Dominion Government, the Governments of
Saskatchewan, Alberta and British Colum-
bia, the City of Winnipeg and the Winnipeg
Board of Trade, the City of St. Boniface
and the St. Boniface Board of Trade, the
United Farmers of Alberta, the Canadian
Manufacturers' Association, and the Boards
of Trade of Montreal, Toronto, Portage la
Prairie, Brandon, Regina, Moose Jaw, Sas-
katoon, Prince Albert, North Battleford, Ed-
monton, Medicine Hat, Calgary, Lethbridge,
Nelson, Vancouver and Victoria, the evi-
dence adduced, and what was alleged, judg-
ment, dated April 6, 1914, was delivered by
the Chief Commissioner, and concurred in
by the other members of the Board, a certi-
fied copy of the said judgment being at-
tached hereto marked "A." It is ordered
that the terms of the judgment, which is
hereby made part of this order, and the
tariff changes therein directed to be made,
be complied with and become effective not
later than Sept. 1, 1914. And it is further
ordered that, for two years from the date of
this order, no rates at present in effect west
of Port Arthur, Ont., be increased without
the approval of the Board.

Lumber Rates to Montreal For Export.

21869. May 19. Re application of R. Cox
& Co., complaining that the rate charged
by the C.P.R. on lumber from Routher, Que.,
to Montreal, for export, was excessive
and discriminatory; and order 14964, Sept.
19, 1911. Upon the hearing of the complaint
against the proposed increased rates on
lumber to Montreal, for export, in Ottawa,
April 21, in the presence of counsel for the
C.P.R. and the representative of the Mont-
real Lumbermen's Association, and what
was alleged. It is ordered that order 14964
be rescinded.

Paper Rates From Sault Ste. Marie.

21870. May 26. Re application of Lake
Superior Paper Co. of Sault Ste. Marie, Ont.,
for an order suspending Duluth, South Shore
and Atlantic Ry.'s Joint Commodity Tariff
C.R.C. no. 331, filed to become effective June
1, 1914, applying on newsprint paper, in car-
loads, from Sault Ste. Marie, Ont., to points
in the United States, the said tariff omit-
ting the Algoma Central and Hudson Bay
Ry. as party thereto. It is ordered that
the said tariff be suspended, pending a hear-
ing to be held at Ottawa on June 16, 1914,
when the Duluth, South Shore and Atlan-
tic Ry. and the C.P.R. will be required to
show cause why the said tariff should not
be disallowed.

Fruit Rates From Prince Edward County.

21877. May 26. Re complaint of Board
of Trade of Picton, Ont., that the joint rates
charged by the Canadian Northern Express
Co. on fruit from Prince Edward County
points, are excessive, compared with the
rates on similar traffic from the Niagara
district to points to which distance favors
the complainant; also alleging defective
transfer services for fruit and delays there-
to at Trenton Jct. It is ordered that the
Canadian Northern Express Co. be directed
forthwith to file joint tariffs showing ex-

press rates on fruit and vegetables from the
company's shipping points in Prince Edward
County to points beyond or via Smiths
Falls, reached jointly by the said company
and the Canadian Express Co. or Dominion
Express Co., that shall not exceed the rates
on the said commodities published by the
Canadian Express Co. and the Dominion Ex-
press Co. from the Niagara district to the
same points.

Commutation Tickets Denied Lachute.

21889. May 27. Re complaint of Mrs.
K. S. Massiah, of Lachute, Que., alleging dis-
crimination by the C.P.R. against Lachute
in issuing commutation tickets to St.
Agathe, Vaudreuil, Hudson and other points.
Upon hearing the complaint at Ottawa, April
21, 1914, in the presence of counsel for the
C.P.R. and a representative of the Board of
Trade of Lachute, the complainant appear-
ing in person, and what was alleged. It is
ordered that the complaint be dismissed.

Coke Rates in Toronto.

21956. June 8. Re complaint of Con-
sumers' Gas Company of Toronto against
rates charged by railways on shipments of
coke within the Toronto group of termi-
nals. It is ordered that the joint rate on
coke, in carloads of a minimum weight of
40,000 lbs. a car, from the complainant's
siding, on the Esplanade in Toronto, to the
C.P.R. sidings at North Toronto, be reduced
from 95 cents to 60 cents a ton of 2,000 lbs.,
to be made effective not later than June 22,
1914.

Rates on Heating and Ventilating Appa-
ratus.

21969. June 11. Re applications of Shel-
dons, Limited, of Galt, Ont., and the Sirocco
Co., Windsor, Ont., for an order reducing
the carload rating of heating and ventilat-
ing apparatus in Canadian Freight Classi-
fication from 5th to 6th class: It is ordered
that the applications be dismissed. That
item 38, page 65, of Canadian Freight Classi-
fication 16 be amended by adding "air spray-
ers or washers," and "engines or motors,"
and by making the words "heater casings"
read "heater or washer casings," and that
to item 42, page 109, be added the words
"for ventilating or induced draught pur-
poses." That the amendments herein pro-
vided for be included in Supplement 4 to
Canadian Freight Classification 16.

Cordwood Rates to Winnipeg.

22088. May 26. Re complaint of J.
Thomas, of Winnipeg, of alleged excessive
charges on cordwood from Richan, Ont., to
Winnipeg, and the application for a rebate
of at least \$7 a car on 435 cars of cord-
wood. Upon hearing the complaint at Win-
nipeg in the presence of the complainant and
counsel for the Grand Trunk Pacific Ry.,
and upon the report of the Chief Traffic
Officer of the Board, it is ordered that the
complaint be dismissed.

Sand and Gravel Rates.

22103, July 2. Re application of Mani-
toba Sand and Gravel Co., Winnipeg, for an
order directing the Grand Trunk Pacific Ry.
to amend its Special Freight Tariff C.R.C.
279, dated Nov. 21, 1912, as to item 10 on
page 5, so as to provide an equitable rate
on sand and gravel from Vivian station,
Man., to Winnipeg. Upon hearing the applica-
tion at Winnipeg, June 26, in the presence
of counsel for the G.T.P.R., the applicant
being also represented, it is ordered that
the application be dismissed.

The Manitoba Government is reported to
have renewed the lease of its elevators to
the Grain Growers' Grain Co. The contract
under which the company operates the
Government elevators expires Aug. 31.

Canadian Northern Railway Construction, Betterments, Etc.

The new trust deed, provided for by the act passed last session of the Dominion Parliament, securing the \$45,000,000 of securities to be guaranteed by the Dominion, was signed at Ottawa, July 15. The Department of Finance issued a statement, July 16, setting forth that all the requirements called for by the act had been complied with, the various agreements made, and the several stocks transferred, in accordance with the various provisions of the act. The trustees are the National Trust Co., Toronto, and the British Empire Trust Co., London, Eng. The amount of securities to be issued at any one time is subject to the approval of the Minister of Finance.

Canadian Northern Quebec Ry.—Press reports state that the company is negotiating for the purchase of several properties in the Jacques Cartier and Maisonneuve districts of Montreal, in order to extend and improve its lines and yard accommodation.

Mount Royal Tunnel and Terminal Co.—The lease of the company's property has been filed with the Secretary of State at Ottawa, as required by subsection 3, section 1, chap. 78, or the statutes of 1914.

The work on the tunnel is progressing rapidly and it is expected that it will be possible to have trains running through it by May, 1915. The plans for the lines in Montreal call for a viaduct 1,600 yards long from the tunnel portal to the waterfront, where there will be a yard for light and perishable freight, with tracks connecting with the Harbor Commissioners' lines. A temporary station on Lagachetiere St. will, it is said, be built at once. When the big station on Dorchester is built, this temporary station will be utilized for express and other offices. The main yards will be located on the Back River, where the electric transfer yard will also be situated. There will also be a delivery yard at Mount Royal, and an elevated yard in the commercial part of Montreal.

Canadian Northern Ontario Ry.—The Board of Railway Commissioners has authorized the C.N.O.R. to make a connection with the G.T.R. at Ottawa. The line between Ottawa and Toronto has been opened for traffic, and also the portion of the Montreal-Ottawa-Port Arthur line from the junction with the line from Toronto, this latter being operated as a through line from Toronto to Edmonton.

The Board of Railway Commissioners has approved location plans of the proposed entrance into Toronto, mileage 251.84 to 253.73, Queen St. East.

A press report states that work has been started in Hamilton, removing the 300 houses from the right of way in that city acquired for building the line from Toronto to Niagara. Some of the houses have been sold for removal, while others will be demolished. Press reports state that other arrangements are being made with a view of an early start on construction on the line. Another press dispatch from Hamilton to the Toronto Globe, July, 23, says that the city has been notified that the C.N.R. has ordered Ewan Mackenzie to at once start work on the Toronto-Niagara line, that Mr. Mackenzie has taken in considerable plant and that work will be started on either side of Hamilton. We are officially advised that there is no foundation whatever for these reports, and we have every reason to believe that no work will be done on the Toronto-Niagara line this year.

Canadian Northern Ry.—About 100 ft. of the C.N.R. steel dock at Port Arthur, Ont., collapsed July 4, doing damage estimated at \$23,000. The accident was caused by the heavy load of steel rails which had been

stored on the dock. The rails are being recovered from the water, and pending reconstruction of the dock they are being unloaded from steamships direct into cars.

An agreement has been entered into with Port Arthur, by which the city gets possession of no. 5 dock and the company obtains possession of a number of street ends at the water side. The company will build a spur line to no. 5 dock.

The 300 ft. timber bridge at Bare Creek, about 20 miles west of Port Arthur, was burned June 28. Pending reconstruction, trains are run to the bank of the creek and connection is made by a gasoline launch.

Work was reported to have been started on the Deloraine, Man., branch line, July 15.

It is reported that the branch from Canora to Sturgis, 22 miles, will be completed and put in operation this year.

An arrangement was reported to have been completed, July 14, with the C.P.R., by which the latter grants a right of way over a piece of land at Bienfait, Sask., which will enable the completion of the line into Estevan. The construction of the branch has been held up for two years.

A press report states that the company's programme includes the grading for the Hanna-Medicine Hat line, and a line from Al-sask, on the Saskatoon-Calgary line, through Empress, to a point on the Hanna-Medicine Hat line.

A press report states that an arrangement is under consideration by which the C.N.R. will secure running rights over the C.P.R. high level bridge between Strathcona and Edmonton in exchange for running rights by the C.P.R. over the C.N.R. Camrose-Edmonton line.

Canadian Northern Pacific Ry.—Steel rails are being delivered in large quantities at Port Mann and are being rushed forward. About 35,000 tons are said to be on the way, either overland to the Yellowhead Pass, or to Port Mann. Grading is practically completed right through, and the bridge building is being pushed ahead as fast as possible. As soon as sufficient quantities of rails have been got forward, tracklaying will be rushed from several points.

In connection with the Vancouver terminals, it is said that general consideration will be given to the whole matter during Sir Donald Mann's forthcoming visit to the West.

We are officially informed that there is nothing definite at present arranged in the way of establishing a car ferry service between the mainland and Vancouver Island. Press reports stated that this ferry connection would be made from Woodward's Landing, near Steveston, the island landing being at Patricia Bay.

Vancouver Island.—Steel rails for about 120 miles of line are being delivered, and as grading has been practically completed from Victoria to Patricia Bay and to Alberni, tracklaying can be pushed ahead.

The Minister of Railways for British Columbia has approved of the general location of a branch line from mileage 222.06 on the main line from Victoria to Duncan Bay, Sayword District, Vancouver Island, 8.2 miles. (July, pg. 322.)

Railway Mileage of the World.—A compilation of the world's railway mileage for 1912 shows a total of 670,997. The country with the largest mileage is the United States, which has 249,789 miles. Other countries having railway mileage of over 20,000, are as follows:—Russia, 49,419; Germany, 38,950; France, 34,200; India, 33,400; Austria-Hungary, 28,400; Canada, 26,700; Great Britain, 23,400; Argentina, 20,600.

Great Northern Railway Lines in Canada.

Midland Ry. of Manitoba.—An order has been made by the Manitoba Public Utilities Commission for the building of a spur track near Sherbrooke St., between Ross and Elgin Avenues, Winnipeg, at the company's cost. The building of this line was one of the conditions upon which the city agreed to permit the laying out of the company's terminals. Owing to its failure to do the work the city applied for an order to compel the company to carry out its agreement.

Vancouver, Victoria and Eastern Ry.—A. H. Hogeland, Chief Engineer, G.N. Ry., recently completed a visit of inspection over the sections of the line under construction. These include the sections to be jointly used with the Kettle Valley Lines, one of which is owned by this company, and the other by the K. V. L.

Arrangements are being made for the erection of the new station near the New Westminster end of the Fraser River bridge. A lease for the station site is being secured from the B. C. Government.

Vancouver Terminals.—The bridge at Broadway, Vancouver, has been opened for traffic. It is 288 ft. long and 70 ft. wide, and is fitted with car tracks, in anticipation of the extension across it of the British Columbia Electric Ry. lines. The erection of the bridge eliminates a level crossing.

Construction of the viaduct over the Grandview cut at Victoria Drive is also being proceeded with. These two bridges form part of the works undertaken by the company in rearranging and extending its lines in Vancouver, necessitated by the laying out of the new terminals at False Creek. J. M. Gruber, Vice President G. N. R., and other officers, paid a visit to Vancouver, July 10, and looked over the work in progress. He is reported to have said that the company's plans for the development of the reclaimed area, beyond that now in hand, had not been definitely decided. (June, pg. 269.)

Statement of Financial Position of Canadian Pacific Railway.

Sir Thos. G. Shaughnessy, President, issued the following statement, July 15:—“After the payment of all fixed charges and dividends, the company entered upon the new fiscal year, July 1, with \$36,000,000 in cash, and \$14,000,000 in equipment securities, after having spent upwards of \$30,000,000 on railway and steamship construction, for which 4% consolidated debenture stock had been authorized, but not offered on the market. The end has nearly been reached with all the important works of construction and improvements that were in progress, and only a comparatively small portion of the money in hand will be required for their completion. No new works of any magnitude are contemplated at present, and, therefore, no necessity exists for a further issue of capital stock. It is not unlikely, however, that the directors will, at the meeting in October, recommend to the shareholders that the authorized ordinary share capital be made to conform to the amount for which the company has legal warrant, so as to provide for the company's future capital requirements as and when they arise.”

C.P.R. and Austria.—A cable dispatch from Vienna, July 12, states that the Austrian Government has withdrawn the prohibition against the C.P.R. in regard to carrying on an emigration business in that country, and its agencies are now free to resume business.

Canadian Pacific Railway Construction, Betterments, Etc.

Atlantic Division.—We are officially advised that there is no foundation for the press report that plans have been prepared by the company for a new steel bridge across the river at St. John, N.B.

Application is being made to the Department of Public Works for permission to build a wharf in the St. Croix River at St. Stephen, N.B. Plans have been deposited with the Registrar of Deeds for Charlotte County, N.B.

Montreal Terminals.—The three large entrances to the general offices and station at Windsor St. have been completed and are being used. The first leads directly to the elevators, the second to the general waiting rooms, and the third to the concourse. A number of the offices in the older part of the building are being remodelled; the floors in the corridors are being relaid with mosaic, and a good deal of other work is being done to make it correspond with the new section.

The Westmount City Council has under consideration a proposal to grant the C.P.R. a strip of land 86 ft. wide at one end, and running out to nothing at the other, containing altogether 495 sq. ft., for railway extension in the vicinity of Prospect Ave. Some citizens are opposing this, and a delegation was notified, July 1, that no definite action would be taken without consulting them.

Campbellford, Lake Ontario and Western Ry.—This new line from Glen Tay to Agincourt, 183.42 miles, was opened for traffic, June 29. Trains are operated over it between Ottawa and Toronto, making connection at Smiths Falls with trains from and to Montreal, and at Parham Jct. with trains from and to Kingston, and local trains between Belleville and Toronto. The distance between Montreal and Toronto by the new line is 340.42 miles, or about two miles longer than by the original route.

Ontario Division.—A press report states that in connection with the completion of the Lake Erie and Northern Ry., it is expected that a union station will be built in Galt. The L. E. and N. R. is being leased to the C.P.R., and G. Bernhardt is reported to have said the C.P.R. was in treaty with him for the Iroquois Hotel site on Main St. for station purposes. Local people desire that the G.T.R. should co-operate with the C.P.R. in building a union station.

Manitoba Division.—The new yards at North Transcona, north east of Winnipeg, have been formally opened. A special official train was run from Winnipeg to Bergen, and thence over the cutoff to the new yards. Two of the new elevated tracks at Winnipeg station have been opened for traffic, and work is being proceeded with in elevating another pair of tracks. The new tracks are about 6 ft. higher than the old ones.

Saskatchewan Division.—The Board of Railway Commissioners has authorized the opening for traffic of the second track from mileage 1 to 12 on the Moose Jaw subdivision.

It is expected that the line now terminating at Expanse will be extended to Assiniboine, 16 miles, at an early date. Grading has been completed for some distance beyond Expanse.

Alberta Division.—Work has been started at Foremost, Alberta, by G. Webster's grading outfit on a 25 mile section of the line easterly, to connect with the section running westerly from Weyburn.

It is expected that the line connecting Kerrobert and Monitor will be completed at an early date. Tracklaying is nearly completed, and the telegraph line is under construction.

This is a stretch of 70 miles of line, and when completed will enable trains to be run through from Moose Jaw to Lacombe, Alta.

The buildings being erected at Empress by C. W. Sharp and Son, contractors, Winnipeg, are:—Passenger station, 26 by 100 ft.; 10 stall locomotive house, and coaling plant.

The Board of Railway Commissioners has authorized the opening for traffic of the branch from Gleichen to Shepard, Alberta, 40.64 miles.

British Columbia Division.—The Board of Railway Commissioners has authorized the opening for traffic of the Port Moody, B.C., branch, 3.24 miles.

The staffs of the various offices have moved to their new quarters in the new station building at Vancouver, and a start will be made, Aug. 1, in demolishing the old building. (July, pg. 319.)

Dominion Government Railway to Hudson Bay.

Steel is reported to have been laid to mileage 150 north east of Pas, Man. Work is in progress on the erection of the 480 ft. steel bridge across the Nelson River, at the Manitou Rapids. It is expected that this point will be made the junction at which other lines will join, as there are large areas of good agricultural land, stretching away for miles on both sides of the line. Grading is being pushed ahead in the direction of Port Nelson, and it is expected that a further stretch of 200 miles will be laid with steel by the end of this year. (July, pg. 320.)

W. A. Bowden, Chief Engineer, Railways Department, Ottawa, was announced to sail from Halifax, N.S., July 20, for Port Nelson, to inspect the H.B.R. terminal works.

Railway Rolling Stock Notes.

The Pacific Great Eastern Ry. has received one consolidation locomotive from Canadian Locomotive Co.

Canadian Explosives, Ltd., has ordered 2 all steel two way dump cars, 70 cu. ft. capacity, from Canadian Car and Foundry Co.

The Pacific Great Eastern Ry. has ordered 40 steel underframe flat cars, 40 tons capacity, from Canadian Car and Foundry Co.

The Canadian Northern Ry. has ordered 8 steel passenger cars, for the Mount Royal tunnel service at Montreal, from the Pressed Steel Car Co.

The Canadian Northern Ry., between June 14 and July 13, received 3 consolidation locomotives from Canadian Allis-Chalmers Ltd., and 20 colonist cars from Canadian Car and Foundry Co.

The Intercolonial Ry. has received 12 express refrigerator cars, 60,000 lbs. capacity, from its Moncton shops; 68 box cars, 80,000 lbs. capacity, from Nova Scotia Car Works, and 3 switching locomotives from Canadian Locomotive Co.

The C.P.R., between June 15 and July 15, received the following additions to rolling stock from its Angus shops:—120 steel frame box cars, 11 steel colonist cars, 128 stock cars, 1 class G2 locomotive, and 7 class G1 locomotives.

The Intercolonial Railway's four 75 ton pit cars, which have been ordered from the Eastern Car Co., as previously stated in Canadian Railway and Marine World, will be exactly the same as the C.P.R. pit cars which are very fully described and illustrated on page 353 of this issue.

The C.P.R., between June 15 and July 15, ordered rolling stock as follows:—2 freight refrigerator cars, 3 flat cars, 2 mail cars, 53 steel frame box cars, and 6 stock cars, from its Angus shops; and 20 steel ore cars, 50 tons capacity, from National Steel Car Co.

The Canadian Car and Foundry Co. shipped the following rolling stock during June:—To the G.T.R., 1 steel frame suburban car; to Intercolonial Ry., 100 steel frame box cars, 40 tons capacity; and to J. D. McArthur Co., 50 all wood flat cars, 30 tons capacity.

Canadian Northern Ry. Orders.

The C.N.R. has, as foreshadowed in our July issue, ordered passenger train cars for service on its Toronto-Ottawa line, which is already operating a day passenger service and freight service, and which will have a fast night service put on before the next parliamentary session, and also for its line from north of Sudbury to Port Arthur, which will have a through passenger service put on about Dec. 1. The orders, which are for 66 cars, have been given as follows:—Canadian Car and Foundry Co., 11 standard sleeping, 2 compartment sleeping, 7 compartment sleeping and observation, 7 dining, 7 tourist; Crossen Car Co., 7 colonist; National Steel Car Co., 5 first class, 15 baggage and express; Preston Car and Coach Co., 5 mail.

The cars will be 72½ ft. long, with 6 wheel trucks, steel underframes, steel ends and platforms, and electric lighting. The steel underframes will have self supporting side frames, cantilevered to transmit the entire half load to each bolster. The centre sills will be of the channel type, designed to resist 400,000 lbs. compression end load. The vestibules, entirely of steel, will be of C.N.R. standard design, with the end frame incorporating an anti-telescoping device of Z bar construction. The underframe finish will be the same as on the wooden equipment. The roof frame will be the same as on the wooden equipment, except for the mail cars, which will have pressed steel carlines in the roof. The flooring will be of cement, laid on steel sectional chanarch flooring, no. 22 B.w.g. The 6 wheel trucks will be of the all metal type, with cast steel centre plate support, and will be 80,000 lbs. capacity. The lighting will be provided through an axle generator, with a storage battery, and the heating will be by hot water circulation, except in the mail and baggage cars, which will have straight steam. The plans and specifications have been prepared under the direction of A. L. Graburn, Mechanical Engineer, C.N.R., and most of the draughting has been done in Montreal by the Canadian Car and Foundry Co.'s draughting force, the services of the principal portion of which were chartered by the C.N.R. for a limited period.

Montreal Contracting Co., Ltd., has been incorporated under the Dominion Companies Act, with \$10,000 capital and office at Montreal, to act as general contractors for the construction of highways, railways, tramways, stations, bridges, wharves, docks, etc. The incorporators are, J. A. Ewing, G. S. McFadden, J. W. Brown, A. Steele and E. L. Earl, Montreal.

The Winnipeg City Council recently authorized the payment to the Canadian Locomotive Co. of \$10,145.60 for a locomotive just delivered, and on the same day the locomotive broke through a wooden bridge across the Winnipeg River, causing the death of the driver, and at present it remains in the bed of the river.

The C.P.R. pays \$6,000,000 in wages on the 15th of each month, about 120,000 cheques being issued.

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.

Boston and Maine Rd.—JAMES H. HUSTIS, President, New York, New Haven and Hartford Rd., New Haven, Conn., has also been elected President, B. & M. Rd., vice M. McDonald, who resigned in February.

Canada Steamship Lines, Ltd.—J. E. DALRYMPLE, Vice President, G.T.R. and G. T. Pacific Ry., has been elected a director, Canada Steamship Lines Ltd., representing G.T.R. interests, vice W. Wainwright, deceased; and G. H. SMITHERS, Montreal, has been elected a director to fill a vacancy which has existed since the formation of the company.

Canadian Northern Ry.—D. CROMBIE, heretofore Inspector of Transportation, has been appointed Superintendent of Transportation, Eastern Lines, with jurisdiction over transportation matters.

THOMAS TURNBULL has been appointed Assistant Chief Engineer. Office, Winnipeg.

QUEBEC GRAND DIVISION.—F. M. SPAIDAL, heretofore General Superintendent, C. N. Quebec Ry. and Quebec and Lake St. John Ry., who has been appointed General Superintendent, Quebec Grand Division, has issued a circular stating that for the purposes of operation the Canadian Northern Quebec Ry. and the Quebec and Lake St. John Ry. have been designated the Quebec Grand Division, the former being called the Quebec Division, and the latter the Lake St. John Division, with a superintendent in charge of each of the two divisions. The superintendents are responsible for the condition and maintenance of the roadbed, tracks, bridges, stations, buildings, yards and other property on their respective divisions, and for the safe and economical movement of trains thereon, and for the enforcement of all rules and regulations applying thereto, and for the proper management of station service and discipline of men employed under them.

C. H. N. CONNELL, heretofore Engineer Maintenance of Way, C.N.Q.R. and Q. & L. St. J. R., has been appointed Engineer Maintenance of Way, in charge of the Maintenance of Way Department and buildings, reporting to the General Superintendent. Office, Montreal.

W. R. BOON, heretofore Bridge and Building Master, C.N.Q.R., has been appointed Supervisor of Bridges and Buildings, in charge of maintenance of bridges, trestles, culverts, station and other buildings, scales, water service and employes engaged therein, reporting to the Engineer Maintenance of Way. Office, Joliette.

T. C. HUDSON, heretofore Master Mechanic, C.N.Q.R. and Q. & L. St. J. R., has been appointed Division Master Mechanic, in charge of the maintenance of locomotive equipment and appurtenances, including shops and locomotive terminals, reporting to the General Superintendent. Office, Joliette.

H. J. WHITE, heretofore General Car Foreman, C.N.Q.R., has been appointed General Foreman, Car Department, in charge of the maintenance of car equipment and appurtenances, including shops used for the purpose, reporting to the General Superintendent. Office, Joliette.

H. P. TRACY, heretofore General Storekeeper, C.N.Q.R. and Q. & L. St. J. R., has been appointed Division Storekeeper, in charge of all materials and supplies, reporting to the General Superintendent. Office, Limoilou.

QUEBEC DIVISION.—J. J. SUNDERLAND, heretofore Superintendent, C.N.Q.R., has been appointed Superintendent, in charge of transportation and maintenance of way departments. Office, Joliette.

JOHN FAGIN, heretofore Trainmaster, C.N.Q.R., has been appointed Trainmaster, in charge of all matters relating to the safe and economical movement of trains and station service, and men employed therein, reporting to the Superintendent. Office, Joliette.

R. J. MUNROE, heretofore Roadmaster, C.N.Q.R., Joliette, has been appointed Roadmaster, in charge of all matters relating to the maintenance of way, including roadbed, track, right of way and other property, and men employed in that department, reporting to the Superintendent. Office, Joliette.

B. C. HASKINS, heretofore Roadmaster, C.N.Q.R., Limoilou Jct., has been appointed Supervisor of Track, in charge of maintenance of track, roadbed and right of way and employes engaged thereon, with jurisdiction east of Joliette, reporting to the Roadmaster. Office, Limoilou.

ALEX. DEWAR, heretofore Road Foreman, C.N.Q.R., St. Jerome, has been appointed Supervisor of Track, in charge of maintenance of track, roadbed and right of way, and employes engaged thereon, with jurisdiction west of Joliette, reporting to the Roadmaster. Office, Limoilou.

JOHN KERR has been appointed Road Foreman of Locomotives, in charge of the proper management and operating of locomotives in service, instruction and discipline of enginemen in the proper performance of their duties, reporting to the Division Master Mechanic on locomotive operation, and to the Superintendent on discipline of enginemen. Office, Joliette.

J. HODGSON, heretofore Car Foreman, C.N.Q.R., has been appointed Foreman, Car Department, in charge of the maintenance of car equipment, including car shops, car inspectors and men employed in car repairs, reporting to the General Foreman, Car Department. Office, Joliette.

LAKE ST. JOHN DIVISION.—J. H. DAVIDSON, heretofore Superintendent, Q. & L. St. J. R., has been appointed Superintendent, in charge of the transportation and maintenance of way departments, reporting to the General Superintendent. Office, Quebec.

H. B. CASSIDY, heretofore Roadmaster, Q. & L. St. J. R., Limoilou Jct., has been appointed Roadmaster, in charge of all matters relating to the maintenance of roadbed, track, yards and grounds and property, and employes engaged thereon, reporting to the Superintendent. Office, Quebec.

J. FRIGON has been appointed Supervisor of Track, in charge of the maintenance of roadbed, tracks and right of way and grounds, and men employed in track work, reporting to the Roadmaster. Office, Chambord.

L. P. MCGEE has been appointed Assistant Supervisor of Bridges and Buildings, in charge of the maintenance of bridges, trestles, culverts, station and other buildings, scales, water service and men engaged thereon, reporting to the Supervisor of Bridges and Buildings, Quebec Grand Division, Joliette. Office, Limoilou.

T. S. LOWE, heretofore Road Foreman of Locomotives, Q. & L. St. J. R., Quebec, has been appointed Master Mechanic, in charge of the maintenance of locomotives, including machine shops and locomotive terminals, and employes engaged therein, in addition to performing the duties of the present road foreman of locomotives, reporting to the Division Master Mechanic,

on locomotive operation, and to the Superintendent on discipline of enginemen. Office, Limoilou.

F. GOUGE, heretofore Assistant Car Foreman, C.N.Q.R., Quebec, has been appointed Foreman, Car Department, in charge of the maintenance of car equipment, including car shops, car inspectors, and men employed in car repairs, reporting to the General Foreman, Car Department, Joliette. Office, Limoilou.

ONTARIO GRAND DIVISION.—L. C. Fritch, Assistant to the President, C.N.R., has issued a circular, approved by D. B. Hanna, Third Vice President, stating that the following lines have been designated the Ontario Grand Division:—C. N. Ontario, Central Ontario, Bay of Quinte, Irondale, Bancroft and Ottawa, and Brockville, Westport and North Western Railways. The Grand Division is divided into the Ottawa and Toronto Divisions.

A. J. HILLS, heretofore Superintendent, C.N.O.R., has been appointed General Superintendent, Ontario Grand Division, with jurisdiction over the transportation, maintenance of way and mechanical departments. Office, Toronto.

R. A. BALDWIN, of Mackenzie, Mann & Co.'s engineering staff, has been appointed Engineer Maintenance of Way. Office, Toronto.

T. R. McLEOD, heretofore Master Mechanic, C.N.O.R., has been appointed Division Master Mechanic. Office, Toronto.

L. C. THOMSON, heretofore Storekeeper, C.N.O.R., has been appointed Division Storekeeper. Office, Toronto.

THE OTTAWA DIVISION comprises:—Trenton District, East Don to Trenton; Rideau District, Trenton to Ottawa; Central Ontario District, Picton to Wallace; Irondale Branch, Bancroft to Kinmount; Coe Hill Branch, Ormsby Jct. to Coe Hill; Marmora Branch, Marmora Jct. to Cordova; Quinte District, Yarker to Bannockburn; Kingston District, Kingston to Harrow-smith; Brockville District, Brockville to Westport.

GEORGE COLLINS, heretofore General Manager, Central Ontario Ry., Trenton, has been appointed Superintendent, Ottawa Division, with jurisdiction over the transportation, mechanical and maintenance of way departments. Office, Trenton.

J. D. EVANS, heretofore Chief Engineer, Central Ontario Ry., has been appointed Division Engineer. Office, Trenton.

R. S. DERBYSHIRE, heretofore Assistant Superintendent, C.O.R., has been appointed Assistant Superintendent. Office, Trenton.

H. B. SHERWOOD, heretofore Superintendent, B. of Q. R., has been appointed Superintendent. [Editor's Note.—His jurisdiction is over branch lines between Ottawa and Toronto, reporting to Geo. Collins, Superintendent, Trenton.] Office, Napanee.

S. J. KITCHEN, heretofore Trainmaster, B. of Q.R., Napanee, Ont., has been appointed Trainmaster. Office, Trenton.

E. MYERS, heretofore Roadmaster, C. N. O. R., has been appointed Roadmaster. Office, Toronto.

THE TORONTO DIVISION comprises:—Parry Sound District, Toronto to Parry Sound, including Toronto Terminals; Sudbury District, Parry Sound to Capreol; Orillia Branch, Udney to Orillia; Key Harbor Branch, Key Junction to Sudbury; Sudbury Branch, Sudbury Jct. to Sudbury; Garson Branch, Garson Jct. to Garson Mines; Algoma Branch; Ruel District, Capreol to Ruel; and Sellwood Branch, Sellwood Jct. to Sellwood.

W. J. CURLE, heretofore Superintendent and General Freight and Passenger Agent, B. W. and N. W. R., has been appointed Superintendent, Toronto Division, with jurisdiction over transportation, mechanical

and maintenance of way departments. Office, Toronto.

W. WALSH, heretofore Assistant Roadmaster, C.N.O.R., Port Hope, has been appointed Supervisor of Track, with jurisdiction over track from Toronto to Napanee. Office, Trenton.

O. OGDEN, heretofore Assistant Roadmaster, C.N.O.R., Sudbury, has been appointed Supervisor of Track, with jurisdiction from Ottawa to Napanee, and over Brockville District. Office, Ottawa.

D. McDONALD, heretofore Roadmaster, C.O.R., has been appointed Supervisor of Track, with jurisdiction over Central Ontario, Quinte and Kingston Districts. Office, Trenton.

W. C. MOORE, heretofore Road Foreman of Locomotives, C.N.O.R., Toronto, has been appointed Road Foreman of Locomotives. Office, Trenton.

J. W. FINDLAY has been appointed General Foreman. Office, Parry Sound.

W. R. KELLY, heretofore Trainmaster, C.N.O.R., Rosedale, Toronto, has been appointed Assistant Superintendent. Office, Toronto.

E. HAYSTEAD, heretofore Assistant Roadmaster, C.N.O.R., Sydenham, has been appointed Supervisor of Track, with jurisdiction from Toronto to Parry Sound. Office, Toronto.

G. M. ELLIOTT, heretofore Assistant Roadmaster, C.N.O.R., Beaverton, has been appointed Supervisor of Track, with jurisdiction from Parry Sound northerly. Office, Parry Sound.

W. H. SEE, heretofore Bridge and Building Inspector, C.N.O.R., has been appointed Supervisor of Bridges and Buildings. Office, Toronto.

P. H. FOX, heretofore dispatcher, C.N.O.R., has been appointed Chief Dispatcher. Office, Toronto.

J. C. O'DONNELL, heretofore Trainmaster, District 1, Central Division, Rainy River, Ont., has been appointed Superintendent, District 3, Western Division, vice I. L. Boomer, transferred. Office, Edmonton, Alta.

I. L. BOOMER, heretofore Superintendent, District 3, Western Division, Edmonton, Alta., has been appointed Superintendent, District 4, Western Division. Office, Calgary, Alta.

M. G. HURD, heretofore Chief Dispatcher, Saskatoon, Sask., is reported to have been appointed Chief Dispatcher and Trainmaster, Calgary, Alta.

R. NELSON, heretofore Chief Dispatcher, Edmonton, Alta., is reported to have been appointed Chief Dispatcher and Trainmaster there.

Canadian Pacific Ry.—J. J. F. HOUGHTON has been appointed acting Chief Inspector of Time Service, Eastern Lines, Montreal, during the absence of his son, S. Houghton.

A. O. SEYMOUR, heretofore General Travelling Passenger Agent, Montreal, has been appointed General Tourist Agent, vice A. J. Blaisdell, promoted. Office, Montreal.

N. R. DES BRISAY, heretofore Travelling Passenger Agent, St. John, N.B., has been appointed General Travelling Passenger Agent, Montreal, vice A. O. Seymour, promoted.

W. B. WAY, heretofore Superintendent, District 1, Eastern Division, Farnham, Que., has been appointed Inspector of Transportation, Eastern Lines. Office, Montreal.

J. R. WATSON has been appointed Assistant Superintendent, Sleeping, Dining and Parlor Cars and News Service, Montreal.

J. E. RYAN, heretofore Chief Dispatcher, Medicine Hat, Alta., has been appointed Chief Dispatcher, Havelock, Ont.

T. A. NETTERFIELD has been appointed

Roadmaster, in charge of Hamilton, Goderich and Listowel Subdivisions, vice A. Cameron, retired. Office, Guelph, Ont.

CARL MORSE, heretofore District Freight Agent, Fort William, Ont., is reported to have been appointed District Freight Agent, London, Ont., vice H. A. Plow, promoted.

G. HIAM, heretofore Travelling Freight Agent, Toronto, is reported to have been appointed District Freight Agent, Fort William, Ont., vice Carl Morse, transferred.

G. W. COBURN, heretofore Resident Engineer, Souris, Man., has been appointed Resident Engineer, Brandon, Man., vice C. G. Washbon, appointed Trainmaster, Souris, Man., as announced in our last issue.

H. M. SMITH, heretofore dispatcher, has been appointed Chief Dispatcher, Medicine Hat, Alta., vice J. E. Ryan, transferred to Havelock, Ont.

H. M. TAIT, heretofore General Agent, Steamship Department, Minneapolis, Minn., has been appointed Assistant General Agent, Steamship Department, Calgary, Alta.

J. A. MCGREGOR, heretofore acting Superintendent, District 2, Alberta Division, Calgary, during the absence of F. Walker, on leave of absence, is reported to have been appointed Superintendent of a new district, with office at Edmonton.

R. E. LARMOUR, heretofore Division Freight Agent, Vancouver, B.C., is reported to have been appointed Assistant General Freight Agent there.

H. A. PLOW, heretofore District Freight Agent, London, Ont., is reported to have been appointed Division Freight Agent, Vancouver, B.C., vice R. E. Larmour, promoted.

GEORGE A. CLIFFORD, heretofore ticket agent, Cleveland, Ohio, has been appointed General Agent, Passenger Department, Railway and Steamship Lines, with territory in Ohio north of and including Pennsylvania Lines from East Liverpool to Indiana State line, via Alliance, Orrville, Bucyrus and Van Wert. Office, 213 Euclid Ave., Cleveland.

A. J. BLAISDELL, heretofore General Tourist Agent, Montreal, has been appointed General Agent, Passenger Department, Railway and Steamship Lines, with territory within 50 miles of St. Louis, Mo., in Illinois, Missouri, Arkansas, west of Mississippi River, Louisiana, Texas, Oklahoma, Kansas, Colorado, Wyoming, Utah, New Mexico, and Mexico, except on the Southern Pacific line from Nogales south. Office, 725 Olive St., St. Louis, Mo.

F. R. JOHNSON, General Agent, Passenger Department, Portland, Ore., is reported to have resigned.

Grand Trunk Pacific Ry.—GEORGE BRADSHAW, Safety Engineer, G.T.R., Montreal, has also been appointed Safety Engineer, G.T.P.R., with headquarters, temporarily, at Winnipeg, reporting to the Vice President and General Manager.

R. H. HALL has been appointed Roundhouse Foreman, Regina, Sask., vice J. Neish, transferred to Transcona, Man., as machinist.

M. A. CAMPBELL has been appointed acting Resident Engineer, Biggar, Sask., vice H. A. Bowden, resigned to enter other service.

LOUIS LOW, heretofore Assistant Manager, Fort Garry Hotel, Winnipeg, has been appointed Manager, Macdonald Hotel, Edmonton, Alta.

The following station agents have been appointed:—Fallis, Alta., J. W. McCulla; Pacific, B.C., K. Bright; Priestly, B.C., R. A. Pake.

Grand Trunk Ry.—E. R. BATTLE, heretofore Locomotive Foreman, Fort Erie, Ont., is reported to have been appointed

General Foreman, Portland, Me., vice Jas. Gibson, resigned.

M. O. DAFOE, Travelling Passenger Agent, is reported to have been appointed acting City Ticket Agent, Montreal, vice W. H. Clancy, on three months leave of absence.

G. G. GRAMP, heretofore dispatcher, has been appointed Chief Dispatcher, Hamilton, Ont., vice H. R. McLennan, transferred to London, Ont.

H. R. McLENNAN, heretofore Chief Dispatcher, Hamilton, Ont., has been appointed Chief Dispatcher, London, Ont.

J. B. DUNLOP is reported to have been appointed Locomotive Foreman, Fort Erie, Ont., vice E. R. Battley, promoted.

The following station agents have been appointed:—St. Julie, Que., L. E. Robitaille; Mallorytown, Ont., C. C. E. Johnson; Findley, Ont., F. S. Pollard; Darlington, Ont., R. H. McCalphin; Utterson, Ont., W. Litchfield; Stayner, Ont., F. C. McKechnie; Clifford, Ont., J. L. Taylor; Mount Forest, Ont., J. G. Heyd; Hanover, Ont., J. F. Rae; Owen Sound, Ont., W. J. Riesberry; Brussels, Ont., W. J. Kyle; Joe Lake, Ont., C. Arnold; Suspension Bridge, N.Y., Pass., E. H. Brennan.

J. C. OLSEN has been appointed Assistant Engineer, Chicago, Ill., vice J. B. Gaut, appointed Superintendent of Bridges and Buildings there, as announced in our last issue.

Greater Winnipeg Water District.—J. C. NELSON has been appointed Traffic Superintendent of the construction railway between Winnipeg and Shoal Lake, as reported in our last issue. The charter for this line only permits of it being operated as a construction railway in connection with the building of the Shoal Lake aqueduct.

Intercolonial Ry.—A. E. WELLWOOD, heretofore Trackmaster, Truro to Mulgrave Division, New Glasgow, N.S., has been appointed Trackmaster, Point Tupper to Sydney Division, vice J. C. Fulmore. Office, Sydney, N.S.

JAMES MORRISON has been appointed acting Trackmaster, Truro to Mulgrave Division, vice A. E. Wellwood. Office, New Glasgow, N.S.

Pere Marquette Rd.—E. E. CAIN, heretofore Superintendent, Toledo Division, has been appointed Superintendent, Chicago Division, vice J. W. Mulhern, resigned to enter another company's service. Office, Grand Rapids, Mich.

Reid Newfoundland Co.—JOHN. M. LYONS, formerly General Passenger Agent, Intercolonial Ry., Moncton, N.B., has been appointed Eastern Traffic Agent, R. N. Co. Office, Moncton, N.B.

Toronto Terminals Railway.—H. G. Kelley, Vice President, G.T.R., has been elected President, T.T.R. Co., succeeding the late W. Wainwright, and J. W. Leonard, Assistant to Vice President, C.P.R., has been elected Managing Director, T.T.R. Co.

Student Course on Canadian Pacific Ry.—With a view to systematizing the course of instruction for students, under the company's arrangement for co-operating with McGill University, while they are in service on the road, the following programme has been arranged,—First year, vacation, three months as special apprentice at Angus Shops; Second year, vacation, three months as special apprentice at a roundhouse; Third year, vacation, three months on road service as an extra brakeman; after graduation, three months in station service, two months in stores department, three months in master mechanic's service, three months in accounting department, three months on track work, two months in car department, three months in yard office, and five months in superintendent's office.

United States Steam Railway Statistics to June 30, 1913.

This abstract is based upon compilations for the annual statistical report of the Interstate Commerce Commission for the year ended June 30, 1913, made from the annual reports of carriers having operating revenues above \$100,000 for the year and also of railway companies owning property operated under lease or other agreement by those carriers. Returns of switching and terminal companies are not included. Advance figures given in this abstract may be slightly modified by revision before final publication.

Mileage.—The roads covered by this abstract represented 244,418.49 miles of line operated, including 11,162.97 miles used under trackage rights. The aggregate mileage of railway tracks of all kinds covered by operating returns for these roads was 369,579.80 miles. This mileage was thus classified: Single track, 244,418.49 miles; second track, 26,270.55; third track, 2,588.68; fourth, fifth, and sixth tracks, 1,964.06; yard track and sidings, 94,338.02. These figures indicate, for the roads under consideration, an increase of 8,628.36 miles over corresponding returns for 1912 in the aggregate length of all tracks, of which increase 3,157.59 miles, or 36.59%, represent yard track and sidings.

Equipment.—There were 63,376 locomotives in service on June 30, 1913, an increase of 2,102 over corresponding returns for such roads for the previous year. Of the total number of locomotives, 14,396 were classified as passenger, 37,924 as freight, 9,834 as switching, and 1,224 were unclassified.

The total number of cars of all classes in service was 2,445,508 (76,566 more than on June 30, 1912), which equipment was thus assigned: Passenger service, 51,700 cars; freight service, 2,273,564; company's service, 120,244. The figures given do not include so-called private cars of commercial firms or corporations. Of cars in freight service, there were classified 2,273,289, as follows:

Description.	Number.	Aggregate Capacity.
Box	1,032,585	35,607,134
Flat	147,541	5,151,054
Stock	78,308	2,421,827
Coal	871,339	38,314,920
Tank	8,216	327,727
Refrigerator	43,389	1,357,403
Other cars in freight service	91,911	3,798,080

Total 2,273,289 86,978,145

The average number of locomotives per 1,000 miles of line was 259, and the average number of cars per 1,000 miles of line, 10,005. The number of passenger miles per passenger locomotive was 2,341,269, and the number of ton miles per freight locomotive was 7,843,663.

The number of locomotives and cars in the service aggregated 2,508,886, of which 2,492,891, or 99.36% as against 99.20% in 1912, were fitted with train brakes, and 2,505,283, or 99.86% as against 99.81% in 1912, were fitted with automatic couplers. Of the 2,273,564 cars in freight service on June 30, 1913, the number fitted with train brakes was 2,266,162, and the number fitted with automatic couplers was 2,270,302.

Employees.—The total number of persons reported as on the pay rolls (not including those in the employ of roads the gross operating revenues of which were reported as less than \$100,000 or those in the service of switching and terminal companies) was 1,815,239, or an average of 743 per 100 miles of line. As compared with corresponding returns for June 30, 1912, there was an increase of 115,298 in the total number of

such railway employees. There were 67,026 enginemen, 70,477 firemen, 52,086 conductors, 146,855 other trainmen, and 38,253 switch tenders, crossing tenders, and watchmen. The total amount of wages and salaries reported as paid to railway employes during the year was \$1,373,830,589.

Capitalization of Railway Property.—On June 30, 1913, according to the annual reports submitted to the commission by roads having gross operating revenues of \$100,000 or more, together with returns made in reports filed in behalf of their nonoperating subsidiary lines, the par value of the amount of railway capital outstanding was \$19,796,125,712. This includes capital held by the railway companies concerned, as well as by the public. Of the total amount of such capital outstanding there existed as stock \$8,610,611,327, of which \$7,231,515,045 was common and \$1,379,096,282 was preferred; the remaining part, \$11,185,514,385, representing funded debt, consisted of mortgage bonds, \$8,186,366,426; collateral trust bonds, \$1,189,636,796; plain bonds, debentures and notes, \$1,107,076,783; income bonds, \$250,290,655; miscellaneous funded obligations, \$82,858,275; and equipment trust obligations, \$369,285,450. Of the total capital stock outstanding for the roads under consideration, \$2,836,023,744, or 32.94%, paid no dividends. The amount of dividends declared during the year (by both operating and nonoperating companies represented in this statement) was \$368,606,327, being equivalent to 6.38% on dividend paying stock. The average rate of dividends paid on all stocks outstanding pertaining to the roads under consideration was 4.28%. No interest was paid on \$1,128,776,748, or 10.44% of the total amount of funded debt outstanding (other than equipment trust obligations).

Investment in Road and Equipment.—The figures presented under this caption include returns for investment in road and equipment, shown by the operating roads covered by this abstract, as well as by their subsidiary nonoperating roads (leased, operated under contract, etc.). The expenditures for additions and betterments, as well as the expenditures for new lines and extensions, during the fiscal year 1913 are analyzed in the following tabular statement:

Investment to June 30, 1913	\$16,351,639,266	
Investment to June 30, 1912	15,874,579,626	
Increase 1913 over 1912	\$477,059,640	
	Expenditures for additions and betterments.	Expenditures for new lines and extensions.
From cash or other working assets	\$329,511,772	\$54,819,241
From special appropriations	48,079,165	473,281
Through issue of securities	162,597,278	63,692,746
Not assigned to any of the above classes	5,801,127	10,263,251
Total	\$545,989,342	\$129,248,519
Miscellaneous charges not classified		4,847,012
Total Expenditures during year		\$680,084,873
Property retired or converted		Credits.
Adjustments		\$79,495,571
Difference between record value of grantor and purchase price of grantee in cases of roads sold, merged, consolidated, etc.		5,058,790
Total		118,470,872
Total		\$203,025,233
Net increase during year		\$477,059,640

Public Service of Railways.—The number of passengers carried during the year was 1,033,679,680. The increase in the number of passengers carried during the year over corresponding returns for 1912 was 39,307,397.

The passenger mileage, or the number of passengers carried one mile, reported by roads represented in this statement, was 34,575,872,980. The corresponding return for 1912 was 1,536,762,172 less. The number of passengers carried one mile per mile of road was 143,067, against 140,393 for the preceding year.

The number of tons of freight reported as carried (including freight received from connections) was 2,058,035,487, while the corresponding figure for the previous year was 1,818,795,630.

The ton mileage, or the number of tons carried one mile, as reported for the year, was 301,398,752,108. The corresponding ton mileage as reported for the year ended June 30, 1912, was 263,779,908,254. The number of tons carried one mile per mile of road for the year ended June 30, 1913, was 1,245,158, against 1,110,811 for the preceding year. The average number of tons of freight per train mile was 445.45. The corresponding figure for the preceding year was 410.26.

The average receipts per passenger per mile, as computed for the year, for the roads covered by this statement, were 2.008c.; the average receipts per ton per mile, 0.729c. The passenger service train revenue per train mile was \$1.35,555; the freight revenue per train-mile was \$3.24,347. The average operating revenues per train mile were \$2.45,387. The average operating expenses per train mile were \$1.70,374. The ratio of operating expenses to operating revenues was 69.44%.

Revenues and Expenses.—As in the case of other figures in this abstract, the revenues and expenses shown below exclude returns for roads the gross operating revenues of which were less than \$100,000 for the year. The operating revenues of the railways for the year, herein represented (average mileage operated 242,657.12 miles), were \$3,125,135,798; their operating expenses were \$2,169,968,924. The corresponding returns for 1912 (average mileage operated 238,220.11 miles) were: Operating revenues, \$2,826,958,366; operating expenses, \$1,959,094,658. The following figures present a statement of the operating revenues for 1913 in detail:

Freight revenue	\$2,198,930,566
Passenger revenue	695,987,817
Excess baggage revenue	7,607,802
Parlor and chair car revenue	715,566
Mail revenue	50,789,212
Express revenue	79,717,266
Milk revenue (on passenger	

trains)	9,057,591
Other passenger revenue	6,110,252
Special service train revenue	1,980,362
Miscellaneous transportation revenue	33,248,734
Switching revenue	6,861,901
Total revenue from operations other than transportation	31,628,843

Joint facilities—Dr.	1,054,003
Joint facilities—Cr.	3,553,890
Total operating revenues . . .	\$3,125,135,798
Operating expenses, as assigned to the five general classes, were:	
Maintenance of way and structures.	\$421,232,395
Maintenance of equipment	511,561,363
Traffic expenses	62,850,113
Transportation expenses	1,096,252,745
General expenses	78,072,308

Total operating expenses. . . \$2,169,968,924
 With minor eliminations from the figures given above operating revenues per mile of line operated (including line operated under trackage rights) averaged \$12,873 and operating expenses \$8,939 for the year.

Condensed Income Account and Profit and Loss Account.—There is given below a condensed income account and profit and loss account of operating roads, the gross operating revenues of which were \$100,000 or more for the year. A similar statement follows for nonoperating roads (leased, operated under contract, etc.) controlled by the operating roads described. The statements omit returns for a few roads the reports of which were not sufficiently complete for inclusion therein. The accounts of the operating roads include both operating and financial transactions, while the accounts of the nonoperating roads are confined for the most part to receipts and payments under leases, contracts, and agreements. For a number of items, such as dividends, taxes, etc., both statements must be taken into consideration in order to learn the aggregates of such items for the railways therein represented. Thus the aggregate of dividends declared during the year, \$368,552,632, includes those declared out of current income and those declared from surplus both by the operating roads and by the nonoperating roads. This amount includes dividends declared on railway capital stock owned by other railway companies.

OPERATING ROADS.
Income Account.

Rail operations:	
Operating revenues	\$3,125,135,798
Operating expenses	2,169,968,924
Net operating revenue	\$955,166,874
Outside operations:	
Revenues	\$67,982,036
Expenses	65,953,702
Net revenue from outside operations	\$2,028,334
Total net revenue	\$957,195,208
Taxes accrued	122,005,424
Operating income	\$835,189,784
Other income	283,063,093
Gross income	\$1,118,252,877
Rents, interest, and similar deductions from gross income	629,706,398
Net corporate income	\$488,546,479
Disposition of net corporate income:	
Dividends declared from current income	\$241,750,512
Appropriations for additions and betterments	48,022,688
Appropriations for new lines and extensions	70,159
Miscellaneous appropriations	14,991,076
Stock discount extinguished through income	6,497
Total	\$304,840,932
Balance to credit of profit and loss	\$183,705,547
Profit and Loss Account.	
Credit balance on June 30, 1912.	\$1,078,765,209
Credit balance for year 1913 from income account	183,705,547
Total	\$1,262,470,747
Dividends declared out of surplus	85,706,629
Difference	\$1,176,764,118
Appropriations for additions and betterments	\$15,158,827

Appropriations for new lines and extensions	449,652
Miscellaneous appropriations	68,723,482
Other profit and loss items—debit balance	20,691,684
Total	\$105,023,645

Balance credit June 30, 1913, carried to balance sheet . . . \$1,071,740,473

NONOPERATING ROADS.
Income Account.

Gross income from lease of road.	\$124,332,275
Taxes accrued	5,326,536
Net income from lease of road.	\$119,005,739
Other income	7,777,635
Gross income	\$126,783,374
Interest, and similar deductions from gross income	68,568,734
Net corporate income	\$58,214,640
Disposition of net corporate income:	
Dividends declared from current income	\$38,845,422
Appropriations for additions and betterments	2,140,855
Appropriations for new lines and extensions	59,491
Miscellaneous appropriations	1,274,520
Total	\$42,320,288
Balance to credit of profit and loss	\$15,894,352
Profit and Loss Account.	
Credit balance on June 30, 1912.	\$57,158,330
Credit balance for year 1913 from income account	15,894,352
Total	\$73,052,682
Dividends declared out of surplus.	2,250,069
Difference	\$70,802,613
Appropriations for additions and betterments	\$500,665
Appropriations for new lines and extensions	208
Miscellaneous appropriations	29,945,358
Other profit and loss items—credit balance	\$2,932,044
Total	\$27,514,187
Balance credit June 30, 1913, carried to balance sheet	\$43,288,426

The Southampton Railway Investigation.—The investigation into the cost of the Southampton Ry. in New Brunswick, conducted on behalf of the Dominion Government by R. A. Pringle, K.C., of Ottawa, as a result of charges made by F. B. Carvell, M.P., details of which were given in our April issue, pg. 173, was concluded at Fredericton, July 13. According to the figures of J. K. Pendar, M.L.A., who was the principal promoter of the line, the railway cost \$255,673.33, which included \$28,466.33, which he claims he supplied from his own personal resources. Evidence given before the Commissioner made it appear that the cost of the line did not exceed \$17,700 a mile. Independent engineering experts, who went over the line, calculated the value of the work done at \$159,000. In order to obtain the Dominion Government subsidy of \$6,400 a mile it had to be shown that the line cost \$21,400 a mile. As a result of the figures put before the Dominion Government Inspecting Engineer, E. V. Johnson, a certificate to this effect was given, on the strength of which the company received \$3,200 a mile of a subsidy more than it was entitled to. In concluding the enquiry the commission is reported to have said it was plain that the responsibility for this lay between J. K. Pendar, the principal promoter, and D. W. Brown, the Chief Engineer.

Lake Huron and Northern Railway.—Negotiations are said to be in progress in England for an issue of bonds to finance the construction of this line from Rock Lake, Ont., to the National Transcontinental Railway under the act passed by the Ontario Legislature in 1913.

Equipment of Caboose With Marker Sockets.

The Board of Railway Commissioners passed general order 127, dated July 6, as follows: Re putting up and taking down of marker lights on cabooses, and circular 130, March 11, 1914, submitted to the railway companies upon the reading of the replies filed by the railway companies, and the report of the Chief Operating Officer of the Board, certain of the railway companies consenting to the adoption of the regulations particularly set out in this order regarding the putting up and taking down of marker lights on cabooses, it is ordered that cabooses of all railway companies be equipped as follows: Where cabooses are equipped with marker sockets in the lower position, markers shall be carried in such lower sockets. All cabooses hereafter constructed shall be equipped with marker sockets in the lower position. All cabooses now in use not equipped with marker sockets in the lower position, shall be so equipped on or before Nov. 1, 1914.

A **musolophone**, which has been installed in Windsor St. station, C.P.R., Montreal, recently, is an adaptation of the telephone, used for announcing the trains in the waiting rooms and other parts of the station. A single announcer talks into a telephone transmitter, connecting with as many telephone announcing instruments as may be desired. A similar device was installed recently in the Grand Central terminal station in New York, but on account of the echoes which developed in the large central waiting room, its use has been discontinued, except in the smaller rooms.



Department of Railways and Canals.

NEW WELLAND SHIP CANAL.

Notice to dealers in Portland Cement.

SEALD TENDERS, endorsed "Tender for Cement," will be received by the undersigned up to 10 o'clock on Tuesday, 25th August, 1914, for the supply of 2,500,000 barrels of Portland Cement which will be required in the construction of the new Welland Ship Canal, to be delivered as the work progresses, in such quantities, at such places along the Canal and at such times as the Department may require. It is estimated that the total amount will be consumed within the next four years.

Tenders may be submitted for the whole or any portion of the quantity required.

The Cement must be in conformity with the Department's standard specification for Portland Cement. Specifications, forms of tender and full information can be obtained upon application to the Purchasing Agent, Department of Railways and Canals, Ottawa.

The Department does not bind itself to accept the lowest or any tender.

By order,
L. K. JONES,

Asst. Deputy Minister and Secretary.
Department of Railways and Canals.

Ottawa, 25th July, 1914.

Newspapers inserting this advertisement without authority from the Department will not be paid for it.—64842.

Electric Railway Department

Car Barn for British Columbia Electric Railway.

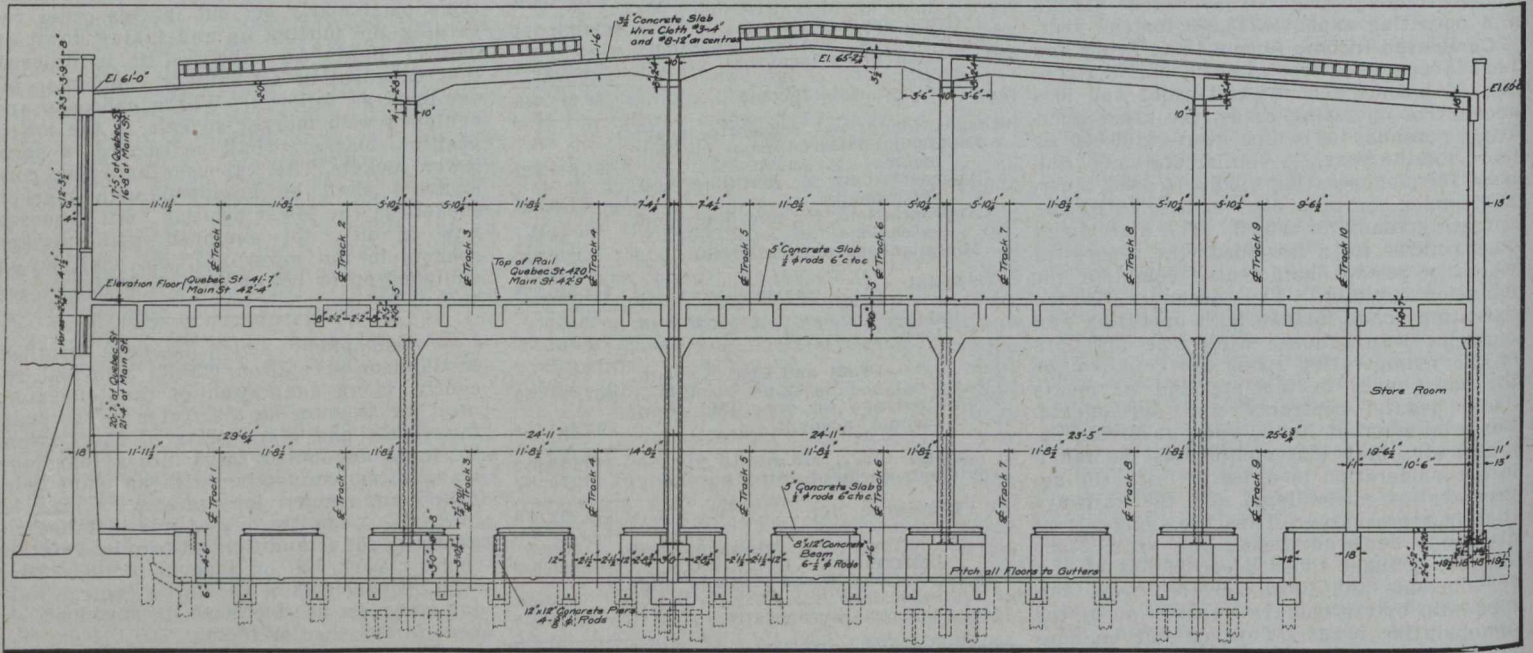
The car barn under construction in the Mt. Pleasant district, in Vancouver, is shown in the accompanying plans. It will be a double deck barn, of reinforced concrete beam and girder construction, brick walls, steel sash glazed with $\frac{1}{4}$ in. wired glass, and

floor, and there will also be a small repair shop near the storeroom for making light repairs. The total storage capacity will be 120 cars.

The general overall dimensions will be $351\frac{1}{4}$ by $130\frac{3}{4}$ ft., extending between Main

rail centres. The pit floor will be $4\frac{1}{2}$ ft. below that of the lower level, and formed of 6 ins. of concrete, with piers under each of the track pedestals and building columns.

The upper floor will be a 5 in. reinforced concrete slab construction, with 8 by 24 in.

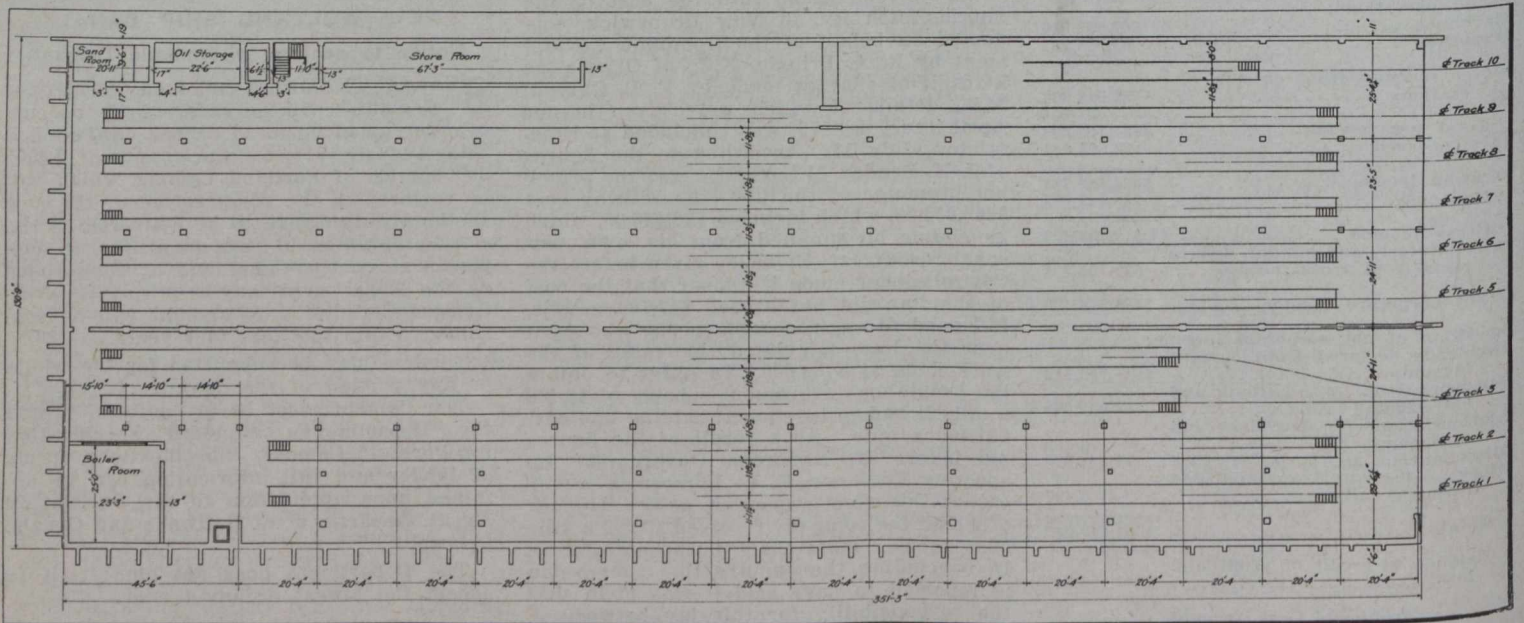


Cross Section of Mt. Pleasant Car Barn for British Columbia Electric Railway.

rolling steel doors. A brick fire wall extending from the lower floor to the roof will divide the building into two fire sections. The first floor will have inspection pits arranged to form a basement under the lower floor, so that each track within a fire

and Quebec Sts., with Fourteenth St. along one side. There is a sufficient difference in elevation between Main and Quebec Sts. to make possible the two floor scheme, the lower level being entered from the Quebec St. elevation, and the upper floor from the

reinforced concrete girders extending under the rails. The floor will be supported on concrete columns between each pair of tracks, the columns varying in centre to centre distance across the building from 23 ft. 5 ins. to 29 ft. $6\frac{1}{4}$ ins. The length-



Lower Floor Plan of Mt. Pleasant Car Barn for British Columbia Electric Railway.

division will be accessible from every other track. The barn will be equipped with both roof and aisle sprinklers throughout. One track on the lower floor and one on the upper floor will be arranged as a wash and paint track. A sand drier room and storeroom and an oil room will be provided on the lower

Main St. elevation, both entrances being at grade.

The lower floor will consist of 5 in. reinforced concrete slabs between adjoining rails, supported on 12 in. square concrete piers from the pit floor below, these piers being at about 7 ft. centres, in line with the

wise spacing will be 20 ft. 4 ins. The cross girders between the columns will be 3 ft. 10 ins. deep.

The roof will be a $3\frac{1}{2}$ in. reinforced concrete slab, carried on cross concrete beams 18 ins. deep. Westinghouse, Church, Kerr and Co. are the contractors.

Montreal Tramways Mutual Benefit Association.

Following are extracts from the 11th annual report for the year ended April 30, presented at the annual meeting recently:—

Summary of relief work done during the year:

Members disabled through sickness or injury	1,492
Visits made by physicians to disabled members	778
Consultations given by physicians to disabled members	7,977
Prescriptions issued	5,597
Paid for sickness and injury	\$10,365.50
Paid for medicine	1,729.03
Paid for pensions	547.00
Paid for withdrawals	504.53
Paid for death and burial insurance	12,833.36

Twenty six members died during the year, their death and burial benefits being paid promptly. Five members applied to have their benefits commuted, which was agreed to. Following is the financial statement:—

REVENUE.	
Accumulated Reserve from preceding years	\$117,080.60
From Members—	
Fees	\$ 1,097.00
Dues	17,397.00
	18,494.00
From Company—	
Fees	1,097.00
Dues	8,698.50
Special Donation	4,000.00
Expenses of management	6,404.54
	20,200.04
Picnic	9,555.73
Interest on investments	7,417.50
Interest on Bank Deposits ..	237.60
	17,210.83
	\$172,985.47
EXPENSES.	
Sickness and injury	\$10,365.50
Deaths and burials	12,833.36
Medical examinations	595.50
Medical attendance	3,551.61
Medicine	1,729.03
Withdrawals	504.53
Pensions	547.00
Management expenses	6,404.54
	\$36,531.07
Accumulated reserve—	
To 1913	117,080.60
For 1914	19,373.80
Total accumulated reserve ..	\$136,454.40
In bank	11,848.81
Invested	124,605.59
	\$172,985.47

The committee of management is as follows: J. E. Hutcheson, President; Patrick Dubee, Secretary-Treasurer; F. Brissette, E. A. Robert, H. Brisebois, A. Gaboury, A. Latremouille, A. S. Byrd, A. Pichette, R. M. Hannaford, W. Thibault, D. E. Blair, J. Lalonde, J. L. Perron, K. C., L. Benoit.

It costs \$1 to join the association and 50c a month to secure the following benefits:—

In cases of disablement after the first 6 days, 60c per day for 90 days, and 30c per day for the next 90 days; free medical attendance; free medicine; twenty per cent. discount on all medicines, etc., required by members of the family. A life insurance policy of \$500, and \$50 towards funeral expenses. A pension when superannuated and too old to work. Members leaving service after 5 years membership are entitled to a refund of one third of fees and dues paid in by them, less amount received in benefits. Members leaving service after 10 years membership are entitled to a refund of two thirds fees and dues paid in by them, less amount received in benefits.

Answers to Questions on Electric Railway Topics.

Following are answers to questions in the American Electric Railway Association's question box, sent in by officials of Canadian electric railways:—

Motor Wiring.—What advantages are derived from connecting field coils ahead of armature coils?

D. E. Blair, Superintendent Rolling Stock, Montreal Tramways Co.—We have had considerable experience with both methods, and have found that connecting armature ahead of field has very decided advantages. It is very much easier to provide permanent insulation for the armature coils than for field coils, especially when field coils are unimpregnated. In case of lightning surges, brush holders and commutator provide creepage surface and operate as a more or less efficient lightning arrester, voltage being kept within the limits of armature insulation. Our lightning troubles have been almost entirely eliminated since we standardized on connecting armature first.

Ry.—Incandescent lighting. Whiten walls and ceilings with air sprayer, using calcimine or some other good white water wash.

Wheel Failures.—What conditions govern the changing of wheels of various types in service?

W. R. McRae, Master Mechanic, Toronto Ry.—Chipped and worn flanges; worn flat, skidded flat beyond grinding without removing, slipped wheels, shelled out treads, and steel wheels when one wheel is worn smaller in diameter than its mate.

Seats for Platform Men.—What is the best type of seat for conductors on prepayment cars, when such seats are used? What is the best type of seat for motormen on all types of cars?

A. Gaboury, Superintendent, Montreal Tramways Co.—The seats for conductors on all our prepayment cars are folding, attached to the bulkhead frame between the exit and entrance doors on the rear platform. When not in use they drop flat against the partition. Regarding seats for motormen, this, I think, would depend largely on the type of car used. In our company in cars with large motorman's vestibule we use a round wooden seat supported on an iron pipe which fits into an iron receptacle in a hole in the floor of the platform. There is also a similar receptacle put in the floor, about 2 ft. in the rear and somewhat to the side of the first one, so that when the stool is not in use the motorman must move it from its position in front of the controller to the second hole, out of the way. On our cars of the semi-vestibule type, we have a folding seat attached to the half partition separating the motorman from the passengers. This seat is held up by a spring, and when not in use drops flat against the partition.

Neatness of Car Crew.—Neatness and cleanliness in the appearance of platform men is desirable. What methods are used to secure this condition, and do any companies have a system of inspection?

A. Gaboury, Superintendent, Montreal Tramways Co.—The necessity for neatness and cleanliness is impressed on our men from the very moment that a new man is first taken on. Immediately a student receives his training badge and papers, he receives also a pamphlet drawing to his attention three things,—discipline, personal appearance and courtesy. In each of our stations there are large toilet rooms fitted up with every convenience, and in the men's waiting room there are also large mirrors, whereby they cannot help but note their appearance. Our rules and regulations require that a man be clothed in full regulation uniform, that his clothes be neat and clean, his buttons and badges polished and shined and his uniform cap worn straight on his head, and our depot clerks and car starters have instructions to allow no man to take his car whose personal appearance is not beyond reproach. Our inspectors on the road also have similar instructions.

Vehicular Traffic Cooperation.—Have any companies conducted any special campaign with the idea of educating drivers of vehicles to keep out of the tracks?

A. Gaboury, Superintendent, Montreal Tramways Co.—In connection with a campaign of education for the prevention of accidents, which has been carried out for the past two years amongst our own employes, I recently inaugurated a public safety first campaign, in the course of which the first step was directed towards the most prolific source of accident, namely, collision between cars and vehicles. As there are always two

Canadian Electric Railway Association.

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

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

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

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

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

Patrick Dubee, Secretary-Treasurer, Montreal Tramways Co.

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

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

Wilson Phillips, Superintendent, Winnipeg Electric Railway Co.

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

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

OFFICIAL ORGAN—Canadian Railway and Marine World, Toronto.

W. R. McRae, Master Mechanic, Toronto Ry.—There is one slight advantage derived from connecting field coils ahead of armature. It will to a considerable extent stop flash-overs at brushes and commutator short circuits, with their ultimate burn-outs, caused by excessive feeding of current to motor by operator. This however can be prevented by the use of a controller check. There are several advantages to be gained by connecting armature ahead of field coils, namely,—less liability of armatures developing grounds, etc. It is often impossible to operate a motor with a grounded field coil. This, of course, depends on which coil is grounded. It is also less expensive to repair field coils than armature windings.

Shed and Shop Lighting.—What is the best artificial light to use in car sheds and shops?

D. E. Blair, Superintendent Rolling Stock, Montreal Tramways Co.—We have discarded arc lamps and small carbon units for Tungsten lamps with enameled steel reflectors in units varying from 100 to 250 watts, according to requirements. Present arrangement has proved very satisfactory from every point of view.

W. R. McRae, Master Mechanic, Toronto

parties to accidents of this nature, our own men were first instructed, and with the idea of reaching the party of the second part, an individual letter was written to all cartage, express and transfer companies, department stores, breweries, etc., explaining the need of a campaign of this nature, pointing out to them that their interests and ours should be mutual, and asking for their cooperation along these lines. Form letters were then sent to all automobilists and drivers of other vehicles, also with the same end in view. A folder of "don'ts," sugar coated as suggestions for safety first, was got out in vest pocket size and mailed to the home addresses of all drivers and chauffeurs. These suggestions were also got up in poster form on cardboard 18 by 24 ins., which were posted up in stables, garages and other prominent places. A circular was also sent by mail to drivers and chauffeurs explaining the existence of, and the dangers arising from, a greasy rail. This was also put out in poster form in stables and garages. Our aim in this campaign has been to bring about a better state of feeling between motormen on the cars and drivers on the street, and we have tried to present the matter to each from the point of view of the other, asking each to have due regard for the rights of others on the street. The results so far obtained have been far beyond our most sanguine expectations.

Trailer Cars for the Hull Electric Company.

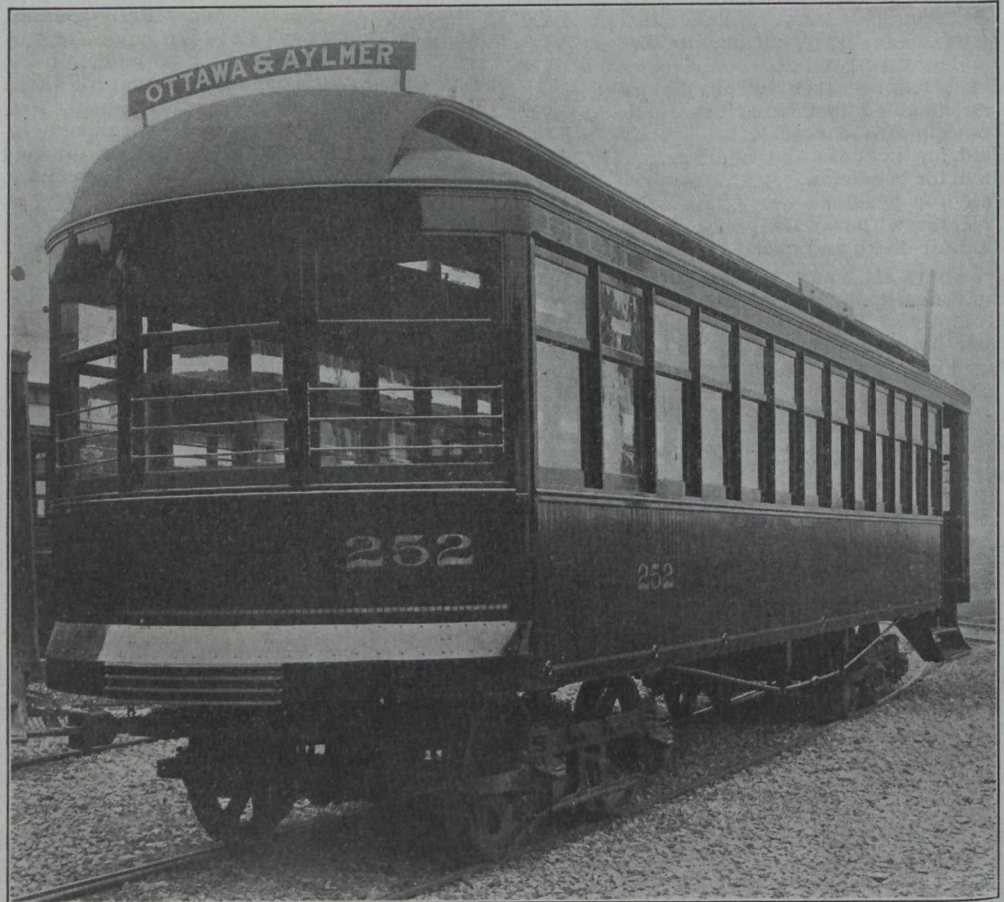
The Hull Electric Company placed in service recently four single end semi convertible trailer cars. Following are some of the principal dimensions: Length over all, 43 ft.; length of body, 35 1/4 ft.; length of front vestibule, 6 3/4 ft.; width over side sheeting, 8 1/2 ft.; width of car inside, 7 ft. 8 ins.; height from bottom of sill to top of roof, 8 3/4 ft.

The underframe is of wood, reinforced with steel plates and rods, side and intermediate sills are of B. C. fir, end sills and cross timbers are of best oak. Side and centre sills are reinforced with a steel plate running full length of same, sandwiched between inner and outer wood sills and securely bolted to same. The vestibule platform is on the same level as car floor, and is carried by the centre sills and side sill on closed side, and by a knee composed of a 5 in. I beam wood filled on step side. The outside of car is sheeted with matched

The seating consists of 16 stationary cross seats, two longitudinal seats at front end and a circular seat extending entirely around the rear end of car. All seats are of standard design and are covered with twill weave rattan. All sashes in body are arranged to raise to open. All windows on devil strip side are provided with window guards. The cars are also equipped with

British Columbia Electric Railway Floats in Historical Pageant.

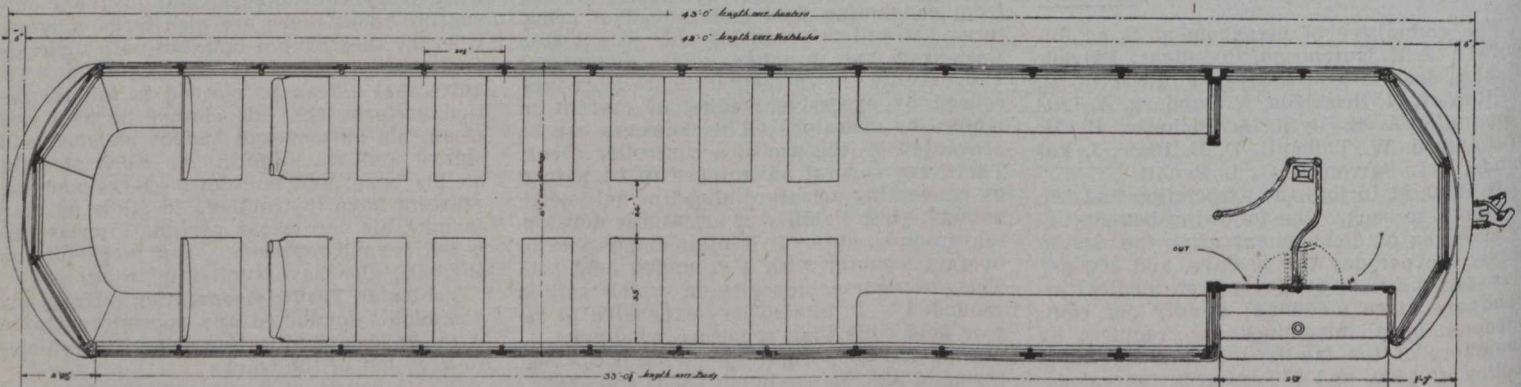
In connection with the Pacific Coast Advertising Men's Clubs' convention, held in Vancouver, B. C., recently, a historical pageant was arranged by the citizens' committee. The chief feature was a street



Trailer Car, Hull Electric Company.

sanitary hand straps, storm sash, folding doors, p.a.y.e. rails, Coleman stationary fare boxes, Westinghouse automatic couplers, Consolidated truss plank heaters, and Consolidated buzzers. The car bodies, completely equipped without trucks, weigh about 1,900 lbs. These cars were built by the Ottawa Car Manufacturing Co., to specifications prepared by G. Gordon Gale,

parade about five miles in length, in which were floats showing the progress of the city from its early days to the present time. The B. C. Electric Ry. Co. furnished a float depicting the early days of the street car service in the city and the comparative growth of the system. The float consisted of the first street car operated in Vancouver, mounted on a truck drawn by horses, the electrical



Floor Plan of Trailer Car, Hull Electric Company.

poplar sheeting and is painted antique brown. The flooring is Georgia pine, laid double, with tar paper between and has wood matting strips laid lengthwise, running full length of car body in the aisle. The roof is of monitor type, with standard deck sash and openers. The interior trimming is best quality red cherry throughout.

M. Can. Soc. C. E., General Superintendent, Hull Electric Co.

An Edmonton, Alberta, press dispatch of July 20 said the municipal railway employees had decided at a mass meeting to strike, the management having refused promotions according to length of service.

equipment of the car having long since been taken out. The float was decorated with banners noting the exhibit as "Vancouver's First Street Car," as well as banners showing the growth of the city's system from the two cars available in 1889 to the 231 cars now available for city service. On the front platform of the car was Aubrey Elliott, the

oldest motorman in the service, while on the rear platform was J. Jeffreys the conductor longest in the service now in the company's employ. The float was a very striking exhibit of the company's growth, as well as a telling example of street car accommodation in the early days as compared with the modern and up to date cars now operated on the Vancouver lines.

Another float exhibited by the B. C. Electric Ry. was that of the light and power department, this being one of the finest in the procession. It was designed on the lines of its name, "The Source and The Service." It was mounted on an electric truck, the main feature being a model of one of the company's power stations which serve the city with electric current. This was 20 ft. long and 12 ft. high. While the parade was proceeding, streams of water were kept falling from the tail races, a three h. p. motor, operated from the storage battery of the truck, being utilized to pump the water from the storage tank. At each corner of the truck was a decorated booth illustrating the four branches of the service, industrial power,

Overhead Construction at a Railway Crossing on the Niagara, St. Catharines and Toronto Railway.

Near the outskirts of St. Catharines, Ont., on the new line to Niagara-on-the-Lake, recently placed in service by the Niagara, St. Catharines and Toronto Ry., a crossing of the G.T.R. Fort Dalhousie branch is made at a rather acute angle of 32 degs. 20 mins. At this point on the G.T.R. there are five tracks, which, on account of the sharp angle of crossing, requires a very long span, necessitating a piece of special installation. The manner in which this was accomplished, is shown in the accompanying illustration.

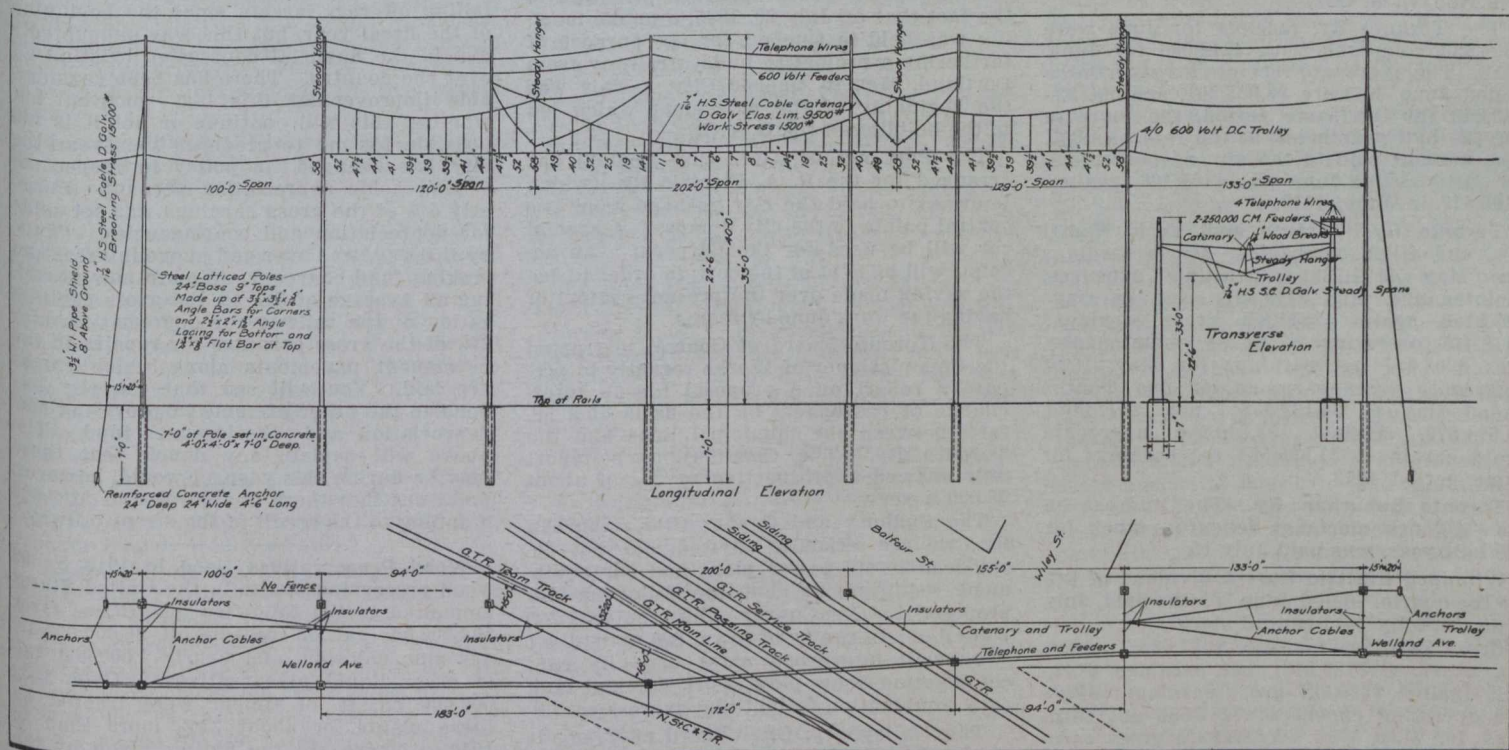
The total work extends over 634 ft., employing 12 special lattice poles, 24 in. base and 9 in. tops, made up of four 3 1/2 by 5-16 in. angle bars for the corners, with 2 1/2 by 2 by 3-16 in. angle lacing in the lower portion, and 1 3/4 by 3/8 in. flat bars for the top. These poles have a total length of 40 ft., and the lower 7 ft. are embedded in

Electric Railway Finance, Meetings, Etc

Brandon Municipal Ry.—A report made to the Brandon, Man., City Council, July 4, stated that the operation of the municipal electric railway for June, showed an excess of receipts over expenses of about \$500.

Brantford St. Ry.—Grand Valley Ry.—A circular has been sent to the bondholders of the G. V. Ry., by E. B. Stockdale, Receiver, stating that the meeting of bondholders called for July 15, would be postponed to Sept. 16, as the Brantford City Council would not have completed its search into the titles of the several properties in time to have the transfer ready for signing on the first named date.

British Columbia Electric Ry., and allied companies.—Gross earnings for May, \$678,314; operating expenses, maintenance, etc., \$505,640; net earnings, \$172,674, against \$701,991 gross earnings; \$497,223 operating expenses, maintenance, etc.; \$204,768 net earnings, for May 1913. Aggregate gross earnings for 11 months ended May 31, \$8,128,904; net earnings \$2,197,497, against



Overhead construction at a railway crossing on the Niagara, St. Catharines and Toronto Ry.

lighting, heating and domestic service. In each of these booths was a person representing the particular form of service and equipment suited to the various fields of operation. The entire float was decorated in the company's colors, green and gold.

The City and Suburban Motor Bus Co., Ltd., has been incorporated under the Dominion Companies Act, with \$250,000 capital and office at Toronto, to carry on a general transportation business, without limiting the generality, but more particularly to run motor busses of all kinds on public highways in cities, towns and villages, and to transport passengers therein. The incorporators are J. R. L. Starr, G. Cooper, R. P. Locke, J. S. Emery and L. M. Heal, Toronto.

The Postoffice Department, according to press reports, has offered the Guelph Radial Ry., which is owned by the City of Guelph, Ont., \$20 a year for the transportation of each postman in the city. This is a lower rate than is paid to any other electric railway in Canada.

a 4 ft. square concrete casing of the same depth.

The trolley line is carried across in five spans, the three central ones of catenary construction. The central span is 202 ft., and the spans on either side are 120 and 129 ft. respectively. The three central pairs of poles support two steady spans, in the centre of which are steady hangers. The supporting catenary is carried from the top of the steady hangers, and is anchored by guys from the end of the catenary at spans 2 and 4, to the end poles, these latter being braced by cables attached to buried reinforced concrete anchors. The trolley line in the three catenary spans is supported from the latter by 1/2 by 1 in. straps. The clear height under the trolley is the authorized railway clearance of 22 1/2 ft. The telephone and 600 volt feeder lines are carried on cross arms on the top of the southerly row of poles. We are indebted to W. H. Horton, Electrical Engineer, Niagara, St. Catharines and Toronto Ry., who was responsible for the design, for the information on which this article is based.

\$7,811,546 aggregate gross earnings; \$2,233,666 net earnings for same period 1912-13.

Cape Breton Electric Co.—Gross earnings for May, \$29,485.78; operating expenses and taxes, \$16,095.03; net earnings, \$13,390.75; interest charges, \$5,247.78; balance, \$8,142.97; bond sinking and improvement funds, \$1,190; balance for reserves, etc., \$6,952.97, against \$29,989.33 gross earnings; \$19,115.16 operating expenses and taxes; \$10,874.17 net earnings; \$4,891.67 interest charges; \$5,982.50 balance; \$1,190 bond sinking and improvement funds; \$4,792.50 balance for reserves, etc., for May, 1913. Aggregate gross earnings for five months ended May 31, \$139,036.30; net earnings, \$56,464.79; interest, bond sinking and improvement funds, etc., \$31,797.57; net balance, \$24,667.23, against \$142,570.68 aggregate gross earnings; \$56,029.13 net earnings; \$30,484.49, interest, bond sinking and improvement funds; \$25,544.64, net balance for same period 1913.

Saskatoon Municipal Ry.—The financial statement presented at the June meeting of the Saskatoon, Sask., City Council, for the

quarter ended Mar. 31, contained the following particulars relating to the operations of the electric railway:—Receipts, cash fares, \$10,604; tickets, \$21,642; chartered cars, \$132; city departments, \$191; advertising, \$842; general, \$226; profit on Sutherland extension, \$876; total, \$34,617. Expenditures—Maintenance of way and structures, \$1,449; maintenance of equipment, \$5,286; traffic expenses, \$285; conducting transportation, \$26,363; general, \$1,821; capital charges including interest, sinking fund and depreciation, \$13,792; total, \$48,998; loss, \$14,480.

Traffic receipts for May, \$14,440; expenditures, \$14,250; profit, \$190. This does not allow for depreciation. Mileage, 61,865; gross earnings per car mile, 23.343c.; operating expenses, 23.035c.; passengers carried 5.155; average fare, 4.516c.

Toronto Ry.—A quarterly dividend at the rate of 8% per annum, was paid, July 2.

Application is being made to the Ontario courts for the appointment of E. R. Wood as trustee for the bondholders under the deed of trust of Sept. 1, 1892, in succession to the late Hon. G. A. Cox.

The Toronto Ry. receipts for June were \$525,533 compared with \$512,086 for June, 1913. The aggregate receipts for six months ended June 30 were \$3,035,301, against \$2,893,843 for the same period, the increase for the half year being at the rate of 4.8%. The amount paid to the city as percentage on earnings for June was \$105,106, against \$102,417 in June, 1913.

Toronto Ry., Toronto and York Radial Ry., and allied companies.—Gross earnings for May \$871,733; operating expenses, maintenance, etc., \$449,627; net earnings \$422,106, against \$811,872 gross earnings, \$418,415 operating expenses, maintenance, etc., \$393,457 net earnings for May, 1913. Aggregate gross earnings for five months ended May 31, \$4,163,988; net earnings, \$1,994,879, against \$3,840,280 aggregate gross earnings; \$1,839,564 net earnings for same period 1913.

Toronto Suburban Ry.—The interest on the 4½% first mortgage debenture stock, for the half year, was paid July 15.

Winnipeg Electric Ry.—A dividend of 3% for the quarter ended June 30, was paid, July 2, on the fully paid capital stock.

Gross earnings for May \$337,664; operating expenses \$189,643; net earnings \$148,021, against \$326,827 gross earnings; \$180,275 operating expenses; \$146,552 net earnings, for May, 1913. Aggregate gross earnings for five months ended May 31, \$1,756,539; net earnings \$730,407, against \$1,651,336 aggregate gross earnings; \$729,221 net earnings, for same period 1913.

Electric Railway Notes.

The civic estimates of Calgary, Alberta, for this year include \$863,000 for the municipal railway.

The London St. Ry. expects to order some more cars, but at the time of our recent advice it had not been decided how many, or whether they would be single or double truck.

The citizens of Brandon, Man., by an excess of 25 over the necessary two-thirds majority, voted recently in favor of the bylaw authorizing the operation of the Brandon Municipal Ry. on Sundays.

The British Columbia Electric Ry. has offered a reward of \$1,000 for information which will lead to the arrest and conviction of those guilty of tampering with the switch on its electric line, June 13, which caused the derailment of a car.

The financial report of the city of Sas-

katoon, Sask., for the first three months of 1914 shows a deficit on the municipal railway operation of over \$14,000, which more than wipes out the profits made by the civic light and power departments.

A proposition is under consideration in Calgary, Alberta, for the erection of a public utilities building, in which would be combined offices, recreation rooms for the employees of the municipal railway and other departments, and a public waiting room.

The Windsor, Ont., City Council is making application to the Ontario Railway and Municipal Board for an order to compel the Sandwich, Windsor and Amherstburg Ry. to install air brakes on its cars, and to provide the necessary equipment for keeping the tracks clear of snow during the winter.

F. Ganz, has been engaged by the Manitoba Public Utilities Commission, to make an investigation of electrolysis in Winnipeg, with the idea of preventing the destruction of the city's water mains, etc., by reason of their proximity to the Winnipeg Electric Ry. lines.

A newspaper paragraph calls attention to the fact that on July 20, 1835, a public meeting was held in Quebec, for the purpose of furthering a project to build a railway from Portland, Me., to Quebec City. This was the beginning of the movement which led to the building of the G. T. R.

The Port Arthur, Ont., City Council has arranged for the P. A. Electric Ry. (which it owns) to haul the city garbage from two central points to the city dumps. A special car will be used for the purpose. An account will be kept of the cost, in order to see the saving made over the present system of having the work done by teams.

The Toronto Board of Control instructed the Commissioner of Works recently to prepare a report on a proposal for an interchange of passengers on the basis of a 5c. fare, between the municipal lines and the Toronto Ry. The Commissioner's report only showed a prospective saving of about \$6,000 a year.

The Sudbury and Copper Cliff Suburban Ry., we are officially advised, has not decided as to its power plant and car equipment requirements, but the following are proposed: On Copper Cliff route, 1,200 volts d. c.; in center of town, 600 volts d. c.; two small interurban cars; one city car; combination snow plow, work car and tank car; combination freight and express car.

The Haileybury, Ont., Board of Trade is asking for a reduction of fare on the Nipissing Central Ry., between Haileybury and Cobalt, from 10c. to 5c., and for the substitution of a 15 minute for a half hourly service. The management had arranged to alter the car schedule to a 15 minute one some time before the meeting was held, and the schedule was put in operation July 8 the day following the meeting.

The Calgary Municipal Ry. has received from the Preston Car and Coach Co. 1 street sprinkler, 5,000 galls. capacity, mounted on G.E. 2 trucks, rolled steel wheels, Westinghouse 101B2 electrical equipment, double end control, adjustable sprinkler heads at all four corners, direct connected electric centrifugal pump arranged so that it can be used as a fire engine or filled from a hydrant with city pressure, or can fill itself from a reservoir.

The Saskatoon, Sask., City Council has authorized a schedule of places at which the street cars will stop to take on and let off passengers. The regulation came into operation July 1. The City Council, July 7, authorized the motormen to stop cars where necessary pending further consideration of the orders to stop cars only at certain points, put in force July 1. It is not in-

tended to revoke the order, but to give the motormen discretionary power to stop at other than the points mentioned in the order until the people get accustomed to the fixed stopping places.

Calgary Municipal Railway's Finances.

City Commissioner Graves of Calgary, Alberta, is reported as estimating that the Calgary Municipal Railway will have a heavy deficit this year, which may amount to \$50,000. The reasons given are general trade depression and a large increase in interest charges on account of extension work carried out. It is also stated that Calgary pays about the highest wages in any Canadian city.

In reply to an enquiry as to the correctness of the report given above, Commissioner Graves has written Canadian Railway and Marine World as follows:—"It is premature to give an estimate of the financial position of the street railway, as there are six months nearly to run before the close of the fiscal year. Receipts have been falling off very largely since the beginning of the fiscal year, but this was undoubtedly due to the financial depression existing all over the country. There has been considerable improvement this last month, but whether this will continue or not it is impossible for me to predict. This year the city has changed its policy in respect to setting aside depreciation account. Formerly 5% of the gross earnings was set aside for depreciation and contingencies. (This, by the way, was over and above interest and sinking fund charges). We are now providing an average of 5% on the gross capitalization of the railway for depreciation, also 2% of the gross earnings for repairs to the permanent pavements along which tracks are laid. You will see that the city has gone to the other extreme in providing this depreciation and obsolescent fund. The above will explain any deficit that there may be during this year. I would, however, point out that there is a surplus of \$200,000 standing to the credit of the street railway."

Wood Preservatives Used in 1913 by 93 wood preserving plants in the United States amounted to the following quantities: Over 108,000,000 gal. of creosote oil, 26,000,000 lb. dry zinc chloride, and nearly 4,000,000 gal. of other liquid preservatives. Over 153,000,000 cu. ft. of timber were treated by these plants, or about 23% more than in 1912. These are the figures given by the American Wood Preservers' Association in cooperation with the Department of Agriculture's Forest Service. The report goes on to say that while in Great Britain and most of the European countries, practically all railway ties and telephone or telegraph poles receive preservative treatment, in the U. S. less than 30% of the 135,000,000 cross-ties annually consumed are treated, and that the proper treatment of an annual consumption of 4,000,000 poles may be said to have scarcely commenced.

Ottawa Electric Railway Wages.—As a result of conferences held recently between the company's management and the employees, the award of the Board of Conciliation made in June, 1912, is to be continued for two years from July 1, except that the 1st and 2nd year car men receive 1¼c. an hour increase, and those in the 3rd year of service and upwards 2c. increase. This makes the present rates: First year service, 23c., 2nd year 24c., 3rd year and thereafter, 27c., Sunday work 2c. an hour extra. Increases have also been granted in the company's other departments. The rules and conditions of work which have been in force for the past two years are continued.

Electric Railway Projects, Construction, Betterments, Etc.

Brantford St. Ry.—Grand Valley Ry.—Under authority of an act passed at the Ontario Legislature's last session, the Brantford City Council has appointed a Commission of three to manage these lines until a Commission can be elected by the ratepayers at the municipal elections next January. The Commission consists of C. H. Hartmann, Chairman; W. R. Turnbull, and A. K. Bunnell, City Treasurer, the latter acting as Secretary temporarily. Applications have been received for the position of Manager, but up to the date of our official advice no action had been taken, and as the property was then still in the receiver's hands, pending completion of certain legal proceedings, the Commission had not settled on any policy. It has power to order cars and improve the roadways, up to the amount voted by the ratepayers, \$140,000. The meeting of bondholders which was called for July 15 was postponed to Sept. 16, it being stated that the city council would not have completed its search into the titles of the several properties in time to have the transfer ready for signing on the first named date.

British Columbia Electric Ry.—Work is in progress on the erection of the new car barns at Fourteenth Ave. and Main St., Vancouver.

The Victoria City Council is discussing with the company's officials the question of paving between the rails. Up to the present the company has been doing a certain portion of the work; then the City Engineer's department has laid the base for the pavement, the work being completed by the company. It is suggested by the City Engineer that an arrangement be made by which the company will do the whole of the work.

Plans are reported to be in preparation for the laying out of a recreation park on the recently opened Saanich line on Vancouver Island. (July, pg. 335.)

Berlin and Northern Ry.—A press report states that grading has been started on a half mile extension in Berlin, Ont.

Calgary Municipal Ry.—A bylaw authorizing the expenditure of \$90,000 for street railway subbase on certain streets, has been approved by the ratepayers, also one to provide \$300,000 for the extension of the electric light and power plant. These bylaws did not receive the necessary two-thirds majority when submitted May 1, and were voted on a second time June 27.

Dartmouth and Cow Bay Electric Ry.—The Nova Scotia Legislature has granted an extension of time for the building of this projected railway from Dartmouth to Cow Bay Beach, Halifax County.

Dunnville, Wellandport and Beamsville Electric Ry.—A resolution has been passed by the Clinton Township Council, asking the Hydro Electric Power Commission of Ontario to take over this uncompleted line, and incorporate it with a general system of lines to be built under the Commission's auspices. (June, pg. 283.)

Fort William Electric Ry.—The installation of the double diamond across the Canadian Northern Ry. on Victoria Ave., Fort William, Ont., is reported completed. It is proposed to build a double track line on Victoria Ave. as far west as Franklin St., and a single track from Franklin St. south to Walsh St. A correspondent writes:—Street Railway extension work for the past two months has been carried on very rapidly, and the extensions are almost ready to be turned over to the operating depart-

ment. The finishing up has been delayed through waiting for special parts for crossings, switches, etc.

The Grand Falls Ry. Co. was incorporated last session of the New Brunswick Legislature with power among other things to build an electric railway from Grand Falls to the International boundary at Limestone Tp., Maine, and to grant running powers over the same to other companies; to build electric railway lines in the town of Grand Falls, and along roads and public highways in the Counties of Victoria and Madawaska, N. B. The capital stock is fixed at \$49,900, and the head office at Grand Falls. Bonds for \$25,000 a mile may be issued. The provisional directors are:—W. Pirie, D. Gillespie, J. J. Cote, C. A. Kirkpatrick, H. S. Henderson, E. R. Teed, J. S. Eagles, J. W. Hall, J. M. Stevens, A. Lawson. (See Grand Falls to Limestone, May, pg. 231.)

The Hamilton St. Ry. is being asked by the Hamilton, Ont., City Council's Street Railway Committee to relay the tracks on York St., at once. (July, pg. 335.)

Lethbridge Municipal Ry.—The ratepayers of Lethbridge, Alta., on July 2 gave a majority against bylaws providing \$22,666 for extensions at the electric power house; \$12,834 for power line extensions, and \$3,691 for extensions of the street railway. The bylaws are to be again submitted to a vote on Aug. 4. (May, pg. 231.)

Medicine Hat, Alta.—We are officially advised that the City Council of Medicine Hat, Alberta, is only discussing tentatively the electrification of the Ansley coal mine spur line, and that no definite action has been taken. The spur is 3.5 miles long. (July, pg. 335.)

Moncton Tramways, Electricity and Gas Co.—E. B. Reeser, Vice President, Pittsburg, Pa., is reported to have stated on a recent trip to Moncton, N. B., that he was not in a position to make any definite announcements regarding any proposed extensions of the company's lines. (May, pg. 231.)

Montreal and Southern Counties Ry.—The Montreal City Council passed a resolution, July 4, authorizing the company to extend its rails across McGill St., by way of Youville St., and thence up the wider part of St. Peter St. to Youville Square to a Y, and back again. The company has been endeavoring for some years to secure this concession so as to give it a better city terminal. (July, pg. 283.)

Montreal Tramways Co.—The Montreal City Council passed a resolution, July 7, calling on the company to build a double track line on Bernard St., between St. Lawrence and Park avenues, and to give further access to Mile End station. There is a question as to whether the cost of this work should be borne by the company or the city, but the council expressed a desire to have the work done, reserving the rights of both parties. The paving of the street is being held up until the tracks are laid.

The question of the improvement of the lines in the city was taken up by the City Council July 7, when consideration was given to a report of G. R. McLeod, the city's railway engineer, which recommended that the Park Ave. line be extended to Chemin Cremazie and the C.P.R. tracks in Bordeaux ward; that a new line be built from the corner of Musson St. and Ninth Ave. to Pliux IX. Boulevard, Longue Pointe ward; that the line on St. Patrick St., Anne ward, be extended from Atwater Ave. and link up with the line on Church Ave., Cote St. Paul; and that the Montreal Park and Island Ry.

be so changed as to run to the C.P.R. tracks, continuing to Cote des Neiges ward. The situation is a very complicated one, as it would appear from statements made in the press that there are two or three sections in the council, each having its own particular plan for the settlement of the whole tramway question. The suggestions made by Mr. McLeod, it is claimed, will supply the pressing needs of certain outlying districts, and render the solution of the problems of the centre of the city somewhat less difficult.

It is reported that it is proposed to grant the company either a 30 or a 40 year franchise, the company to charge a straight 5c. fare, with workmen's tickets during limited hours, and that the payments to the city will be on a lesser scale than those now made. (July, pg. 335.)

It is said that no definite action will be taken in reference to the granting of a new franchise, until the autumn.

Nelson St. Ry.—Press reports state that the Nelson, B. C., City Council is considering plans for bettering and extending the electric railway lines in the city. A. S. Horswell is chairman of the Street Railway committee, and F. C. Ingram is Superintendent of the railway.

Nipissing Central Ry.—The electrification of the Kerr Lake branch of the Timiskaming and Northern Ontario Ry. is reported completed, and it was expected that a regular car service would be put in operation over it by the N. C. Ry. July 31. (June, pg. 283.)

Nova Scotia Tramways and Power Co.—The Nova Scotia Legislature has incorporated a company with this title with power to construct, purchase, lease or otherwise acquire tramways and street railways in Nova Scotia; to develop electrical power and distribute the same for lighting, heating or other purposes; to acquire steam and other vessels to be used in connection with the company's undertaking only; and other purposes incidental thereto. The capital stock is fixed at \$6,000,000, with power to increase to \$10,000,000, and the company office is to be in Halifax. The company is authorized to purchase the rights, franchises, etc., of the Halifax Electric Tramway Co., which company is authorized to sell to the N. S. T. and P. Co. This sale is to be made subject to all agreements made with the City of Halifax, and "subject to any rights, claims, privileges and easements which may be held or enjoyed against the said company or its successors however arising." It is also set out that the amount to be paid to the City of Halifax in future shall in no year be less than that paid in 1913; that the rates to be charged for electric light and power shall not exceed those at present charged; the fares on the electric railway shall not be increased; that within three months after acquiring the property, workmen's tickets at the rate of 8 for 25 cents, shall be sold, subject to terms and conditions approved by the Board of Commissioners of Public Utilities. The company is declared to be subject to the Public Utilities Act of 1913, and must start developing one of its water powers within two years, and spend \$500,000 thereon within a further period of two years from the passing of the act. The provisional directors are:—E. A. Robert, Hon. N. Curry, J. W. McConnell, W. G. Ross, F. H. Wilson, Hon. J. M. Wilson, H. A. Lovett, Montreal; Sir F. Borden, Canning, N. S.; E. N. Rhodes, Amherst, N. S.; O. E. Smith, J. E. Wood, W. M. P. Webster, H. H. Smith, J. A. Neville, Halifax, N.S.; R. J. McIntosh, New York.

Press reports state that an appeal is being made to the Dominion Government to disallow the act. (June, pg. 283.)

Ottawa Electric Ry.—The City Council is

preparing plans for a low level lift span bridge across the Rideau Canal from Pretoria Ave. to Ottawa East, at an estimated cost of \$120,000, towards which the City will pay \$80,000 and the Dominion Government \$40,000. The O. E. Ry. is interested in the matter as it is desired to extend its line across the bridge. Up to the present the company has declined to consider running its cars over a low level bridge, preferring a high level one. (July, pg. 335.)

Sandwich, Windsor and Amherstburg Ry.—Judgment was given in Toronto, July 1, in the action brought by Alderman F. Mitchell, on behalf of himself and other property owners, to secure an order to prevent the company building what is known as the Ferry Ave. spur. The court granted the order applied for, and left the matter of damages to be fixed by the local master. The ground for the action arose from the fact that the company began work on the spur line before the City Council had passed the bylaw, which has not yet been submitted for approval to the ratepayers. The order directs the company to restore the street to the condition it was before work was started and to pay the costs of the action. It is likely that there will be an appeal against the decision.

The rail joints on certain of the lines and intersections in Windsor are being welded.

The Sandwich Town Council has refused to allow the company to build a second track on a section of Bedford St. The company proposes to carry its application to the Ontario Railway and Municipal Board. (June, pg. 283.)

Simcoe Ry. and Power Co.—A press report states that the rights, franchises and property of this company have been acquired by the Hydro Electric Power Commission of Ontario. The company owns a power plant from which power is distributed in Midland, Ont., and neighborhood. It has authority to build electric railways in the same district, but has not taken any steps to secure the necessary franchises.

Sudbury and Copper Cliff Suburban Electric Ry.—We are advised that the only route upon which surveys have been completed is that to Copper Cliff, 5.1 miles. On this line the maximum gradient will be 4%; the curves will be as follows:—one each 50 ft. radius, 205 ft. radius; 5 degrees, 10 degrees, 12 degrees, 20 degrees, 30 degrees; two of 15 degrees, and a few from 1.30 to two degrees. The culverts are to be of corrugated iron pipe, and there will be the following bridge construction:—Two small deck culverts, two single span trestle bridges, and one three span trestle bridge. The present work is being done principally by day labor, under the direction of C. D. Norton, Engineer. A small amount of station work has been let, and the paving in the town is being done by the Warren Bituminous Paving Co. Two miles of grading have been completed. On the 0.43 mile in Sudbury, where a permanent pavement is being laid, the ties will be laid on a 6 in. concrete base, filled in between with concrete. The track will be laid with 80 lb. rails.

Following are the provisional directors:—L. LaForest, Chairman; C. McCrea, M. L. A., Solicitor; C. D. Norton, Engineer; W. J. Bell, W. C. Cochrane, D. M. Morin, J. J. Mackey.

Three Rivers Traction Co.—We are officially advised that the company has not yet started construction on its projected electric railway. The contract with the City of Three Rivers, Que., has not been signed, but it is expected that everything will be in order to enable construction to be started during this month. (July, pg. 336.)

Toronto and York Radial Ry.—The Toronto City Council proposes to grant permission to the company to connect its Mimico division with the city system, at Sunnyside. The city now owns the line from Sunnyside to the Humber River, but it is still operated by the T. and Y.R. Ry. The city proposes to connect this piece of line along the Lake Shore road, and across the bridge at the Sunnyside station of the G. T. R., and to grant permission for the running of the Lake Shore Division cars over it.

Toronto Suburban Ry.—An agreement has been reached between the Weston Village Council and the company, by which the tracks on Main St. will be moved from the side to the centre of the road. This matter has been under consideration for two or three years. The question of building a new bridge across the ravine, to the north of the village, is under consideration, and it is not improbable that the company will build a bridge for its own use.

The Board of Railway Commissioners, on July 14, deferred giving judgment on the company's application, pending submission of details on present and prospective traffic over the road.

It is reported that the difficulties which have prevented the completion of the extension to Woodbridge have been smoothed out, and that the line is to be completed and opened this summer.

A press report states that surveys have been made for a line from the Weston-Woodbridge line to a junction with the Lambton-Guelph line, passing through Brampton. An official of the company states that several routes have been surveyed to give this connection, and although there have been certain negotiations with Brampton, nothing has been decided, and the matter is likely to stand over for some time yet.

Track is reported laid from Islington to the boundary of Georgetown on the Lambton-Guelph line, and the bridge work is being progressed with. The line is being built westward, but nothing is being done between Lambton and Islington. (July, pg. 336.)

Transcona, Man.—Tenders are being invited for the building of the line in Transcona, the route of which was given in our June issue on pg. 284. It is expected to start construction during August. J. H. Kern has the franchise. (July, pg. 336.)

Winnipeg Electric Ry.—The Manitoba Public Utilities Commission has directed the company to prepare plans for the immediate laying of a second track through the St. James subway.

The Winnipeg Board of Works has approved of plans for the laying of a second track on Notre Dame Ave. west, to provide a new loop with Notre Dame, Keewatin and Logan avenues.

The company has informed the Winnipeg Board of Control that it is not prepared to lay permanent tracks on Mountain Ave., or in Elmwood, this year.

The company has prepared new plans for building a second track on Sargent Ave., and is asking the City Council to approve of them. (July, pg. 336.)

Omnibus Service for Stratford.—The Stratford, Ont., City Council granted a franchise, July 8, for the operation of an electric bus service in the city. Three vehicles, each having seating room for 14 passengers, give a half hourly service, at a 5c. fare, between 6 a.m. and 11 p.m. The service was to begin July 25, and the franchise is to terminate upon the construction of an electric railway in the city.

Winnipeg Electric Railway Traffic Supervision.

We have been favored with the following communication:—

"The street railway problem in Winnipeg had reached such proportions that the city council felt that the interests of the citizens from a transportation standpoint should be supervised from the City Hall, in order to attain the best results. In March, 1913, application was made to the Public Utilities Commissioner, H. A. Robson, for an investigation into the street railway transportation in the city, and accordingly R. M. Feustel, Chief Engineer, Public Utilities Commission, Springfield, Ill., was appointed as investigator. A comprehensive survey of the whole system was made and the report was completed and sent to the city council in Oct., 1913. The recommendations made by Mr. Feustel were considered and passed, and R. P. Lewis was appointed as Traffic Supervisor, to carry out the details of the report. Mr. Lewis has had an extensive railway experience in Western Canada, and during the investigation referred to, was in active charge of the staff obtaining the data.

"Since the institution of the office of Traffic Supervisor many changes have been made in the transportation situation, one of the most important being the rerouting of the cars throughout the city. It is estimated that this rerouting has reduced the amount of transferring by about 35%, besides carrying the passengers to and from their work at a considerable saving of time on most of the lines. A start has been made on p-a-y-e style of cars, and three of the most important city lines have already been equipped. It is expected that the whole system will be equipped by the end of the year. The question of elimination of certain stops is under consideration, and it is expected that a start will be made in this reform at an early date.

"For the relief of the present single track St. James subway on Portage Ave., a loop is being constructed at Portage and Clifton Sts., and a service will be established from that point along Portage Ave. and Main St. to the C. P. R. station, which will supply a much needed service. In this connection the Public Utilities Commissioner has ordered the Winnipeg Electric Co. to file plans with the city council for double tracking the present subway, for the proper handling of the car service at this point."

British Columbia Electric Ry. Wins Appeal in England.—A London, Eng. cablegram of June 26 said:—"The Privy Council delivered judgment today in the British Columbia Electric Ry. versus Vancouver, Victoria and Eastern Railway and Navigation Co. The issue was as to whether the Board of Railway Commissioners had jurisdiction to direct the appellants to pay part of the cost of bridges over certain Vancouver streets. The Privy Council, in allowing the appeal, said that if the Board possessed any such jurisdiction it must be derived from the statute which created it. The fundamental error underlying the decision of the Board was that they have considered that the fact that the British Columbia Electric Ry. would be benefitted by the works gave the Board jurisdiction to make the railway pay the cost, or portion thereof. There is nothing in the Railway Act which gives any such jurisdiction."

W. S. Ousman, Canadian Freight Association, Montreal, writes: "I always look forward to the receipt of Canadian Railway and Marine World, as I find it not only interesting but helpful, and do not care to miss a copy."

St. John Railway Employees' Strike.

A St. John, N.B., dispatch of July 22, says: "About 100 members of the local street railway men's union are on strike because of matters arising out of the dismissal of a conductor for alleged breach of the rules. They did not report for work this morning, following a decision reached after an all night meeting. A few cars are running, and in one section busses are being operated by friends of the men."

In an interview given to the local press, just prior to the strike, H. M. Hopper, General Manager, St. John Ry., stated that conductor F. Ramsay was dismissed for a breach of the company's bylaws, and in response to an application made on his behalf a board of conciliation was appointed to enquire into the circumstances. Its finding was to the effect that owing to conflicting evidence it was difficult to arrive at a conclusion, but taking all the evidence into consideration, and in view of the conditions existing, the directors' action was properly taken to support the authority of the General Manager to preserve discipline, for the best interests of the public, and with due regard to the public safety.

Mr. Hopper pointed out that it is a serious breach of the company's rules, which are standard with all railway companies in the Dominion, for a conductor to leave a car when on duty, and to allow the car to proceed without him, as was the case with the man concerned. The board's finding also recommended that the company find some employment for the man, and also practically recommended that the company should recognize the Amalgamated Association of Street and Electric Railway Employees of America. On July 17 four conductors and four motormen were dismissed for not obeying the law which requires street cars to come to a full stop before taking a steam railway crossing, the conductor to go ahead and signal the car across. Frequent reports have been made of violation of this law by conductors and motormen, and the attention of the men has been specifically and frequently drawn to the matter, but it was still violated, especially by men belonging to the union. Very special attention was called to the law during the first week in July, and it is concluded that the men dismissed deliberately and wilfully broke the law. The other men who have been dismissed were dismissed for carrying passengers free. Mr. Hopper stated that until the advent of the union's agent the relations between the company and its employes were most amicable, and any complaints or grievances which the men had to make were dealt with by the board and a committee of the men. The present question resolves itself into one where the union wants to take control of the management of the company's business, in other words, the whole discipline of the men would be under the officers of the union.

The strike was reported to have been settled, July 24, by the signing of an agreement, the company consenting to reinstate at once, nine of the men dismissed, two cases being taken under consideration, F. Ramsay, the conductor, about whom the strike originated, not being reinstated. This conductor is president of the local employes' union.

Personal Paragraphs.

E. R. WOOD has been appointed a trustee for bondholders of Toronto Ry. Co., in place of the late Hon. G. A. Cox.

A. M. NANTON, a director of the Winnipeg Electric Ry., has been elected Vice President, and G. V. HASTINGS has been

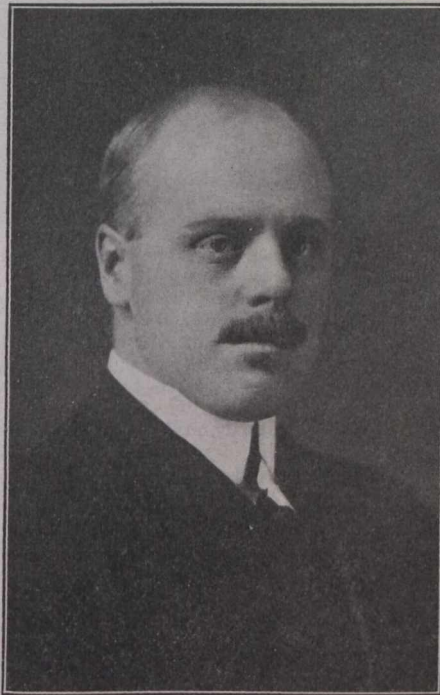
elected a director, to fill vacancies caused by Sir William Whyte's death.

E. J. CHAMBERLIN, President, G.T.R. and G.T.P.R., has also been elected President, Montreal and Southern Counties Ry., succeeding the late W. Wainwright.

FRANK SCOTT, Treasurer, G.T.R., and heretofore Treasurer, Montreal and Southern Counties Ry., has been appointed Vice President and Treasurer, M. & S. C. R.

The Brantford, Ont., City Council has appointed C. F. Hartman, W. R. Turnbull, and A. K. Bunnell, City Treasurer, Commissioners to operate the Brantford St. Ry., and the Grand Valley Ry., which it has acquired, until January next, when the ratepayers will elect a Commission. C. F. Hartman is Chairman, and A. K. Bunnell is acting as Secretary, temporarily.

G. GORDON GALE, who has been appointed General Manager, Hull Electric Co., Hull, Que., and whose portrait appears on this page, was, prior to 1907, Assistant Engineer, Canadian Rubber Co.'s electrical plant; from 1907 to Nov., 1908, Superintendent of Power, Hull Electric Co.; Nov., 1908, to 1909, acting General Superintendent,



G. Gordon Gale,
General Manager, Hull Electric Company.

same company; 1909 to June, 1914, General Superintendent, same company. He is a graduate of McGill University and an associate member of the Institute of Electrical Engineers, and of the Canadian Society of Civil Engineers.

J. B. RANNIE, Traffic Agent, British Columbia Electric Ry., Vancouver, who has been connected with the company's Vancouver city service for nearly 25 years, resigned, July 1, in order to farm a ranch he has recently purchased near Chilliwack. He entered the company's service in Sept., 1889, and was engaged on the reconstruction of a number of cars which had been purchased with the view of operating the street railway with horses, later plans providing for electrical operation. He later served as conductor and motorman. At this time, the Vancouver city lines consisted of about two miles of main line and a short spur of half a mile. During the period he was with the company, the Vancouver city lines were extended to nearly 100 miles of single track. He served as motorman until 1900, when he was appointed Traffic Superintendent, Van-

couver Lines, and in 1911 was appointed Traffic Agent, Vancouver Lines, which position he has held until his resignation. Prior to leaving Vancouver, the car men presented him with a gold watch and chain, and Mrs. Rannie with a cameo brooch, while the office staff gave him a case of household cutlery.

Automobiles Passing Standing Electric Cars.

W. Gibbs, of Brantford, and A. E. Ratz, of Tavistock, were charged, at Ingersoll, Ont., July 18, by Constable Scurrah, of Beachville, Ont., with driving their automobile past an electric car in that village while it was standing to embark and disembark passengers. Magistrate Patterson, dismissed the cases, holding that the requirement that automobiles do not pass standing electric cars only applies to street railways in a city or town, or within a mile and a half of urban limit, and not to interurban lines.

The Act to amend the Motor Vehicles Act, passed by the Ontario Legislature in 1913 provides in Chap. 52, sec. 4, that

"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 are getting on or off until the said passengers have got on or got safely to the side of the street as the case may be."

The Ontario Railway Act, 1913, chap. 36, sec. 2, sub sec. u provides that:—

"'Street railway' shall mean a railway constructed or operated along and upon a highway under an agreement with or bylaw of a city or town, although it may at some point or points deviate from the highway to a right of way owned by the company under the powers conferred by sec. 243, and shall include all portions of the railway within the city or town and for a distance of not more than 1½ miles beyond the limits thereof, although such 1½ miles may be constructed under a bylaw or agreement with a municipal corporation other than that of such city or town, and shall also include any part of an electric railway which lies within the limits of a city or town and is constructed or operated along or upon a highway."

Under the last section above quoted the magistrate held that when the electric car was in Beachville it was not a "street car."

Ontario West Shore Railway Offered for Sale.

This uncompleted line, which was promoted by J. W. Moyes, of Toronto, who is now "absent" from the country, is offered for sale by the Trustee, Thos. Stothers, Dungannon, Ont., tenders to be received to Aug. 15. The property consists of the railway franchise, extending from Goderich to Kincardine, and covering other territory in the counties of Huron, Bruce, Grey, Lambton and Middlesex. The road is built from the C.P.R. crossing, close to Goderich, to Kintail. Grading has also been done from Kintail to Pine River. The distance constructed and on which ties and rails are laid is about 14½ miles. The material on hand consists of a locomotive, bridge material, rails, bolts, spikes, ties, posts, etc. The tenderer is to enter into a contract with the trustee for the completion of the road and making same into a running concern between Goderich and Kincardine within a time and on conditions to be agreed upon with the trustee. The tenderer to deposit with the trustee a marked cheque covering 5% of the amount of his tender, and be prepared to give a bond for the carrying out of his contract.

The Regina Municipal management does not expect to place any orders for rolling stock this year.

Marine Department

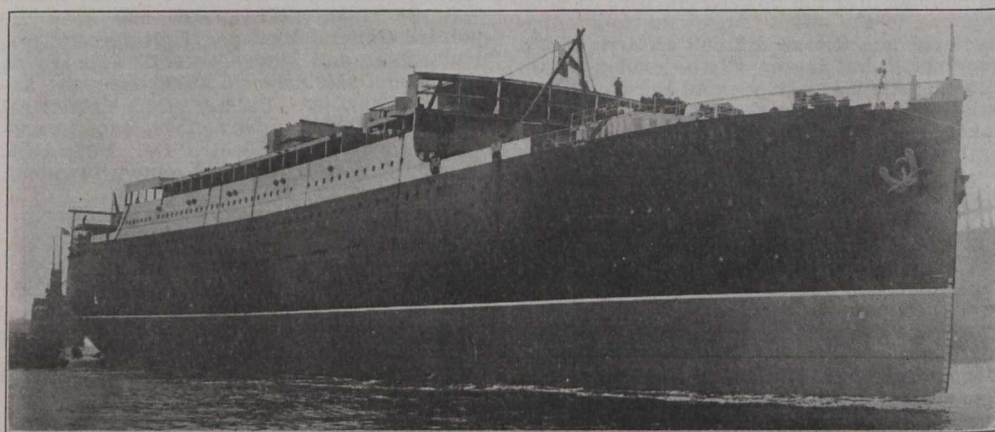
The Launching of the s.s. Missanabie for the Canadian Pacific Railway.

As announced in Canadian Railway and Marine World for July the twin screw steamship Missanabie, which is being built for the C.P.R.'s service between Canada and Liverpool, was launched at Glasgow, June 22, and christened by Mrs. G. McL. Brown, wife of the European Manager, C.P.R.

The Missanabie's length is 620 ft., breadth 64 ft., depth 41 ft., gross tonnage 13,000 tons, displacement 18,000 tons, cargo capacity 400,000 cu. ft. Below the level of the main deck the space is devoted to general cargo, three of the lower 'tween decks are fitted for the carriage of refrigerated merchandise. From the main deck upwards through six separate decks, the entire space is devoted to passengers, viz., cabin, 520; third class, 1,200; crew, 300; total, 2,020. On the main or F deck, which is the lowest passenger deck, all the accommodation is portable, and can be removed at very short notice, a large commissariat department, extending the full width of the ship, provides cold storage for the more perishable table supplies. On the upper or E deck are the dining saloons, the main saloon being forward, and the third class, which is in duplicate, placed aft. Between the two saloons the entire space amidship is occupied by the culinary department, with its attendant auxiliaries, the remainder of the deck space is taken up by third class living rooms. The shelter or D deck contains an overflow third class dining saloon, the fittings of which are portable, and when not in use can be used as recreation space, while at the aft end is a ladies' room for third class. Following in due order is the lower promenade or C deck, at the extreme aft end are the third class entrance, smoking room and hospitals, at the forward end is another entrance house for third class, while abundant promenade space for this class is provided adjacent to these houses. The midship area is entirely occupied by cabin passengers in two,

gymnasium. At forward end is the Marconi installation, and a house containing the emergency dynamo, the latter entirely independent of the main propelling machinery, so that in the event of any necessity arising an uninterrupted supply of light and power is ensured for the Marconi installation, the handling of the small boats mechanically and the ship generally. The

system is really subdivided into two separate and distinct methods used in collaboration. The first subdivision makes use of live or exhaust steam at a pressure not exceeding 15 lbs. per sq. in., uniform circulation being maintained by means of a vacuum at the exhaust end of the system. A complete range of piping is fitted, with radiators at convenient points, each apartment having



The Steamship Missanabie after launching.

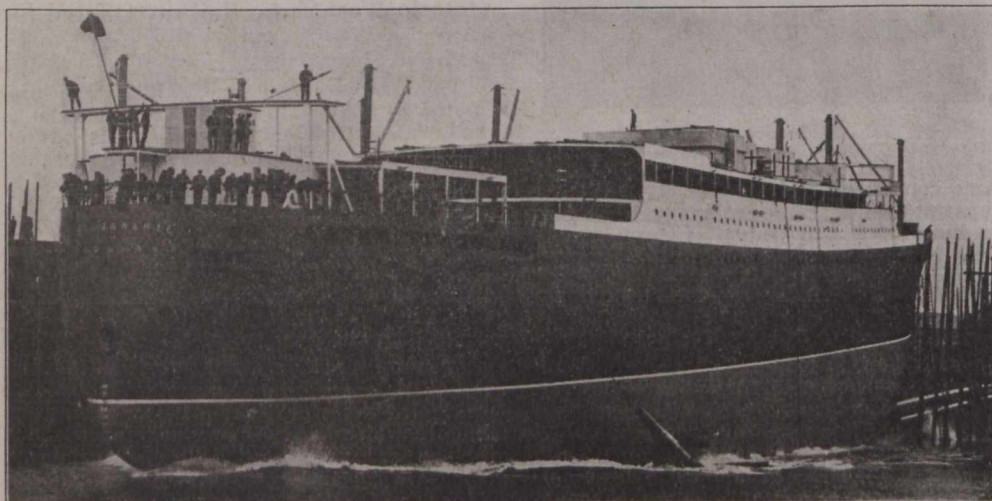
boat deck is entirely set aside for the storage and working of boats, of which 32 boats are carried, one being a motor lifeboat. The majority of the boats are in nests of two and three, and the davits in this case have a mechanical contrivance which enables them to be launched though the vessel may have a considerable list. In addition, two sets of Babcock and Wilcox patent davits are fitted, which, in conjunction with a tramway, render it possible to launch the lifeboats from either side of the ship. There are no collapsible lifeboats on board, all being rigid

an individual control valve. The second subdivision is again divided into two independent methods, viz., a warm air inlet and an extraction plant. Each system is capable of providing an air change of 1,000 cu. ft. per occupant hour in living rooms, eight changes per hour in dining saloons, and 60 changes per hour in galley space.

The electric lighting system comprises over 1,300 lights, special attention being paid to the lighting of the boat positions. The electric power supply comprises fans, lifts, barbers' equipment, printing, submarine signalling, and galley outfits. The generating plant consists of three sets of turbines coupled to d.c. generators, the output of each set being 100 k.w. at 100 volts. All watertight bulkhead doors are electrically operated, and can be closed simultaneously from the bridge.

The vessel is fitted with the cruiser stern, which the builders claim gives increased capacity, speed, and deck area; and the vessel is so divided by watertight decks and bulkheads that she is claimed to be capable of floating with any three compartments open to the sea. The cargo handling arrangements include three derricks and two powerful winches to each hatch, and in addition at no. 2 hatch there is a lattice girder heavy derrick capable of dealing with weights up to 25 tons. Steam steering gear is fitted on the lower deck well below the waterline, with reverse gear also operated by steam. The propelling machinery consists of twin sets of quadruple expansion engines balanced; steam is supplied by eight single-ended boilers at a pressure of 215 lbs., which it is anticipated will give the vessel a sea speed of 16 knots on service. Although carrying cargo the vessel is primarily designed for the conveyance of passengers.

The vessel has been built under the personal supervision of H. Maitland Kersey, Manager in Chief of Ocean Services, C.P.R., and his staff, by Barclay, Curle & Co.



Launching the Steamship Missanabie.

three, and four berth rooms. Immediately above on the upper promenade or B deck is the cabin smoking room with cafe verandah at aft end and card room adjoining. Amidships is the drawing room and the lounge at forward end. The drawing room and lounge having bay windows with recessed seats. On the boat or A deck, entering from the upper promenade deck, is the

open lifeboats. The heating and ventilating system is a dual one, consisting of two distinct methods, whereby every space on board is ensured of a sufficiency of heat and fresh air. There is a thermo tank system supplying heated air, and capable of maintaining an even temperature of 65 deg. Fahr. even in the coldest weather, and a combined system of steam heating and warmed air; this

The Empress of Ireland Disaster Investigation.

The enquiry into the causes of the collision between the C.P.R. s.s. Empress of Ireland and the s.s. Storstad, under charter to the Dominion Coal Co., May 28, in the St. Lawrence, near Father Point, was concluded at Quebec early in July, and judgment was delivered July 13. The evidence given during the enquiry and the judgment have been fully reported in the daily press. The main points of the judgment are summarized as follows:—

The question as to who, if anyone, is to blame for the collision in this case depends largely on which of the two stories put forward by the owners of the vessels is to be accepted. The main difference between the two stories is in the description of the way in which the vessels were approaching each other at the time the Empress of Ireland changed her course after having obtained an offing from Father Point. The Storstad witnesses stated that they were approaching so as to pass red to red, while those from the Empress stated that they were approaching so as to pass green to green. The stories are irreconcilable, and it was left to determine which was the more probable. During the enquiry the captain of the Empress of Ireland and the chief officer of the Storstad, who was in charge of the navigation of the latter vessel at the time, were asked to mark on a chart the place where they thought the collision occurred. Though they were in reasonable agreement, they were both wrong. From the time of the Empress of Ireland leaving Father Point, and sighting the Storstad, to the time when both vessels were enveloped in fog, though the bearings of the two vessels are matter for uncertainty, according to evidence, both sides agree that their relative positions did not involve any risk of collision, if each kept her course, therefore the question resolved itself into the comparatively simple issue as to which of the vessels changed her course during the fog. In dealing with the Empress of Ireland, no witness spoke of having seen her make any change of course, and those engaged in her navigation denied that any change was made, and the court's opinion was that there was no ground for saying that the course of the Empress of Ireland was ever changed, in the sense that the wheel was wilfully moved, but as the hearing proceeded another explanation was propounded, namely, that the vessel changed her course in consequence of some uncontrollable movement which was accounted for at one time on the hypothesis that the telemotor steering gear was out of order, and at another, by the theory that having regard to the fullness of the vessel's stern the area of the rudder was insufficient. The evidence called in support of the first named theory was considered unsatisfactory, so much so that the court decided that it could not rely on the testimony of one of the witnesses, Quartermaster Galway. The evidence of officers of the Empress of Ireland was to the effect that the steering gear was in perfect order and working well. On the subject of the area of the rudder, the court dismissed the matter from its consideration, as it was satisfied that on this point no real complaint could be made against the steering of the vessel. In commenting on the manoeuvre of the Empress of Ireland, before the vessels were enveloped in fog, when she reversed her engines, the court was of opinion that this was evidence of uneasiness on the part of the captain, and a consciousness that his vessel was possibly in too close proximity to the Storstad, and considers he would have been better advised if he had given her a wider

berth, but does not think that his stopping, which was really done for greater caution, can be said to have been an unseamanlike act, nor considers his failure to give the wider berth as a contributory cause of the disaster.

Regarding the Storstad, it was admitted that those on board her did that which in ordinary circumstances would change her course, and did it in the fog shortly before the accident. It was claimed that what they did, namely, put the helm hard aport, in the fog, was an act of prudent navigation, done to counteract the effect of the current existing in the locality, and it was also claimed that by reason of this fact, and that the Storstad had little or no way on her, the porting had no effect on her course. The court could not accept this view, as it had been previously stated, on behalf of the chief officer, that the reason for porting the helm was to make sure of ample room, and from the character of the damage done to the Storstad's bow the court was satisfied that there must have been considerable way on the Storstad at the time she struck the Empress of Ireland. The evidence of the captain of the Empress of Ireland claimed that at the time of collision his vessel was dead in the water, with no way on her, and that no movement on her part contributed to the force of the impact. This the court considered doubtful, and that the captain was mistaken in supposing that the way had been entirely taken off his vessel, but the fact remains that the Storstad ported her helm and changed her course, and so brought about the collision. The explanation of the result is fairly clear. The chief officer of the Storstad believed, wrongly as it turned out, that the Empress of Ireland was passing his vessel red to red, and he wanted to make sure of ample room and ported to secure it. Unfortunately the Empress of Ireland was passing green to green, and so far from the porting securing more ample room, it brought the vessels into closer proximity, and then into collision.

Lord Mersey, President of the Court, in reading the judgment, said: "We regret to have to impute blame to anyone connected with this lamentable disaster, and we should not do so if we felt that any reasonable alternative was left to us. We can, however, come to no other conclusion than that Mr. Toftenes, chief officer of the s.s. Storstad, was wrong and negligent in altering his course in the fog as he undoubtedly did, and that he was wrong and negligent in keeping the navigation of the vessel in his own hands, and in failing to call the captain when he saw the fog was coming on. It is not to be supposed that this disaster was in any way attributable to the St. Lawrence waterway. It was a disaster which might have occurred in the Thames, in the Clyde, in the Mersey, or elsewhere in similar circumstances."

The report, which is very lengthy, details all the available information as to the sinking of the vessel, and the probable causes of its rapidity, and makes three main suggestions with a view to securing a possible greater safety for passengers at sea. It is suggested that all watertight doors and portholes be closed between sunset and sunrise; that vessels be fitted with rafts which will be released automatically as a vessel begins to sink, and that the taking up and dropping of pilots be carried out at different points. The report also states that there was no lack of discipline on the part of the crew of the Empress of Ireland, and that the Storstad crew did everything possible to save life and relieve suffering after the disaster. While there is no direct evi-

dence, the opinion is held that some lives were lost when the port boats and other movables broke loose and crashed across the deck, and also that some injuries were sustained at the time of the actual collision. Praise was accorded to the Marconi operators both on the vessel and ashore.

Since the conclusion of the enquiry it is reported that the Minister of Marine has instructed Capt. H. St. G. Lindsay, General Superintendent of Pilots, to report on the question of taking up and dropping pilots at different points as suggested by the court.

Trust Certificates of Canada Steamship Lines, Limited

C. A. Barnard, K.C., General Counsel and a director of Canada Steamship Lines, Ltd., is reported to have stated recently regarding the disposition of the company's shares, that \$12,000,000 par value of ordinary stock was issued to the vendors of the different companies now comprising Canada Steamship Lines, including the shareholders of the Richelieu and Ontario Navigation Co., Canada Interlake Line Ltd., Ontario and Quebec Navigation Co., and others, as also to the financial interests who placed the \$6,300,000 bonds in London, and to the underwriters of the bonds. The holders of \$6,255,000 par value of these ordinary shares came to the conclusion that it was in their interest, and also in the company's interest, to arrange for a permanent management of the company, and therefore pooled their shares by depositing them with the Royal Trust Co., under an agreement that the voting power of such shares would be vested for five years in the company's London advisory board, consisting of Sir Trevor Dawson, Sir Stephen Furness, Sir Vincent Caillard and A. Vickers. The owners of these pooled shares, received trust certificates against their shares, which entitle them to all the benefits of the shares, except the right to vote on them during the life of the trust, which is subject to termination at any time the London advisory board deems proper, during the five years. These trust certificates have been listed on the Toronto and Montreal exchanges, and will be listed also in London, so that holders will be able to deal with them as fully as with the shares.

Steamship Companies Responsibility for Loss or Damage to Passengers' Baggage.—In the case of C. G. Harston, Quebec, against Canadian Northern Steamships, Ltd., for \$500 damage done to his effects when the s.s. Royal George stranded on the Isle of Orleans in Nov., 1912, judgment was delivered recently in favor of the plaintiff for the amount claimed. The contention that the conditions printed on the passengers' tickets, not having been complied with, precluded such a claim, and in any case that the damage was limited to £10, was overruled, it being held that the conditions on the ticket were not made known to the plaintiff and hence did not affect his rights. The maximum liability under the Canada Shipping Act is \$500.

Dominion Wreck Commissioner.—Canada Gazette of July 11 announces the appointment of Capt. L. A. Demers, heretofore harbor master, Montreal, to be Wreck Commissioner, Department of Marine, vice Capt. H. St. George Lindsay, who has been appointed General Superintendent of Pilots at Quebec.

The Minister of Railways and Canals made a tour of inspection of the works in progress on the Welland Ship Canal in the middle of July.

Dominion Steel Corporation's Vessels for This Season.

The following vessels are being operated by the Dominion Steel Corporation (which includes the Dominion Coal Co.) during this season. The first column shows the names of the vessels, the second those of the captains, and the third those of the chief engineers:—

Alden	A. Holting	A. Lindejos
Batican	G. G. Green	E. R. Evans
Blackheath	M. H. Scott	A. J. Brewer
Cabot	Jas. Lintlop	R. Patterson
Cacouna	J. L. Newman	A. Stevenson
Corunna	J. A. McDonald	Jas. Downie
Coban	A. McPhail	R. A. Richards
Cape Breton	Jas. Kemp	S. A. Stevens
Easington	J. Steverson	M. Robb
Fimreite	J. Mortensen	H. Amundson
Fornebo	G. Maxfield	
Glendene	F. Corner	W. H. Watt
Heathcote	A. D. Muir	S. O. White
Felix	J. Johnsen	N. Nottosen
Hochelega	W. G. Tudor	O. C. Shaw
Kamouraska	D. Morgan	W. P. Lowe
Kendal Castle	H. Harvey	W. Brown
Kronprins Olav	A. Nilsen	S. B. Olsen
Lingan	T. Garbutt	C. B. Smith
Louisburg	K. Marsters	G. G. Miller
Maskinonge	B. Griffith	C. K. Seddon
Monkshaven	J. E. Milburn	A. Wright
Morwenna	L. Holmes	John Scott
Nevada	J. A. Willett	S. E. Bonner
Stigstad	A. Larsen	J. Engeretson
Sandefjord	K. Hansen	N. Jeros
Skogstad	G. E. Hansen	C. Hansen
Stiklestad	C. Lodrey	J. Granholt
Storstad	T. Andersen	Sveisten
Wabana	D. Reside	J. E. Spedding
Wagama	J. Ostervold	O. Halsen

Responding to Signals for Opening of Bridges in Canals.

A largely signed petition from captains of vessels navigating through the Great Lakes and St. Lawrence Canals has been sent to the Minister of Public Works, representing that a continuous source of trouble and the

cause of many casualties is the failure of bridge tenders to respond promptly to whistle signals blown by vessels in the canals requiring the opening of bridges. The regulations require the vessels to await the opening of a bridge, but in many cases on account of current in the canals, weather conditions, shelving or rocky banks, and lack of mooring facilities, it is impossible to let a vessel lose steerage way close to a bridge, without getting into difficulties and causing damage to the bridge or to the propeller, stering gear or hull of the vessel. The captains believe that a regulation requiring the signal of an approaching vessel to be answered from each bridge by whistle or by semaphore (lighted at night) would avoid a great deal of trouble by enabling them to hold back at safe distance, or to come on, as occasion might demand.

The Effect of the Loss of a Vessel on a Charter.

The Judicial Committee of the Imperial Privy Council recently gave a decision in the case of Bowring Bros. vs. Mumm, which clears up the point as to the liability of a charterer of a vessel, when the vessel is lost during the term for which she was chartered. The appeal was by Bowring Bros., St. John's, Nfld., against a decision of the courts, ordering a refund of \$2,800, being the amount received for the charter of the s. s. Algerine for two months out of three, when she became a total loss on the conclusion of the first month. The appellants claimed that the vessel was chartered for three months, and the loss of the vessel prior to the completion of the charter, did not relieve the respondent from liability, even though the circumstances did not allow of his being advised of the loss of the vessel. The respondent claimed that the charter was

a monthly one, for three months, and as evidence of this submitted that he paid the first month, and deposited two post dated cheques with a St. John's bank, for the second and third months, respectively, and also that the charter expired on the day the vessel was lost.

In delivering judgment, Lord Atkinson said that the only question in dispute was whether the vessel was chartered by the month, or for a definite period of three months. The court below had decided that it was a monthly hiring, and as the appellants had not been able to convince the Committee that that decision was wrong, the appeal was dismissed with costs.

The Georgian Bay Navigation Co., Ltd., has been incorporated under the Ontario Companies Act, with \$40,000 capital and office at Owen Sound, to acquire the Georgian Bay Navigation Co., and its steamship Soo City. This vessel will be operated during July and August between Owen Sound and Kings Royal Park, and week end trips from Owen Sound each Saturday, calling at Meaford, Parry Sound, Point au Baril and Byng Inlet. From the commencement of September to the close of navigation she will be run between Owen Sound, Meaford, Collingwood, Port McNicoll, Penetanguishene, Midland, Parry Sound, Depot Harbor, Point au Baril, Byng Inlet and French River. The Soo City was built at Benton, Mich., in 1889, and was formerly named Mabel Bradshaw. She is screw driven by engine of 34 n.h.p., and her dimensions are, length 135 ft., breadth 25 ft., depth 9 ft.; tonnage, 500 gross, 296 register. The officers and directors of the company, are,—President, Wm. Taylor, Owen Sound; Vice President, Wm. Moore, Meaford; Treasurer, M. D. Lemon; Secretary and Manager, J. K. McLaughlan. The captain of the vessel is James Black.

List of Steam Vessels Registered in Canada During June, 1914.

No.	Name	Port of Registry	Where and When Built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc.	Owner or Managing Owner
134198	Adaline V.	Sault Ste. Marie	Spanish, Ont. 1913	54 0	13 4	6 8	45	27	14 n.h.p. sc.	J. W. Vance, Spanish, Ont.
134262	F. W. Grant	Midland, Ont.	Midland, Ont. 1914	75 3	18 0	9 3	119	45	37 " "	Canadian Dredging Co., Midland, Ont.
134330	G. M. Stearns	Chatham	Chatham. 1914	58 0	16 8	7 0	57	16	16 " "	F. M. Tweedie, Chatham, Ont.
103823	James Pendergast	Cornwall, Ont.	Kingston, Ont. 1914	60 1	15 3	9 4	64	34	16 " "	J. Pendergast, Cornwall, Ont.
134364	M. & F. Hopper Barge No. 1.	Sorel, Que.	Levis, Que. 1913	180 0	32 1	13 4	676	253	74 " "	Minister of Marine and Fisheries, Ottawa.
134263	Major	Midland, Ont.	West Bay City, Mich. 1889	292 6	41 0	20 4	2149	1721	137 " "	Great Lakes Transportation Co., Midland, Ont.
134271	Naramata	Victoria, B.C.	Okanagan Land'g, B.C. 1913	89 8	19 5	8 0	150	74	27 " "	Canadian Pacific Railway, Montreal.
134350	Omaha	Montreal	Milwaukee, Wis. 1887	222 8	34 8	18 7	1251	800	66 " "	H. A. Harvey, Montreal.

List of Sailing Vessels and Barges Registered in Canada During June, 1914.

No.	Name	Port of Registry	Rig	Where and When Built	Length	Breadth	Depth	Reg. Tons	Owner or Managing Owner
134264	Aloha	Midland, Ont.	Schr.	Mt. Clemens, Mich. 1888	171 2	32 0	12 0	517	Midland Transportation Co., Midland, Ont.
134003	Aisek	Vancouver, B.C.	Barge	White Horse, Yukon, 1913	89 0	28 2	3 0	232	British Yukon Navigation Co., Vancouver, B.C.
134057	Annie Marcia	Lunenburg, N.S.	Schr.	Bridgewater, N.S. 1914	129 4	31 4	11 5	271	D. Getson, M.O., La Have, N.S.
63264	Benmore	Ottawa, Ont.	Ship	Pt. Glasgow, Scotland 1870	242 0	39 2	23 6	1427	Minister of Railways and Canals, Ottawa.
134056	Beryl M. Corkum	Lunenburg, N.S.	Schr.	La Have, N.S. 1914	121 5	30 0	11 0	248	S. Parks, M.O., La Have, N.S.
133674	Eliza A. Scribner	Halifax, N.S.	Schr.	Milford, Del. 1872	133 4	29 6	14 4	357	C. W. Anderson, Sherbrooke, N.S.
134190	H. 24	Sault Ste. Marie, Ont.	Scow	Sault Ste. Marie, Mich. 1898	63 0	24 0	8 0	156	S. L. Penhorwood, Sault Ste. Marie, Ont.
134200	H. 41	"	"	" 1895	75 0	22 0	8 5	140	"
134371	H. 42	"	"	" 1896	75 0	20 0	8 5	128	"
134372	H. 43	"	"	" 1896	73 5	20 2	8 8	131	"
134373	H. 44	"	"	" 1898	60 0	20 0	6 0	72	"
134374	H. 45	"	"	" 1895	73 5	22 0	8 0	129	"
134246	Kruger	Toronto	"	Duluth, Minn. 1904	111 0	27 4	8 0	243	Toronto Sand & Gravel Co., Toronto.
133960	M. & F. Dredge No. 11	Sorel, Que.	Dredge	Sorel, Que. 1811	129 0	42 1	11 9	734	Minister of Marine and Fisheries, Ottawa.
134361	M. & F. Dredge No. 12	"	"	" 1912	180 0	40 1	12 0	682	"
134362	M. & F. Dredge No. 13	"	"	" 1913	180 0	40 1	12 0	682	"
134363	M. & F. Rock Breaker No. 1.	"	Rock breaker	" 1911	100 0	36 0	8 3	107	"
126039	Seth, Jr.	Halifax, N.S.	Schr.	Liverpool, N.S. 1910	118 0	30 3	11 1	190	W. Mitchell, Halifax, N.S.
134375	W. 20	Sault Ste. Marie, Ont.	Scow	Duluth, Minn. 1898	75 0	26 0	8 5	166	S. L. Penhorwood, Sault Ste. Marie, Ont.
134376	W. 26	"	"	" 1897	116 0	28 5	9 3	306	"
	W. 27	"	"	" 1897	115 0	28 0	8 0	258	"
	W. 35	"	"	" 1883	80 0	26 0	8 5	177	"

The s.s. Princess Margaret, for Canadian Pacific Railway British Columbia Coast Service.

Of the two steamships which the C.P.R. is having built in Scotland, for service along the British Columbia coast, the first, the Princess Margaret, was launched at Dumbarton, June 24, being christened by Mrs. R. Redmond, daughter of Sir Thomas Shaughnessy, as announced in our last issue. The second one, which will be named Princess Irene, will be launched shortly. Following is a general description of the vessels:—Length, 395 ft.; breadth, moulded, 54 ft.; depth to promenade deck, 28¼ ft. Above the promenade deck is the boat deck, having at its forward end the wheelhouse and accommodation for the officers as well as the navigating appliances. In the midship portion there are 42 staterooms, and a vestibule which is panelled in white and lighted by a large dome skylight. The first class smoke room is in old English style, the framing being in antique oak with white panels. At the forward end is an old English fireplace with brickwork tiling.

The boat equipment is especially complete and in addition to a motor boat there is complete lifeboat accommodation, not only for all persons for whom there are berths, but also a considerable margin is provided to deal with deck passengers who might be carried for short voyages. On the promenade deck there are 77 first class staterooms and 8 special rooms en suite. These special staterooms are executed in different styles. At the forward end is the observation room in white with green treillage having a domed ceiling overhead with plastic ornament. The windows are very large and have elliptic tops. The upper deck is devoted to passenger accommodation and includes a ladies' lounge in Georgian style finished in white mahogany furniture and provided with large mirrors flanked by jardinières. The tea room and writing room are framed in mahogany and have French windows opening into the vestibules, the circular top design being carried completely round the apartments. There are also several suites de luxe. At the forward end there is a large vestibule framed in polished oak with an enquiry bureau, a barber's shop, boot brushing department, and hand baggage room. The main deck aft is fitted up as a dining saloon for first class passengers and has accommodation for 160 persons. The dining saloon is in Georgian style, framed in mahogany, painted white and relieved with delicate tints, the furniture being of polished mahogany. Immediately adjacent to this is a range of pantries and galleys. Alongside the machinery space on the port side is a range of refrigerating chambers, while on the starboard side is accommodation for the engineers.

Most of the remainder of this deck is arranged as a freight space. Special provision has been made for the carriage of motor cars, which may be taken on board through large gangways on the ship's side and stowed free from danger during transit. The lower deck aft is fitted for accommodation of the cooks, stewards and junior engineers, while forward there are rooms for second class passengers, seamen and firemen. A certain amount of cargo will be carried in the forward holds and this will be worked from the freight deck by an electric elevator. All exposed promenades are covered with awnings and electric fan ventilation is fitted throughout the vessel, and steam heating with special controls is installed throughout. All baths are provided with hot and cold water, the hot water being kept in continuous circulation so that it is always available.

The ship is lighted throughout by elec-

tricity, the installation being by the builders. A powerful windlass is fitted forward and steam capstan aft for prompt manoeuvring in port. Steering is effected by steam tiller acting on a balanced rudder and controlled by telemotor from the flying bridge. The vessel will be equipped with Marconi wireless telegraphy and a special petrol-driven generating set is installed on the boat deck, capable of working the wireless system as well as lighting the decks, even if there be no steam in the boilers. The vessel will be propelled by geared turbines supplied with steam by oil-fired watertube boilers.

Northern Navigation Company's Bond Issue.

The Northern Navigation Co., of Ontario, which has its headquarters at Sarnia, Ont., has offered in New York bonds for \$275,000, which constitute a mortgage on the new s. s. Noronic. The following statement has been made in reference to the matter:—"Canada Steamship Lines, Ltd., which owns the Northern Navigation Co.'s shares, has an authorized issue of \$9,000,000 of 1st mortgage debenture stock. Early in the spring \$6,300,000 of this stock was sold in London, \$2,700,000 being left in the treasury to provide for payment of underlying bonds, and, among other things, the payment of the balance to become due of contract price of the Noronic, \$311,000 of debenture stock having been specifically reserved for such purpose. This debenture stock reserved has not yet been sold, and in view of market conditions the company considered it advisable to pay the balance due on the Noronic by issue of 5% bonds, which were taken by the builders at par. \$311,000 of the debenture stock of the company will be held in escrow against the payment of these particular bonds, so that the debenture holders are fully protected."

The Gaspé and Baie des Chaleurs Steamship Co., Quebec, Que., has acquired the Campbellton and Gaspé Steamship Co.'s property, and will continue the business under the first name, as announced in our last issue. The company was incorporated under the Dominion Companies Act, with \$100,000 capital, of which \$40,000 is preferred stock, and the balance common. The acquired company owned the s. s. Canada, which was built in Great Britain in 1892, and was formerly known as Pro Patria. She is screw driven by engine of 131 n. h. p. Her dimensions are, length 185.5 ft., breadth 27.2 ft., depth 19.5 ft.; tonnage, 704 gross, 449 register. The new company also owns the s. s. Gaspesian, formerly D. C. Whitney, which was built as Wallsend on Tyne, Eng., in 1874. She is screw driven by engine of 70 n. h. p., and is of the following dimensions,—length 160.8 ft., breadth 27.1 ft., depth 11.3 ft.; tonnage, 490 gross, 287 register. These vessels are now being operated on routes as follows,—s. s. Canada, sailing from Quebec for Gaspé and Baie des Chaleurs coast, calling at Mechins and intermediate ports as far as Campbellton, N. B.; s. s. Gaspesian, sailing from Quebec direct to Gaspé Basin and all intermediate ports in Baie des Chaleurs, as far as Campbellton, N. B., and also calls at Caraquet.

A memorial has been erected at Southampton, Eng., to the engine room staff of the s.s. Titanic, all of whom went down with the vessel. It consists of a shaft, with an emblematic figure of Glory in bronze, resting on the prow of a boat.

Shipping Report From Fort William.

F. & W. Jones, grain, vessel and marine insurance brokers, Fort William, Ont., wrote July 15:—Coal receipts have dropped off considerably since June, there being only 12 cargoes unloaded—10 bituminous and 2 anthracite. Dispatch consequently is good. Western rail shipments are still keeping small and the bulk of June and July receipts are still on the dock. The line-up of "en routes" is small and prospects of increase do not look much brighter for the immediate future.

Grain shipments remain practically unchanged. 43 cargoes were shipped in the first half of July—31 in Canadian tonnage, and 8 in U.S. tonnage. Of the former two cargoes went to Buffalo, a slight increase in U.S. bottoms, but only at very low rates. Dispatch is poor on account of cargoes having to be collected from many elevators. Of the 8 cargoes in U.S. tonnage, 6 were flax, and the other two part flax. Owing to the large quantity of this grain which has been shipped future loading of it will get more and more protracted. Stocks, receipts and shipments since the last of June are:—

	Stocks.	Receipts.	Shipments.
Wheat	2,827,402	2,619,994	3,820,866
Oats	934,260	641,582	175,890
Barley	234,368	175,811	204,410
Flax	3,009,290	241,472	973,692

There is every indication of an early crop movement, some shippers anticipating that new grain will arrive soon after the middle of August. Weather conditions have not been as favorable as last year. The long spell of dry weather will unquestionably tend toward a lower grade of grain; there are also indications of a heavy mixture of small seeds, which will be another feature in low grading. It is not generally expected that the rail lines will make anything like the determined attempt to rush grain forward that they did last year, the immediate effect of which was that the bulk of the crop had been shipped east well before the close of navigation, causing congestion at eastern points. A much steadier and more even movement is expected, which will probably be much more satisfactory and should increase demand for winter storage at both ends of the lakes. There is estimated to be approximately 10% additional grain acreage under cultivation in Northwestern Canada, except in flax, which shows a slight decrease. This should mean a proportionally large crop movement.

C.P.R. Claims For Empress of Ireland Disaster.—Press reports state that the C. P. R.'s claims against the s.s. Storstad, in connection with the recent St. Lawrence disaster, will come before the courts in September, and that in the meantime the C.P.R. is insisting on some additional security, the amount at present deposited not being deemed sufficient. The claim is for \$2,000,000, and it is stated that a further claim for a similar amount will be made. The allegations in the case cover the following points:—That a bad lookout was kept on the Storstad, that the helm was improperly ported, that the vessel improperly failed to keep her course and passed the Empress of Ireland starboard to starboard, that she was navigated at an improper and immoderate rate of speed, that those in charge failed to reduce speed and sound the whistle before the vessels were enveloped in fog, that the engines were not slowed, stopped or reversed in time, and that no competent officers were on duty, and those in charge neglected to comply with the articles of the rules of the road in force in Canadian waters.

Atlantic and Pacific Ocean Marine.

The Canada Line s.s. Gothland, which ran ashore on the Scilly Isles, Eng., June 23, has been released and towed to Southampton for examination and repairs.

A press report states that the White Star Line is having a steamship of the one class type built at Belfast, Ireland, for the Canadian service, and that it will be placed on the route next year. It is said that she will be named Regina.

The Allan Line s.s. Sicilian, bound from London, Eng., for Montreal, calling at Havre, France, had a breakdown of her machinery when two days out, and put back to Queens-town, Ireland, July 9, where her passengers were transferred to another of the company's vessels.

A Montreal press report states that Capt. Kendall, commander of the C.P.R. s.s. Empress of Ireland, which was lost in the recent disastrous collision in the St. Lawrence, will be retained in C.P.R. service, and that after a few months leave of absence he will be appointed to a shore position either in Canada or England.

The Royal Mail Steam Packet Co., which has the contract for the service between Canada and the West Indies, inaugurated a fortnightly service from Halifax, July 3. The s.s. Chaudiere has taken the place of the wrecked s.s. Cobequid. The vessels used are the Chignecto, Chaudiere, Caraquet and Chaleur.

The British s.s. Knight of the Garter, which arrived at Sydney, N.S., recently from Great Britain, has been chartered by the New Zealand Shipping Co. for service between Canada and New Zealand. She loaded about 6,000 tons of rails for Australia at Sydney, and afterwards proceeded to Montreal to complete her cargo.

The Union Steamship Co. of New Zealand's new vessel under construction at Glasgow, Scotland, will be completed shortly, and will, it is announced, start on her maiden trip from Sydney, Australia, to Victoria, B.C., about May, 1915, replacing the s.s. Marama, which will be transferred to the Sydney-San Francisco route.

The Cunard Co., which cancelled the sailings of the steamships Alaunia and Ausonia from Montreal, July 4 and 18, has also cancelled the sailings of the Ascania, Aug. 1; Ausonia, Aug. 22; Alaunia, Oct. 17, and Alaunia, Nov. 21. The s.s. Alaunia, after sailing from Montreal, Sept. 12, is to be transferred to the Liverpool-Boston service.

The agreement between the shipowners and the longshoremen at Montreal expires with the close of navigation, and it is reported that the men are preparing a new agreement for submission to the companies as soon as possible. It is stated that some of the clauses in the present agreement will be so worded as to be easily interpreted by all parties concerned, and that the schedule will be arranged for a further five years.

The s.s. Storstad, which was under charter to the Dominion Coal Co., and which sank the C.P.R. s.s. Empress of Ireland in the St. Lawrence at the end of May, was sold by order of the Admiralty Court at Montreal, July 7. She was purchased by the Prudential Trust Co. for \$175,000. It is reported that the company was acting on behalf of the Hull Indemnity Co. of Norway, and that the actual owners were not interested in the purchase.

A Montreal press report states that the Marine Department is making arrangements for dredging an additional channel from Point aux Trembles to Lake St. Peter, to

make two channels in the St. Lawrence, one to be used for vessels of less than 15 ft. draught, and the other for ocean going vessels, with the view of minimizing any possible danger in navigation. It is stated that part of the work has been completed, and that surveys are proceeding in anticipation of completing the work next year.

The British s.s. San Francisco, built recently at Londonderry, Ireland, for the Maple Leaf Line, to be utilized in the New York-Vancouver trade, is 417 ft. long, 52 ft. beam, and has a capacity of 9,000 tons deadweight. The holds and 'tween decks are large and roomy to accommodate bulky cargo, and the cargo handling equipment includes two steel derricks of 30 tons lifting capacity, and there are complete installations of fire fighting and life saving equipment. The machinery was built at West Hartlepool, Eng., and shipped to Ireland for installation. During her trials she maintained a speed of over 14 knots.

Maritime Provinces and Newfoundland.

The Department of Public Works will receive tenders to Aug. 26, for the construction of an extension to the breakwater at Negro Point, St. John County, N.B.

The C.P.R. is applying to the Public Works Department for permission to build a wharf in the St. Croix River at St. Stephen, N.B., from the Dominion Fertilizer Co.'s property towards low water mark.

The s.s. Bellaventure, which is making a trip to Port Nelson, Hudson Bay, with men and supplies for the Government harbor work there, will, on her return, it is stated, go to England, where she will be lengthened and otherwise altered.

In recognition of the services rendered in studying the ice conditions on the St. Lawrence, the builders of the ice breaking car ferry which is to be used on the route between New Brunswick and Prince Edward Island, have presented a model of the latest icebreaker built by them to Prof. T. H. Barnes, of McGill University, Montreal.

In connection with the recent judgment in the matter of the collision between the s.s. Storstad and the s.s. Empress of Ireland, it is reported that the Canadian law will probably be altered to provide that officers of foreign vessels engaged in the Canadian coasting trade shall possess Canadian certificates.

The Montreal daily press recently stated that a model of the C.P.R. s.s. St. George, "which will soon take her place between Digby and St. John," is on view at the Windsor St. station, Montreal. The statement that she will soon take her place on the route between Digby and St. John is somewhat belated, as she was placed on this service in Sept., 1913. She has recently been equipped with new turbine engines.

The Reid Newfoundland Co.'s s.s. Invermore, while trying to avoid heavy ice north of Belle Isle Strait, July 10, struck rock near Brig Harbor Point on the Labrador coast, and is reported to have filled rapidly, resting on the rocks with only her top deck above water. The passengers were all landed safely, and the company's s.s. Kyle was immediately dispatched with divers and wrecking gear, as it is believed that the Invermore may be floated.

The s.s. Storstad, which was under charter to the Dominion Coal Co., at the time she collided with the C.P.R. s.s. Empress of Ireland, is in the dry dock at Levis, undergoing repair of the damage she sustained in the collision. The damaged bows have been cut away, and the construction of new bows is being proceeded with. The estimated cost of the repairs is \$50,000, and it

is stated that she has been re-chartered by the Dominion Coal Co., and all the officers re-engaged.

The Maritime Dredging and Construction Co. has completed about 500 ft. of wharf at West St. John, and it is expected that the new berths will be ready for the winter season. The works at Courtenay Bay are also proceeding rapidly. After a recent visit of a committee of the St. John Board of Trade it was announced that wharf building would be commenced about May 1, 1915, as the progress made with dredging and the construction of the breakwater, etc., will make this possible.

Province of Quebec Marine.

The Department of Marine received tenders recently for the erection of lighthouses at Molsons Island, Black Point, Wadleigh Point and Lead Mines, in Lake Memphremagog.

It was announced in Ottawa, July 15, that the National Transcontinental Ry. car ferry, which is to be used in conveying trains across the St. Lawrence River at Quebec, and which is being built at Birkenhead, Eng., was to undergo her first trials there, July 20.

The Gaspé and Baie des Chaleurs Steamship Co.'s s.s. Canada, while bound from Montreal to Gaspé ports, and Campbellton, N.B., ran on the rocks at Cape Chatte, near Matane, July 12, and is believed to be badly damaged. The passengers were all safely transferred to the company's s.s. Gaspeian.

The Dominion Sand and Barging Co., Ltd. has been incorporated under the Dominion Companies Act, with \$50,000 capital and office at Montreal, to carry on a general towing, barging and lightering business, etc., and in connection therewith to own and operate steam and other vessels of all kinds. The incorporators are:—J. R. Morton, N. F. MacNeil, W. R. MacKay, R. S. McGillivray and A. G. Young, Montreal.

The work on the Government dry dock at Lauzon is reported to be progressing satisfactorily. Reports state that all the preparatory work has been completed, and some of the permanent work done. A railway has been built completely round the dock site, and 12 steam drills are boring the rock at various places. The main work at present in hand is the excavation for the dock proper. Dredging is proceeding in the channel to the entrance to the dock. There is considerable plant engaged in the work, including a steam shovel, two locomotives, dump cars, flat cars, steam drills, well driller, etc. M. P. and J. T. Davis are the contractors.

Ontario and the Great Lakes.

Capt. G. Scagel has been appointed harbor master at Fort William, vice Capt. McAllister, deceased.

The Muskoka Lakes Navigation and Hotel Co. paid a dividend at the rate of 5% per annum, July 15.

The Department of Public Works has awarded the contract for the construction of harbor improvements at Port Hope to Tompkins and Cunningham, Ottawa.

During the latter half of June, 47 cargoes of grain were shipped eastward from Port Arthur and Fort William, approximating 5,484,650 bush. Of these, 45 cargoes were shipped in Canadian bottoms.

The Windsor and Pelee Island Steamship Co.'s s.s. Pelee was placed on a weekly route, for the remainder of the season from

July 15, between Windsor, Detroit, Walpole Island, Port Lambton and Wallaceburg.

The wreck of the wooden s.s. City of London, which had been lying on the middle ground, Pelee Island, since a collision with the s.s. Joe S. Morrow last season, has been broken up by dynamite.

The s.s. I. W. Nicolas, one of the vessels wrecked during the storm of Nov. 9, 1913, and which was purchased by the Reid Wrecking Co., has been repaired and shortened to Welland Canal size.

The contract for the construction of the last section of the Trent Canal, that from Lake Simcoe to Georgian Bay, has been awarded to Randolph Macdonald Co., Toronto, at prices approximating \$900,000.

A press report from Detroit, Mich., states that the Pittsburg Steamship Co. intends equipping all its vessels with large electric lighted signs bearing the name of the vessel. One has been so equipped for experimental purposes.

It is reported that the Lake Superior Dry Dock and Shipbuilding Co. has made the final payment on the site on which it purposes building its plant at Sault Ste. Marie. Work commenced on the clearing of the site, June 30.

The Dominion Government is having built at Collingwood a steam hopper barge, 165 ft. long, 35 ft. beam and 14 ft. deep. She will be built of steel throughout and equipped with engines of about 800 h.p. The approximate cost is \$160,000.

The Canada Steamship Lines s.s. Cayuga, running between Toronto and the Niagara River, broke a propeller blade, while about a mile from Niagara on the Lake, July 12. She proceeded to Toronto, where the damage was repaired.

The Public Works Department has completed the construction of a concrete wharf at Windsor at an approximate cost of \$60,000. A warehouse of reinforced concrete is now being erected thereon, which will cost about \$10,000.

The Chicago, Duluth and Georgian Bay Transit Co.'s s.s. South American was presented with a Union Jack by the citizens of Fort William, when she called there on her maiden trip from Chicago to Georgian Bay ports, June 29.

The Canada Steamship Lines s.s. W. Grant Morden discharged her record cargo of 12,470 tons of iron ore at Port Colborne recently. The unloading was accomplished in what is stated to be the fastest time known on similar cargo.

Reports as to receipts from the passenger traffic for Canada Steamship Lines for the current season indicate considerable increase over those of last year, while receipts from freight, though not so high as last year, are said to be not far behind.

Various officers on the Canada Steamship Lines steamships Cayuga, Chicora, Chippewa, Kingston, Rochester and Toronto, were fined \$200 and costs each recently, aggregating \$1,416.45, for allowing the sale of intoxicating liquor on board.

Capt. James McAllister, harbormaster at Fort William, died there July 4, after an attack of paralysis, aged 54. He had been connected with the lakes marine during the greater part of his life, and was master of the C.P.R. s.s. Alberta for a number of years.

The s.s. Howard M. Hanna Jr., which was driven on the rocks at Point aux Barques, Nov. 9, 1913, has been floated by the Reid Wrecking Co., Sarnia, who purchased her, and has been taken to Port Huron, where she was dry docked for examination and repairs.

The s.s. Turret Chief, which was driven

ashore in the storm on the Great Lakes near Copper Harbor, July 6, and taken to Copper Harbor, where temporary repairs were undertaken, after which she proceeded to Montreal. The damage sustained was not so great as at first feared.

A contract is reported to have been awarded to the Great Lakes Dredging Co. for the dredging of about 35 acres at Fort William on the south side of the Kamistikwia River above the G.T.P.R., for a turning basin. Work, it is said, will be commenced at once.

The contract for the construction of the stone protection on the summit level of the Welland Canal, between Thorold and Port Colborne, has been awarded by the Department of Railways and Canals to A. T. Bradley, St. Catharines, and David Walker, Thorold, Ont.

The Port Colborne Dock and Coal Co., Ltd., has been incorporated under the Ontario Companies Act with \$50,000 capital and office at Toronto, to carry on a general coal and shipping business. The incorporators are J. A. Kent, L. G. Jarvis and F. Walkinshaw, Toronto.

The Duluth Inspector of Steamboats has suspended the license, for 60 days, of Capt. W. I. Thompson, owner of the ferry Charles S. Osborne, running into Sarnia, for not blowing proper passing signals and colliding with a motor boat, endangering the lives of the passengers.

Capt. W. G. Cox, of the Northern Navigation Co.'s s.s. Majestic, died suddenly, from apoplexy, on board his vessel between Killarney and Parry Sound, July 15. Prior to taking charge of the Majestic he had been on the same company's steamships Germanic and Saronic.

The s.s. Sarnor, registered in Montreal and owned by Canada Cement Transport, Ltd., ran aground at Goose Neck Island, about three miles east of Morrisburg, July 8. She is a wooden vessel and was renamed as a recovered wreck some time ago, having formerly been known as Britannic.

A report from Cobourg states that the Trent Canal between Peterboro' and the Bay of Quinte will be opened next autumn, and that on the reopening of navigation a regular service will be established thereon. It is also stated that the new section

between Balsam Lake and Lake Simcoe is to be deepened.

The Montreal Transportation Co.'s s.s. Northmount sailed from Sydney, N.S., July 10, for Port Arthur, Ont., with 1,900 tons of steel rails for the Canadian Northern Ry. This vessel is being followed by the same company's steamships Glenmount, Stormount and Kinmount, in similar service.

Lightship no. 3, for the Department of Marine, was launched at Polson Iron Works, Toronto, July 24. She has been specially built for service in connection with the construction of the terminals at Hudson Bay. Two similar vessels have already been dispatched from Toronto and are now on their way to Port Nelson.

It is reported that a wrecking party has been arranged for, including divers, to investigate the wrecked s.s. Charles S. Price, which was found floating bottom upwards in Lake Huron after the storm of Nov., 1913. It is stated that the hull is to be examined, and if it is in good condition the underwriters will have the vessel raised.

A press report states that the plans for the proposed dry dock for Owen Sound will be filed about the middle of August. They will provide for a dry dock to take vessels, it is stated, up to almost 800 ft. long. M. F. F. Wood, of Niagara Falls, is said to be chiefly interested in the project, for which bylaws have been passed granting subsidies in aid.

It is stated that the s.s. City of Ohio, which runs into Port Stanley, will discontinue such service, unless the conditions in the harbor are improved. It is claimed that she has considerable difficulty in making the harbor safely, on account of the obstructions caused by dredges and barges engaged on the harbor improvement works there.

The Niagara, St. Catharines and Toronto Navigation Co.'s s.s. Garden City, while passing the s.s. Port Colborne at the piers at Port Dalhousie, July 19, collided with one of the piers, smashing her paddle box and breaking off some blades of the paddle wheel. The trip to Toronto was cancelled, but she crossed later in the day, without passengers, and repairs were made.

The Canadian Lake and Ocean Naviga-

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during June.

ARTICLES	CANADIAN CANAL	U. S. CANAL	TOTAL
Copper..... Eastbound	406	8,712	9,118
Grain..... "	5,204,182	1,928,569	7,132,751
Building stone..... "			
Flour..... "	280,050	846,180	1,126,230
Iron ore..... "	3,770,087	1,577,546	5,347,633
Pig iron..... "		1,913	1,913
Lumber..... "	2,007	70,140	72,147
Silver ore..... "			
Wheat..... "	8,917,147	2,056,111	10,973,258
General merchandise..... "	7,927	25,133	33,060
Passengers..... "	2,240	2,600	4,840
Coal, hard..... Westbound	69,412	344,989	414,401
Coal, soft..... "	333,795	1,512,894	1,846,689
Flour..... "	150		150
Grain..... "			
Manufactured iron..... "	3,785	25,667	29,452
Iron ore..... "			
Salt..... "	6,321	70,740	77,061
General merchandise..... "	73,990	120,874	194,864
Passengers..... "	3,641	1,998	5,639
Summary.			
Vessel passages.....	693	1,812	2,505
Registered tonnage.....	2,046,998	3,718,136	6,665,134
Freight—Eastbound.....	4,172,155	1,918,991	6,091,146
" —Westbound.....	481,900	2,015,035	2,496,935
Total freight.....	4,654,055	3,934,026	8,588,081

tion Co.'s s.s. Turret Chief, which has been on the rocks about six miles east of Copper Harbor, Lake Superior, since she was driven there during the storm on the Great Lakes, Nov. 9, 1913, has been released and taken to Port Arthur for examination. Apart from the damage to the hull, she is said to be in good condition. The underwriters have offered her for sale by tender in her present condition.

Work was started early in July on the construction of a large turning basin at Fort William, about five miles up the Kaministiquia River. Two clam shell dredges were put to work to remove the loose earth, and later, large dipper dredges were placed in operation. It is estimated cleared, and that the work will occupy about two years.

It is reported that the third lock of the U.S. canal at Sault Ste. Marie is practically completed, and will be ready for business about Sept. 1. Water has been let into the approaches at either end, and only some finishing touches remain to be made to the entrance channels. The lock is large enough to accommodate two of the largest vessels operating on the lakes at one time, and there is a depth of 25 ft.

A press report from Fort William states that a movement is on foot there to organize a steamship company to operate a line between Fort William and Montreal and intermediate points. It is said that the project is backed by Duluth capital, and that negotiations are proceeding for the purchase of five vessels. The report states that the capital will be \$2,000,000, and the head office at Fort William.

The C.P.R. s.s. Assiniboia ran aground near Cove Island, Lake Huron, July 2. The passengers were safely transferred to the company's s.s. Alberta, and after the removal of the cargo the Assiniboia was refloated the following day. She proceeded to Collingwood under her own steam, where an inspection showed that there was considerable damage to the hull, necessitating the replacing of a number of plates.

A large steel scow was launched at the Polson Iron Works, Toronto, July 18, for the Canadian Stewart Co., for use on the harbor improvement works. She is 120 ft. long, 42 ft. wide and 12 ft. deep, is built of $\frac{3}{8}$ in. steel plate, and is of extra heavy construction. During the launching, she collided with the old Knapp roller boat, which has been lying there for several years. The scow was undamaged, but the roller boat had a large hole cut in her side.

The U.S. Lake Survey reports the levels of the Great Lakes, in feet above tide-water, for June, as follows:—Superior, 602.49; Michigan and Huron, 580.60; Erie, 573.04; Ontario, 246.91. Compared with the average June levels for the past ten years, Superior was 0.19 ft. above; Michigan and Huron, 0.47 ft. below; Erie, 0.02 ft. above, and Ontario, 0.23 ft. below. It was anticipated that during July Superior would be 0.2 ft. higher; Michigan and Huron 0.1 ft. higher; Erie, 0.1 ft. lower, and Ontario, 0.1 ft. lower.

Capt. W. N. Storey, who died at Collingwood, July 18, aged 73, was born at South Shields, Eng., and came to Canada at nine years of age. He entered transportation service as a young man, on sailing vessels, and was later master of several steam vessels. He went to Collingwood in 1879, as Purchasing Agent, Hamilton and Northwestern Ry., and later was employed by the Lake Superior and Chicago Transportation Co., and was also in the service of the Great Northern Transit Co., the North Shore Navigation Co., and the Northern Navigation Co.

The U.S. Lake Survey s.s. Col. J. L. Lusk,

engaged on survey work and examinations in the vicinity of Marquette and Presque Isle harbors, Lake Superior, reports the discovery of an uncharted shoal, 1,250 ft. from the centre of the largest and most northerly of the Presque Isle Point rocks. The obstruction is a small sized pinnacle rock rising out of deep water to within 11½ ft. of the surface. Being in an outlying position near a sailing course it constitutes a dangerous menace to navigation. A second shoal with least depth of 3½ ft. was found 750 ft. from Marquette lighthouse. This is close to shore and inside of charted shoals but lies near the centre of a passage much used by small craft. It is unimportant to deep draught shipping.

Manitoba, Saskatchewan and Alberta.

The Victoria Beach Co. has chartered the steamboat Goldfield for a daily service between Gimli and Winnipeg Beach, and Victoria Beach, Man., about 21 miles. There is accommodation for about 90 passengers and equipment for serving light lunches.

The steamboat George H. Bradbury, built recently at Sorel, Que., for Dominion Government use on Lake Winnipeg, was recently dismantled at Sorel and shipped by train to Selkirk, Man., where she will be reassembled under the supervision of the Marine Superintendent at Sorel.

R. D. Brooks, of Saskatoon, Sask., is reported to have purchased the launch Saskatoon, from R. J. Barry, for operation on the Saskatchewan River, for the remainder of the season, between Pas and the Portage. The Saskatoon is 36 ft. long and is driven by a 35 h.p. engine.

The first of the vessels which the Saskatchewan Steamship and Coal Co. is building at Prince Albert, some details of which were given in our last issue, was expected to be launched towards the end of July. She is stern wheel driven, and is 140 ft. long, by 32 ft. beam, and will have accommodation for 60 passengers and 150 tons of freight.

The recent appropriation of \$200,000 made by the Dominion Parliament for increased dockage facilities at Winnipeg and St. Boniface, is stated to be the commencement of a large scheme for the general betterment of the property under the control of the Winnipeg Harbor Commissioners. The docks will be built by the Government, and on completion handed over to the commission for management.

The steamboat George V., formerly owned by the City of Prince Albert, Sask., has been sold to the Northland Navigation Co., Ltd., Pas, Man. She was built at Prince Albert in 1911, and is paddle wheel, driven by engine of 4 n.h.p. Her dimensions are, length 110 ft., breadth 26.7 ft., depth 4 ft.; tonnage, 105 gross, 66 register. An office has been opened at Pas, and the vessel is being operated between Pas and the Portage, on the Saskatchewan River.

British Columbia and Pacific Coast Marine.

The Department of Public Works received to July 27 tenders for the building of a quay wall and certain excavation work in Victoria harbor.

The s.s. Joan, which was recently purchased from the C.P.R. by the Terminal Navigation Co., Vancouver, has had her name changed to Ballena.

The Grand Trunk Pacific Coast Steamship Co. placed its s.s. Prince John on a route between Prince Rupert and Naas River points, July 3, calling at Port Nelson, Arrandale, Kincolith, Naas Harbor and Mill Bay.

Regarding reports that the Department of Public Works will shortly call for tenders for the construction of the projected dry dock at Esquimalt, we were officially advised, July 3, that it is not expected that plans and specifications will be ready for the calling for tenders before October.

Capt. C. H. Nicholson, Manager, G. T. Pacific Coast Steamship Co., announced recently that the company's vessels would be overhauled at Prince Rupert next winter, the sectional steel floating dry dock being sufficiently advanced to accommodate the vessels for cleaning and painting.

It is reported that the grading and excavation in connection with the Marine Department's depot site on the Songhees Indian Reserve, Victoria, will be completed early in August. All the bearing piles of the wharf have been driven and capped, the L portion of the wharf is floored, and a considerable portion of the balance of the structure is in position. The length of the wharf will be 650 ft., running 424 ft. north and south, and 225 ft. inshore. The work was commenced in May, Parks, Tupper and Kirkpatrick being the contractors. The plans of the buildings have not yet been approved.

The North Fraser Harbor Commission is reported to have purchased a number of small vessels to be used in connection with the work being carried out in the north arm of the Fraser River. The contract for the making of a channel is reported let to K. S. Robinson, and several holes have been sunk at various points to determine the class of material to be dredged. In addition to this work, parties are out making surveys of the tides and currents, and selecting sites for further boring tests. Plans are in course of preparation for the work as it will be completed, which have to be passed by the Public Works Department. Good progress is being made with the construction of the 4 mile jetty at the mouth of the north arm at McMillan's Island, this work being undertaken by the Dominion Government for the protection of the channel. A considerable portion of the bulkhead work is reported completed.

The reports, which have now become hardy annuals, to the effect that the Canadian Northern Ry. and the G.T. Pacific Ry. are shortly to inaugurate steamship services on the Pacific Coast, with additional services through the Panama Canal and thence to Europe, are again in evidence in the far west. This year it is stated that tenders for the building of the necessary vessels will be asked for shortly. Last year it was said the vessels were actually under construction in Great Britain. As we have stated before, it is more than likely that both companies will operate steamships in the general Pacific trade on the completion of the railway systems, but it can be taken for granted that no move will be made in this direction until the railways are actually completed. The G.T.P.R. has been operating a number of steamships on the Pacific coast for some time, and may eventually operate, either directly or indirectly, across the Pacific.

The Dominion Shipbuilding, Engineering and Drydock Co., Ltd., has been incorporated under the British Columbia Companies Act, with \$5,000,000 capital, and office at Vancouver, to carry on a general shipbuilding, drydock and engineering business. The site for the project has been selected on the north shore immediately west of the Indian reserve, which is some distance west of the North Vancouver ferry wharf. The land acquired is about 60 acres, with a water frontage of about 1,700 ft. H. H. Stevens, M.P. for Vancouver, is reported to have stated that

it is proposed to establish a dry dock capable of accommodating the largest vessels afloat. It would be in two sections and 1,150 ft. long, so that two fair sized vessels could be handled at one time. Plans had been deposited with the Government, and it is expected that the maximum subsidy of 4% on a capital expenditure of \$5,500,000 will be granted in aid. Negotiations have been under way for some time regarding the financing of the project in England, and it is anticipated that this will be accomplished in the near future.

Powerful Dredge for Toronto Harbor Development.

The first of two large dredges for use on the Toronto Harbor Commission's improvements to the harbor was launched at Polson Iron Works, July 11, and named Cyclone. These dredges are being built for the Canadian Stewart Co., the general contractors for the work.

The hull, which is of steel, is built on lines similar to a battleship, instead of an ordinary dredge, and weighs 750 tons. It is 170 ft. long, 42 ft. beam, and 12 ft. deep. The framework under the engine is built extra heavy, comprising extra deep floors, intercostal at intervals. The engines, which were supplied from the United States, are of the ocean going type, which are necessary for the great strain while the suction pumps are in operation. The ladder is 10 ft. long, at the base of which is the boring machine, weighing about 50 tons. The suction pipe is capable of dredging a channel 500 ft. wide. The pump in the middle of the dredge is operated by an engine of 1,750 h.p., and the dredge is equipped with a pipe line over a mile long.

Canadian Notices to Mariners.

The Department of Marine has issued the following:—

185. June 6. Quebec, River St. Lawrence, chart of Lake St. Louis, correction.
186. June 6. Ontario, Lake Erie, Port Burwell, gas lighted beacon established on west breakwater.
187. June 6. United States of America, Lake Ontario, east end, uncharted shoal southward of Calf Island.
188. June 9. Ontario, River St. Mary, Sault Ste. Marie Canal, channel at lower entrance, change in characteristic of gas buoy light.
189. June 9. Ontario, River St. Mary, Sault Ste. Marie Canal, channel at upper entrance, change in characteristic of gas buoy light.
190. June 9. Ontario, River St. Mary, Vidal shoal, change in characteristic of gas buoy lights.
191. June 9. Ontario, Lake Superior, eastern end, Outer Pancake shoal, change in color of gas buoy light.
192. June 11. British Columbia, Fitzhugh Sound, Aldenbrooke Island, fog bell, additional information.
193. June 11. British Columbia, Vancouver Island, east coast, Stuart Channel, Oyster harbor, Cluster rocks, beacon discontinued.
194. June 11. British Columbia, Vancouver Island, Saanich Inlet, southwestward of White rocks, buoy established.
195. June 11. British Columbia, Johnstone Strait, Thurlow Island, Vansittart, day beacon moved and enlarged.
196. June 11. British Columbia, Okisollo Channel, Bjerre rock, day beacon erected.
197. June 11. British Columbia, Okisollo Channel, Pulton Bay, day beacons erected.

198. June 12. Ontario, Lake Huron, channel northwestward of Cape Hurd, buoys established.

199. June 12. Ontario, Georgian Bay, Victoria Harbor, buoys discontinued.

202. June 20. British Columbia, Canadian list of lights and fog signals, new edition.

203. June 20. British Columbia, Vancouver Island, Juan de Fuca Strait, Sooke Inlet, Whiffen spit, change in color of light.

204. June 20. United States of America, Haro Strait, San Juan Island, Limekiln light established.

205. June 22. Canadian list of lights and fog signals, new edition.

206. June 22. Ontario, Lake Huron, Goderich north breakwater, fog alarm under construction, new lighting apparatus being installed in beacon.

207. June 22. Ontario, Georgian Bay, east side, Brebeuf Island, Brebeuf front range light improved.

208. June 23. Ontario, Napanee River, dredging, list of buoys.

209. June 25. New Brunswick, south coast, Bay of Fundy, Lorneville, light established on breakwater.

210. June 25. Nova Scotia, Bay of Fundy, Minas Basin, Tennycape, pole light on wharf.

211. June 25. Quebec, River St. Lawrence below Quebec, Traverse of St. Roch, lower end, change in position of lightship.

212. June 25. United States of America, Massachusetts, Boston harbor, Gallups Island, light and fog signal established.

213. June 26. Ontario, Georgian Bay, east side, inside channel between Penetanguishene and Parry Sound, buoys established.

214. June 26. Ontario, Georgian Bay, east side, inside channel between Penetanguishene and Parry Sound, beacons erected.

215. June 29. Quebec-Ontario, River St. Lawrence, Lake St. Francis, eastern portion, chart, Coteau Landing to Lancaster, issued.

216. June 29. Ontario, River St. Lawrence, Thousand Islands, channel northwest of Grenadier Island, buoyage.

217. June 30. British Columbia, Vancouver Island, west coast, off Cape Beal, submarine bell buoy not to be established.

218. June 30. British Columbia, Vancouver Island, west coast, off Clo-Oose, submarine bell buoy to be established.

219. June 30. British Columbia, list of buoys, beacons and daymarks, corrections.

220. June 30. British Columbia, Porlier Pass, south of Virago Rock, buoy to be withdrawn.

221. June 30. British Columbia, Vancouver Island, east coast, False Narrows, buoys to be withdrawn.

222. June 30. British Columbia, Portland Inlet, Naas Bay, Fort Point, day beacon erected.

223. July 2. Canada, regulations governing the operation of swing spans of railway bridges.

224. July 3. Nova Scotia, south coast, Halifax harbor, Ives Knoll, conical buoy to be replaced by gas buoy.

225. July 3. Prince Edward Island, north coast, Savage harbor, bearing of range lights.

226. July 3. New Brunswick, north coast, Chaleur Bay, Grande Anse, light established.

227. July 3. Quebec, River St. Lawrence, off Metis Point, change in position of submarine bell buoy.

228. July 3. Quebec, River St. Lawrence, Lavaltrie to Ile Deslauriers, positions of buoys marking Repentigny Channel.

229. July 8. Quebec, River St. Lawrence, Lake St. Louis, inner channel between Lachine wharf and Dorval, buoys established.

Telegraph, Telephone and Cable Matters.

J. D. Wood, assistant traffic chief, Great North Western Telegraph Co., Montreal, died there, July 4, after an illness lasting from the commencement of the year.

The Dominion Government is undertaking the erection of a telegraph line from Lake Saskatoon, Alta., to Fort St. John, B.C. It is expected that the work will be completed by the end of the year.

The Pacific Cable Board has applied to the Department of Public Works for permission to lay a cable from the Pacific cable hut at Bamfield to Alberni, B.C., and has deposited a plan and description of the site selected.

The Maritime Telegraph and Telephone Co. has laid a combined telegraph and telephone cable between Wood Islands and Caribou, thus establishing telephone communication between Prince Edward Island and the mainland.

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

J. Kent, Manager, C.P.R. Telegraphs, and J. McMillan, General Superintendent of Telegraphs, Western Lines, inspected the telegraph lines in the western provinces during July.

J. G. Davies, heretofore local manager, C. P. R. Telegraphs, Victoria, B. C., has been appointed local manager, Great North Western Telegraph Co., Ottawa, Ont., vice C. G. Davies, his brother, promoted. Pending the arrival of the new manager, R. J. Daly acted in that capacity.

The Marconi Wireless Telegraph Co. (English) announces dividends of 10% on both the preference and ordinary shares, making a total of 17% on the preference, and 20% on the ordinary for the year. The gross profits last year were £254,583, and the net £122,323.

The Department of Public Works received tenders to July 27, for the supply of 23 knots of single conductor submarine telegraph cable, delivered at Halifax, N.S.; 14 knots of similar cable, delivered at Vancouver, B.C.; 270,000 lbs. of galvanized iron telegraph wire, delivered at Montreal, and 342,000 lbs. of similar wire, delivered at Vancouver, B.C.

C. E. Davies, local manager, Great North Western Telegraph Co., Ottawa, Ont., has been appointed Superintendent of Traffic, Toronto. He came to Canada in 1906, from Helena, Mont., where he had been in the Western Union Telegraph Co.'s service, and entered G. N. W. T. Co.'s service as chief operator at Ottawa. He was appointed local manager there in 1906, and in 1911 was also appointed Superintendent of Equipment.

The old building, which housed the Western Union Telegraph Company in New York since 1875, is being taken down to make room for a modern structure. The telegraph company has moved to new quarters. Moving a large station such as this, with 2,500 wires and over 1,000 employes, handling 150,000 messages a day, was no small matter. Promptly at midnight on Saturday, June 27, the moving commenced. During the slack hours of Sunday the transfer was completed, and the operators had a chance to become acquainted with their new surroundings.

The Universal Radio Syndicate's wireless telegraph station at Newcastle, N.B., is completed, and the companion station at Ballyunion, Ireland, is reported to be almost complete. The system of telegraphy in use is the Poulsen, differing materially from the Marconi system. In the latter the line of transmission is opened at each sig-

nal, whereas in the former the current is continuous, the signals varying at the will of the operator. The cost of the Newcastle station is about \$175,000, the plant occupying about 54 acres on the bank of the Miramichi River. The steel tower is 506 ft. high, and there are 6 wooden towers, all on concrete foundations.

W. E. Earle, Superintendent, Western Union Telegraph Co., North Sydney, N. S., retired from active service, June 30, after 55 years of telegraph service. He entered the New York, Newfoundland and London Telegraph Co.'s service in 1859, and was stationed at St. John's, Nfld. He was transferred to North Sydney in Aug. 1875, and acted as assistant to the Manager, and was subsequently appointed Superintendent. In recognition of his long and faithful service, the company has granted him a retiring allowance of \$1,800 a year. He entertained the local staff to a steamboat excursion on July 4.

The Dominion Telegraph Co.'s annual meeting was held at Montreal, July 8. The report for the year ended June 30 showed total assets of \$1,307,859.30, and liabilities (including dividend, payable July 15, \$14,000) of \$1,015,959.33, with a balance at credit of profit and loss of \$291,899.97. The interest at 6% per annum, guaranteed by the Western Union Telegraph Co., has been paid quarterly in advance for the past 35 years. The Western Union leases the company's property, for 99 years from July 1, 1879. The officers were reelected for the current year as follows:—President, T. Swinyard; Vice President, Sir Henry Pellatt; Secretary and Treasurer, F. Roper; other directors, B. Brooks, T. F. Clark, R. C. Lowry, Aemilius Jarvis, C. O'Reilly and G. P. Scholfield.

The Board of Railway Commissioners has extended the time to Dec. 1, for the approval of telegraph tolls, as follows:—C. P. R., between points in Canada, west of and including Sudbury, Ont., to and from points west of Sudbury from and to points east thereof and east of and including Windsor, Ont.; Great North Western Telegraph Co., between points in Canada west of North Bay, Ont., and to and from points west of North Bay and to points east thereof, and east of and including Windsor, Ont.; White Pass and Yukon Route, between points in Canada; G. T. Pacific Telegraph Co., between points in Canada, with the exception of the tolls between its local offices on the Ottawa Division, and between them and Swanton, Vt.

At a meeting of the Dominion Royal Commission at London, Eng., recently, on a discussion relating to the proposal to establish an all British cable route between England and Australasia, by way of Canada, S. J. Goddard, European representative, Western Union Telegraph Co., submitted a proposition covering the leasing to the Governments concerned, of one of the company's existing Atlantic cables, including an arrangement to operate it by British subjects on British territory, on behalf of the Governments. He stated that he had placed the proposal before the President of the company, who saw no insuperable objection, subject to the company's interests being properly protected. The proposal covers the leasing of a line between London and Montreal, where connection would be made with a C.P.R. land line, leased to the Pacific Cable Board, running to British Columbia, where it joins the Pacific cable operated by the Pacific Cable Board.

Among the Express Companies.

The Canadian Northern Ex. Co. has opened an office at Weldon, Sask.

The liquidation of the assets of the United States Ex. Co., which retired from business June 30, as mentioned in our last issue, is proceeding satisfactorily. The mileage operated has been distributed amongst the other companies in certain proportions, and it is said that the various offices and general equipment will be taken over by the other companies, and that practically all of the employes will also be employed.

H. D. Walker, a teller in the Dominion Ex. Co.'s service at Vancouver, B.C., pleaded guilty there, July 6, to the theft of \$8,050 from the company, all of which had been taken within six weeks of his arrest. His statement that he had taken certain amounts at various times, to make good the loss of a parcel of the company's bills amounting to \$3,000, several years ago, was not borne out by the company's books, as his accounts were quite correct to the end of March. He was sentenced to five years imprisonment.

In connection with the recent litigation between the British Columbia Express Co. and the G.T. Pacific Ry. regarding certain bridges across the Fraser River, which the former claimed interfered with its business, the Board of Railway Commissioners has dismissed the B.C. E. Cos. application for an order directing the G.T.P.R. to remove the temporary bridge across the Fraser River below the confluence with the Nechaco River, and to make openings in the permanent steel bridge across the Fraser River at mileage 142 and at 189.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Canadian Steel Foundries, Ltd.—Herbert Ewan, of the company's sales department, has been appointed Sales Manager, succeeding E. C. Jackson, resigned to go into business for himself.

Brown Hoisting Machinery Co., Cleveland, Ohio, has issued catalogue S. 1914, 42 pages, 6 by 9 inches, describing and illustrating Brownhoist suspended concrete bins.

Canadian General Electric Co., Ltd., Toronto, is distributing General Electric Co.'s bulletin 44010, describing and illustrating the high voltage d.c. equipment of the Pittsburg and Butler St. Ry.

Canadian Gold Car Heating and Lighting Co., Ltd., 346 St. James Street, Montreal, has issued two circulars describing and illustrating Gold's no. 938 packless quick opening twin supply valve and Gold's no. 940 packless quick opening supply valve.

Canadian Gold Car Heating and Lighting Co., Ltd., 346 St. James Street, Montreal, has issued a 4 pg., illustrated circular about Gold's no. 804 S positive lock coupler, interchangeable with all makes, entire coupler M.C.B. recommended practice.

Young's, Ryland St. Works, Birmingham, Eng., have issued a 12 pg. booklet, 6½ by 8 inches, "The Ryland Patent Worm Screw Pulley Block," the special advantage claimed for which is its quick lowering and control brake. It is made to lift up to 3 tons.

The American Hoist and Derrick Co., St. Paul, Minn., manufacturer of contracting

and quarrying machinery, has removed its office in Seattle, Wash., from 613 Western Ave., to 1512 L. C. Smith Bldg., which is a most central location. F. R. Schoen has charge of the Seattle office, and a full line of hoisting machinery and repair parts is carried there.

The Titanium Alloy Manufacturing Co., Niagara Falls, N.Y., announces that it has organized a bronze department, for the manufacture of Titanium bronze specialties, and that W. M. Corse, formerly Works Manager, Lumen Bearing Co., Buffalo, and lately General Manager, Empire Smelting Co., Depew, N.Y., will be Manager of the new department.

Butterfield & Co., of Derby Line, Vt., and Rock Island, Que., are building an addition to their factory at Rock Island. The new building will be 185 by 60 ft., and three stories high, of brick and concrete construction. A portion of it will be used for manufacturing twist drills and milling cutters. It is hoped the factory will be in operation by January 1, 1915.

Babcock & Wilcox, Limited, Montreal, write as follows:—"We understand it has been currently reported that it was a Babcock & Wilcox boiler which blew up and caused the recent disaster at Westville, N.S., and it is only fair to ourselves that this should be contradicted emphatically. The boiler that blew up was of the staybolt water leg design, and an entirely different boiler to the Babcock & Wilcox forged steel sectional type. The Intercolonial Coal Mining Co. has since purchased two large Babcock boilers to form the nucleus of a new steam plant."

The Independent Pneumatic Tool Co., of Chicago and New York, has leased the two story building at 334 St. James St., Montreal, and has arranged to open a branch store, where its Canadian business will be transacted after Aug. 9. A complete line of Thor pneumatic tools, electric drills, accessories and spare parts will be carried in stock for immediate delivery on orders in Canada, and Thor users will receive service direct from the company in the future. W. H. Rosevear, who has been in railway service and in the railway supply and machine tool business, latterly in Winnipeg, has been engaged as Manager, and is now in Montreal.

Transportation Conventions in 1914.

- Aug. 11-14.—Railway Gardening Association, New York.
- Aug. 18.—International Railroad Blacksmiths' Association, Lima, Ohio.
- Aug. 20, 21.—American Association of Railroad Superintendents, New York.
- Sept. 1-4.—American Boiler Manufacturers' Association, New York.
- Sept. 8-10.—Roadmasters and Maintenance of Way Association, Chicago, Ill.
- Sept. 8-11.—Master Car and Locomotive Painters' Association of the United States and Canada, Nashville, Tenn.
- Sept. 15, 16.—American Association of General Passenger and Ticket Agents, Boston, Mass.
- Sept. 22-24.—Railway Signal Association, Bluff Point, N.Y.
- Oct. —.—American Association of Dining Car Superintendents, Washington, D.C.
- Oct. 12-16.—American Electric Railway Association, Atlantic City, N.J.
- Oct. 14-16.—American Association of Railway Surgeons, Chicago, Ill.
- Oct. 19-23.—Association of Railway Electrical Engineers, Chicago, Ill.
- Oct. 20-22.—American Railway Bridge and Building Association, Los Angeles, Cal.
- Nov. 17.—National Association of Railway Commissioners, Washington, D.C.
- Nov. 17-19.—Maintenance of Way and Master Painters' Association of the United States and Canada, Detroit, Mich.
- Nov. 18.—American Railway Association, Chicago, Ill.